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LIFE AND FERTILITY
LIFE AND HEALTH
LIFE IN COVID-19 PANDEMIA

INTERDISCIPLINARY APPROACH

KWARTALNIK NAUKOWY FIDES ET RATIO

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ŻYCIE I PŁODNOŚĆ
ŻYCIE I ZDROWIE
ŻYCIE W CZASIE PANDEMII COVID-19
UJĘCIE INTERDYSCYPLINARNE

QUARTERLY JOURNAL NR 3(47) 2021

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PART I.
LIFE AND FERTILITY

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Environmental Ecology versus Human Ecology
Ekologia środowiska a ekologia ludzka

Abstract: A collation of environmental ecology with human ecology was the essence of the article. The field of the research included the topics: blending the range of care for ecosystem with the responsibility for our own human nature; presenting the connection between sexuality and procreation concentrated on the gift of marital unity yet protecting the dignity of human procreation; pointing at the areas of human life where the "ecological conversion" takes place.
Key words: ecology, sexuality, procreation, conjugal/married love, *„ecological conversion"*

Abstrakt: Treścią artykułu było zestawienie ekologii środowiska z ekologią człowieka. Pole badań obejmowało tematy: łączenie zakresu troski o ekosystem z odpowiedzialnością za własną ludzką naturę; ukazanie związku między seksualnością a prokreacją, skoncentrowanego na darze jedności małżeńskiej, ale chroniącej godność ludzkiej prokreacji; wskazując na obszary życia człowieka, w których dokonuje się „nawrócenie ekologiczne"
Słowa kluczowe: ekologia, seksualność, prokreacja, miłość małżeńska, „nawrócenie ekologiczne"

Introduction

French writer Jean Guitton in his *Essay on Human Love* edited in 1955 presents a thought which is a perfect starting point for the reflection introduced by the title of this article. He writes: "Likewise a breath proves the existence of the atmosphere so love needs the existence of something which we could call 'erosphere'" (Guitton, 1995: 90). Thus, according to him human love requires a special sphere which would allow it to live, understand itself and develop. Otherwise, it lacks oxygen and chokes. Guitton calls this space 'erosphere' and to define it he notices that a human being cannot really love not being dipped in something bigger than them, in some higher unity that surpasses them. This thought also refers to an unbeliever who does not participate in the cult; love always remains a religious reality: "It (love) surpasses mutual ecstasy, where it takes its beginning, in order

to ascend to adoration unique in its kind" (ibid.). Only this way can the personalization of love which gets oriented on something higher take place.

At the starting point a question has been asked: What has happened to human love? It might be claimed that erosphere undergoes contamination, a phenomenon analogical to an ozone hole which evokes so much concern nowadays. Love loses its cosmic and mystical dimension, its religious and personal openness. Eros is in agony – sociologists and philosophers claim (Byung-Chul, 2013; Bauman, 2013).

A real paradox is that: on the one hand you are constantly being alarmed about deteriorating biological ecosystem condition, and on the other, a reflection on the human environment, which is also endangered by contamination, does not come to mind at all. Yet, it is the one which enables a human being to love, thus men and women can live as persons.[1] What is more, radical ecologism suggests solving the ecological problem by technical manipulation with sexuality happening by complete separating sexuality from procreation by using contraception, abortion and assisted reproduction, or more, by claiming radical body flexibility in the *gender*[2] theory.

In this study the matter of fertility has been referred to – the topic articulated suggestively in the encyclical *Humanae Vitae* of St. Paul VI, in the context of human ecology that enables a man and a woman to protect this erosphere, which is so necessary for love. This will allow for the confrontation of *Humanae Vitae* with pope Francis' *Laudato si'*. This will give an opportunity not only to listen to its teaching but also to undertake a reflection which was not depicted directly in the encyclical. This reflection encompasses three elements. Firstly, basic topics of human ecology with reference to body and relations. Secondly, a strong association between marriage anastomosis and parenthood, inscribed in the nature of human love. Thirdly, what are the choices that really strengthen love and are 'eco-compatible with erosphere which should breathe.

1. Contamination of erosphere and human love.

To start with, the papal teaching on ecology of love should be brought to the table, including the encyclical *Laudato si'*. The first pope who referred to the topic was Paul VI – a great pope of *Humanae Vitae*, who coined the term "human ecology" with reference to human fertility during the audience on 7th November 1973. He explicitly connected them with the things that "(…) cause unrest in the heart and infect the soul with pornography, immoral shows and dissolute performances" (Paul VI, 1973). At that time, it seemed to be a simple care, a consequence of old-fashioned puritan mentality, but today when we can see

[1] Francis' encyclical Laudato si' also draws attention to this paradox, no 136 (henceforth: LS).
[2] Professor Thomas Hilgers, in Chapter I of his textbook on NaProTECHNOLOGY, thoroughly discusses these processes, "soutions", cf. Hilgers, 2004, pp. 1-17.

how many new addictions and destructions are caused by pornography, one must admit that it was a prophetic warning (Kuby, 2013: 185-204).

Later – in a wider form – this topic was discussed by St. John Paul II in the encyclical *Centesimus Annus* from 1991 (no 37–39). He pointed that there is a much more serious from the pollution of nature - i.e. the destruction of human environment, especially the one which affects a person in a family. Family is thus the "place", the environment (*Ethos*) in which a woman/ a man is born to live her/ his own humanity, becomes herself/ himself growing in relationships with others and with God. A radical danger for *humanum* comes mainly when fertility or sexuality is being manipulated, by taking control over the sources of life and over life being born by using contraception and practice of induced abortions. This way we come to face a real "chemical war" which is able to pollute relations and love.

The Polish pope also points out a basic anthropological mistake which is hidden behind the environmental destruction - i.e. forgetting the fact that human action aiming at the transformation of nature, mainly human nature, should always take place "(…) based on God's prior and original gift of the things that are" (ibid.: no 37). This way he determines a moral criterion of natural law to human action which was properly defined by cardinal Carlo Caffarra as "(...) covenant with creative wisdom" (Caffarra, 2006: 81-82). When a human rejects the covenant, instead of becoming a collaborator of God in the act of creation, s/he puts herself/ himself in His place, sooner or later starting to provoke the nature which rebels. And, as pope Francis rightly notices on many occasions: "God always forgives, we men forgive sometimes, but nature never does" (Francis, 2021).

There were many times when pope Benedict XVI dealt with the topic of the ecology of love – especially the family one. It is worth mentioning one of his last speeches given to the Roman Curia during Christmas greetings on 21st December 2012. Then he pointed particular attention at the family matter, which is radically contested in its natural constitution as the relation based on marriage understood as a permanent wedlock of a man and a woman, which aims at giving birth and bringing up children. He stated that in this matter not only a specific social form is vital, but also a man in her/his basic dignity. If this relation is rejected, then "(…) fundamental figures disappear from a human existence: father, mother, child" (Benedict XVI, 2012). Manipulating family relationship is dangerous to human dignity, which may thus become an easy and undefended prey to anonymous authority (Seewald, 2021, 912-921).

From the encyclical *Laudato si'*, the first one which is dedicated explicitly to the topic of ecology, one can take advantage of some teachings of pope Francis referring to his predecessors and emphasizing the relationship between environmental ecology and human ecology. He mentioned in particular two verbs connected with the proper attitude to the creation, which are present in the description included in the Book of Genesis, namely: "grow and nurture" (LS 124). There is a reference to the idea of a wise order imprinted in the

nature. As God's creation, it carries a message imprinted in its structures, which should be read and respected (LS 117); it is a fruit of wisdom and not an effect of a blind and random evolution (LS 68–69).

Basically though, no 155 is the text which is worth exposing as a real pearl placed in this document as it contributes to the most interesting insights to the topic discussed. Human ecology is mainly spoken of there, and – bringing back the teaching of Benedict XVI – it mentions that a man has a certain nature and should respect a certain law imprinted in this nature. The reason is that the fundament of authentic human ecology is noticed just in body, which is a source of relationship not only with the environment but also, and mainly, with other human beings and God. In particular, thanks to sexual diversity imprinted in each body, the relationships which are important for the identity of every human can be established, the ones connected with being sons and daughters, husbands and wives, fathers and mothers. If body is determined by the logic of domination and manipulation without respect for the natural moral law, it will give a prerequisite for destruction of any human ecology (Benedict XVI, 2011, p. 41).

Therefore, synthetically considering the topic, one can say that ecological care in the latest teaching of the Church strongly underlines necessity of combining present care of ecosystem with more fundamental responsibility for human own nature. The human body cannot be seen as a matter subjected to manipulation. It is a personal reality being open to the world and to others, it is the place where identity of a subject is gradually created responding to the call to love in the web of relationships offered and built with others. Those relationships find their own expression and are nurtured especially in a family. Human ecosystem has its delicate and precious place in a family where it is protected and can be developed. It is within a family that its members keep a memory of the gift of life and original meanings which the Creator imprinted in His creations when He was making them a man and a woman.

Surprisingly, provoked by a heated discussion over the family which was evoked by the exhortation *Amoris laetitia*, Prof. Eberhard Schockenhoff, an influential moralist theologian from the University of Freiburg in Breisgau claimed that following the indications of the pope moral theology we should "(…) promote moral theology that would not be constrained by "*natural law*" [sic! – S.S.]" (Guénois, 2015) and, as a consequence, it would allow to resign from the reference to the absolute norms, admitting a privileged place to judgement of conscience and life experience gained by a particular faithful. Here we can notice a radical contesting the moral rules of the catholic teaching taught by St. John Paul II in the encyclical *Veritatis Splendor*, in particular the moral norms dealing with sexuality and human procreation which were defined by St. Paul VI in *Humanae Vitae* and later confirmed in *Familiaris Consortio*. When the norms are not some arbitrary orders given by the power of human authorities but rather the expression of the truth about the good perceived by brain

in a reasonable plan of the Creator, then they do not become constraint for freedom but rather remain the conditions of ecological realization which does not endanger the nature.

Cardinal Angelo Scola, while reflecting on ecology in the light of the Bible story of Job, presented a deep correlation between protecting the environment and nurturing a man. When a human brain strives to perceive the highest sense of things and is free to discover wisdom and order in the things that are, so the "me" of a human being emerges only in a harmonious way with the amazement over a "you". Ecology needs adequate and proper anthropology, not any anthropology nor its simplified version. Pope Francis expresses the same sense and utters almost the same words in his encyclical (LS 118). Thus, here we have the key necessary to avoid both the naturalism denying the first place to human being, and prometheism that makes him an irresponsible arbiter, who not only exploits the nature but also abuses it. To be able to protect the nature a man must, over all, embark on nursing themself. To find themselves, people must be able to be themselves not only in front of the Other, that is the Creator, but also in front of another being whom they dialogues with, a woman in case of a man, and a man in case of a woman. In anthropology of *a man – a woman* diversity, an order of nature imprinted in their bodies by the wisdom the Creator brings clarity (Scola, 2015).

When the constitutive anthropological diversity is negated, then negating nature itself and destroying the ability to love starts. It can be observed in the groups accepting gender ideology both in gender studies and in its precursors who perceive the sexual diversity as a social construction, therefore opting for a radical transformation of intimacy on the grounds of a plastic idea of the body (Giddens, 2006; Kuby, 2007). The body was supposed to be the subject to manipulation with hormones and surgical interference in the way that it would fulfil desires for pleasure of post-modern human beings. As a matter of fact, this violating demand for flexibility (infected by abuse) leads to the trivialisation of sexuality and the loss of immense riches of eros.

It contributes to destroying erosphere and its lethal infection, which causes the deterioration of the ability to find joy in love. The violation of the nature of the body and the disturbance of its rhythms (LS 71) is both a violation of love relations in search for fulfilment and their dynamic of a gift.

A desire should never strive for a temporary pleasure only, but for a longing for happiness which finds its complete horizon in an encounter with another person and in a good life that can be built with them. It is worth pointing out that Latin referent for *happiness* (*felicitas*) is combined with the idea of both: fertility and abundancy (Sondel, 1997: 376; Natoli, 2004). Happiness is the fertility of the power for distributing life around. Jesus defines the joy he promises to His disciples as: "I came that they [sheep] may have life, and have it abundantly" (Jn 10:10). It stands in opposition to the idea of a "fulfilment" that

defines a limited measure for searched pleasure. Pleasure, in reality, has a symbolic meaning because it always refers to something more.

Thus, the body is not plastic but rather flexible, as José Noriega rightly notices. It is not able to accept each form because reacting to any artificial deformation will always direct it towards its natural and rational form, that is to aim at the realization of the desire for living in the fullness of sense (Noriega, 2012; Noriega, 2014).

Therefore, here comes the conclusion that the basic ecological care should include nursing moral virtues in ourselves, that is constant dispositions of our character and feelings which will allow for resettling relations between a man and a woman in the perspective of an authentic human fullness.

2. Marital love and parenthood

Having briefly looked at the anthropological foundations of the human ecology of conjugal love in a critical confrontation with what causes the contamination of the erosphere, it is now possible to focus on the most important aspect of the reflection under discussion, i.e. the relationship between human sexuality and procreation. It is undeniable that the realisation of sexuality between a man and a woman is by its very nature open to the possibility of conception and giving birth to offspring. However, since it has become possible to influence the complex physiology of reproduction in order to prevent conception not only by empirical methods, but also by means of preparations and tools offered by technology, a new question has arisen: from a moral point of view, is the ”natural” relationship between sexuality and reproduction of any importance for human action? Is it just a simple statement of fact, as is the case with so many other issues concerning our physiology, or maybe - does this actual relationship carry some important meaning that should be respected in the name of the ecology of love?

Some theologians but also bishops and cardinals have long before put forward the suggestions of a radical revision of the teaching of *Humanae Vitae* and the whole Catholic teaching on sexual morality[3]. The ways of thinking and arguments which dominated the period before the encyclical of St. Paul VI are now returning. In reality, under the pretext of its “deepening” these voices deprive it from the doctrinal content and make us come back to the theological discussions which should have been considered already closed.

It was already back in the thirties and forties of the previous century in Germany and France that the demands were voiced to rediscover the personal character of human sexuality, which was rightly considered underappreciated in the traditional Catholic

[3] Cf. Opinions of moral theologians collected by the Pontifical Council for the Family in the volume *Famiglia e Chiesa. Un legame indissolubile*, Città del Vaticano 2015, where the teachings of *Humanae Vitae* on the indissolubility of marriage and homosexuality are openly challenged.

teaching on morality[4]. The notion of "procreational aim" of marital act situated on the biological surface only, was subjected to "a unifying aim" being the only one of a personalistic value. As a consequence, parenthood was not perceived as the dimension imprinted in the nature of interpersonal sexual love.[5] In this perspective *bonum prolis,* pushed to the background in the hierarchy of marital goods, is understood as the biological purpose of nature. Love interpreted ambiguously by the abstract personalism results in contradicting the natural forces. This vision hides the anthropological division between a person and nature, which identifies a person with a simple spiritual subject, gives it the complete power over the flesh in the perspective of achieving its own purposes.

At this point, a cultural context of the discussion over the encyclical of St. Paul VI mentioned before should be presented. In the sixties, a sociological vision got a voice in edgeways. It was influenced by certain alarming demographic slogans – like today's obsession of global warming – which stressed at the necessity of urgent birth control (the famous Report of the Club of Rome). An interesting thing is that, now when the West entered into the decadent phase resulting from demographic shortage a few decades ago, and when this tendency is being affected by globalization, some still operate in such categories, attributing experts the power of deciding for families how many children they should have.

Nowadays we must realize that such an attitude is short-sighted and there is a certain one-sided bias towards focusing only on the perspective of a couple themselves, and not the whole family, to establish the borders for the ethically permitted action to achieve an aim considered obvious, that means controlling the number of children. The limit is accepting as indisputable premise of the logic of control that sees in procreation only a physiological fact deprived of a personalistic meaning (Szpoton, 2021).

The answer of the Church given by St. Paul VI almost fifty years ago, which some would like to question, was clear and brave, it opposed the public opinion. In no 12 of the encyclical *Humanae Vitae* he states that "… the inseparable connection, established by God, which man on his own initiative may not break, between the unitive significance and the procreative significance which are both inherent to the marriage act. The reason is that the fundamental nature of the marriage act, while uniting husband and wife in the closest intimacy, also renders them capable of generating new life – and this as a result of laws written into the actual nature of man and of woman."

The laws which pope Montini refers to are not arbitrary orders of the Church authorities but they manifest the truth of the good which is the fruit of the Creator's wisdom

[4] For a critical reconstruction of the discussion on this topic, see the article: Mazzocato (2006, pp. 249–275).

[5] For deep theological reflections pointing to the Trinitarian basis of this dimension, see: Sequeri (2018).

written into the actual nature of man and of woman as a syntax of love. To understand this absurd of the call to pastoral mercy which would excuse exceptions in this context, we might try a test to check how would we react when using these ideas in medical practice. Would we consider merciful a doctor who would accept the unhealthy inclinations of a diabetic person and leave them to their own judgement of the conscience when they ate sugar?

To the individualistic and spiritual anthropology (one might say neogothic[6], which in fact does not respect body and demands the power to manipulate it using technology, and a narrow concept of morality understood as a set of legislative rules which limit freedom), a clear and bright answer was given by St. John Paul II's "theology of the body" which opts for a deep integration of the person and their nature in the perspective of theology of love[7].

"Theology of love" presents an anthropological basis of the ethics in the encyclical of St. Paul VI in which human body – a witness of the original love of the Creator, is the place where relations break the isolation of an individual to generate a person. In the encounter with a woman, a man discovers a groom's destination of his body to be fertile gift of himself. And only respecting this orientation to the gift, is the personalistic dignity of love protected, and it may be born not as a simple physiological result but as a gift of gift. It is important to spotlight that the body is not only a material reality which constitutes something a person "has", but is a part of something which a person "is". That is why the physiological dynamics of sexuality and procreation do not have just a biological meaning, though they indicate the basic meanings of the language of truly personal love, available to the human brain in an experience of love, through which they become enlightened and explored in the light of the theology of creation and the redemption of our body in Jesus Christ (Szpoton, 2021).

Thus, only through respecting the correlation between sexuality and reproduction can the value of the gift of marital unity be preserved and the dignity of human procreation be protected. It is not a "sacralization" of biological nature but rather the acknowledgement of a personal character of sexual love in the light of which emerges the practical truth about moral goods that are present in marital conduct. So the natural moral law is not a relic of fetishism from which one should be made free, but consists of the valuable truth which God's wisdom has imprinted in our body to bring us to the good of integrally personal love.

[6] The Magisterium of the Church addresses the forms in which Gnosticism is proclaimed again today: Kongregacja Nauki Wiary (2018); Franciszek (2018, no 46-48).

[7] This topic is explored in two studies written within the area of theological-moral research, operating at the Pontifical Institute of John Paul II for Marriage and Family Studies: Melina, Pérez-Soba (2012); Pérez-Soba, Gałuszka (2014).

3. Choices that strengthen love

There remains a question to answer: What choices do really shape marital love in the light of anthropological foundations and the ethical rule of inseparable unity between the uniting and procreative meaning of a marital act?

It is clear that there are choices that instead of strengthening love, they pollute it. (Puccetti, 2013). Contraception – both chemical and mechanical in its different forms – deprives marital acts from an integral meaning of personal gift open for life. This way it makes love contaminated, giving it an objectively egoistic direction, which is independent from subjective motivations and direct perception from the point of view of couples.

Hidden under an ideological language, though in reality more often the connection with abortion, it lowers the moral quality of some contraceptive practices, which have a character of early abortifacients. Being closed for life evolves with an ease into the negation of conceived life. Servant of God prof. Jérôme Lejeune named the pill RU 486 with a notion "human pesticide" because it infects not only a little embryo, but also the one who uses it. It works the way not only to annihilate, but also to destroy the whole environment of relations in which the choice of using it is made (Melina-Anderson, 2009). This is the reason why we should choose the other way which is, without doubt, much more demanding and difficult, though at the same time more human. In no 21 of *Humanae Vitae* Pope Montini says about the necessity of taking an effort of self-discipline and self-control, necessary for acquiring an ability to express marital love in truth. It is not about a technique which would excuse the lack of personal engagement but about the way of growing in the virtue of chastity. It is not a negation or self-mortification, but rather a stable source of personal maturity, which allows to live sexual drive in the dynamic aiming at a personal gift of love.

To respond to the great vocation to love and give birth to a new human life, the attitude of generous responsibility rooted in thankfulness is necessary. In such conducts Pope Francis sees the essence of that "ecological conversion", to which he encourages. The encyclical of human procreation by pope Paul VI discusses it in no 10, defining vital features of "responsible parenthood". There is a must of coming back to this teaching because of these misunderstandings being the result of today's dominant mentality, unfortunately also in the speeches of some personalities of the Church. The term "responsibility" is ambiguous only when it is identified simply with demographic control and its consequence of the necessity to refer to some efficient technical ways to perform it. In this way a subtle neo-Malthusian mentality that understands procreation as a danger for the environment and even more, perceives a man as a cancer of the nature, postulating the fully prejudiced enmity towards multi-child families and towards young nations on other continents like Africa, Central America or Asia (cf. LS 50). This is the mentality which is born not on the peripheries of the world but in the centre of the "fed and deprived of hope" West that closes the sources

of life. It looks suspiciously at people remaining in a fresh contact with energy sources and wants to impose on them ignoble laws of "healthy reproduction" as the condition of supporting their development. The Christian message of respect for the nature can never speak an ambiguous language of UN and other agencies which are striving for demographic control over young nations.

Cardinal Robert Sarah in an extended interview in harsh words warned about neocolonialism that also aims at polluting the erosphere of the other people. He said: "I believe that the enormous economic, military, technical and media influence of the West without God could be a disaster for the world. If the West does not convert to Christ, it could begin to paganise the whole world. (...) To contribute to their revival, countries of their ancient Christian tradition must rediscover their roots by embarking on the path of the new evangelisation" (Sarah, 2015, 209).

The features of an authentic procreational responsibility are born of the insight filled with admiration and thankfulness for the great gift of sexuality and its openness to life. Human ecology of love needs basically a contemplative attitude that is able to be surprised and consciously thank for the first and original and generous gift from the Creator: *Laudato sii, mi Signore! – Be praised, my Lord!* This way responsibility is not a domination full of unrest that aims at limiting the gift. In the creation and more in the Gospel of Jesus Christ the logic of overflow applies and we should never forget about this. Thus, responsibility implies enerous openness to the gift of life, (cf. Melina, 2008, pp. 113–128) and as such it cannot neglect God's providence which we, the lay too often forget and which the encyclical *Laudato si'* does not unfortunately mention.

If there were any factors connected with physical or psychic health, economic or social difficulties imposing temporary limitations on the number of conceptions, then it should be performed with respect for the meanings imprinted in the core of marital act. The knowledge of natural fertility cycles and self-containment through self-restraint as the integral part of the virtue of chastity allow for living the procreational responsibility in harmony with God's plan and the integrally personal nature of love. The pauses in bodily expressed sexuality required in periodical practice of abstinence driven by chastity also constitute a part of the loving symphony of a married couple (Szpoton, 2021). Moreover, responsible parenthood consists of the engagement in a more and more precise study of physiological and biological laws of procreation. As wee as the care for formation which will make the study of fertility awareness methods easier and allow practicing them more effectively.

Summary

When engaged in evangelization of love and marital intimacy, it is not difficult to be subjected to two accusations: either of having not enough mercy, or of presenting a too anachronistic mentality.

The above text answers the first accusation – true mercy is not an indulgence for the choices which are harmful to the environment of love, thus destroying erosphere. But rather, tolerance is an 'accomplice' to the things that do not allow to live the call to love in the right way. In the end of this path is resignation and contempt not only for a man and a woman, but also for God the Creator and the Redeemer. St. Paul VI wrote: "(…) it is an outstanding manifestation of charity toward souls to omit nothing from the saving doctrine of Christ; but this must be always joined with tolerance and charity" (HV 29).

As for the accusation of traditionalism, one must admit that the engagement on the field of human ecology is something totally opposite. The one who destroys erosphere bringing love to contamination, destroys future of a man and a woman. Running evangelisation of marital intimacy with accordance to an authentic human ecology means working for the benefit of the only vision that saves the personal dignity of love and procreation, and opens future perspectives for the humanity.

List of abbreviations used in the footnotes:

LS - Francis, Encyclical *Laudato si'*

HV - Paul VI, Encyclical *Humanae Vitae*

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Selected problems of prematurity and prematurely born child care

Wybrane problemy wcześniactwa i opieki nad dzieckiem przedwcześnie urodzonym

Abstract: The evolution of perinatology and the progress of advanced methods of prenatal diagnosis have contributed to the rise of frequency of birth and survival of newborns with very low birth weight, born before 32 weeks of pregnancy. A three-tier perinatology care system in Poland, an increasingly outstanding knowledge of neonatologists, and newer and more advanced equipment for critical care therapy, all provide growingly safer conditions for the life and development of prematurely born children. Prematurity is not only a problem of the preterm baby, but poses a challenge for the family, notably the mother, who must face the challenges of care of the preterm baby. In this article, selected problems of prematurity and care of a preterm baby are presented. The most common causes of preterm birth incidence are reported. The mother's situation after a preterm birth is defined. Based on the current literature, the profile of preterm babies and the EBM (Evidence-Based Medicine) paradigm, the rules for treatment and care for a preterm baby are presented.
Keywords: pregnancy, preterm birth, epidemiology, preterm infant, neonatal care, mothers of preterm infants

Abstrakt: Rozwój perinatologii, postęp nowoczesnych metod diagnostyki prenatalnej, przyczynił się do wzrostu częstości urodzeń i przeżywalności noworodków z bardzo niską masą urodzeniową, urodzonych przed 32. tygodniem ciąży. System trójstopniowej opieki perinatologicznej w Polsce, coraz doskonalsza wiedza lekarzy neonatologów, coraz nowocześniejsza aparatura do diagnostyki i intensywnej terapii, zapewnia bezpieczne warunki życia i rozwoju dzieci przedwcześnie urodzonych. Wcześniactwo to nie tylko problem przedwcześnie urodzonego dziecka, jest to wyzwanie dla rodziny, szczególnie dla matki, która musi się zmierzyć z opieką nad wcześniakiem.
W artykule przedstawiono wybrane problemy wcześniactwa i opieki nad dzieckiem przedwcześnie urodzonym. Przytoczono najczęstsze przyczyny występowania porodów przedwczesnych, scharakteryzowano sytuację matki po porodzie przedwczesnym jej dziecka. Na podstawie aktualnego piśmiennictwa opartego o paradygmat EBM (Evidence-Based Medicine), przedstawiono charakterystykę oraz zasady postępowania i opieki nad dzieckiem przedwcześnie urodzonym.
Słowa kluczowe: ciąża, epidemiologia, matka wcześniaka**,** opieka neonatologiczna, poród przedwczesny, wcześniak

Introduction

Preterm birth poses a problem and a challenge afflicting a large part of the society worldwide. It is estimated that roughly 15 million children annually experience developmental disorders linked to prematurity. Prematurity is the main cause of deaths of ca. one million newborns worldwide, and the main cause of later health problems in childhood. In Lower Middle-Income Countries – LMIC more pathologies and problems in childhood development are directly connected with preterm birth (Howson et al., 2012; World Health Organization, 2010).

Owing to advances in modern methods of prenatal diagnosis, as well as development of perinatology, an increase of births and improved survival rate of newborns born before 32 weeks of pregnancy is observed. Due to a three-tier system of perinatal care that is in operation in Poland, as well as increasingly superb medical apparatus, accompanied by the knowledge and experience of neonatologists, the conditions that impact safe development of preterm babies can be much improved (Rutkowska et al., 2010).

Prematurity is not only a problem of the preterm baby, but it poses a challenge for its parents, notably the mother, who must face frequently long-lasting care, rehabilitation and treatment of the preterm baby. Preterm birth interrupts the natural process of intrauterine development of the baby, and at the same time frequently rapidly terminates the period of preparation for the role of a mother. Preterm birth and the prospect of an often non-viable neonate compounds the woman's anxiety about motherhood. Notwithstanding specialist neonatal care, increasingly newer techniques allowing effective treatment and fostering development of preterm babies, the stress and anxiety of parents concerning care and nursing a preterm baby are severe. (Łuczak – Wawrzyniak, 2008; Bączyk, et al., 2011; Helwich, 2002). The mother's anxiety escalates as the mother sees the prematurely born baby, whose appearance stands out from other babies substantially. No possibility of taking full-time care of the preterm baby, fear of touching the baby, holding it in the parent's arms, may result in the mother's attitude of withdrawal from the role of the carer and entering the role of an observer, which directly translates into her post-partum emotional problems (Cescutti-Butler et al., 2019; Lumsden et al., 2012; Romero et. al., 2014; Szczapa, 2015).

1. Causes of the prevalence of preterm births

The causes of the prevalence of preterm birth are not fully recognised. It is currently assumed that the aetiology of prematurity is multifactorial. In the light of current knowledge, physiologic onset of birth is the result of a number of processes that cascade in a woman's body, initiated by the activation of the maternal axis "hypothalamus-pituitary gland-ovary", and lead to a major interaction of oestrogen with progesterone, as well as

activation of proteins responsible for cervical contractions (CAPs-Contraction-Associated Proteins). At the same time, cervical maturation takes place together with priming of the myometrium for contraction (Beck at al., 2010).

Preterm birth is, on the other hand, a consequence of pathological processes disturbing particular elements of the cascade of physiological transitions (Skoczylas et al., 2011). Among direct causes of the incidence of preterm birth there are: preterm uterus myometrial contractions, 'preterm' prelabour rupture of membranes (PPROM), or iatrogenic induced labour. It is estimated that ca. two-thirds of all preterm births are spontaneous births, with the remaining medically indicated (Kalinka, Bitner, 2012; Vogel et al., 2018).

The causes of preterm birth are classified along one of two subgroups: social and medical.

Among social risk factors there are the age of the pregnant woman (below 16 and above 35); work time (above 40 hours per week); hard manual labour, in harmful conditions; low socio-economic status; lack or incomplete medical prenatal care; lack of support on the part of the father of the child and the family; short inter-pregnancy interval and stress (Mariańczyk, Libera, Rosińska, 2020).

Among medical factors there are: bad obstetric history of preterm birth, bad obstetric history of abortions (two or more, especially in II pregnancy trimester); placental abruption; suspicion of placental dysfunction, or other placental pathologies (e.g. retro placental haematoma). In the risk group of the incidence of preterm birth there are women diagnosed with multiple pregnancy, rhesus disease, premature rupture of membranes (PROM), intrauterine infections, cervical incompetence, uterus malformations, polyhydramnios, post-partum haemorrhage (PPH), infections (e.g. TORCH) and other infections (e.g. diabetes, liver diseases, kidney diseases, hypertension, anaemia, urinary tract infections) (Szczapa, 2015). In the group with an increased risk of preterm birth there are women with low body mass index (BMI < 19,5), low body weight gain during pregnancy, or ones using stimulants (alcohol, cigarettes, drugs (ibid.).

The most critical risk factor in the incidence of preterm birth is the history of preterm births. Research shows that 17% of pregnant women with proved obstetric history of preterm birth is at risk of another preterm birth, and among women whose two preceding pregnancies finished before the end of week 37, the risk of premature birth increases up to 28% (Węgrzyn et al., 2015; Wielgoś, Węgrzyn, 2009).

2. Prematurity prevention

The choice of adequate methods of preventive treatment is pathogenic-dependent. Unfortunately, given non-specific clinical signs that forecast this complication, the treatment mechanism is difficult to determine. There are three types of preterm birth prevention:

original prevention (addressed to all women, including population with lower or higher risk factors of premature birth), secondary prevention (targeted at the population of women with identified risk factor of prematurity), and tertiary prevention (implementing treatment in the case of preterm birth risk) (Iams et al., 2009).

The aim of original and secondary prevention is the risk determination in a particular pregnant woman. In such situation, besides the woman's education in terms of health-promotion, a broadly understood medical scope of intervention is introduced. Prevention entails pharmacological prevention – progesterone and acetylsalicylic acid supply in individually determined dosing for a particular person, (Roberge, et al., 2014; Saccone, et al., 2017).

One of key factors leading to preterm cervical dilation is progesterone deficit. A team of experts from the Polish Society of Gynaecologists and Obstetricians (formerly Polish Gynaecological Society PTG) recommends preventive vaginal administration of 200mg progesterone every 24 hours in single pregnancy patients before the end of 33 weeks of pregnancy, with short cervix below 25 mm. This procedure does not, however, reduce the risk of preterm birth incidence in multiple pregnancies and in singleton pregnancy with cervical shortening below 10 mm (or cervical dilation), as well as pregnancy before 26 weeks of pregnancy (Rekomendacje Polskiego Towarzystwa Ginekologicznego, 2015).

A number of studies was carried out on the efficiency of preventive application of ASA - Acetylsalicylic Acid in pregnant women. It was proved that when applied in small doses, ASA reduces the risk of early PE – Preeclampsia by 90%, as well as the risk of fetal hypotrophy, placental abruption and preterm births. It was also proved that all women with bad obstetric history of PE, intrauterine growth restriction (IUGR), placental abruption and identified risk factors in the current pregnancy should be entitled to prevention with ASA. (ASA should be taken in 50-100 mg doses, preferably in the evening hours) (Roberge, et al., 2012; Poon, et al., 2009).

Another risk factor of preterm birth is intra-amniotic infection. Studies conducted among pregnant women with bacterial vaginosis (BV) showed decrease in moderately preterm births (between 34 and 36 weeks of pregnancy) as a result of oral application of clindamycin. Decrease in the number of preterm births in women before 33 weeks has not, however, been proved, Clindamycin, in oral administration, seems more responsive to BV than metronidazole, which does not protect from infections with aerobic bacteria, likely facilitating the risk of preterm birth n this way (Lamont, et al., 2011).

There is also a surgical method applicable in pregnant women in the case of incompetent cervical os diagnosis, namely doing a cervical cerclage, or using a pessary as a less intrusive procedure with comparable function. There is proved efficiency of cervical cerclage in a subgroup of women in singleton pregnancy between 16 and 26 weeks of pregnancy with the history of prematurity with short cervix (less than 25 mm). There is

however no clear evidence of the operation of cervical cerclage in singleton pregnancy without bad obstetric history of preterm birth (Berghella, et al., 2017).

Research results on the success rate of pessary in women with short cervix, less than 25 mm, are inconclusive. It has been reported that the use of pessary in women in singleton pregnancy before 34 weeks of pregnancy with short cervix with no bad obstetric history caused lower frequency of preterm births in comparison to the absence of pessary. International regulations suggest the application of cervical cerclage in high risk pregnant women as a more efficient method (Saccone, et al., 2017).

As a tertiary prevention, in order to prevent preterm birth, substances inhibiting the systolic function of the uterus muscle are used. The aim of tocolytic treatment is to postpone the incidence of preterm birth by at least 48 hours. The pregnant woman needs preventive supplementary treatment with a corticosteroid therapy course in order to stimulate the development of her child's lungs, in the period between 24 and 34 GA. A single corticosteroid therapy course reduces the risk of the incidence of IVH – Intraventricular Hemorrhage, IRDS – Infant Respiratory Distress Syndrome, NEC – Necrotising Enterocolitis, perinatal infant death, and remote neurological complications. Among the most commonly used corticosteroids, there are: betamethasone, administered in two doses 12 mg each every 24 hours, and dexamethasone, administered in four doses 6 mg each every 12 hours. For these drugs, an intramuscular injection is done in the case of pregnant women. Repeating the corticosteroid therapy cycle does not boost obstetrical results, but it may increase the risk of infections in the foetus, therefore the procedure is not recommended (Kimber-Trojnar, 2020; Grzesik-Gąsior, 2017).

3. Preterm birth – epidemiology

According to the World Health Organization (WHO), Preterm Birth – PTB is the birth of a baby before the end of 37 weeks of pregnancy (259 day) counting from the LMP – Last Menstrual Period, or 245 days from the probable day of insemination (Podsiadło, 2014).

Preterm birth can be divided into three subgroups depending on GA-Gestational Age:

- extremely preterm birth – before 28 weeks of pregnancy;
- very preterm birth – between 28 and 32 weeks of pregnancy;
- moderately preterm birth – between 33 and 37 weeks of pregnancy.

In accordance with the World Health Organization, this division represents the most recognized and widely acknowledged definition of preterm birth (Howson, et al., 2012; Bręborowicz, 2015).

The evaluation of GA (Gestational Age) is a key factor determining the time of birth. Early pregnancy ultrasound exam, that is one done before the end of 11 weeks of pregnancy,

is considered the "golden standard" in accurate evaluation of gestational age, considering the similar growth and development of the child in this period of pregnancy (World Health Organization, 2010).

The frequency of preterm births increased slightly in recent years despite continuous advancement in midwife care. To date the number amounts to ca. 11% pregnant women worldwide (World Health Organization, 2010; Bręborowicz, 2015; Vogel, et al., 2018). The first global and regional statistics on preterm births were published in 2010 (Beck, 2010). Based on data coming from 92 countries, the author determined the prevalence of preterm births at the level of 9,6% (ibid.). Consecutive calculations were performed in 2012 by H. Blencowe, and data coming from 184 countries afforded the evaluation of the frequency of preterm births at the level of 11.1%. Based on the data, also coefficients of preterm births may be evaluated on the national level, and these vary in the range from ca. 5% in the European countries to 18%in African states. One of clear signals of this analysis is an indication that low financial status of a given country (LMIC – Low and Middle Income Countries) is the cause of the majority of preterm births. It is estimated that the proportion of preterm babies in the states of Sub-Saharan Africa or South Asia reaches as much as 60% (ibid.).

However, also in many developed countries, preterm birth indicators keep growing. Among 65 developed countries, 62 recorded an increase in the number of preterm births in the years 2000-2010 (Blencowe, 2012).

It is worth noticing that three nonaffluent countries (Croatia, Estonia and Ecuador) reported a decrease in the number of preterm births since 2010 (ibid.).

In Poland, the frequency of preterm births shows an upward trend in the last decade. In 1999 prematurity constituted 6,62% of all births in our country (Troszyński, 2010). Currently the proportion of preterm births is ca. 6,8%, including 5,1% of all newborns born prematurely coming from singleton pregnancies, the remaining ones from multiple pregnancies – preterm babies account for 51% of all babies in this group (Wielgoś, 2016). Babies born between 33 and 37 GA constitute the largest group of preterm babies (75%). The proportion of preterm births in this group shows an upward trend (Kalinka, Bitner, 2012).

Approximately 24 000 children with low birthweight (500 – 2500 g) are born in Poland annually, which accounts for ca. 6% all births. The mean rate of preterm births with very low birthweight (below 1500 g) is 1,1% newborns, and with extremely low birthweight (below 1000 g) – ca. 0,5% newborns (Szczapa, 2015).

4. Mother's situation after preterm birth – experienced emotions

Women after a preterm birth must face numerous problems. Similarly to mothers of full-term babies, they experience body changes connected with postpartum period. Among typical conditions, there are: pain connected with involution of the uterus, weakness, pain of

the perineal wound after natural birth or soreness in the incision after caesarean birth. Additionally, breastfeeding challenges may occur: breast milk oversupply or the subjective feeling of undersupply (Gebuza, et al., 2010).

Apart from physiological changes to the woman's body after childbirth, mood disorders linked to hormonal fluctuations are likely to appear in the postpartum period. As many as 80% women in the postpartum period experience "baby blues", which is a state of emotional imbalance featuring sleeplessness, irritability, feeling of social isolation, as well as eating and concentration disorders. Lack of broadly understood physical and emotional support for the mother in the postpartum period may lead to manifestation of mental disorders demanding medical treatment if they exceed a woman's physiological norm (Iwanowicz-Palus, Makara-Studzińska, 2009; Każmierczak, et al., 2010; Tataj-Puzyna, 2019).

Additional difficulty that mothers of preterm babies must face is the stress linked to a prolonged stay in hospital as a result of adjustment problems of a preterm baby, who most frequently must be put in an ICU or Neonatal Intensive Care Unit. Mothers must face difficult situation of the newborn who demands special care, stay in an incubator, and the use of medical devices or additional medical procedures. A mother's observation of her own baby demanding intensive care, without being able to hug the baby, may be extremely difficult (Łuczak–Wawrzyniak, 2009). Another challenge is the necessity to part with the baby who demands several months' stay in a hospital, express breast milk and visit the baby in the hospital in place of stay with her.

A woman after a preterm birth is especially exposed to emotional disorders by virtue of her far more difficult situation than that of a mother of a full-term baby. The case of very preterm birth is particularly difficult as the mother must cope with stress stemming from care for the baby, kept alive with the help of specialist medical devices. Given the essential neonatal intensive care of the preterm baby, the mother is frequently not able to experience rooming-in (stay with the baby in one room). The newborn's environment, large number of medical equipment and constant presence of medical personnel performing necessary operations, may trigger extreme reactions in the mother. For mothers it may be difficult to accept that the life of their children lies solely in the hands of medical personnel, medical equipment and drugs, rather than their own care. A woman's stay in an ICU enforces the role of a passive observer, which excludes providing full childcare to a preterm baby (breastfeeding, changing nappies, carrying, hugging). While watching the medical personnel perform medical and childcare activities, she may on the one hand feel jealous, but on the other grateful for not having to perform them on her own. These ambivalent feelings may give rise the feeling of parental incompetence in the mother's eyes (Łuczak–Wawrzyniak, 2009; Łuczak-Wawrzyniak, et al., 2010).

After preterm births mothers sometimes stay in hospitals longer, which is why also family contact is handicapped. Lack of support from the closest ones hampers the process of

adaptation to the role of a mother. Preterm birth imposes reorganisation of the foregoing way of life of the woman who must suddenly leave family, and start her maternity leave earlier than expected, she must leave her job, unfinished duties. The situation may lower her sense of self-esteem and independence, by which the process of adaptation to the role of a mother is longer. Only stable health condition of her preterm baby enables restoring her balance and accelerates the process of the woman\s adaptation to new reality. The quality of relationship with hospital employees also affects the mother's process of adaptation to new life conditions (Lasiuk et al., 2013).

A woman watching her child in a Neonatal Unit or Intensive Care Unit may feel anxious, thus medical personnel should take care also of the mother of the preterm baby. One of effective methods of reducing parental stress and anxiety in mothers and fathers of preterm babies is transfer of current detailed information on the baby's health condition, enabling touching the baby and kangaroo care. By including a preterm baby parents into a therapeutic team through teaching them baby care or kangaroo care, their adaptation to a new role and challenges gets naturally facilitated (Łuczak–Wawrzyniak, 2009).

Taking into account difficult situation of the preterm baby, a woman after a preterm birth belongs to a group of increased risk of developing postpartum emotional disorders. In the literature, postpartum mental disorders are divided into three kinds, depending on the severity of symptoms: baby blues, postpartum depression, and postpartum psychosis. Baby blues is a postpartum blues which occurs usually in the 3-4 days after childbirth and stays for 2-4 weeks. It occurs in 50-80% women in the postpartum period. "Baby blues" is one of temporary mood swings characterised with the sense of fatigue, crying spells, sadness, confusion, irritability, and the fear of not being a good mother. The symptoms do not impair proper functioning of a woman, thus normally no pharmacological treatment is necessary, as they usually pass after 2 weeks, after the woman's adaptation to the role of a mother, with broadly understood support from her closest ones (Iwanowicz-Palus, Makara-Studzińska, 2009; Stopikowska, 2013).

Postpartum depression occurs in 10-20% women after birth, more often in women in difficult social situation who already experienced baby blues. The beginnings of depressive symptoms start up to the first 6 months after the childbirth and they stay from a few weeks up to a few months. Among typical symptoms there are: permanent gloominess, feeling of hopelessness, indifference towards the baby's needs or fear of contact with the baby, lack of self-confidence, difficulties in decision-making, isolation from the outside, unfounded self-blame, irritability, inability to relax, physical disorders. A woman experiencing depression suffers from sleeplessness, and may be reactive, which enforces nervous behaviour (e.g. continuous examination of the baby's breath and sleep), may suffer memory loss, impaired concentration, recurrent thoughts of death or suicide (Stephens, et al., 2016; Logsdon, et al., 2009).

One of recommended means of diagnosis postpartum depression is the application of EDPS – Edinburgh Postnatal Depression Scale. After diagnosis of mental disorder, immediate psychological and psychiatrical assistance is necessary, including pharmacological treatment (Programme of preventing depression of the Polish Ministry of Health; Maliszewska, Preis, 2014).

The hardest form of postpartum mental disorder is postpartum psychosis, occurring in 0,1-0,2% women in the period up to 3 months after childbirth. The risk of the incidence of psychotic symptoms is higher in women with the medical history of mental disorders, or the history of mental disorders in the family. The disorder features sudden onset, apparent for the environment, and constitutes a threat for both the mother and the child, on account of which it requires immediate diagnosis and urgent admission to hospital (Iwanowicz-Palus, Makara-Studzińska, 2009). Postpartum psychosis features a woman's inadequate perception, reception, evaluation and experiencing of reality. Common initial symptoms are difficulties falling asleep and sleeplessness (and even sleep deprivation for several consecutive days) and a feeling of anxiety and loss. Other initial symptoms are loss of appetite, agitation, irritability and dysphoria, obsessive thoughts on harming herself or the baby (with the awareness of its irrationality, e.g. suddenly emerging conceptualizations of throwing out her own baby thorough the window or dumping her from the baby-change table), avoiding contact with the baby/ not providing care for the baby. Suspiciousness towards others may appear, as well as strange changes in behaviour and emotional states or other psychotic symptoms (e.g. hallucinations and delusions – most often linked to the baby or childbirth, for example hearing voices that require killing oneself or the baby, or linked to the health of the baby and harmfulness of the mother's milk, paranoid convictions that someone may harm or kill the baby). A women in the state of PP may be not able to accept the newborn, reject it, refuse to take care for her or deny being her mother whatsoever (ibid.).

Women who experienced difficult, traumatic childbirth, illness of the child or preterm birth may suffer from the so called PTSD – Post-Traumatic Stress Disorder. The symptoms of PTSD are: the feeling of exhaustion, helplessness, anxiety tensions, experiences of involuntary recollections of traumatic event, or nightmares. Research has shown that mothers of preterm babies cope with the symptoms of post-traumatic stress disorder far more frequently than mothers of full-term babies, only less than 8% of whom suffer from PTSD. In studies carried out by Feeley et al. (2011) it was indicated that PTSD concerns over 23% mothers of preterm babies (42 ibid.). Based on Impact of Event Scale – Revised (IES-R) Goutaudier et al. (2011) proved that post-traumatic stress disorder occurs in 77% mothers of preterm babies (ibid.). The level of post traumatic stress in women after preterm birth does not decline with time, and their high level of anxiety in mothers of preterm babies and their

over-protective attitude hinders the creation atmosphere conducive to favourable development of their children (Walczak, Chrzan-Dętkoś, 2017).

5. The profile of preterm babies

Preterm babies form a very varied group of newborns, born before the end of 37. weeks of pregnancy, in whom a range of complications stemming from immaturity of body organs may occur. In order to evaluate the rate of a newborn development and maturation of individual organs, we may talk about adjusted age, which pertains to earlier defined date of birth (Kordek, 2010; Rozalska-Walaszek, et al., 2012).

Depending on the duration of pregnancy and the infant maturity, children born prematurely are divided into:

- "moderately preterm infants" – babies born between 34 to 36 (+6) weeks of pregnancy. These babies are ranked in a group of relatively mature babies, comparable to the weight of full-term babies. However, given the immaturity of organs, preterm babies bear a larger risk of health problems than full-term babies. As many as 74% of all preterm babies are born in this period, which accounts for 4 – 5% of all births.

- „very preterm infants", born before 32 weeks of pregnancy, and the scope of the phenomenon of childbirths in this period can be estimated at ca. 1% of all live childbirths.

- „extremely preterm infants, born before 28 weeks of pregnancy, the frequency of birth of these children is at the level 0,4% of all live childbirths (Kosmala, et al., 2016).

The shorter the time of pregnancy, the more serious the adaptation disorders of the puppy to the life outside the uterus, and the quality of life life expectancy is rather unsure. Among clinical symptoms of prematurity there are: hypotonia (or low muscle tone), undeveloped or inhibited neonatal reflexes, impaired mobility of the newborn, fail chest, food sensitivities, respiratory diseases. The skin of a preterm baby is thin, loose and translucent, with blood vessels visible through it. A preterm baby often features lack of well-developed subcutaneous tissue, often closed eyelids, thick layer of greasy vernix caseosa and lanugo covering most of the baby's body. In male babies, undescended testes happen when one or both of male testes may have not descended into the scrotal sac, and in female babies labia majora (large lips) may not yet be covering labia minora (small lips) of the genitals (Kordek, 2010).

Morphological features of the newborn immaturity as well as neuromuscular maturity can be evaluated with the aid of numerous scales such as: Parkins Score, Lubchenko growth curve, Amiel-Tison Neurological Assesment, Dubowitza/Ballard scoring, Apgar score (Szczapa, 2015).

Preterm babies often struggle with a number of adaptation disorders, which impedes their autonomous life outside their mother's body. Therefore providing them with adequate conditions, reflecting those of foetal life (Kosmala, et al., 2016).

Among the most common complications stemming from prematurity there are: RDS – Respiratory Distress Syndrome, Muscle weakness, the symptoms of which are: muscular tremor or clonic spasms, impaired thermoregulation jaundice higher or lasting longer, metabolic disorders, NEC-Necrotising Enterocolitis, PDA-Patent Ductus Arteriosus)[1], anaemia or polycythemia, infections (congenial or adaptive), IVH-Intraventricular Hemorrhages, ROP-Retinopathy of Prematurity[2] (Kordek, 2010).

6. Treatment of a preterm baby

Immediately after childbirth, adequate steps must be taken to prevent consequences of adaptation disorders of a preterm baby to the life outside the uterus. After childbirth, an experienced NICU medical team should provide adequate protection from heat loss, prevent hypoxia and possible metabolic disorders, prevent or treat infections or hiperbilirubinemia, anaemia or polycythemia, schedule early start of oral feeding with maternal breast milk. Should the baby condition require such actions, the NICU medical team begins and monitors the baby's CPR (Kordek, 2010).

Compliance with the principles of hypothermia prevention is key, as heat loss by a preterm baby may occur fatal. Among fluctuations in external temperature there are differences in skin temperature of the newborn and his environment, namely the influence of physical agents of the environment such as: temperature, humidity and air movement (Jeffery, Klaus, 2016).

Internal temperature depends on the body mass to surface ratio of the newborn. Among the main mechanisms of heat loss after birth there are evaporation and respiration. Full term newborns are able to balance their heat loss by, among others, increased activity of skeletal muscles, peripheral artery contractions, increased metabolism or non-shivering thermogenesis.

Preterm babies born after 29 weeks of pregnancy have the ability to generate heat in the process of non-shivering thermogenesis, involving mainly burning of brown adipose

[1]PDA – Patent Ductus Arteriosus is opening, persistent from the foetal life, between blood vessels connecting the aorta and pulmonary artery.
After: https://www.sercedziecka.org.pl/wady-serca/przetrwaly-przewod-tetniczy-botalla-15/
[2]ROP – Retinopathy of Prematurity is an eye disease of immature retina.
It occurs in prematurely born children whose retinal blood vessels are not yet fully developed.
After birth, abnormal vascularity is accompanied by abnormal hypertrophy of the connective tissue, leads to pathological fibrovascular proliferation in the retina and vitreum
These, in turn, lead to detachment of the retina, and subsequently fill the interior of the eyeball.
Such changes may cause serious visual impairment including blindness.
After: https://www.mp.pl/pacjent/pediatria/choroby/oczy/78860,retinopatia-wczesniakow

tissue, which is a source of energy localized between the shoulders, and in the areas of the neck, kidneys and along aorta (Rozalska-Walaszek, et al., 2012; Beck, et al., 2010).

Premature baby hypothermia may be associated with numerous adverse changes in the body, effecting in life-threatening emergency. Typical implications of hypothermia are: drop in blood glucose level, metabolic acidosis resulting from high aerobic glycolysis, depletion of muscle glycogen reserves, hypoxemia ($PaO_2 < 50$ mmHg), increase in oxygen consumption and metabolic transformations (Szczapa, 2015). Therefore, delivery room or operating theatre must provide adequate room temperature – ca. 25°C, and the body of a preterm baby must be covered immediately after birth, and all essential medical, pharmacological and care operations performed under a heat radiator. A preterm baby must be placed in a closed, heated incubator. In babies born before the end of 28 weeks of pregnancy, occlusive skin wrapping is used in order to prevent hypothermia (Szczapa, 2015; Kosmala, et al., 2016).

After placing a preterm baby in a resuscitation area, SpO_2 sensor must be set on the right upper limb ASAP. Among expected SpO_2 spans, both in full term and preterm babies, there are: 60-65% at 1 minute, 65-70%) at 2 minutes of life, 70-75% at 3 minutes of life, 75-80% at 4 minutes of life, 80-85% at 5 minutes of life and 85-95% at 10 minutes of life of a newborn. Reduction of these values obliges the NICU medical team to apply oxygen therapy. Efficient ventilation translates into: movement of the newborn's chest during inhalation, higher SpO_2 value, heart rate rise > 100 ud/min (Phillipos, et al., 2017; 73 Cloherty, et al., 2015).

The treatment of preterm babies both immediately after birth and in further care should take into consideration minimising invasive procedures such as arterial blood sampling or capillary blood sampling. Umbilical artery catheterization is desired in the first hour of life as it enables blood sampling in a stressless manner for the newborn. It reduces the stress and pain induced by skin puncture, reduces blood loss and the risk of iatrogenic infection stemming from skin damage (Kosmala, et al., 2016).

Another issue concerning the care of a preterm baby is adequate baby nutrition. The best form of infant nutrition is breastfeeding "on demand". It means feeding the baby anytime they show hunger cues and feeding until they decide to be done. Preterm babies born before 34 weeks of pregnancy lack the coordination necessary for sucking–swallowing–respiration, thus breastfeeding or bottle feeding is impossible and gastric tubes must be used instead. Newborns with very little and extremely little birth weight demand parenteral nutrition and gradual integration of enteral nutrition formula (Embleton, 2013). According to the guidelines of The European Society for Paediatric Gastroenterology Hepatology and Nutrition (ESPGHAN) total energy intake of preterm babies is 110-135 kcal/kg/d regardless of their gestational age, which accounts for 150-180 ml/kg/d of breast milk of formula (after: Gulczyńska, et al., 2014).

Preterm babies with birth weight below 1500 g. are especially vulnerable to infections. In this group of babies, an increased incidence of sepsis was observed as the most common cause of mortality in preterm babies. The most common pathogens of sepsis in these children include gram-negative bacteria and Group B Streptococci (GBS). Other factors putting them at risk of serious infections are: long-term mechanical ventilation or umbilical vascular catheterization (Cloherty, et al., 2015).

The incidence of infections in preterm newborns is linked to prematurity of their defence mechanisms. The skin and mucous membranes of preterm babies are more permeable and susceptible to damage. Weakened peristalsis and reduced amount of hydrochloric acid increase the risk of growth of pathogenic microorganisms and their overcoming permeable tissue barriers. The symptoms of infection are usually heterologous in a newborn: food clogging, vomiting, difficulties feeding, reduced activity of the newborn, breathing disorders, apnea, hipo-or hipertermia, skin pigmentation disorders (gray, pale, or bluish tint to the skin), increased demand for respiratory support, metabolic disorders, metabolic acidosis, changes in the central and peripheral circulatory system (Kordek, 2010; Kosmala, et al., 2016).

Diagnosis of infectious disease is possible owing to the identification of risk factors, visible clinical symptoms and additional test results (blood culture test, Complete Blood Cell Count (CBC) and Peripheral Blood Film, C-reactive protein concentration (CRP) and procalcitonin. Given the dynamics of the disease process, treatment must start as soon as possible. In order to stabilize the condition of the newborn, causative treatment is applied – antibiotic therapy, based on antibiogram, respiratory support, treatment of coagulation disorders and auxiliary treatment, if necessary, e.g. parenteral nutrition.. Antibiotic treatment must be possibly short. In the case of mild and moderate course infection, it is 7 to 10 days long, and with severe infections or due to specific location (e.g. ostitis, pachyleptomeningitis) the treatment lasts up to 21 days (Kosmala, et al., 2016).

7. Parental care for a preterm baby

The situations of mothers of preterm babies hospitalized at Neonatal ICUs is much more difficult than mothers of full term babies, who are strong and autonomously adapting to the world outside the uterus. Given the health condition of a preterm baby, who must stay put in an incubator, her mother does not have the chance for rooming-in with the baby, taking spontaneous care for her, or nursing the baby (Feeley, et al., 2011).

In order to cope with such situations, NICU medical team enables the parent's early contact with the preterm baby, mothers and fathers are allowed to visit the babies at the NICU any time they can. Before the first contact with the baby, parents are instructed to

wash their hands thoroughly and, depending on the baby's medical condition, wear a face mask (given the reduced immunity of the preterm baby).

A team of doctors, nurses and midwives help women in breastfeeding if the baby's medical condition is good. It is worth trying to breastfeed preterm babies with developed sucking reflex and a coordinated suck-swallow-breathe reflex formed, with lack of additional factors affecting breastfeeding.

It has been proved that a mother's breast milk reduces the risk of infections, NEC – Necrotising Enterocolitis and the incidence of ROP – Retinopathy of Prematurity. There are reports on positive influence of woman breast milk on neurological development of preterm babies. Unfortunately, given the lack or delayed first contact of the baby with the mother (preterm baby's stay in the ICU), or the absence of mother in the same room with the baby, breastfeeding trials or expressing milk may be difficult (Fontana, et al., 2018).

Kangaroo care (skin-to-skin contact) is a positive alternative helping the mother build adequate bond with the baby, and influence lactation positively. If a newborn's respiratory and circulatory systems are stable, the NICU team teaches the mother how to start the kangaroo care (KC) (Rozalska-Walaszek, et al., 2012). This is a method of holding a baby against a parent's bare chest and a blanket covering its back to prevent hypothermia. Such close contact with the baby benefits both the parent and the baby. Kangaroo care accelerates the process of parent's bonding with the baby and reduces the mother's level of stress, which also facilitates her process of puerperium. Kangaroo care influences the development and quicker recovery for preterm babies through, i.a., stress reduction, and minimizing problems with respiratory, immunological or circulatory systems. Preterm babies who experienced skin-to-skin contact colonize their skin with physiological flora from their parent, acquiring immunity in this way. A faster body weight gain is observed owing to easier access to natural food. Heating a newborn through a skin-to-skin contact with her parent facilitates bonding between the mother or father and their child. Shorter time of hospitalization is observed in the kangarood children. Hearing a heartbeat of the parent, and feeling the warmth and scent and stroking of her mother or father, a newborn reacts to external stimuli better (Bajek, i in., 2014; Stodolak, Fuglewicz, 2012; Niemyjska-Matulka, 2019; Pilewska–Kozak, 2009).

Preterm babies are often over-sensitive and agitated, so the presence of the mother or father with the baby cannot be reduced to the role of an observer. Such limited contact often ends with a failure to soothe the baby. Such situations may evoke feelings of anxiety and helplessness in the parent. They may influence the perception of the child as a difficult and incomprehensible, disturbing proper relations.

Education of the parents and encouraging them to close contact with the baby allows for developing confidence in their own parental expertise and gradual independence in terms of care for the baby. The time of the preterm baby's stay in hospital is also the time for

the parents of acquiring skills in care for the baby, time of getting confidence in contact with the baby, learning kangaroo care, time of learning how to care for the preterm baby skin or change the baby's nappy, and for the mother it is the time of learning how to breast feed the baby. These skills efficiently lower the parents' stress level after the baby's return home (Rozalska-Walaszek, et al., 2012).

Summary

Prematurity is a challenge of a large part of society worldwide. Particularly disturbing statistics are observed in countries with very low economic status. On one hand, every year an increase in the number of preterm births is observed, and on the other owing to increasingly improving techniques and perinatal care we are witnessing an increase in survival of ever-decreasing birth weight.

An increasingly improving specialist neonatal care allows for an effective treatment and fostering development of preterm babies. It must be however stressed that remote consequences of prematurity, especially the ones linked to the nervous and respiratory systems, may influence the quality of life in further development. Prematurity is a challenge for parents. There is thus urgent need to promote educational classes (birth schools) for parents expecting their babies. Education of both parents on the risk factors of preterm birth, increased level of knowledge and awareness pertaining good physical and mental hygiene during pregnancy, keeping work-life balance in women's lives may contribute to lifestyle modification of a mother. The father's active presence in the period of expecting the baby may, in turn, benefit with his engagement in care for the baby after birth.

All efforts thus need to be made in order to prevent preterm births through health promotion, implementation of prevention methods not only during pregnancy, but also in the period before it. Interdisciplinary health care staff should make every effort in order to enable early "skin to skin" contact in order to help parents read subtle signals sent by the baby and make close contact which will allow the mother reduce her stress after birth, and develop parental competences in both parents.

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Image and body self-esteem. The perspective of women in the puerperium

Obraz ciała i samoocena. Perspektywa kobiet w połogu

Abstract: *Introduction:* Motherhood is an amazing experience for a woman. It turns out, however, that the joy of having a baby is often accompanied by a negative body image and, at the same time, a reduction in self-esteem. *Method*: The study sample consisted of 60 puerperal women. A personal questionnaire was used to collect information related to pregnancy, family situation. The body image was verified with the *Body Esteem Scale* (BES), and the MSEI *Multidimensional Self-Assessment Questionnaire* was used to test the self-esteem. The research was conducted in the first three quarters of 2019 in Poland**.** *Results:* 66,7% of the mothers surveyed gave birth without complications, 53,3% breastfed their babies. Among women for whom appearance is very important, the lowest weight gain was observed during pregnancy. The relationship between the body image in all its dimensions and the support obtained from relatives has been proven (p=0,001 to 0,036). It has been proved that the type of feeding the child has a significant relationship with the "weight control" subscale (F=3,03; p=0,04), and the "physical condition" with the assessment of the body before pregnancy (F=4,34; p=0,004). Women giving birth in natural conditions obtained significantly higher results in "competence" and "popularity". "Weight control" negatively correlates with the feeling of "being loved" (r=-0,47; p=0,001), but positively with "leadership abilities" (r=0,31; p=0,016) and with "vitality" (r=0,46, 0,001). Also "physical condition" negatively correlates with the feeling of "being loved" (r=-0,39; p=0,002) and "vitality" (r=-0,45; p=0,001) and "identity integration" (r=-0,31; p=0,018). *Conclusions:* The examined women in the puerperium have a much worse image of their body compared to its subjective assessment before the pregnancy. Those of them who declared support from their relatives assessed their own bodies much more favorably. The type of child feeding in the study sample was significantly related to the body image of the mothers in the "weight control" subscale. In mothers who assessed their own body extremely (very good vs. very bad) before delivery, the greatest decrease in the sense of sexual attractiveness was shown.
Keywords: puerperium, body image, self-esteem, motherhood

Abstrakt: *Wstęp:* Macierzyństwo jest niezwykłym doświadczeniem dla kobiety. Okazuje się jednak, że często radości z narodzin dziecka towarzyszy negatywny obraz własnego ciała, a jednocześnie obniżenie samooceny. *Metoda:* Badaną próbę stanowiło 60 kobiet w połogu. Zastosowano ankietę osobową do zebrania informacji związanych m.in. z ciążą, sytuacją rodzinną i znaczeniem wyglądu dla badanych. Obraz ciała weryfikowano przy pomocy *Skali Oceny Ciała* BES, zaś do badania samooceny wykorzystano *Wielowymiarowy Kwestionariusz Samooceny* MSEI. Badania prowadzono w trzech pierwszych kwartałach 2019 roku na terenie Polski. *Wyniki:* Zdecydowana większość badanych matek rodziła naturalnie, bez komplikacji (66,7%), ponad połowa (53,3%) karmiła dziecko piersią, a spośród dzieci, jedynie dwoje miało po urodzeniu problemy ze zdrowiem. Wśród kobiet, dla których wygląd ma bardzo duże znaczenie, zaobserwowano najniższy przyrost masy ciała w ciąży, przy czym aż 70% próby deklarowało, że wizerunek jest dla nich niezwykle ważny. Udowodniono związek obrazu ciała we wszystkich jego wymiarach ze wsparciem uzyskiwanym od bliskich (p=od 0,001 do 0,036)**.** Dowiedziono, że rodzaj karmienia dziecka ma istotny związek z podskalą „kontrola wagi" (F=3,03; p=0,04), zaś „kondycja fizyczna" z oceną ciała sprzed ciąży (F=4,34; p=0,004). Kobiety rodzące

naturalnie uzyskały istotnie wyższe wyniki od rodzących przez cesarskie cięcie w dwóch podskalach samooceny –„kompetencje" oraz „popularność". Podskal „kontrola wagi" koreluje ujemnie z poczuciem „bycia kochanym" (r=-0,47; p=0,001), ale dodatnio ze „zdolnościami przywódczymi" (r=0,31; p=0,016) i z „witalnością" (r=0,46; 0,001). Także „kondycja fizyczna" koreluje ujemnie z poczuciem „bycia kochanym" (r=-0,39; p=0,002), ale także z „witalnością" (r=-0,45; p=0,001) i „integracją tożsamości" (r=-0,31; p=0,018). *Wnioski:* Badane kobiety w połogu mają zdecydowanie gorszy obraz swego ciała w stosunku do jego subiektywnej oceny sprzed okresu ciąży. Te z nich, które deklarowały wsparcie ze strony bliskich, dużo korzystniej oceniały własne ciało. Rodzaj karmienia dziecka w badanej próbie miał istotny związek z obrazem ciała matek w podskali „kontrola wagi". U mam, które przed porodem skrajnie oceniały własne ciało (bardzo dobrze *vs.* bardzo źle) wykazano największy spadek poczucia atrakcyjności seksualnej. Udokumentowano związek wszystkich wymiarów obrazu ciała z niektórymi wymiarami samooceny badanych, tj. z: poczuciem „bycia kochanym", „zdolnościami przywódczymi", „witalnością" i „integracją tożsamości".
Słowa kluczowe: połóg, obraz ciała, samoocena, macierzyństwo

1. Introduction

During pregnancy and puerperium, a woman's body undergoes significant transformations which may have a significant impact on the image of a woman's body (Hodgkinson, Smith, Wittkowski, 2014). In the face of social and cultural pressures regarding the ideal of beauty, some of them experience frustration, despite the fact that they find joy in waiting for the child and its birth. Many mothers also justify their willingness to transform their bodies in order to adapt to the ideal image of a female body adopted by themselves and society (Wilczyńska, Zarańska, 2013).

In the own research, the relationship between body image and the self-esteem of women in puerperium was verified by analyzing various dimensions of both constructs, also in relation to side variables. However, to analyze the concept of an empirical design and its results, let's first look at key concepts.

Physiological changes allow a woman to gradually and gently become a mother and facilitate her psychosocial maturation (Lichtenberg-Kokoszka, 2011), although they can also cause discomfort and disappointment. Swelling of the body, stretch marks, significant weight gain, pain, etc. are just some of the reasons for concern of young pregnant women who, in this new situation, will have to revise their current way of thinking about themselves and the world (Stelmasik-Turczyńska, 2013). Immediately after pregnancy and childbirth, the several-week puerperium begins. During this time, anatomical, morphological and functional changes gradually subside and the system returns to the state it was before pregnancy (Dziok, 2013). There are a number of ailments associated with childbirth, regardless of the method of delivery, which leave a mark on the functioning of a woman. For example, breast pain associated with breastfeeding has a huge impact on both the mother's well-being, weight control and the quality of childcare and intimate relationships (Gebauer-Sesterhenn, 2007; Okój, 2018). In turn, unfavorable changes in self-esteem, lack of support, may contribute to the occurrence of postnatal depression (Ferrari et al., 2020).

Adapting to new parenting tasks can be particularly burdensome for mothers who have given birth for the first time and have no experience in caring for a newborn (Musters et al., 2008). Mental resilience and high self-esteem are the protective factors preventing the occurrence of postpartum depression. There is also a proven association between breastfeeding and postpartum depression. Shorter breastfeeding may affect the occurrence of postpartum depression in mothers, and vice versa - the occurrence of depression may lead to shorter natural feeding of the child (Studniczek, Borowska-Turin, Laudański, 2018).

The term self-esteem is equated in Polish with the concepts of "self-assessment", "self-regard" and "global self-assurance" (Szpitalak, Polczyk, 2015). Self-esteem can be understood as a relatively constant feature, i.e. a crystallized judgment or attitude towards oneself, and as the current state and motive presented by the subject (Wojciszke, 2003). According to M. Rosenberg (1965, as cited in: Łaguna, Lachowicz-Tabaczek, Dzwonkowska, 2007), high self-esteem proves a person's belief that he or she is valuable, while low means dissatisfaction with oneself and rejection of his/her own self. Both underestimated and overestimated self-esteem are associated with increased cognitive and emotional costs incurred by the individual (Góralewska-Słońska, 2011).

The factors influencing the emotional state of a woman in the puerperium period and her self-esteem include, among others: concerns about finances, conflicts with her husband, dissatisfaction with the relationship, feeling lonely, lack of support from family and relatives, including bad relationships with the mother (Kobiołka, Pierz, Mężyk et al., 2015). Women, especially those after the first birth, are also concerned about their attractiveness, including the appearance of the breasts after feeding. Breasts have a psychological and aesthetic significance for a woman, and changes within them may lead to a decrease in self-esteem or a feeling of embarrassment, especially in intimate contacts with a partner (Brandt-Salmeri, Przybyła-Basista, 2018). One of the important dimensions of self-esteem is body image, i.e. the way we see our own body (Schilder, 1950).

The body image consists of cognitive, emotional, behavioral, perceptual components, as well as the interpretation of internal and external stimuli, subjective experiences related to the body and opinions - both from others and own (Britek-Matera, 2008). Attention should also be paid to gender differences in the formation and quality of the body image (Biernat, Bąk-Sosnowska, 2018). In the case of boys, it is rather stable, while in girls, along with psychophysical development, it usually changes to a disadvantage, causing a number of negative consequences (Biernat, Bąk-Sosnowska, 2018).

T.F. Cash and T. Pruzinsky (2004) distinguish two groups of factors on which the development of body image depends. The first includes past events that cause an individual to have a specific way of thinking about the body (e.g. the meaning given to the image of a child by its parents). The second - current events, especially such that force a person to pay

attention to their own body and its appearance (e.g. illness, pregnancy) (Schiep, Szymańska, 2012).

Nowadays, cultural stereotypes of femininity take on a special meaning in shaping the image of one's own body. With time, women internalize the current aesthetic standards, which become a point of reference for assessing themselves, influencing their well-being, beliefs and actions (Kochan-Wójcik and Piskorz, 2010). What is dangerous, a mother who is not satisfied with her own body is usually critical of her daughter's appearance in the future, shaping its negative image, which contributes to lowering the girl's self-esteem and makes it difficult to derive satisfaction from life (Głębocka and Kulbat, 2005). Self-objectification, i.e. treating the body as a disciplined object, significantly reduces the individual's spontaneity, self-esteem and, in general, the quality of their life. It leads to constant, often obsessive monitoring of one's own appearance, while reducing the sensitivity to internal emotional states (Gawron, 2013).

An important aspect in shaping the relationship between body image and self-esteem is its acceptance. A high level of acceptance of one's body and image is desirable because it protects against distress associated with low self-esteem (Brandt-Salmeri, Przybyła-Basista, 2018). Women's age is also related to self-esteem and body image. It turns out that the younger women judge their bodies primarily through the prism of attractiveness, and for the older ones fitness plays a more important role. Moreover, other important factors for the formation of body acceptance are the history of a woman's motherhood, her professional situation or the type of support received (Cumming, Kieren, Cumming, 2000).

2. Aim and Method

The main goal of the research was to verify the relationship between the self-esteem (dependent variable) and the body image (main explanatory variable) of women in puerperium, depending on the demographic variables (explanatory side variables).

The following research tools were used to measure the variables: 1) *Personal questionnaire*, 2) BES *Body Esteem Scale* and 3) MSEI *Multidimensional Self-Esteem Inventory*. The first one included questions about, i.a., marital status, type and course of childbirth, weight gain during pregnancy, health of the child after birth, feeding method, feeling of support during the puerperium, body assessment before pregnancy.

The Body Esteem Scale (BES) by S.L. Franzoi and S. A. Shields adapted by M. Lipowska and M. Lipowski (2013), is used to define the attitude of women and men toward their own bodies. This questionnaire contains 35 items about corporeality. The participants respond to each of them on a five-point Likert scale (from 1 - "I have strong negative feelings" to 5 - "I have strong positive feelings"). The female version of the tool consists of three scales: "sexual attractiveness", "weight control" and "physical condition".

The reliability of the Body Esteem Scale and its subscales, measured by the Cronbach's α index, is satisfactory and ranges from 0.80 to 0.89 (Lipowska, Lipowski, 2013).

The MSEI Multidimensional Self-Esteem Inventory (O'Brien, Epstein, 1988, as cited in: Fecenec, 2008) consists of 116 questions. It includes the following subscales: "general self-esteem", "competence", "being loved", "popularity", "leadership skills", "self-control", "moral self-acceptance", "physical attractiveness", "vitality", "identity integration" and "defensive self-esteem reinforcement". The respondents provide answers on a five-point scale (in the first part of the questionnaire: from 1 - "completely untrue" to 5 - "completely true"; in the second part: from 1 - "almost never" to 5 - "very often"). The test reliability expressed by the Cronbach's α index is satisfactory and ranges from 0.70 to 0.90 for individual scales (O'Brien, Epstein, 1988).

The sample consisted of 60 women in the postpartum period, aged 18 to 49; the mean age of the respondents was 28.83 years (SD = 5.86); 95% of the participants were in a relationship; 50% had given birth for the first time. The vast majority of the participating mothers gave birth naturally, without complications (66.7%; n = 40); 53.3% (n = 32) of mothers breastfed; only two of the children had health problems after birth. Slightly less than half (40%) of the surveyed women gained 4 to 10 kg during pregnancy, and 21.7% gained between 11 and 15 kg. Weight gain from 16 to 20 kg was recorded in 20% of the women, from 26 to 30 kg in 10%, from 21 to 25 kg in 6.6%, and over 31 kg in 1.7% of the respondents.

Interestingly, the lowest weight gain was observed among women for whom appearance is very important, where as many as 70% of the sample declared that image is extremely important to them. Although most of the women before childbirth assessed their body image very positively on a 5-point scale (4 points - 40%, 5 points - 23.3%), after giving birth 30% of the respondents rated their body only with 2 points, and 25% for 1 point. Moreover, what is encouraging, the vast majority of the surveyed women (83.3%, n = 50) declared that they received support from their family and relatives in the postpartum period.

The research based on purposeful selection was carried out in the first three quarters of 2019 in Poland in a group of 69 women who were in puerperium at the time of the study; however, nine were eventually rejected due to incomplete material. Each participant was informed about the purpose of the research project and gave informed consent to participate in it.

The obtained results were statistically analyzed using the Statistica program. The researchers adopted a confidence level of $p > 0.05$. The statistical analysis used: Student's t-test, one-way Fisher's analysis of variance (ANOVA) and r-Pearson correlation coefficient.

3. Results

In the first step of the empirical material analysis, it was checked what body image was presented by the surveyed women and whether it was related to the demographic variables. It turned out that taking into account the side variables which were not directly related to physicality (age, marital status, support), only the received support differentiated at a statistically significant level all body image scales of the surveyed women (Table 1).

Table 1. Student's t-test for body image and support

BES	Support +	Support –	T	df	P
Sexual attractiveness	42,84	35,10	3,345	58	0,001*
Weight control	26,48	17,40	3,311	58	0,002*
Physical condition	28,82	23,90	2,146	58	0,036*

* statistical significance p<0,05

Women declaring getting support from relatives showed a much better body image in relation to the remaining participants. Eventually, the relationship between pregnancy and childbirth related side variables and the body image was verified. It turned out that both the form of childbirth and the week of puerperium were irrelevant to the body image. It has been proved, however, that the type of child's feeding is significantly related to the "weight control" subscale ($F = 3.03$; $p = 0.04$) (Fig. 1).

Women breastfeeding alternately with using modified milk and breastfeeding exclusively had a much better postpartum body weight control than women feeding only with modified milk.

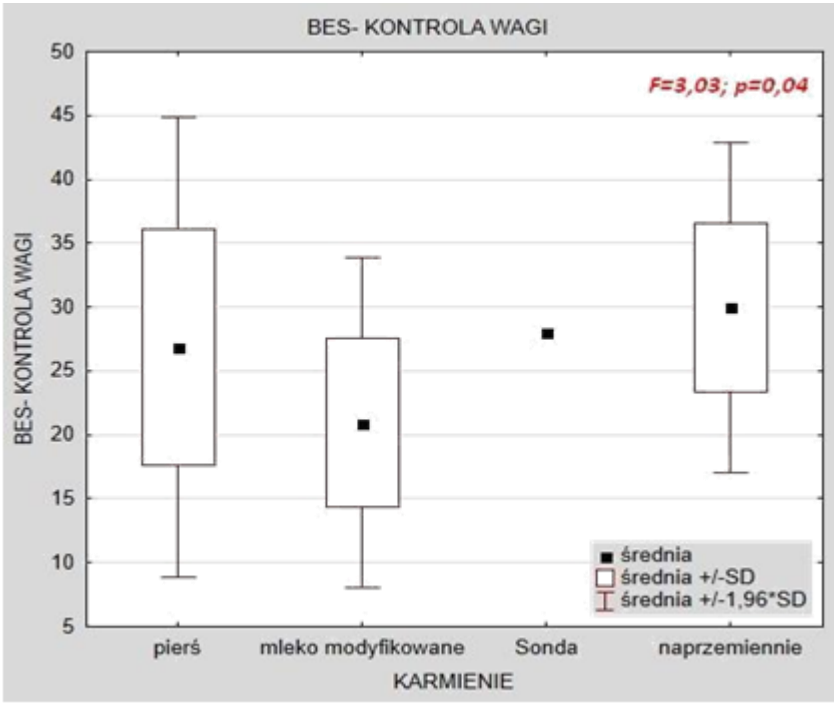

Fig. 1. Weight control and the way of feeding a child

The next step in the verification of the relationship between the demographics variables and the body image of the surveyed women was the comparison of factors related to the appearance during pregnancy and puerperium with the body image measured with the BES scale. There was a significant relationship between the physical condition and the body assessment before pregnancy in the surveyed women (F = 4.34; p = 0.004) (Fig. 2).

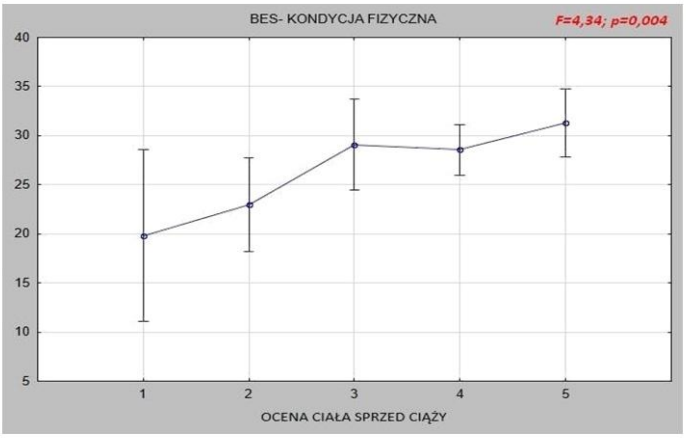

Fig. 2. Physical condition and body assessment before pregnancy

Women who rated their body the highest (on a 1-5 scale) before pregnancy obtained higher results on the "physical condition" scale than women who assessed their body the

worst. A significant relationship was also confirmed between the body assessment after childbirth and the scales: "sexual attractiveness" and "physical condition" (Table 2).

Table 2. ANOVA for body image and postpartum body assessment

	SS	df	MS	SS	df	MS	F	P
Sexual attractiveness	1227,85	4	306,96	1859,00	55	33,800	9,082	0,001*
Physical condition	721,10	4	180,28	2020,90	55	36,744	4,906	0,002*

*statistical significance p<0,05

The highest results on the "sexual attractiveness" scale were noted in women who assessed their body positively after childbirth (4/5 points). Interestingly, the respondents who assessed their body the highest (5/5 points) experienced a significant decrease in sexual attractiveness, compared to the result of women who assessed their body the worst (1/5 point). Moreover, women who assessed their body well (4/5 points) and very well (5/5 points) after childbirth obtained higher results on the "physical condition" scale than those who assessed their body worse (1/5 or 2/5 points). However, as in the case of sexual attractiveness, among women who rated their body the highest after childbirth (5/5 points), a decrease in physical condition declared by the respondents was observed.

In order to verify the relationships between demographic variables (age, marital status and family support) with women's self-esteem, they were compared with the results obtained by the respondents on the MSEI scale (Table 3).

Table 3. Student's t-test for the self-assessment of the respondents and the received support

MSEI	Support +	Support –	t	df	P
Overall self-esteem	33,120	31,200	1,681	58	0,098
Competencies	31,480	29,500	1,858	58	0,068
Being loved	30,180	32,900	-1,991	58	0,050*
Popularity	30,400	29,000	1,457	58	0,150
Leadership abilities	31,040	27,300	3,235	58	0,002*
Self-control	32,340	27,800	3,712	58	0,001*
Moral self-acceptance	29,480	29,300	0,182	58	0,856
Physical attractiveness	30,080	29,400	0,721	58	0,474
Vitality	29,200	26,700	2,68	58	0,010*
Identity integration	32,160	32,300	-0,112	58	0,911
Defensive reinforcement of self-esteem	51,280	50,400	0,544	58	0,588

* statistical significance p<0,05

The statistically significant results concern only the relationship between the scales "being loved", "leadership skills", "self-control" and "vitality" with the support received from relatives. Moreover, the surveyed women who declared experiencing support during the puerperium period obtained higher mean scores in almost all subscales of self-esteem, except for "identity integration".

After that, factors related directly to pregnancy and childbirth were compared with the results obtained by the respondents on the MSEI scale (Table 4).

Table 4. Student's t-test for self-assessment of the respondents and the course of childbirth

MSEI	By forces of nature	Caesarean section	t	df	P
Competencies	32,175	29,100	4,006	58	0,001*
Popularity	30,750	29,000	2,370	58	0,021*
MSEI	No complications	With complications	t	df	P
Physical attractiveness	29,30	31,81	-3,463	58	0,001*

* statistical significance p<0,05

It was found that women giving natural birth obtained significantly higher results than those getting cesarean section on the “competence” and “popularity” scales. There was also a significant and interesting difference in the “physical attractiveness” scale with regards to the birth with and without complications. In the study sample, women giving birth with complications have a higher level of physical attractiveness than those giving birth without complications.

In the next step of the analysis, the variables related to the appearance of women were compared with their self-esteem measured with the MSEI (Table 5).

Table 5. ANOVA for self-assessment and postpartum body assessment

MSEI	SS	df	MS	SS	df	MS	F	P
Being loved	335,80	4	83,95	628,13	55	11,42	7,351	0,001*
Leadership abilities	167,54	4	41,88	595,05	55	10,82	3,871	0,008*
Vitality	89,85	4	22,46	382,34	55	6,95	3,231	0,019*

*statistical significance p<0,05

There were no significant correlations between the self-esteem of the respondents and weight gain during pregnancy. On the other hand, there was a correlation between the subscales: "being loved", "leadership skills", "vitality" with the assessment of the body after delivery. Women who assessed their body negatively after childbirth (1/5 and 2/5 points) have a higher sense of being loved compared to the respondents who assessed their body as average after childbirth (3/5 points). Women who assess their body high after childbirth (4/5 and 5/5 points) have a higher level of leadership skills than those who evaluate it low

(1/5 points). The respondents who highly valued their body after childbirth (5/5 points) show a lower level of vitality than women assessing it worse (1/5 and 2/5 points). For comparison, a detailed chart of the body image of the examined women was made before and after pregnancy. It is clearly visible that the body assessment before pregnancy was significantly higher for all subjects than in the postnatal period (Fig. 3).

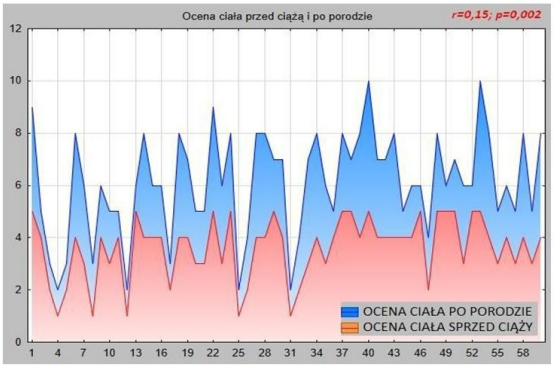

Fig. 3. Body assessment before pregnancy and after delivery

The analysis of the obtained results in relation to side - demographic variables allows to conclude that there are some changes in the self-esteem of the surveyed women in the postpartum period in relation to the period before pregnancy and childbirth, related both to relational factors (e.g. support) and subjective factors (e.g. sense of attractiveness).

Finally, the relationship between the main variables - body image of the surveyed women and their self-esteem was analyzed. For this purpose, the correlations of the subscales of the BES scale for body image measurement and the MSEI (in all dimensions) for self-esteem verification were checked (Table 6).

Table 6. Pearson's r correlation for the subjects' body image and their self-esteem - a list of statistically significant results

BES i MSEI	Average	SD.	r(X,Y)	r2	t	P
Sexual attractiveness – BES	41,550	7,233				
Being Loved – MSEI	30,633	4,042	-0,422	0,178	-3,545	0,001*
Sexual attractiveness – BES	41,550	7,233				
Leadership – MSEI	30,417	3,595	0,443	0,197	3,767	0,001*
Sexual attractiveness – BES	41,550	7,233				
Vitality – MSEI	28,783	2,829	0,376	0,142	3,092	0,003*
Weight control – BES	24,967	8,559				
Being loved –MSEI	30,633	4,042	-0,468	0,219	-4,030	0,001*
Weight control – BES	24,967	8,559				
Leadership – MSEI	30,417	3,595	0,309	0,096	2,479	0,016*

BES i MSEI	Average	SD.	r(X,Y)	r2	t	P
Weight control – BES	24,967	8,559				
Vitality – MSEI	24,967	8,559	0,461	0,213	3,956	0,001*
Physical condition – BES	28,000	6,817				
Being loved –MSEI	30,633	4,042	-0,392	0,154	-3,249	0,002*
Physical condition – BES	28,000	6,817				
Vitality – MSEI	28,783	2,829	0,445	0,198	3,781	0,001*
Physical condition – BES	28,000	6,817				
Identity Integration – MSEI	32,183	3,587	-0,306	0,093	-2,445	0,018*

* statistical significance p<0,05

All dimensions of the body image ("sexual attractiveness", "weight control" and "physical condition") are related to the self-esteem of the subjects. Interestingly - "sexual attractiveness" negatively correlates with the feeling of "being loved" (r = -4.22, p = 0.001), which means that with the increase in sexual attractiveness, the feeling of being loved decreases. "Sexual attractiveness" positively correlates with "leadership abilities" (r = 0.44; p = 0.001) and with "vitality" (r = 0.38; p = 0.003), therefore, an increase in sexual attractiveness coexists with an increase in the level of leadership skills and vitality among the respondents. In turn, "weight control" negatively correlates with the feeling of "being loved" (r = -0.47; p = 0.001), but positively with "leadership abilities" (r = 0.31; p = 0.016) and with "vitality" (r = 0.46, 0.001). Thus, as weight control increases, the sense of being loved decreases, but the level of leadership and vitality increase. Moreover, "physical condition" negatively correlates with the feeling of "being loved" (r = -0.39; p = 0.002), "vitality" (r = -0.45; p = 0.001) and "identity integration" (r = -0.31; p = 0.018). This means that with the increase in the physical condition of the respondents, the level of the feeling of being loved, vitality and identity integration decreases.

Conclussios

1) The examined women in the puerperium have a much worse image of their body compared to its subjective assessment before the pregnancy.
2) The surveyed women who declared receiving support from their relatives showed a much better body image in all its dimensions compared to the remaining mothers who experienced a deficit of support.
3) The type of child feeding in the study sample was significantly related to the body image of the mothers in the "weight control" subscale.
4) The highest results on the scale of "sexual attractiveness" were noted in the surveyed women who assessed their body positively after childbirth, while mothers with the

highest and lowest appraisal of their body experienced a significant decrease in sexual attractiveness.

5) The surveyed women who assessed their bodies well and very well after childbirth obtained higher results on the "physical condition" scale than those who assessed their body the worst.
6) The relationship of all dimensions of the body image with some dimensions of the respondents' self-esteem was shown, i.e. with the feeling of "being loved", "leadership abilities", "vitality" and "identity integration".

Discussion

Pregnancy, childbirth and the puerperium are extremely intense and significant experiences in the life of a woman and her relatives. In the authors' own research it was documented that the feeling of support from the relatives is invaluable for the image of the mother's body in puerperium. This important discovery shows that it is not so much the body weight and its appearance after the hardships of childbirth as the care of the loved ones that make women accept and appreciate their own physicality to a greater extent.

The analysis of research reports provides us with a lot of information on the body image of young mothers. However its relation to the sense of support from relatives during the puerperium is hardly sufficient. In an empirical project involving women 1 to 9 months postpartum (Gjerdingen et al., 2009), body dissatisfaction was definitely on the rise. The non-acceptance of self-physis in the 9th month after childbirth in the study sample was associated with overeating, higher body weight, poorer mental health, bottle-feeding and loneliness. Perhaps this loneliness is related to the deficit of support and care from relatives, which is consistent with the conclusion.

Moreover, the authors' own research has proven that the body image of women during the puerperium is clearly worse in all its dimensions than before pregnancy. This result is in line with the results of many other studies. For example: a meta-analysis of seventeen English-language empirical texts (Hodgkinson, Smith, Wittkowski, 2014) published from January 1992 to December 2013 shows that women in the perinatal period perceived their bodies as beyond their control and exceeding the socially constructed ideal of beauty. Moreover, their physicality connected with fulfilling the role of a mother threatened (in their view) the role of a wife and / or a working woman. In the postpartum period, both dissatisfaction with the body and unrealistic expectations towards it dominated among the respondents.

Interesting research on the perception of childbirth and puerperium by young women was carried out by Agnieszka Okój (2018). Most of the respondents had a negative image of the female body that gave birth to the child. Most of the opinions were related to

the inexperience of childbirth and the lack of knowledge about childbirth, in particular the changes that take place in the woman's body during puerperium. Additionally, the surveyed women differed in the degree of acceptance of the fact that their bodies could change. The greatest concern of the respondents was weight gain and anxiety about the reversibility of some changes (e.g. stretch marks, cellulite, significant deterioration of the breast condition). Qualitative, in-depth research on young mothers (Fox, 2015) proved that motherhood gives women a reason to be proud of their bodies, as long as they felt that they fulfill their maternal functions well. However, concerns about appearance persisted and were especially pronounced as women faced returning to work.

In the study by A. Machaj and I. Stankowska (2011), after pregnancy, childbirth and breastfeeding, women assessed selected parts of their body, i.e. breasts, abdomen, hips, buttocks, thighs, the appearance and shape of legs, feet, silhouette and the appearance of intimate organs. The only satisfaction factor noted was the appearance of the breasts during pregnancy but before the breastfeeding period.

In the authors' own research, the highest level of "sexual attractiveness" - one of the areas of body evaluation - was observed in women who attached little importance to appearance; similarly, the lowest level of "sexual attractiveness" was characteristic of women for whom image is of great importance. Similarly, mothers who did not pay attention to appearance had better weight control than mothers who were strongly focused on their image. The latter, on the other hand, had the best level of physical condition compared to the rest of the subjects. Meanwhile, as Amandeep Kaur et al. (2018) proves, body acceptance is one of the factors of mental well-being, and a negative body image can lead to many health problems, such as obesity, eating disorders and depression, etc. It has also been shown that depression and self-esteem in women remain significantly correlated, and the relationship between depression and self-esteem in women after childbirth affects their weight gain (Jeong-Won Han, Da-Jung Kim, 2020). The correlation of body dissatisfaction with postpartum depression is also confirmed by Chui YiChan et al. (2020); the latter variable, however, was not controlled in the authors' own research. Meanwhile, especially in women experiencing postpartum depression, breastfeeding may be related to their self-esteem. Difficulties in undertaking breastfeeding often result in lower self-esteem, and thus contribute not only to lowering the mother's mental resistance resources, but also to a significant deterioration of her self-esteem and escalation of the level of perceived stress (Studniczek, Borowska-Turin, Laudański, 2018).

In the authors' own research, the subjective assessment of the body before pregnancy and after childbirth differentiated the self-esteem of the surveyed women. The results indicate that women who rate their body highly after childbirth have higher levels of "moral self-acceptance", "physical attractiveness" and "vitality". Mothers who valued their bodies low obtained higher scores in the subscales of the feeling of "being loved", "identity

integration" and "defensive strengthening of self-esteem", but low "general self-esteem", sense of "competence", "popularity", "leadership skills", " self-control, "moral self-acceptance," and "vitality." Women who assessed their bodies as average after childbirth obtained higher scores for "overall self-esteem", "leadership" and "self-control", but lower levels of "being loved", "physical attractiveness" and "identity integration". Other studies on similar issues show that women after childbirth with a higher level of effectiveness have a higher level of self-esteem, which certainly contributes to better endurance of childbirth problems (Rogala, Ossowski, 2017). On the other hand, J. Hutchinson and T. Cassidy (2021) proved that mothers who displayed greater dissatisfaction with the body showed significantly lower well-being, self-esteem and subjectively perceived parental competences.

In conclusion, the body image of women in the puerperium period is mostly negative. Building a positive vision of one's physicality is supported by the sense of proper realization of the maternal role, while the need to confront the remaining roles in adulthood - partner and employee roles - is a concern. The support of relatives, received by most of the surveyed women, is conducive to more favorable recognition of one's attractiveness.

The condition of the breasts, which deteriorates in connection with natural breastfeeding, is significantly related to the body image, including the sense of sexual attractiveness. However, women who breastfeed maintain better control over their body weight, which is an important dimension of their body image, and, eventually an important aspect of women's self-esteem.

It seems that the moderate significance attached to one's physicality contributes to the sense of sexual attractiveness of young mothers. Interestingly, with the increase in sexual attractiveness and weight control, the sense of being loved decreases, but the level of leadership skills and vitality among the respondents increases.

The self-esteem of young mothers is related to all dimensions of the body image. Interestingly, women with a lower sense of "sexual attractiveness" and lower levels of "weight control" feel more loved, and those with a high sense of "sexual attractiveness" and "weight control" feel more vital and dominant.

Evidently, this research provides grounds for formulating practical implications. It is worthwhile to educate women about the course of puerperium and the psychophysical changes that may actually occur at this time. This will help young mothers in critical perception of media messages that contribute to the formation of unrealistic expectations towards the body after childbirth. Furthermore, it will encourage their relatives to show care, patience and empathy not only for the newborn child, but also for the woman.

Real help for women after childbirth would be, on the one hand, supporting their self-esteem based on taking the maternal role, not the external image, but at the same time preparing, for example, weight control programs that are safe for mothers themselves and

for the children they breastfeed. Acceptance of woman's own body is an important aspect of mental health. It strengthens self-esteem, which reduces the risk of postpartum depression and increases satisfaction of fulfilling the maternal role.

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Multiple children in the context of an analysis of the quality of life, satisfaction and further procreative plans of women - cross-sectional study

Wielodzietność w kontekście oceny jakości życia, satysfakcji i dalszych planów prokreacyjnych kobiet – badanie przekrojowe

Abstract: The definition of motherhood is manifold. The responsibilities of motherhood should be considered biologically, psychologically and socially. Conscious motherhood is characterized amongst others by the responsibility of parents for procreative decisions, care for the health, development and safety of the child. In Poland, the model of a woman as mother, who dedicates her life to birthing and raising her offspring, dominates. This has a huge impact on the future functioning of the offspring as citizens of Poland. *Materials and method:* Study was conducted through a diagnostic survey in a group of 365 women (284 of which are mothers of three or more children, the remaining 81 being mothers of one child). A self-developed survey containing 29 multiple choice questions with a single correct response as well as a standardized assessment tool SWLS- Life Satisfaction Scale E. Diener, R.A. Emmons, R.J. Larson, S. Griffin (adaptation: Z. Juczyński) were used as a research tool. *Results:* The vast majority of respondents are satisfied with their role as mother (97.1%). Many of the women do not plan to have more children (44.1%). In the respondents' opinion, childbirth is a social privilege of a woman ($p<0.05$). Mothers of more than one child have definitively declared that having multiple children does not decrease the quality of life of women, is a source of life satisfaction, aids in the fulfillment of societal roles and does not impede professional development ($p<0.05$). A constant partner, religious beliefs and relations with other women having more than two children are important factors for respondents when deciding to expand their family ($p<0.05$). Women who have given birth to three or more children have greater life satisfaction as compared to mothers of a single child ($p<0.05$). *Conclusion:* Women are happy to be mothers. Motherhood is not a factor hindering their social and private functioning. Women's procreative decisions are influenced by fixed income, formal relationships and religious beliefs. Mothers of large families have greater life satisfaction in comparison to mothers of one child who do not desire more children.
Keywords: quality of life, motherhood, multiple children

Abstrakt: Macierzyństwo jest pojęciem wielowymiarowym. Funkcje macierzyństwa należy rozważać w aspekcie biologicznym, psychologicznym i społecznym. Świadome macierzyństwo cechuje się m.in. odpowiedzialnością za decyzje prokreacyjne, troską o zdrowie, rozwój i bezpieczeństwo dziecka. W Polsce dominuje model kobiety – matki, która zmienia dotychczasowy sposób życia, aby oddać się rodzeniu i wychowywaniu dzieci. Ma to wpływ na przyszłe funkcjonowanie dzieci oraz na budowaniu w nich postawy odpowiedzialnych obywateli państwa polskiego. *Materiał i metody:* Badania metodą sondażu diagnostycznego przeprowadzono w grupie 365 kobiet (284 to matki trojga lub więcej dzieci, pozostałe 81 to matki jednego dziecka). Narzędziem badawczym była autorska

ankieta składającą się z 29 pytań zamkniętych jednokrotnego wyboru oraz standaryzowane narzędzie SWLS - skala satysfakcji z życia E. Diener, R.A. Emmons, R.J. Larson, S. Griffin (adaptacja: Z. Juczyński). *Wyniki:* Zdecydowana większość respondentek jest zadowolona z bycia matką (97,1%). Duża część kobiet nie planuje mieć więcej dzieci (44,1%). W opinii respondentek wielodzietnych poród jest przywilejem społecznym kobiety ($p<0,05$). Matki wielodzietne istotnie częściej deklarują, że posiadanie wielu dzieci nie pogarsza jakości życia kobiet, daje satysfakcję życiową, ułatwia pełnienie ról społecznych i nie zamyka drogi do rozwoju zawodowego ($p<0,05$). Dla respondentek wielodzietnych ważnymi czynnikami mającymi wpływ na podjęcie decyzji o kolejnym potomstwie są: stały partner, przekonania religijne i znajomość osób posiadających więcej niż dwoje dzieci ($p<0,05$). Kobiety, które rodziły troje dzieci i powyżej mają większą satysfakcję z życia w porównaniu do matek jednodzietnych ($p<0,05$). *Wnioski:* Kobiety są zadowolone z pełnienia roli matki. Macierzyństwo nie jest dla nich czynnikiem stanowiącym przeszkodę w funkcjonowaniu społecznym jak i prywatnym. Na decyzje prokreacyjne kobiet wpływają stałe dochody, związek formalny i wyznania religijne. Matki rodzin wielodzietnych mają większą satysfakcję z życia w porównaniu do kobiet mających jedno dziecko i nie chcących już więcej dzieci.
Słowa kluczowe: jakość życia, macierzyństwo, wielodzietność

1. Introduction

The history of humanity has influenced the shaping of motherhood. In many nations' cultural heritage, motherhood is the supreme embodiment of the feminine (Vasyagina, Kalimullin, 2015). The way motherhood is valued in every society influences how women view themselves and how others react to them (Redshaw, Martin, 2011). In the contemporary world, social, political, and economic transformations have improved women's educational and professional status, increasing their role in all public spheres. That has consequently contributed to motherhood ceasing to be the leading value for women (Vasyagina, Kalimullin, 2015).

In Poland, the model of a woman-mother is passed down from generation to generation, which makes Poles have a large number of children when compared to other European nations. In most traditional concepts, motherhood is a natural role for a woman. She should be focused on procreative function and care for her partners. However, we can, still more frequently, notice the modern model of motherhood, which relies on the equal distribution of roles between the mother and the father(Dzwonkowska-Godula, 2015).

In the social understanding in Poland, motherhood is a vocation and a moral duty of every woman. It also fulfils a biological function. She is the one who can pass on life and bring it into the world. Starting the hardship of upbringing, she gives up herself and limits the chance for developing her career, all to satisfy her children's needs (McQuaid, Munro, Dabir - Alai, 2012). A married couple who take on the role of parents creates a family that gives its members a sense of security, warmth and care (Lachowska, Matuszewska, Lachowski, 2017).

Conscious motherhood means that a woman, together with her partner, control their fertility responsibly and decide to have as many children as their material situation will allow when they reach mental, emotional and social maturity in a period physiologically

optimal for them. The mother's role is to care for the health, safety and development of the child. From the very first days of life, it is the mother who takes care of the child's hygiene, feeds it and satisfies all its needs(Herbst-Debby, 2018).

Positive motherhood relies on close emotional contact with the child, satisfaction of mental needs, taking care of the child's physical well-being and introducing it to everyday life and social relations (Tataj-Puzyna, Bączek, Baranowska, Doroszewska, 2017).

There are three functions of motherhood: biological, psychological and social. The biological function of motherhood refers to ensuring the continuity of society, striving for a simple replacement of generations. A woman who decides to have children provides the state with future employees, payers, consumers, and responsible citizens. The psychological function of motherhood is based on bringing the child to emotional maturity on various levels. Reasonable use of the principles of raising children allows shaping in them a specific pattern of behaviour and reactions in various situations, which will affect the development of their personalities. Finally, the social function of motherhood is to bring up a person capable of living in the community where they find themselves. The mother implements the rules of the community into the child's life from an early age. Thus, she educates a responsible citizen who will care for the population's welfare and development while complying with its rights and obligations (Bartkowiak, 2015).

The research was conducted to assess the quality of life of women with many children. The dominant factor influencing their perception of life is motherhood. A woman contributes to the proper functioning of the world by giving a part of herself. By creating the right conditions for growth, she provides children with good health, emotional and social development. Therefore, assessing various aspects of motherhood and studying the quality of life of mothers with many children can contribute to the development of social and health programmes supporting women in their mothering function.

2. Research objective

The study aimed at analysing the quality of life, satisfaction and further reproductive plans of women depending on the number of children they have.

2.1. Material and methods

The survey was carried out in a group of 365 women. The study group consisted of 284 women - mothers of three or more children, 81 respondents, mothers of one child, were included in the control group). The research tool was an original questionnaire consisting of 29 closed-ended single-choice questions and a standardised SWLS tool - the satisfaction with life scale by E. Diener, RA Emmons, RJ Larson, and S. Griffin (adapted by Z. Juczyński). The

questionnaire consists of five statements with which the surveyee was to agree or not by choosing one of the seven possible answers.

The questions included in the proprietary survey concerned the woman's satisfaction with being a mother, further procreation plans and the reasons behind the decision to have or not have any more children. The questions also concerned the control and assessment of health condition in its various aspects based on the WHO definition, health is a state of complete physical, mental and social well-being "(World Health Organization, 2014).

2.2. Characteristics of the study and control group

Three hundred sixty-five women participated in the study. The study group consisted of 284 mothers of various origins and education, with three or more children living in cities and villages, living with a partner, or single mothers. The control group included 81 mothers with one child and planning no more children with a similar demographic status. A majority of the group were married women (95.8% - with many children; 69.1% - with one child). In terms of residence, the largest group are mothers living in cities with more than 500,000 inhabitants (38.7% - with many children; 38.3% - with one child). Most respondents have higher education (77.1% - with many children; 63% - with one child). Employment is declared by 57.4% of women with many children and 67.9% of women with one child. 67.6% of the surveyed mothers with many children reported employment in line with the learned profession, and 59.3% of those with one child. The vast majority of women are Catholics (97.1% - with many children, 80.8% - with one child) (Tab. 1).

Table No. 1a. Characteristics of the study and control group

		one-child	many children
Marital status	single	8.6%	0.4%
	married	69.1%	95.8%
	divorced	2.5%	1.1%
	widow	0.0%	0.4%
	in a partnership	19.8%	2.5%
Place of residence	village	9.9%	22.9%
	town up to 50,000	14.8%	8.8%
	city from 50,000 up to 150,000	22.2%	14.8%
	city from 150,000 up to 500	14.8%	14.8%
	city over 500,000	38.3%	38.7%

Table No. 1b. Characteristics of the study and control group

		one-child	many children
Education	Primary	0.0%	0.7%
	medium school	0.0%	0.7%
	Vocational	4.9%	1.8%
	Secondary	32.1%	19.7%
	Higher	63.0%	77.1%
Religion	Catholics	80.8%	97.1%
	Atheists	17.8%	0.7%
	Jehovah's witnesses	1.4%	0.4%
	Muslim	0.0%	0.4%
Currently employed	No	32.1%	42.6%
	Yes	67.9%	57.4%
Employment in accordance with the profession	Employment different from the learned profession	40.7%	32.4%
	Employment per the learned profession	59.3%	67.6%

The group structure regarding the number of possessed children shows that the highest percentage (33%) are mothers of three children. The second-largest group of mothers was that with one child (22%). The fertility rate of the surveyed women is presented in detail in Chart 1.

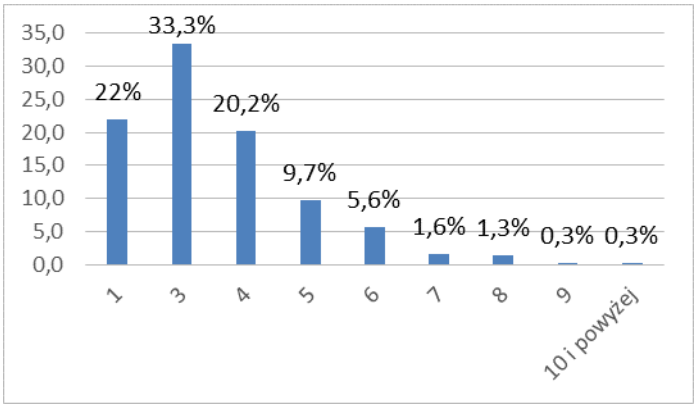

Chart No. 1. Fertility of the study group (n = 365)

3. Results

The first of the studied issues was the degree of satisfaction with being a mother. As many as 78.8% of the respondents stated that they were definitely satisfied with fulfilling the

role of a mother. Another 18.3% of women were rather satisfied with that. Mothers who were rather not satisfied with being mothers constituted 1.1% of the respondents, while 0.8% were definitely dissatisfied. A small percentage of women (1.1%) did not have an opinion on the subject.

Due to the high percentage of women who declared satisfaction with being a mother, they were asked about plans for having more children. A negative answer was given by 44.1% of the respondents. 28.2% of women planned to have more children, while 27.7% did not have fully defined procreation plans.

One of the surveyed issues was the respondents' opinions and experiences about motherhood and having many children. Some of them turned out to be statistically significant ($p<0.05$). And so, women with many children know significantly more families with many children than mothers with one child. According to the respondents with many children, knowing a family with many children, being brought up in a family with three or more children, formal relationship, and religion have a more significant impact on deciding on having another child, compared to single-child women. In the opinion of mothers with many children, childbirth is a woman's social privilege and having many children gives satisfaction to life and helps fulfil social roles.

Single-child women significantly more frequently agreed with the statements that giving birth to many children deteriorates the woman's health and quality of life and closes the way to career development.

Table No. 2. Women's opinions on motherhood

	Test group	Number of respondents	Mean	Standard deviation	df	F	p
having a multiple-children family among close friends	With one-child	81	1.7719	0.42	1	12.04	<0.05
	With many children	284	1.9225	0.27	339		
	Total	365	1.8974	0.30	340		

knowing a many-children family/growing up in a large family versus the decision on having another child	With one-child	81	1.4359	0.55	1	22.67	<0.05
	With many children	284	2.1556	0.92	307		
	Total	365	2.0647	0.91	308		
formal relationship and the decision to have another child	With one-child	81	2.6667	1.52	1	173.14	<0.05
	With many children	284	4.5986	0.88	339		
	Total	365	4.2757	1.24	340		
religion and the decision to have another child	With one-child	81	1.6316	1.19	1	109.74	<0.05
	With many children	284	3.8063	1.47	339		
	Total	365	3.4428	1.64	340		
childbirth is a social privilege of a woman	With one-child	81	2.6842	1.35	1	24.95	<0.05
	With many children	284	3.5915	1.23	339		
	Total	365	3.4399	1.29	340		
giving birth to many children deteriorates health	With one-child	81	3.5439	1.21	1	27.19	<0.05
	With many children	284	2.6162	1.23	339		
	Total	365	2.7713	1.27	340		
having many children deteriorates a woman's quality of life	With one-child	81	3.7193	1.25	1	104.48	<0.05
	With many children	284	2.0246	1.12	339		
	Total	365	2.3079	1.30	340		
having many children gives your life satisfaction	With one-child	81	3.0351	1.18	1	110.17	<0.05
	With many children	284	4.4648	0.88	339		
	Total	365	4.2258	1.08	340		
having many children helps fulfil social roles	With one-child	81	2.7018	0.99	1	68.94	<0.05
	With many children	284	3.9155	1.00	339		
	Total	365	3.7126	1.10	340		
having many children blocks the way to a career development	With one-child	81	3.5088	1.18	1	42.74	<0.05
	With many children	284	2.3592	1.22	339		
	Total	365	2.5513	1.28	340		

Another issue studied was analysing the factors determining the decision to have another child in both multi- and one-child groups.

Among women with multiple children, factors such as a stable partner, religious beliefs and knowing people who have more than two children were indicated significantly more often (p.<0.05). For women with one child, statistically significant factors for procreation decisions were: high salary, social assistance, partner's pressure and providing sibling(s) for the child (p<0.05). It turned out that health had a more significant impact on the decision about the next child in the group of single-child women. Detailed data are presented in Table 3.

Table No. 3. Analysis of factors influencing the decision to have another child between respondents with many children and with one child (n = 365)

Factors	Test group	Number of respondents	Mean	Standard deviation	df	F	p
Permanent job	With one-child	81	0.3509	0.48	1	1.78	0.183
	With many children	284	0.2641	0.44	339		
	Total	365	0.2786	0.45	340		
High salary	With one-child	81	0.2456	0.43	1	7.30	<0.05
	With many children	284	0.1127	0.32	339		
	Total	365	0.1349	0.34	340		
Permanent partner	With one-child	81	0.4035	0.49	1	9.66	<0.05
	With many children	284	0.6232	0.49	339		
	Total	365	0.5865	0.49	340		
Family traditions	With one-child	81	0.1930	0.40	1	0.03	0.861
	With many children	284	0.1831	0.39	339		
	Total	365	0.1848	0.39	340		
Social assistance	With one-child	81	0.1228	0.33	1	18.86	<0.05
	With many children	284	0.0141	0.12	339		
	Total	365	0.0323	0.18	340		

Religious beliefs	With one-child	81	0.1930	0.40	1	15.71	<0.05
	With many children	284	0.4718	0.50	339		
	Total	365	0.4252	0.50	340		
Friends with > than two children	With one-child	81	0.0000	0.00	1	7.97	<0.05
	With many children	284	0.1232	0.33	339		
	Total	365	0.1026	0.30	340		
Starting family	With one-child	81	0.0702	0.26	1	0.04	0.849
	With many children	284	0.0634	0.24	339		
	Total	365	0.0645	0.25	340		
Desire to be a mother	With one-child	81	0.4912	0.50	1	0.21	0.646
	With many children	284	0.5246	0.50	339		
	Total	365	0.5191	0.50	340		
Partner pressure	With one-child	81	0.0702	0.26	1	11.24	<0.05
	With many children	284	0.0070	0.08	339		
	Total	365	0.0176	0.13	340		
Providing sibling(s) for the child	With one-child	81	0.4386	0.50	1	7.08	<0.05
	With many children	284	0.2641	0.44	339		
	Total	365	0.2933	0.46	340		
Fulfiling plans to have a child of a specific gender	With one-child	81	0.0702	0.26	1	3.16	0.076
	With many children	284	0.0246	0.16	339		
	Total	365	0.0323	0.18	340		
Health	With one-child	81	0.1228	0.33	1	3.87	0.050
	With many children	284	0.0528	0.22	339		
	Total	365	0.0645	0.25	340		

The studies also assessed satisfaction with life (SWLS) in both groups. The results show that women who gave birth to three or more children enjoy significantly higher satisfaction with life ($p<0.05$). Detailed data are presented in Table 4.

Table No. 4. Analysis of the standardised test (SWLS) performed

Factors	Test group	Number of respondents	Mean	Standard Deviation		df	F	p
Satisfaction with life	With one-child	81	21.3684	5.98		1	24.30	<0.05
	With many children	284	25.3110	5.41		338		
	Total	365	24.6500	5.67		339		

Discussion

Having children is often associated with a change in current functioning, but a woman can also find joy and fulfilment in her daily hardships (Malina, 2011).

As the own research has shown, most women are satisfied with being mothers. The research by Machaj - Szczerek et al. shows that almost half of the respondents (49.2%) consider motherhood to be a woman's fulfilment. However, a small percentage of women (1.1%) believe that being a mother is difficult (Machaj-Szczerek, Stankowska, 2013).

Despite the positive assessment of motherhood presented in the authors' own study, most respondents do not plan to have more children. In a study by Sobotka and Beaujouan, most women aged 35-44 who have no or one child still plan to have more children (Sobotka, Beaujouan, 2018). In research by CBOS, 46% of respondents with one child will not decide to have another child because their procreation plans have been achieved, and in the case of women with two or more children - 89% (CBOS, 2013).

In my research, the decision about having more children by mothers with multiple offspring is affected mainly by the following conditions: a steady partner, religious beliefs and knowing people with more than two children. Duszczyk et al. found that social assistance is a factor that influences fertility. Families declaring low income cannot decently ensure their children's well-being and choose not to have offspring (Duszczyk, Fihel, Kiełkowska, Kordasiewicz, Radziwinowiczówna, 2014).

According to the own study respondents, childbirth is a social privilege of a woman and motherhood gives satisfaction with life and helps fulfil social roles. Most respondents disagree with the statement that having many children worsens a woman's health condition and quality of life or closes her path to career development. As Szczerek-Machaj et al. stated in her research, motherhood is a duty (4.7%), a calling (13.7%), fulfilment (49.2%) and the

sense of a woman's life (29.5%). She also showed that giving birth to children gives a sense of fulfilment (28.3%), is a pleasure, joy (57.4%) and is an element of a woman's development (66.5%) (Machaj-Szczerek, Stankowska, 2013). Also, Redshaw and Martin found that being a mother is extremely enjoyable and a source of pride for many women, despite routine childcare activities. They also note that it can be an effort for some women, depending on individual circumstances, material resources, quality of partnerships, and broader social and emotional support (Redshaw, Martin, 2011).

As shown by the results of own research based on the SWLS questionnaire, being a mother of many children is satisfactory for a woman. However, a similar study using the same questionnaire also showed that mothers' satisfaction with life depends on developing a secure partnership style. The stronger the relationship with the partner, the higher the satisfaction with life during motherhood (Malina, 2011).

Młynarska's research has shown that the most critical factor for having children is a permanent job, which guarantees material existence. Also, the age at which a woman becomes pregnant is relatively important. It limits to some extent the reproductive plans and affects the ability to have more children (Młynarska, 2011).

Buber-Ennser et al. found that a higher level of religiosity is associated with the increased importance of motherhood in their lives among both mothers and women without children (Buber-Ennser, Skirbekk, 2016). In the own research, the steady partner, desire for motherhood, and religious belief affect women's decisions about children.

Women with many children may perceive motherhood as a challenge that is not an obstacle to their social and professional development. That translates into their assessment of satisfaction with life. However, the quality of life of women with three or more children depends on many biological, psychological and social factors. They also influence these mothers' desire to have another offspring.

Conclusions

The conducted research clearly shows that the factors with a significant impact on the further reproductive decisions of women with many children include: being in a formal relationship, the desire to be a mother and religious beliefs. Women with more than three children declare greater satisfaction with life compared to mothers with one child. For women, having many children is not an obstacle to fulfilling their social and professional roles. Disseminating the positive values of motherhood could change how the mother is perceived in today's world and what role she plays in society. The social creation of a favourable image of large families should be based on reliable scientific research showing, above all, the quality and satisfaction with life in this family model.

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Pregnancy, Childbirth and Puerperium Health Problems in Women Over 35 Years of Age

Problemy zdrowotne u kobiet po 35 roku życia w ciąży, podczas porodu oraz wczesnego połogu

Abstract: *Background:* Due to the choice of postponing motherhood, the average age of women giving birth in Poland has moved into older age groups. This study was conducted to assess pregnancy complications and birth outcomes in women of advanced maternal age (AMA, over 35 years of age) compared with women aged 35 years. *Material and Methods:* Data on births was obtained from two third-degree hospitals in Warsaw, Poland for the years 2017 – 2019. Maternal and perinatal outcomes for women of advanced maternal age (n = 3,766) were analyzed using Chi-square tests and the ANOVA Kruskal-Wallis test. Comparisons between the following age groups of women were conducted: age 35 (control group), 36 – 39, 40 – 44 and over 45 years of age. Results of the analysis are presented with unadjusted odds ratios, 95 percent confidence intervals and p-values. *Results:* The incidence of pregnancy-induced hypertension (PIH) was found to increase with age in the 36 – 39 (OR 1.76, CI 1.09 – 2.87), 40 – 44 (OR 2.72, CI 1.56 – 4.73) and in the over 45 (OR 6.34, CI 2.04 – 19.69) age groups. The risk of gestational diabetes was seen to increase in women aged 40 – 44 (OR 1.49, CI 1.13 – 1.97) and increases almost three times in women over the age of 45 (OR 2.88, CI 1.41 – 5.87). The frequency of births by Cesarean section was observed to increase by one quarter in the 36 – 39 age group (OR 1.26, CI 1.07 – 1.48), by half in the 40 – 44 age group (OR 1.5, CI 1.28 – 1.96) and almost three times in women over 45 (OR 2.88, CI 1.41 – 5.87). There was no statistical significance for the incidence of preterm delivery, induction of labor and postpartum anemia or the health status of newborns in the studied age groups. *Conclusions:* Maternal age of over 35 years old is an independent risk factor for higher rates of pregnancy and perinatal complications in the Polish population.
Keywords: advanced maternal age, pregnancy, childbirth

Abstrakt: *Wprowadzenie:* Ze względu odraczanie macierzyństwa, średni wiek kobiet rodzących w Polsce przesuwa się na starsze roczniki. Celem pracy było porównanie powikłań w ciąży i podczas porodu u kobiet w wieku 35 lat i powyżej 35 roku życia (AMA).

Materiał i metody: Retrospektywne badanie zostało przeprowadzone w 2 szpitalach trzeciego stopnia referencyjności w Warszawie w okresie od 1.02.2017 do 31.01.2019. dane dotyczące kobiet po 35 roku życia (n = 3 766) przeanalizowano za pomocą testu Chi-kwadrat oraz testu ANOVA Kruskala-Wallisa. Porównano następujące grupy wiekowe kobiet: 35 lat (grupa kontrolna), 36-39 lat, 40-44 lata i powyżej 45 lat. Wyniki analizy przedstawiono za pomocą nieskorygowanych ilorazów szans, 95-procentowych przedziałów ufności i wartości p.
Wyniki: Stwierdzono wzrost częstości występowania nadciśnienia indukowanego ciążą (PIH) wraz z wiekiem w grupach wiekowych 36 - 39 (OR 1,76, CI 1,09 - 2,87), 40 - 44 (OR 2,72, CI 1,56 - 4,73) oraz w grupie wiekowej powyżej 45 lat (OR 6,34, CI 2,04 - 19,69). Ryzyko wystąpienia cukrzycy ciążowej wzrasta o połowę u matek w wieku 40 - 44 lat (OR 1,49, CI 1,13 - 1,97) oraz prawie trzykrotnie w grupie matek powyżej 45 roku życia (OR 2,88, CI 1,41 - 5,87). Częstość porodów drogą cięcia cesarskiego wzrasta o jedną czwartą w grupie wiekowej 36 - 39 lat (OR 1,26, CI 1,07 - 1,48), o połowę w grupie wiekowej 40 - 44 lat (OR 1,5, CI 1,28 - 1,96) i prawie trzykrotnie u kobiet powyżej 45 roku życia (OR 2,88, CI 1,41 - 5,87). Nie stwierdzono istotnego statystycznie wpływu na częstość występowania porodu przedwczesnego, indukcji porodu i niedokrwistości poporodowej oraz na stan zdrowia noworodków w badanych grupach wiekowych.
Wnioski: Wiek matki powyżej 35 roku życia jest niezależnym czynnikiem ryzyka wyższych wskaźników powikłań ciążowych i okołoporodowych w populacji polskiej.
Słowa kluczowe: zaawansowany wiek matki, ciąża, poród

1. Introduction

The average age of women giving birth in Poland has increased into older age groups. The proportion of births requiring temporary feeding route (TFR) begins to increase in women between 30 and 34 years of age and systematically increases in women in the age group between 35 and 39 years of age (Waligórska, 2014). Women feel that they are better prepared emotionally and financially for motherhood after the age of 35, largely due to financial stability and personal independence (Aldrighi, Wall, Souza, Cancela, 2016).

Women are increasingly choosing to postpone motherhood, despite age being an important factor that impacts the ability to become naturally pregnant, with many believing in the possibilities of modern medicine to assist them with their pregnancies (Pedro, Brandão, Schmidt, Costa, Martins, 2018). Postponement may also be influenced by media messages that create images of women for whom it is never too late for motherhood (Mills, Lavender R, Lavender T, 2015; O'Brien, Wingfield, 2019). Ovarian reserves decrease beginning at age 30. Chronic diseases such as hypertension and diabetes, which appear with age, can also make pregnancy difficult. Moreover, women over 35 years of age are being increasingly treated for infertility, which is defined as the lack of pregnancy after one year of intercourse without any protection. Infertility treatment is a broad medical area that includes both assisted procreation procedures like in vitro fertilization (IVF), medical counselling, diagnosis of causes and pharmacological and surgical treatments with psychological support (Fuchs, Monet, Ducruet, Chaillet, Audibert, 2018; Shirasuna, Iwata, 2017; Ustawa z dnia 25 czerwca 2015 r. o leczeniu niepłodności).

The consequences of pregnancy in advanced maternal age (AMA) may include an increased risk of health problems caused by pregnancy such as cholestasis, hypertension and diabetes. Diseases occurring during pregnancy may also affect the incidence of premature birth and labor may more frequently end in Cesarean section (De Viti, Malvasi, Busardò, Beck, Zaami, Marinelli, 2019). The costs of complications of pregnancy and childbirth in AMA are not only financial expenses incurred due to longer hospitalization of the mother and child, but also social and family costs (Attali, Yogev 2021; Frey, Klebanoff, 2016).

In the present study, we compared health problems during pregnancy, childbirth and early purpureum in women 35 years of age, 36 – 39, 40 – 44 and over 45 years of age.

2. Materials and methods

This was a retrospective case control study involving women who gave birth after the age of 35 at two third-degree hospitals in Warsaw between February 1, 2017 and January 31, 2019. The study was based on data collected from electronic hospital databases and medical records.

We defined criteria for inclusion (n = 3,766) as age at birth ≥35 years, birth after the 22nd week of pregnancy, single pregnancy and head position. The exclusion criteria were: age <35 years, birth before 22 weeks of pregnancy, multiple pregnancy and pelvic or oblique position. We rejected 7 cases due to incomplete data.

Term birth was defined as delivery after the 37th week of pregnancy. Infertility treatment was defined as interventions in the diagnosis and restoration of fertility through conservative and surgical methods. Time of hospitalization was defined as the continuous number of days that a patient was hospitalized from the moment of admission to the hospital, to discharge after delivery. Pregnancy-induced hypertension (PIH) and gestational diabetes mellitus (GDM) were defined according to Polish guidelines and recommendations. Data on pre-pregnancy diabetes, placenta praevia and cholestasis were excluded due to insufficient numbers. Due to incomplete data on early puerperal complications, we decided to omit them from the analysis.

The study was approved by the Bioethics Committee of Warsaw Medical University: AKBE/214/2017.

The analyses were performed in Statistica 13.1 (StatSoft Poland). Statistical significance levels of 0.05 and test power of 80% were set. Nominal variables were compared using the Chi-square test and ordinal variables, after checking the normality of distribution, using the Shapiro-Wilk test, were compared with the ANOVA Kruskal-Wallis test and presented as medians and their minimum and maximum values. Odds Ratio (OR) was calculated taking into account 95% confidence intervals.

3. Results

During the study period, both hospitals had a total of 17,145 deliveries that took place, where women over 35 years of age accounted for 23.7% of the group (N = 4,071). The oldest primipara was 49 years old (it was her third pregnancy) and the oldest multipara was 56 years old (6 pregnancies and 4 births). The characteristics of the group are presented in Table 1.

Table 1a. Characteristics of the Group

	Maternal age				
	35 (n=953)	36 – 39 (n=2192)	40 – 44 (n=589)	≥45 (n=32)	p value
Pregnancy					
1	242 (25%)	429 (20%)	105 (18%)	8 (25%)	p<0.0013* χ^2 =103.60
2	390 (41%)	779 (36%)	138 (23%)	5 (16%)	
3 or more	321 (34%)	984 (44%)	246 (59%)	19 (59%)	
Birth					
1	316 (33%)	563 (26%)	154 (26%)	11 (34%)	p<0.0014* χ^2 =85.73
2	443 (46%)	976 (45%)	196 (33%)	9 (28%)	
3 or more	194 (21%)	651 (29%)	239 (41%)	12 (38%)	
Previous Cesarean	191 (20%)	559 (24%)	141 (24%)	6 (19%)	p=0.0098* χ^2 =11.37
Miscarriages					
0	708 (75%)	1,521(69%)	334 (57%)	17 (53%)	p<0.0012* χ^2 =80.41
1	193 (20%)	460 (21%)	157 (27%)	7 (22%)	
2	40 (4%)	151 (7%)	60 (10%)	5 (16%)	
3 or more	12 (1%)	60 (3%)	38 (6%)	3 (9%)	
IVF pregnancy	46 (4%)	101 (5%)	41 (7%)	9 (28%)	p<0.0013* χ^2 =39.42
Health status before pregnancy					
Hypertension	10 (1%)	32 (1%)	13 (2%)	4 (12%)	p<0.0013* χ^2 =28.18
Infertility treatment	8 (1%)	27 (1%)	22 (4%)	6 (19%)	p<0.0014* χ^2 =97.39
Pregnancy-related problems					
Pregnancy-induced hypertension (PIH)	21 (2%)	84 (4%)	34 (6%)	4 (12%)	p=0.0002* χ^2 =19.55
Gestational diabetes	126 (13%)	402 (13%)	109 (19%)	9 (28%)	p=0.0023* χ^2 =17.07
Delivery					

Table 1b. Characteristics of the Group

	Maternal age				
	35 (n=953)	36 – 39 (n=2192)	40 – 44 (n=589)	≥45 (n=32)	p value
In term	915 (96%)	2068 (94%)	553 (94%)	30 (94%)	p=0.2028 $\chi2$ =4.64
Cesarean section	294 (31%)	789 (36%)	244 (41%)	18 (56%)	p<0.0010* $\chi2$ =24.14
Induction	177 (19%)	566 (18%)	117(20%)	4 (12%)	p=0.3948 $\chi2$ =1.87
Stillbirth	2 (0.2%)	2 (0.2%)	5 (0.8%)	0	p=0.1893 $\chi2$ =4.81
Secondary anemia	38 (4%)	105 (5%)	25 (4%)	2 (6%)	p=0.7243 $\chi2$ =1.32
Hospitalization time >7 days	157 (16%)	438 (20%)	121 (21%)	7 (22%)	p=0.0987 $\chi2$ =6.26

* p<0.05

The estimation of the odds ratio for variables that had significant differences between groups is presented in Table 2.

Table 2. Neonatal condition

	Maternal age				
	35 (n=953)	36 – 39 (n=2192)	40 – 44 (n=589)	≥44 (n=32)	p value
Weight (grams)	3.430 (600 – 5,130)	3.450 (430 – 6,330)	3.420 (420 – 4,900)	3.385 (450 – 4,730)	0.1573
Length (cm)	55 (26 – 64)	55 (23 – 64)	54 (28 – 63)	54 (31-62)	0.3705
Apgar score after 1 min	10 (0 – 10)	10 (0 – 10)	10 (0 – 10)	10 (1 – 10)	0.3291
Apgar score after 5 min	10 (0 – 10)	10 (0 – 10)	10 (0 – 10)	10 (0 – 10)	0.6564

Age 35 was used as a reference control group.

Table 3a. Odds ratio (reference group – age 35)

	Maternal age					
	36 – 39		40 – 44		≥45	
	p	OR (95% CI))	p	OR (95% CI))	p	OR (95% CI)
Pregnancy						
1	0.0003*	0.71 (0.60 – 0.86)	0.0006*	0.64 (0.49 – 0.82)	0.8875	0.98 (0.43 – 2.21)
2	0.0046*	0.78 (0.68 – 0.93)	<0.0001*	0.44 (0.35 – 0.56)	0.0071*	0.27 (0.10 – 0.70)
3 or more	<0.0001*	0.64 (0.52 – 0.77)	<0.0001*	2.58 (2.06 – 2.24)	<0.0001*	5.27 (2.56 – 10.84)

Table 3b. Odds ratio (reference group – age 35)

	Maternal age					
	36 – 39		40 – 44		≥45	
	p	OR (95% CI))	p	OR (95% CI))	p	OR (95% CI)
Delivery						
1	<0.0001*	0.70 (0.59 – 0.82)	0.0043*	0.71 (0.57 – 0.90)	0.8875	1.06 (0.50 – 2.22)
2	0.0009*	0.76 (0.66 – 0.90)	<0.0001*	0.57 (0.46 – 0.71)	0.0613	0.45 (0.21 – 0.98)
3 or more	<0.0001*	2.51 (2.06 – 3.06)	<0.0001*	3.68 (2.90 – 4.68)	0.0023*	3.24 (1.55 – 6.76)
Previous Cesarean	0.0011*	1.37 (1.13 – 1.64)	0.0807	1.26 (0.98 – 1.61)	0.8624	0.92 (0.37 – 2.27)
Miscarriages						
0	0.006*	0.78 (0.66 – 0.93)	<0.0001*	0.46 (0.37-0.58)	0.0135*	0.39 (0.19 – 0.80)
1	0.6801	1.05 (0.86 – 1.26)	0.0043*	1.43 (1.12 – 1.82)	0.0004*	6.39 (2.61 – 15.66)
2	0.0047*	1.68 (1.18 – 2.41)	<0.0001*	2.59 (1.71 – 3.92)	0.0212*	3.65 (1.34-9.92)
3 and more	0.1068	1.76 (0.93 – 3.32)	<0.0001*	5.41 (2.80 – 0.44)	0.0108*	8.11 (2.17 – 3.31)
IVF	0.8624	0.95 (0.67 – 1.36)	0.0984	1.48 (0.96 – 2.28)	<0.0001*	7.72 (3.38 – 45.58)
Health condition before pregnancy						
Hypertension	0.4502	1.40 (0.68 – 2.85)	0.1082	2.13 (0.93 – 4.89)	<0.0001*	13.47 (3.98 – 45.58)
Infertility treatment	0.8875	1.03 (0.45 – 2.37)	0.0001*	4.58 (2.03 – 10.36)	<0.0001*	27.26 (8.82 – 84.21)
Pregnancy-related problems						
Pregnancy-induced hypertension (PIH)	0.0257*	1.76 (1.09 – 2.87)	0.0004*	2.72 (1.56 – 4.73)	0.0071*	6.34 (2.04 – 19.69)
Gestational diabetes	0.6713	0.94 (0.75 – 1.19)	0.0062*	1.49 (1.13 – 1.97)	0.0225*	2.57 (1.16 – 5.68)
Delivery						
Cesarean section	0.0059*	1.26 (1.07 – 1.48)	<0.0001*	1.5 (1.28 – 1.96)	0.0044*	2.88 (1.41 – 5.87)
Hospitalization time >7 days	0.0239*	1.27 (1.04 – 1.55)	0.0509	1.31 (1.01 – 1.71)	0.5716	1.42 (0.60 – 3.34)

* p<0.05

The age 35-control group represented 25% (n = 242) of the entire study group. The chance of giving birth to the first child after 35 years of age was found to be similar in the 36 – 39 (OR 0.70, CI 0.59 – 0.82) and 40 – 44 (OR 0.71, CI 0.57 – 0.90) age groups. The number of women who did not have any miscarriages decreased with age, while miscarriages reached 60% in the over 45 age group (OR 0.39, CI 0.19 – 0.80). Moreover, the highest percentage of pregnancies conducted in vitro was observed in this age group, being seven times more frequent than in the 35 years of age control group (OR 7.72, CI 3.38 – 45.58). After age 40,

women were treated more often for infertility issues before pregnancy: more than four times in women 40 – 44 (OR 4.58, CI 2.03 – 10.36) and almost thirty times more in women over the age of 45 (OR 27.26, CI 8.82 – 84.21) compared to the control group.

The incidence of pregnancy-induced hypertension (PIH) increases with age. It was found to increase by more than half in the 36 – 39 age group (OR 1.76, CI 1.09 – 2.87), more than double in the 40 – 44 age group (OR 2.72, CI 1.56 – 4.73) and more than six times in the above 45 age group (OR 6.34, CI 2.04 – 19.69) compared to the control group. Similarly for gestational diabetes, where the chance of occurrence increased by more than half in women aged 40 – 44 (OR 1.49, CI 1.13 – 1.97), it was almost three times in women over 45 (OR 2.88, CI 1.41 – 5.87).

The frequency of births by cesarean section increased with age – increasing by one quarter in the 36 – 39 age group (OR 1.26, CI 1.07 – 1.48), by half in the 40 – 44 group (OR 1.5, CI 1.28 – 1.96) and by almost three times in women over 45 (OR 2.88, CI 1.41 – 5.87) compared to the control group.

Statistical significance was not demonstrated for the incidence of preterm delivery, induction of labor or postpartum anemia in the studied age groups. There are no statistical differences in the birth weight, length and health status of newborns in both groups.

Discussion

Most studies compare advanced age groups to younger women between the ages of 20 and 34. In the present study, women aged 35 years old were used as a reference group, representing 25% of the total number of respondents. Health status was evaluated in three groups of pregnancies: 36 – 39 years of age, 40 – 44 years of age and above 45 years of age.

Women over 35 years of age are more likely to undergo infertility treatment, which may also result in a higher incidence of miscarriages than younger women. In a study by Casteleiro et al., a smaller percentage of women in this age group were treated for infertility, which may be due to differing definitions of infertility treatment that may only include assisted reproductive technologies (Casteleiro, Paz-Zulueta, Parás-Bravo, Ruiz-Azcona, Santibañez, 2019). There is also a trend that the older the mother, the more miscarriages she is likely to have had. In a Norwegian study, the risk of miscarriage increased rapidly after age 30, reaching 53% in women aged 45 and over (Magnus, Wilcox, Morken, Weinberg, Håberg, 2019). The present study shows that multiple miscarriages occur approximately five times more often in mothers between the ages of 36 and 39, and about eight times more often over the age of 45. This is not only due to biological factors, but also because older women having a longer maternal history than younger women.

The rising trend of increased cesarean sections among women of advanced maternal age has been observed worldwide (Casteleiro et al.,2019; Radoń-Pokracka, Adrianowicz,

Płonka, Danił, Nowak, Huras, 2019; Rydahl, Declercq, Juhl, Maimburg, 2019). Among similar age groups compared in a study by Claramonte et al. in Spain, the frequency of cesarean sections increased by one third in the 35 – 39 age group, more than twice in the 40 – 44 group and more than seven times among women over 45 (Claramonte Nieto, Meler Barrabes, Garcia Martínez, Gutiérrez Prat, Serra Zantop, 2019). Our study showed that the frequency of cesarean sections in women over 45 has more than doubled compared to the control group. We also found that the number of women who had previous cesarean sections and that gave birth to another child increases after 36 years of age but decreases after 45 years of age, with a statistically significant increase observed in the 36 – 39 age group. A similar trend was seen in the Spanish study (Claramonte et al., 2019).

The most common health problems in pregnant women over 35 years of age are gestational diabetes and PIH (Casteleiro et al., 2019; Claramonte et al., 2019; Kanmaz, İnan, Beyan, Ögür, Budak, 2019). In the study by Claramonte et al, the probability of developing gestational diabetes after the age of 35 was found to increase with maternal age, increasing by almost 40% in the 35 – 39 age group, almost three times in the 40 – 44 age group and almost four times in women over 45. With respect to PIH, the risk in the 36 – 39 age group was similar to that of the control group whereas in the 40 – 44 age group, the risk increases by almost a quarter and is more than three times in the over 45 age group (Claramonte et al., 2019). In our study, a smaller increase in gestational diabetes was observed: in the 40 – 44 age group, the risk increased by half and increased more than two-fold in women over 45. PIH was almost twice as high in the 36 – 39 age group, almost three times as high in the 40 – 44 age group and the highest – at more than six times – in women above 45 years of age compared to the control group.

Intrauterine fetal demise was not statistically significant in our study and was found to occur at similar proportions in studies conducted in Spain and Denmark (Casteleiro et al., 2019; Claramonte et al., 2019; Frederiksen, Ernst, Brix, Lauridsen, Roos, Ramlau-Hansen, Kvist Ekelund, 2018). This could be because studies conducted at single centers have small sample sizes and hence cannot accurately show trends for bigger populations. For example, a study done in United States which included the entire national population reported a nearly 40%-50% increase in stillbirths among women over 40 years of age compared to a younger control group (Dongarwar, Aggarwal, Barning & Salihu, 2020).

The oldest group of women in our study – referred to in the literature as very advanced maternal age (VAMA) – were women over 45 years old and consisted of 32 women. In this group, we observed a higher percentage of pregnancy complications such as diabetes and hypertension, similar to other studies that looked at the same age group (Mehta, Tran, Stewart, Soutter, Nauta, Yoong, 2014; Ogawa, Urayama, Tanigaki, Sago, Sato, Saito, Morisaki, 2017). It has been found that across the world, women over 45 years of age use assisted reproductive technologies (ART) more often, which apart from various methods

of in vitro fertilization also includes artificial insemination or ovulation stimulation stimulation (Wyns, Bergh, Calhaz-Jorge, De Geyter, Kupka, Motrenko, Rugescu, Smeenk, Tandler-Schneider, Vidakovic & Goossens, 2020; Haslinger, Stoiber, Capanna, Schäffer, Zimmermann, Schäffer, 2016). In our study, approximately 30% of the respondents in this age group achieved a pregnancy through in vitro fertilization, which was almost eight times more than in the 35-year-old control group. This is also higher than in a study by Mehta et al. where 10% of women over 45 years of age became pregnant in this way (Mehta et al., 2014).

We found that the percentage of cesarean sections in women over 45 years of age increases significantly. Similar findings were obtained in studies by Carolain et al., Mehta at al. and Ogawa et al., whereas in a study by Rademaker el al., it was higher (Carolain et al., 2013; Mehta at al., 2014; Rademaker, Hukkelhoven, van Pampus, 2021; Ogawa et al., 2017). Apgar scores in the first minutes of life of children born to mothers in this group do not differ significantly from those born to mothers of younger ages. Some studies point to a significantly more frequent need to admit these newborns in intensive care units – we did not include information on this in this study due to a lack of data (Cakmak Celik, Aygun, Kucukoduk, Bek, 2017; Mehta et al., 2014).

A limitation of our study is the lack of data of the prenatal diagnostic and information of sociodemographic data like level of education, employmed and civil status.

Conclusion

Women over 35 years of age are much more likely to be treated for infertility and have complicated obstetric histories due to prior miscarriages. Pregnancy at this age is associated with a risk of complications and health problems such as PIH and gestational diabetes. Children born to mothers over 35 years of age are born in good health.

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Implementation of ethiodized oil for treatment of endometriosis-associated infertility

Zastosowanie etiodyzowanego oleju w leczeniu niepłodności związanej z endometriozą[1]

Abstract: One of the leading health conditions associated with female infertility is endometriosis, which is the presence of endometrial-like tissue outside the uterine cavity. It is estimated that endometriosis can be demonstrated in up to half of infertile patients, but this does not mean that in all cases, it is the only cause that reduces fertility. Apart from the relatively rare case of endometriosis-induced anatomical changes that mechanically impede fertilization, the main effect is to modify the immune system by the secretion of soluble signaling factors by ectopic endometriotic lesions. The primary treatment of endometriosis in patients trying to become pregnant is radical excision of foci outside the uterus, which is associated with the normalization of immune system disorders and often leads to pregnancy. However, the significant technical complexity and the possibility of complications make the surgery a good solution, mainly for patients who, apart from infertility, pain is also an important factor. An important medical problem remains the development of methods that could eliminate disorders caused by endometriosis and, at the same time, could be used in patients with minor or moderate pain and in patients with contraindications to surgery. At present, despite many approaches, there are no specific immunotherapy methods. It is interesting that for several decades, it has been reported that the examination of the patency of the Fallopian tubes has a beneficial effect on fertility. Detailed analyzes have shown that this is not a common effect, but it mainly concerns patients with endometriosis and the use of etiodized oil contrast. In this group, there is a significant, five-fold increase in infertility. Therefore, every second previously infertile patient becomes pregnant within six months. A smaller but also distinct effect is observed in the case of idiopathic infertility. The impact is so significant that it can be used both for the practical treatment of patients as well as to understand the mechanisms underlying fertility disorders occurring in endometriosis. The data so far show that the immunotherapeutic effect of etiodized oil contrast is overwhelming. However, it is not entirely clear why the improvement is not achieved using other, currently more popular water contrasts. The dissemination of perfusion of the uterine cavity and Fallopian tubes with the use of oil contrast seems to be a simple, safe and effective strategy that allows patients to offer patients alternative treatment methods and improve the final effectiveness and increase the pharmacoeconomics of treatment of endometriosis-related infertility.
Keywords: endometriosis, hysterosalpingography, immunotherapy, infertility, lipiodol.

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Abstrakt: Jednym z wiodących stanów zdrowotnych związanych z niepłodnością kobiecą jest endometrioza czyli obecność tkanki przypominającej endometrium poza jamą macicy. Szacuje się, że endometriozę można wykazać u nawet połowy pacjentek z niepłodnością, lecz nie oznacza to, że jest w tych przypadkach wyłączną przyczyną obniżającą płodność. Pomijając relatywnie, rzadkie przypadki zmian anatomicznych wywołanych endometriozą, które mechanicznie utrudniają zapłodnienie, uważa się, że główny wpływ odbywa się poprzez modyfikację układu immunologicznego i wydzielanie rozpuszczalnych czynników sygnałowych przez ektopowe ogniska endometriozy. Podstawowym sposobem leczenia endometriozy u pacjentek starających się o ciążę pozostaje radykalne wycięcie ognisk znajdujących się poza macicą, co wiąże się z normalizacją zaburzeń układu immunologicznego i często skutkuje zajściem w ciążę. Jednak znaczne skomplikowanie techniczne i możliwość powikłań sprawiają, że operacja jest dobrym rozwiązaniem głównie dla pacjentek u których obok niepłodności, dolegliwości bólowe są również istotnym problemem. Ważną kwestią medyczną pozostaje opracowanie metod, które mogłyby niwelować zaburzenia wywołane przez endometriozę i jednocześnie mogłyby być zastosowane u pacjentek z nieznacznymi lub umiarkowanymi dolegliwościami oraz pacjentek z przeciwwskazaniami do operacji. Na chwilę obecna pomimo wielu prób, brakuje metod specyficznej immunoterapii. Interesujący jest fakt, że od wielu lat donosi się o korzystnym wpływie badania drożności jajowodów na możliwość zajścia w ciążę. Dokładne analizy wykazały, że nie jest to efekt powszechny, lecz dotyczy przede wszystkim pacjentek z endometriozą oraz zastosowania etiodyzowanego kontrastu olejowego. W tej grupie dochodzi do znacznego, gdyż aż pięciokrotnego zwiększenia się płodności. W związku z tym co druga uprzednio niepłodna pacjentka zachodzi w ciążę w ciągu 6 miesięcy. Mniejszy, choć również wyraźny efekt dotyczy niepłodności idiopatycznej. Efekt jest tak znamienny, że może zostać wykorzystany zarówno do praktycznego leczenia pacjentek jak również w celach poznania mechanizmów leżących u podłoża zaburzeń płodności pojawiających się w endometriozie. Dotychczasowe dane świadczą o przeważającym efekcie związanym z immunoterapeutycznym wpływem etiodyzowanego kontrastu olejowego, natomiast nie do końca jasne pozostaje czemu poprawa nie następuje po zastosowaniu innych obecnie bardziej popularnych kontrastów wodnych. Upowszechnienie perfuzji jamy macicy i jajowodów przy pomocą kontrastu olejowego wydaje się prostą, bezpieczną i skuteczną strategią pozwalającą nie tylko zaproponować pacjentkom alternatywne metody leczenia lecz również poprawić ostateczną efektywność i zwiększyć farmakoekonomikę leczenia niepłodności związanej z endometriozą.
Słowa kluczowe: endometrioza, histerosalpingografia, immunoterapia, lipiodol, niepłodność.

1. Endometriosis-related infertility

Due to the changes in civilization and health in society, the growing problem of infertility is a significant health issue in Western societies. Couple infertility is undoubtedly a complex issue and requires comprehensive diagnostics. Before making any practical decisions, it is necessary to conduct an in-depth and detailed examination and analysis of the information obtained to plan the optimal management of both the patient and her partner and avoid therapeutic errors. It is also essential to distinguish between significant and frequent causes from diagnostic findings that are unique or unrelated to infertility. Comprehensive and in-depth diagnostics also significantly reduce the group of undetermined (idiopathic) infertility (Skibińska, Maksym, 2019). One of the most common causes of decreased fertility and potentially the leading cause of infertility in a given patient is endometriosis. It is a chronic disease with a significant immune component based on the presence of endometrial-like tissue in ectopic locations. Abnormal tissue exhibits hormonal activity and secretes inflammatory mediators, causing secondary effects in the environment

and throughout the body. In addition to a significant reduction in fertility, clinical symptoms form a broad spectrum, ranging from severe and chronic pain, through painful menstruation, to the complete absence of pain. It is worth noting that in the general population, it is estimated that endometriosis affects from 2% to a maximum of 10% of women of reproductive age. It was shown that among infertile women, it is about half of the patients (Dunselman et al., 2014), among whom there will be "hidden" many cases of women with the so-called idiopathic infertility. For various reasons, the endometriosis was not identified, as laparoscopic diagnostics was abandoned. It is not clear what the direct causes of decreased fertility in endometriosis are. Since adhesions accompanying endometriosis are not always present and low-stage disease does not substantially alter the anatomy, factors related to intercellular signaling are considered, including the immune disorders that accompany endometriosis along with inflammation. Various abnormal alterations are observed during the development of the disease, including activation of polyclonal B lymphocytes, abnormalities in T (Th1) and B lymphocyte function, impaired apoptosis, and changes in NK cell activity (Shigesi et al., 2019). In addition to the increased tendency to develop other immune disorders and autoimmune diseases (Skibińska, Maksym, 2020), ectopic implants produce immunosuppressive substances secreted into the peritoneal fluid, affecting the activity of NK cells. Interestingly, the complete removal of the lesions quite effectively removes the effect of endometriosis on the immune system, which is the basis for postoperative improvement in fertility (Hirata et al., 1994). It is postulated that immune-modifying target points could be used for endometriosis immunotherapy. Potential immunotherapy trials based on the influence of specific receptors are unfortunately still far from clinical implementation, and the practical evidence for its effectiveness is scarce (Ścieżyńska et al., 2019).

Surgical treatment remains the primary method of treating endometriosis in infertile women and is indicated when the goal is to both control pain and improve fertility (Johnson, Hummelshoj, 2013). Currently, it is not recommended to perform diagnostic laparoscopy just to look for endometriosis in asymptomatic infertile patients. Diagnostic and therapeutic surgery should be performed primarily in infertile patients with features of endometriosis in a clinical examination, in imaging exams, and in pain symptoms indicative for endometriosis. The American guidelines recommend that laparoscopy could also be performed in younger patients, without symptoms or identifiable causal factors. This may be the case when infertility lasts more than three years, but such a decision must be individualized and well-founded (Pfeifer et al., 2015).

There is ample evidence of improved fertility after the removal of endometriosis lesions. The natural fertility of untreated patients with endometriosis is estimated at about 3% per month (Pfeifer et al., 2012), which may significantly extend the efforts to become pregnant or cause complete sterility in some cases. Treatment involving the destruction of

endometriosis is proven effective and gives a chance for natural pregnancy of up to 80% of patients in selected groups. The individual effect depends on other factors and can be fairly accurately predicted using algorithms such as the Endometriosis Fertility Index (EFI) (Adamson and Pasta, 2010). It has been shown that the destruction of endometriosis lesions in the low stages of the disease improves on average the fertility of patients twice a month (Dunselman et al., 2014). Although many asymptomatic (painless) women with unexplained infertility would have diagnosed and resected endometriosis during laparoscopy, it is believed that routine laparoscopy in all idiopathic infertility patients may be unreasonable. The indications for such intervention should be carefully considered taking into account: the probability of endometriosis in this group of patients, the chances of improving fertility, and possible complications. Estimates show that the effectiveness of laparoscopy among asymptomatic women may be so low that 24 to 40 operations would have to be performed to result in one additional pregnancy (Daniilidis, Pados, 2018). Such estimates mean that the surgery in this group of patients loses its pharmaco-economic effectiveness and may be associated with controversy regarding the ratio of possible benefits to risks in the operated patients. Therefore, there is a strong need to develop new therapeutic approaches that would be minimally invasive, effective, and acceptable to patients. Such methods could be successfully used not only in patients who do not experience symptoms of endometriosis but also in those who have medical contraindications to laparoscopy or refuse this type of intervention for other non-medical reasons.

2. Fallopian tube patency test in infertility

In assessing an infertile couple, one of the critical steps is to determine the patency of the Fallopian tubes, which is essential for natural conception. Despite certain limitations, variants of the hysterosalpingography (HSG) method, consisting in passing the contrast agent through the uterine cavity and Fallopian tubes remain the gold standard. Apart from the diagnostic aspect HSG plays a therapeutic role. Flow detection can be performed using X-ray, fluoroscopy, ultrasound examination, and laparoscopic observation. Another issue is the possibility of correcting the observed disorders of the structure of the Fallopian tube by microsurgery or ballooning, the use of selective tubal catheterization, and high contrast pressures. Historically, the gold standard of X-ray HSG testing is based on the use of oily or aqueous iodine solutions (Pfeifer et al., 2015). The first HSG test was carried out in 1914. Initially, only oil solutions were used, which for practical reasons, including economic ones, were replaced with water contrasts, which in Poland entirely eliminated the oil contrasts. Currently, in many countries, a renewed popularization of oil contrast is observed due to the observed significant improvement in fertility observed after the use of this type of contrast. The significant and long-term effect of etiodized oil contrast (Lipiodol) on fertility is by no

means limited to purely mechanical action and is increasingly recognized as a separate and independent therapeutic method (Johnson, 2014).

3. The therapeutic effect of oil contrast

The first reports of an improvement in the chance of pregnancy after tubal patency testing were published in the early 1950s (Weir and Weir, 1951). Initially, the effect was believed to be mechanical action of the contrast or the placebo effect, and it was not associated with any particular group of patients. Although subsequent authors repeatedly confirmed the effect, the studies were not methodologically refined; there was no control group or randomization. Subsequent work resulted in a systematic review of four randomized trials and six observational studies that confirmed the effects for oily contrast only. The meta-analysis did not separate the group of patients with endometriosis but showed an increase in fertility for a wider group of patients at the odds ratio of 2.71. In addition, the use of oil contrast was associated with less discomfort among patients than water contrast, which can more easily irritate the peritoneum (Watson et al., 1994). More recent analyzes also indicate better imaging quality with oil iodine contrast and a similar profile of possible side effects (Tan et al., 2019).

Due to methodological uncertainties regarding the results to date, a well-designed randomized trial - FLUSH was planned. The obtained effect was analyzed in more detail by selecting a group of women with and without endometriosis and excluding patients with other obvious causes of infertility, such as ovulation disorders or obstruction of the Fallopian tubes. Results were initially assessed in the six months following procedure. Since not all pregnancies end in childbirth and the proportions differ quite significantly between the therapy methods, both the number of pregnancies and the number of deliveries were reported. Among women without endometriosis and with unexplained infertility, 33.3% of patients became pregnant compared to 20.8% in the untreated group, and the birth rate increased from 14.6% to 27.1%. Due to the group's small size, it was not possible to prove the statistical significance of this trend (that was proven later). The results in the group of patients with confirmed endometriosis were even more spectacular. Within a relatively short time after the procedure, as many as 48.0% of women became pregnant, compared with only 10.8% in the control group. Therefore, the procedure increased the chance of pregnancy (RR) by 4.44 times (95% CI 1.61–12.21). The chance of delivering a baby increased from 10.8% to 40% (Johnson et al., 2004). The results were considered groundbreaking as they were obtained in a well-designed randomized trial, showing that an uncomplicated procedure may give infertile patients a relatively high chance of pregnancy. Unfortunately, the spread of this type of treatment in other countries was slow (Jothilakshmi and Watson, 2005). It is difficult to compare effectiveness of different treatment methods on diverse population. In

order to demonstrate the high efficiency of such a procedure and the significance of the results obtained, it is enough to compare these numbers with the indicative effectiveness of assisted reproductive methods. The latest publicly available European registry data show that, even in the general population, in vitro fertilization cycle can achieve pregnancy in 25 to 28% of patients, and this will be associated with the birth of a child in 18.5% to 20.8%. The effectiveness is calculated for aspiration cycles only, depends on population and whether intracytoplasmic sperm injection (ICSI) or embryo freezing was used (Wyns et al., 2020).

Patients in the FLUSH study were then followed for two years to assess the results in the long term. There was no further improvement in fertility among patients with endometriosis between 6 and 24 months after contrast administration. On the other hand, in the case of patients with unexplained infertility, the beneficial effect was cumulative throughout the observation period. The final probability of pregnancy in this group was twice as high as in the control group, and interestingly, during the 24-month follow-up, the probability of pregnancy exceeded 60% (Johnson et al., 2007).

Since the FLUSH study and its continuation included only a few hundred patients and the previous studies had methodological deficiencies, a randomized multicentre H2Oil study was performed to assess the therapeutic effect even more precisely. The study involved 1,119 infertile patients in 27 Dutch hospitals, and compared oil contrast to water-soluble contrast. No patients with diagnosed endometriosis were recruited for the study, even though it was the group that the best results were previously achieved. In the 6-month follow-up period, oil contrast was found to be associated with pregnancy in 39.7% of patients and subsequent delivery in 38.8%. Water contrast was associated with only 29.1% of pregnancies and 28.1% of deliveries. The safety profile was high and comparable between the types of contrast (Dreyer et al., 2017). Pharmacoeconomic analyzes have shown that despite the higher price of oil contrast, the increase in costs associated with obtaining additional birth in the group of patients treated with oil contrast is economically attractive compared to alternative treatments (van Rijswijk et al., 2018). Analyzing the results further, it was found that the chance of pregnancy is not related to the volume of contrast administered. In addition, patients who experience more severe symptoms while administering contrast have a greater chance of becoming pregnant after the procedure (van Welie et al., 2019). Over a longer follow-up period of 5 years, patients who did not achieve spontaneous pregnancies underwent various therapeutic methods. Ultimately, 80% of the patients who received the oil contrast became pregnant, and 74.8% of the patients gave birth to children. In this group, in a five-year follow-up, more pregnancies occurred after natural conception, and the time to pregnancy was significantly shorter than in the group in which water contrast was used (van Rijswijk et al., 2020).

The discussion of the molecular mechanisms of operation of oil contrast is beyond the scope of this study. There is little entirely consistent data, and the proposed mechanisms of

action are often based on speculation or rudimentary research and circumstantial evidence. It is known that the iodine contained in Lipiodol is associated with fatty acids and is primarily excreted unchanged in the urine; therefore, its action is different from that of similar doses of inorganic iodine. The most likely mechanisms of action include nonspecific direct and indirect immunomodulatory effects and the action of high doses of iodine, which is mainly independent of its effect on the thyroid (Mathews et al., 2021).

Due to the promising results described above, attempts have been made to use the oil contrast more widely in reproductive medicine. It has been postulated that the contrast could have beneficial effects in patients with endometriosis or recurrent implantation failures who undergo in vitro fertilization procedures. It is known that in endometriosis, assisted reproductive techniques are much less effective than in the general population, possibly due to immunological effects. Theoretically, just as in case of natural conception, the contrast could improve endometrial receptivity and eliminate the negative impact of endometriosis on the development of early pregnancy. During the experimental verification of the hypothesis, not even a favorable trend was observed, and it was shown that adding this type of therapy to assisted reproductive procedures did not bring the expected results (Reilly et al., 2019).

Due to the widespread use of high-quality ultrasound machines, radiological safety, and difficult access to X-ray devices, the classic examination of hysterosalpingography is being displaced by its ultrasound counterpart - SonoHSG. Although ethiodized oil is classic X-ray contrast, it is also used in ultrasound patency assessment due to additional therapeutic effect. In the study evaluating the effects of such treatment modification, it was shown that, similarly to the classic HSG, 51% of patients became pregnant after administering oil contrast under ultrasound control within six months. During the procedure, the patients experienced only moderate discomfort, and the procedure was characterized by a high safety profile (Sekhon et al., 2020). The oil contrast may be additionally shaken before administration or given to turbulent flow to create fine air bubbles that significantly improve visualization during ultrasound (Zen et al., 2020). There are no known contraindications for using an oil contrast, in the same way, to rinse the Fallopian tubes during a diagnostic laparoscopy.

4. Prospects for the development of infertility treatment

The principles of diagnosis and treatment of idiopathic or endometriosis-related infertility have not changed significantly in recent decades. Surgical techniques and equipment capabilities have achieved some stabilization. While it is possible to improve the manual skills of operators further, it is difficult to expect a real breakthrough in this field. On the other hand, the development of assisted reproductive methods, despite the involvement of significant material resources, is not dynamic, and even an inhibition or even a periodic

decline in effectiveness coefficients measured by the percentage of pregnancies and births is observed (Dunselman et al., 2014, Johnson and Hummelshoj, 2013). Treatment of endometriosis and accompanying infertility can be complex, burdensome, and time-consuming. Some patients refuse to use assisted reproductive methods or surgery due to philosophical reasons or fear of invasive treatment. In patients with severe pain or in the case of failure of the assisted reproductive technique, surgical treatment is sometimes necessary, which requires the highest operational skills and the ability to move in blurred anatomical structures. On the other hand, it may be associated with complications and relapses of the disease (Filipecka-Tyczka et al, 2020). Consequently, minimally invasive therapies that can causally reverse disturbed regulatory mechanisms in endometriosis are of considerable interest. Current research results show that the use of etiodized oil contrast for flushing the Fallopian tubes is a reasonable procedure for patients with unexplained infertility and endometriosis-related infertility (Court et al., 2014). In the long run, this method improves the effectiveness of treatment, shortens the time to pregnancy, reduces the number of patients undergoing assisted reproductive methods, and reduces treatment costs. Although no studies directly compare the safety of oil contrast with assisted reproductive techniques, the available data support high contrast safety. Simplicity, relatively low costs, and relatively high efficiency mean that in selected patients, the use of etiodized contrast can be considered as an alternative to assisted reproductive techniques and surgical treatment of endometriosis. Despite the consistency of the research results obtained so far, further evaluation and analysis of the procedure is necessary to finally define the place of the procedure in the algorithm of infertility treatment and establish the actual mechanisms of oil contrast action the cellular and tissue level. Even before final answers are available, the method shows promise and may result in tangible benefits for patients.

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Health problems of postmenopausal women

Problemy zdrowotne kobiet w okresie pomenopauzalnym

Abstract: The postmenopausal period is the final stage of the transition from the procreative period to the senium period. It is also a time of many complex biological transformations. The changes that occur, associated with the gradual expiration of the endocrine function of the ovaries, can affect the appearance of many psychophysical ailments. Low estrogen values, which are physiologically observed in the postmenopausal period, result in the appearance of various health problems. Clinical signs are divided into early (short-term) and late (long-term). This work discusses the definition and course of postmenopause and the health problems and consequences of sex hormone deficiencies on a woman's body systems. Being aware of the changes taking place during this period of women's lives can help improve and/or create new prophylactic programs. This knowledge seems essential in the daily practice of health professionals, in particular gynaecologists and midwives.
Keywords: menopause, postmenopause, climacteric syndrome

Abstrakt: Okres pomenopauzalny jest ostatnim etapem przejścia od okresu prokreacyjnego do okresu senium. Jest zarazem czasem wielu skomplikowanych przemian biologicznych. Zachodzące zmiany, związane ze stopniowym wygasaniem funkcji endokrynnej jajników, mogą wpływać na pojawienie się wielu dolegliwości psychofizycznych. Niskie wartości estrogenów, jakie fizjologicznie obserwuje się w okresie pomenopauzalnym, skutkują pojawieniem się różnych problemów zdrowotnych. Objawy kliniczne dzieli się na wczesne (krótkoterminowe) i późne (długoterminowe). W niniejszej pracy omówiono definicję i przebieg postmenopauzy oraz problemy zdrowotne i konsekwencje niedoborów hormonów płciowych na poszczególne układy organizmu. Świadomość zmian zachodzących w tym okresie życia kobiet, może pomóc w poprawie lub /i tworzeniu nowych programów profikatycznych. Wiedza ta wydaje się niezbędna w codziennej praktyce pracowników ochrony zdrowia, w szczególności lekarzy ginekologów i położnych.
Słowa kluczowe: menopauza, postmenopauza, zespół klimakteryczny

Introduction

Postmenopause is the final stage of the transition from the reproductive period to the senile period. It is also a period of many complex biological transformations. The ongoing changes associated with the gradual cessation of endocrine functions of the ovaries may

contribute to many psychic and physical ailments. The risk of metabolic and cancer diseases also increases during this period (Kózka et al., 2013; Woods et al., 2016). These diseases are frequently related to a biologically determined predisposition to gaining body fat (Davis et al., 2012). For many years, breast cancer and cancers of the reproductive organs have caused high incidence rate and high mortality rate in Polish women (Kołłątaj et al., 2016).

1. Postmenopause – definition and course

Postmenopause begins 12 months after the last ever menstrual period. Literature usually divides postmenopause into early (up to 5 years after the last menstrual period) and late (more than 5 years) postmenopause. According to some reports, postmenopause lasts for the rest of a woman's life (Męczekalski & Katulski, 2016). By convention, however, a woman aged over 65 years enters the *senile period* (Dmoch-Gajzlerska and Rabiej, 2007).

Postmenopause is a continuation of intense hormonal changes that have already been initiated in the premenopausal period. It is a period after the irreversible cessation of endocrine functions of the ovaries. The woman no longer experiences menstrual cycles, resulting in the end of her procreative function (Kaczmarek, 2014). The greatest changes in hormonal profile are in estrogen levels. These hormones regulate a variety of physiological functions. They are thus a key regulator of the metabolic system of the female body. Their mechanism of action mainly involves binding to α- and β-estrogen receptors (ER-α and ER-β) (Rettberg et al., 2014). These receptors are present in most body systems. Hormones act genomically (by regulating gene transcription) and non-genomically (by affecting calcium and potassium channels in a direct way) (Pinkas et al., 2016; Zielniok et al., 2014). After menopause there is a significant decrease in estradiol levels that are usually lower than 80 pmol/l. Estrone becomes the main estrogen. It is produced especially by aromatisation of adrenal androgens found in adipose tissue, reaching the levels of approximately 100 pmol/l. Higher levels of this hormone are observed in obese women (Męczekalski and Katulski, 2016; WHO, 1996).

Follicle-stimulating hormone (FSH) secretion increases in postmenopausal women by 10-15-fold and luteinizing hormone (LH) secretion by 3-fold, compared to their profile for the procreative period (WHO, 1996). FSH has a longer half-life thus there are significant differences between FSH and LH levels (Petkowicz et al., 2013). Prolactin secretion is slightly decreased (Meczalsky and Katulski., 2016). Approximately 3-4 years after menopause, estrogen reaches its lowest levels while FSH reaches its peak levels (WHO, 1996).

Biosynthesis of androgens in the female body takes place in the ovaries, adrenal cortex and under the influence of peripheral conversion. In postmenopause, the production of these hormones occurs mostly at the extra-ovarian level. The ovaries are involved in the production of 20% androstendione and 40% testosterone. Total testosterone levels may

slightly increase, while free testosterone levels remain the same. This is associated with an increase in SHBG (sex hormone-binding globulin) levels. The androstendione levels are decreased. As the female body ages, the secretion of DHEA (dehydroepiandrosterone) and DHEAS (dehydroepiandrosterone sulfate) is reduced. Moreover, GH (growth hormone) levels decrease in postmenopause while insulin resistance increases (Petkowicz et al., 2013; Pinkas et al., 2016). TSH (thyrotropic hormone) and ACTH (adrenecorticotropic hormone) levels remain at the same level (Meczalski and Katulski., 2016).

2. Climacteric syndrome

The low estrogen levels, which are physiologically observed during postmenopause, result in various health problems (Pinkas et al., 2016). Clinical symptoms are divided into early (short-term) and late (long-term) symptoms. Early symptoms form the climacteric syndrome, alternately called menopausal syndrome. The climacteric syndrome is a set of complaints occurring in the peri-menopausal period that are directly related to endocrine disorders. Psychosocial and environmental factors may also influence these complaints (Sarri et al., 2015). The symptoms of the climacteric syndrome affect the somatic, mental and sexual spheres (Gartoulla et al., 2014). Key symptoms include hot flushes, night sweats, irritability, fatigue, low mood, cognitive impairment and difficulty sleeping (Meczalski & Katulski, 2016). Vasomotor symptoms are considered the most bothersome, i.e. hot flushes and night sweats (Woods et al., 2014). According to current reports, menopausal symptoms can affect more than 80% of women. The period of the onset of climacteric symptoms may be different for every woman, however, they are most strongly felt in the postmenopausal period (Stachoń et al., 2013). The severity of climacteric syndrome is assessed using the Greene Climacteric Scale (GCS) and Kupperman Index (KI) (Bojar et al., 2016).

3. Metabolic syndrome

Late symptoms include problems arising in prolonged exposure to low levels of sex hormones (Sarri et al., 2015). Metabolic syndrome, also called insulin resistance syndrome, syndrome X or dysmetabolic syndrome, is one of these problems. It is a disorder that leads to the development of type 2 diabetes (T2D) and cardiovascular diseases. Metabolic syndrome is a combination of central obesity, dyslipidemia, hypertension, hypertriglyceridemia and insulin resistance (Coyoy et al., 2016). The prevalence of this syndrome in postmenopausal women ranges from 31% to 60% according to different parts of the world (Sharma et al., 2016).

Estrogen deficiency appears to have a negative effect on the inner layer of the arterial wall, which contributes to a decrease in blood vessel elasticity. The effect of altering the

androgen/estrogen ratio on the increase in LDL (low-density lipoprotein) levels and the decrease in HDL (high-density lipoprotein) levels is observed, which is typical of the atherosclerotic profile. Postmenopause is also believed to contribute to changes in the renin-angiotensin system, leading to elevated blood pressure (De Marchi et al., 2017).

Moreover, appetite is frequently increased in the postmenopausal period. Estrogen and progesterone deficiencies accelerate stomach motility. Low levels of serotonin lead to stimulation of hunger and satiety centres that are located in the hypothalamus. On the other hand, melatonin deficiency coexisting with sleep disorders stimulates the development of hyperalimentation syndrome and the occurrence of night time hunger. The aforementioned disorders lead to the development of overweight and obesity (Coyoy et al., 2016; Yalocha et al., 2014).

Postmenopausal weight gain is observed in approximately 60% of Polish women (Pinkas et al., 2016). It is characterised by unfavorable redistribution of body fat. This mainly concerns the fat mass to fat-free mass ratio, where the latter is significantly less. Visceral fat increases by 40% and subcutaneous fat located within the abdominal area by approximately 20%. An increase in visceral fat leads to the central obesity that, in turn, contributes to the development of metabolic syndrome (Janiszewska et al., 2015 B). Decreased levels of estradiol, progesterone, GH, leptin, galanin and neuropeptide Y are considered the main cause of the increase in visceral fat. The causes of the abnormal weight to height ratio should also be sought in unfavorable lifestyles, including low physical activity and poor dietary habits (Pinkas et al., 2016).

4. The consequences of estrogen deficiency in various body systems

4.1. Central nervous system (CNS)

The neuroprotective effects of estrogen are particularly important in brain areas such as the hippocampus. In the ventral hippocampus (vHPC), through connections with the hypothalamus and amygdala, they modulate affective processes, i.e. responses to stress and emotions, while the dorsal hippocampus influences cognitive function (Mott et al., 2014). Estrogens stimulate spinogenesis (the development of dendritic spines in neurons) and synaptogenesis (the process of forming synapses). Animal studies have shown that low levels of 17β-estradiol lead to loss of synapses and decreased connectivity between neurons (Au et al., 2016). Their neuroendocrine effects on cholinergic, serotonergic and GABAergic systems are also recognised (Bojar et al., 2011; Wang et al., 2016). As a result of changes in the functioning of CNS, cognitive impairment occurs in the postmenopausal period. Impaired perception of touch, smell, hearing, and vision, impaired memory and balance, impaired divided attention, as well as impaired spatial intelligence and learning ability are observed (Bojar et al., 2013; Janicka, 2014). Postmenopausal women are found to achieve

worse results in psychomotor speed tests, visuospatial ability tests and reaction time tests (Bojar et al., 2014).

Postmenopausal age is a period of increased risk for depression that affects approximately 20-30% of women (Lewicka et al., 2013). Vulnerability to depressive disorders is related not only to changes in CNS, but also to the subjective perception of somatic symptoms of climacteric syndrome and psychosocial problems (Jagtab et al., 2016).

4.2. Cardiovascular system

Cardiovascular diseases (CVDs) belong to a group of conditions that are divided into three basic disease entities, i.e. peripheral artery disease (PAD), ischemic cerebral infarction and ischemic heart disease (IHD). For many years, the problem was thought to affect mainly men, hence the CVD incidence in women was not considered on such a large scale. Although symptoms of CVDs appear approximately 10 years later than in men, women suffer from more adverse complications (Sobieszczanska, 2011). It is estimated that approximately 22% of European women die from coronary heart disease alone. In contrast, 52% of European women die from other cardiovascular diseases (Schierbeck et al., 2015).

Risk factors, as well as their prevalence, increase significantly in the postmenopausal period. Significant metabolic changes occur in the female body due to losing the cardioprotective effects of estrogens. The abnormal lipid profile, thrombotic lesions in the vessels and central obesity are observed (Pinkas et al., 2016; Van Dijk et al., 2015). Numerous modifiable risk factors for atherosclerosis and heart diseases are identified in women, with the highest severity observed in the postmenopausal period (Piskorz et al., 2015). The following adverse lifestyle changes, which are quite typical for postmenopausal women, are also mentioned as predictors of CVD: poor diet, decreased physical activity and difficulty sleeping (Van Dijk et al. 2015).

4.3. Genitourinary system

Physiological estradiol deficiency leads to atrophy in the genitourinary system. Its symptoms can significantly affect postmenopausal women's comfort and quality of life. As some reports show, however, only few postmenopausal women report these symptoms to a doctor, thus the problem seems to be under-diagnosed (Gandhi et al, 2016; Parnan Emamverdikhani et al,2016; Varella et al, 2016).

Many degenerative changes occur within reproductive organs. The uterus, ovaries and fallopian tubes gradually decrease in size. The vulva decreases in thickness and is less vascularised. The atrophy affects the skin around the vulva, resulting in its thinning, flaccidity and sagging of the labia majora. There are involution processes within the clitoris and labia minora, as well as lipoatrophy (loss of adipose tissue) within the labia majora. The

vulva loses pigmentation and typical pubic hair. There is also mucosal thinning at the vaginal area (Gardziejewska et al., 2014; Skrzypulec-Plinta et al., 2013).

Vaginal atrophy affects up to approximately 75% of women. It results in the appearance of many symptoms, i.e. decreased vaginal tone and elasticity, vaginal dryness and/or vaginosis as well as dyspareunia and bleeding after sexual intercourse. A gradual decrease in vaginal wall elasticity is associated with a decline in the number of collagen and elastin fibers (Parnan Emamverdikhan et al., 2016). In addition, the following symptoms are also observed: impairment of keratinocyte proliferation, initiation of degenerative changes in tissues and inhibition of regenerative processes. This results in epithelial atrophy, damage to the vaginal rugae and reduction of the vaginal vestibule (Gardziejewska et al., 2014; Skrzypulec-Plinta et al., 2013).

On the other hand, vaginal dryness is caused by a decrease in the secretion of cervical mucus and Bartholin's secretion. There are also changes in the vaginal bacterial flora that become deficient in lactic acid bacilli. At the same time, the vagina's pH level increases compared to the procreative period. This leads to itching, burning, redness and more frequent inflammation of reproductive organs, especially bacterial vaginitis (Magon et al., 2012; Skrzypulec - Plinta et al., 2013).

The aforementioned changes within reproductive organs lead to dyspareunia, i.e. pain and burning during sexual intercourse. Based on current reports, up to 25-50% of postmenopausal women report discomfort during sexual activity. Pain can occur in various regions of reproductive organs. It can either be felt within the vulva, vagina or small pelvis. However, most women experience pain in the vaginal vestibule because of its rich innervation. In addition to endocrine disorders, psychosocial factors and chronic disease comorbidities may influence its occurrence (Parnan Emamverdikhan et al., 2016; Stec et al., 2014).

There are atrophic processes in the urinary system, especially within the urinary bladder and urethra. There is also a weakening of the pelvic floor muscles due to a decrease in elastin and collagen fibers found in the connective tissue. This leads to the development of urinary incontinence (UI). According to some scientific reports, UI affects up to 20% of postmenopausal women (Gandhi et al., 2016). Moreover, there is the problem of polyuria and nycturia (excessive urination at night). UI is a urinary control disorder that causes numerous hygienic and social problems (Stadnicka et al., 2015). In the postmenopausal period, the problem of stress urinary incontinence (SUI) and urgency urinary incontinence (UUI) may arise. The former occurs most commonly. A woman may experience involuntary loss of small amounts of urine, without a sense of urinary urgency, due to coughing or exercising. On the other hand, UUI refers to the situation where involuntary urination occurs together with a sense of urinary urgency and it is accompanied by nycturia (Fiodorenko-Dumas et al., 2014; Varella et al., 2016).

4.4. Skeletal system

Osteoporosis belongs to the group of primary involutional pathologies and is responsible for 80% of metabolic bone diseases (Von Mach-Szczypinski et al., 2016). It affects 30% of European women aged over 50 years (Janiszewska et al., 2015 A). The main cause of this disease is the predominance of bone resorption processes over bone formation (ossification). In the postmenopausal age, this disease is called type 1 involutional osteoporosis. It is associated with 17β estradiol deficiency that decreases bone mineral density (Opala andRabiega-Gmyrek, 2016). This results in bone mass loss and inhibition of the microdamage repair process. This is associated with an increased risk of osteoporotic fractures (Janiszewska et al., 2015).

Osteoporosis is a disease without significant symptoms. Clinical symptoms manifest as a consequence of fractures. In the postmenopausal period, the spinal vertebrae and the femoral neck are mainly affected. These fractures are described as low-energy ones due to their occurrence as a result of a minor injury that would not normally cause such severe consequences (Janiszewska et al., 2015 A; Opala et al., 2016).

4.5. Neoplastic diseases

Malignant neoplasms usually require a long latency period to fully develop. This period begins with the first exposure to a carcinogen. Healthy cells turn into cancer cells through the process of genetic mutation (DNA changes). Cancer also occurs due to spontaneous mutations, caused by a genetic predisposition. Before the first clinical symptoms occur, however, the pathologically altered cell goes through a system of defense genes, ultimately leading to persistent mutations and the development of a full-blown tumorigenesis. Therefore, the risk of cancer increases with age due to the prolonged effect of mutagenic agents on the aging body (Zatonski et al., 2015). The postmenopausal age is a particularly vulnerable period for carcinogenesis. Breast cancer, colorectal cancer and lung cancer are most commonly observed neoplasms in Polish women (Ostrowska., 2015 A). The most common gynaecological cancers include endometrial cancer, ovarian cancer, cervical cancer and, the least common, vulvar cancer (Singh et al., 2017).

Breast cancer is a major public health problem worldwide, especially in wealthy countries. The disease is most commonly diagnosed in the 50-69 age group (Szkiela et al., 2014). Major risk factors include early menarche and late menopause, confirming a hormone-dependent type of cancer. It is believed that long-term hormone replacement therapy (HRT) may also contribute, albeit slightly, to the disease. Furthermore, anti-health behaviours such as strong alcohol consumption and low physical activity are considered important pathogenic factors. The impact of mutations in the BRCA1 and BRCA2 genes is also fully recognised (Szkiela et al., 2014). Furthermore, tall and obese women or those who have experienced significant weight gain may be at risk (Jaworski et al., 2015). The most important

clinical sign of cancer is a hard and usually painless tumor, irregular in outline and with a demarcation line around nearby tissues. Cancer may also be accompanied by dermatological lesions, i.e. redness, peau d'orange (orange peel skin), retraction of skin and swelling (Piaszczyk et al., 2015). The chance of making a full recovery depends on various factors, i.e. a histological type, tumour grade, tumour size, existing lymph node metastases and a hormonal status of the tumour (Bobek-Billewicz et al., 2014). The high mortality rate in breast cancer is mainly due to its relapse after therapeutic interventions. The tumour recurrence occurs due to the spread of local and/or disseminated residual cancer cells that have survived treatment – minimal residual disease (Havas et al., 2017).

Genital bleeding episodes in postmenopause raise suspicions of neoplastic lesions taking place within the endometrium (Inal et al., 2017; Munro et al., 2014). The etiopathogenesis of endometrial cancer is not fully understood. It is thought that hyperestrogenism may be the cause of oncologic lesions within the endometrium. People with genetic mutations are more likely to get the disease. Endometrial cancer may be associated with Lynch syndrome and hereditary nonpolyposis colorectal cancer syndrome (Colombo et al., 2015). Most women suffering from endometrial cancer live in highly developed countries, where menopause occurs later. Therefore, these women experience a longer estrogenic effect on their genital organs. Endometrial cancer is usually diagnosed around 60 years of age. Major risk factors, in addition to early menarche, late menopause and genetic factors, include diabetes and obesity (Szubert et al, 2014; Tang et al, 2017; Wilczynski et al, 2015).

There are two types of endometrial cancer, i.e. type I (estrogen-dependent) endometrial cancer and type 2 (estrogen-independent) endometrial cancer. Type 1 endometrial cancer is the most common and it usually has a benign course. The affected woman has every chance of making a full recovery (Markowska et al., 2015). Early-stage endometrial cancer, limited only to the endometrial stripe, is nearly 80% of all cases and a five-year survival rate is very high (Bendifallah et al., 2015).

Ovarian cancer has the highest mortality rate out of all gynaecological cancers (Jayson et al., 2014; Niemi et al., 2017). It particularly affects female residents of developed countries [Siegel et al., 2015]. The greatest increase in ovarian cancer incidence is observed after 50 years of age. Currently, there are no screening tests for ovarian cancer due to the lack of identified precancerous stages and the lack of sufficiently sensitive and specific biomarkers. Advances in treatment yield only marginal differences in terms of overall survival (McAlpine et al., 2014). The ovarian cancer exhibits high invasiveness (Li et al., 2017). Its aggressive development and untypical symptoms mean that it is usually diagnosed at its advanced stage – stage III-IV according to the FIGO staging system. At this stage, complete recovery is very difficult (Schüler-Toprak et al., 2017). The vast majority of cancers are epithelial in nature, and their earliest evidence is usually found in the fimbriae of the uterine

tube. Risk factors include hereditary breast and ovarian cancer syndromes, mutations in the BRCA1 and BRCA2 genes, Lynch syndrome, childlessness, ovarian hyperstimulation and failed IVF (in vitro fertilisation) attempts. The diagnosis may be preceded by non-specific dyspeptic symptoms of several months' duration, i.e. abdominal pain and bloating (Jayson et al., 2014).

Cervical cancer is still the leading cause of cancer-related mortality in women worldwide. Given the morbidity and several year survival time, Poland is in the lead among highly developed countries. This disease affects women aged 45-64 years on average (Stanislawska et al., 2016). The main cause of cervical cancer is chronic HPV infection (human papillomavirus). Risk factors include early sexual initiation, multiple children, promiscuity (engaging in sexual activity frequently with different partners), heavy smoking and low socioeconomic status (Nowak-Markwitz, 2016). Early-stage cervical cancer is asymptomatic (Ashtarian et al., 2017). Women with advanced cervical cancer may suffer from bleeding from the reproductive organs and vaginal discharge with an unpleasant odour. Cervical cancer is one of the few cancers that can be effectively prevented through screening. This cancer has long-term development and well-described precancerous stages (Palucka et al., 2017).

Vulvar cancer of is one of the least common cancers of the reproductive organs. However, the vulvar cancer incidence increases with age. The mean age of onset is 52 years of age (Singh et al., 2017). There are several histological types of vulvar cancer, with squamous cell carcinoma as the most common (Alkatout et al., 2015). The affected area is the labia majora (Singh et al., 2016). The full recovery is very possible if this cancer is diagnosed at its early stage – this greatly reduces the disease progression. A significant aspect of medical care in vulvar cancer patients is to determine the most conservative treatment possible. During the recovery process, women often require psychosexual support (Alkatout et al., 2015).

Summary

The issues discussed highlight the complexity of postmenopause and its serious implications for women's physical and mental health. The knowledge of biological and environmental mechanisms of postmenopause should contribute to increased medical personnel's concern for the health of women during menopausal transition.

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PCOS, Hashimoto's disease, celiac disease, endometriosis - genetically conditioned autoimmune disorder causing infertility?

PCOS, choroba Hashimoto, celiakia, endometrioza – zespół autoimmunizacyjnych zaburzeń uwarunkowany genetycznie powodujący niepłodność?

Abstract: Infertility is a social problem today. The causes of infertility can be both on the side of the woman and on the side of the man. One of the most common causes of infertility in women is polycystic ovary syndrome (PCOS). It has been proven that it often coexists with autoimmune thyroiditis (AIT), ie with Hashimoto's disease. In many patients with PCOS and AIT, endometriosis and celiac disease are also found. It seems that these disorders: PCOS, AIT, endometriosis and celiac disease may have a common autoimmune basis. More and more patients with infertility or recurrent miscarriages have autoimmune problems. Probably a genetic predisposition is necessary to reveal the disease.
Key words: infertility, policystic ovary syndrome, Hashimoto's disease, celiac disease, endometriosis, autoimmune basis

Abstrakt: Niepłodność jest obecnie problemem społecznym. Przyczyny niepłodności mogą leżeć zarówno po stronie kobiety jak i po stronie mężczyzny. Jedną z najczęstszych przyczyn niepłodności u kobiet jest zespół policystycznych jajników (PCOS). Udowodniono, że często współistnieje on z autoimmunizacyjnym zapaleniem tarczycy, (AZT) czyli z chorobą Hashimoto. U wielu pacjentek z PCOS i AZT stwierdza się dodatkowo endometriozę, a nierzadko również celiakię.
Wydaje się, że te zaburzenia: PCOS, AZT, endometrioza i celiakia mogą mieć wspólne podłoże autoimmunizacyjne. Coraz więcej pacjentek z niepłodnością czy poronieniami nawracającymi ma problemy autoimmunizacyjne. Prawdopodobnie do ujawnienia choroby konieczna jest predyspozycja genetyczna.
Słowa kluczowe: niepłodność, zespół policystycznych jajników, choroba Hashimoto, celiakia, endometrioza, podłoże autoimmunologiczne

Introduction

Infertility is a social problem. It is estimated that every fifth couple (20% of couples) have problems conceiving a child. According to WHO, after a year of ineffective efforts,

infertility diagnostics should be started. Unfortunately, women often plan parenthood after the age of 35, i.e. at an advanced reproductive age which makes the prognosis even worse. With age the so-called ovarian reserve, i.e. the number of ovarian follicles, which determines the fertility of a woman (often measured by the concentration of AMH, i.e. anti-Mullerian hormone) is getting lower. However, not only the number of follicles but also the quality is important for fertility. AMH is therefore not a definitive indicator of a woman's fertility potential.

Polycystic ovary syndrome is a common endocrine disorder with which infertility patients presently report. This disease may coexist with Hashimoto's disease (22.3% compared with 8.5% of healthy patients), (Zuber-Lubecka, 2021). In the course of diagnostics (most often undertaken due to problems with getting pregnant), it often turns out that patients with PCOS and Hashimoto's disease are additionally diagnosed with endometriosis, and celiac disease also. Recently, attention has been paid to the possible common autoimmune background of these disorders. Many genes that predispose to these disorders have also been described.

Could PCO syndrome, Hashimoto's disease, endometriosis and celiac disease be an expression of the body's systemic inflammatory response? Could genes cause a larger (excessive? abnormal?) immune response? Is it possible to use immune therapy common to all of these disorders?

1. PCOS - a heterogeneous syndrome of genetic disorders

Polycystic ovary syndrome (PCOS) is the most common endocrinopathy, affecting 8-13% of women of reproductive age. PCOS influences the reproductive, metabolic and psychological functions of a woman. According to Rotterdam criteria, which still apply, the characteristics of polycystic ovary syndrome include hyperandrogenism (biochemical or clinical), ovulation disorders and the image of polycystic ovaries on ultrasound examination. Elevated levels of androgens result in impaired carbohydrate tolerance, insulin resistance and diabetes are common. These disorders lead to hyperglycemia, hyperlipidemia, obesity, the metabolic syndrome develops. The PCO syndrome is characterized by phenotypic diversity: there are slim patients with or without insulin resistance, as well as obese patients with or without insulin resistance. Additionally, insulin can stimulate androgen production by enhancing the theca cells' response to LH. (Cadagan, Khan, Amer, 2016), that is the reason why this disorders may be accompanied by symptoms of hyperandrogenism: acne and / or hirsutism or only biochemical hyperandrogenism.

An increased incidence of polycystic ovary syndrome in family members of women with PCOS has been noted, which is 20-40%. For comparison, in the control group it is 6-8%. Interestingly, the correlation does not only concern the occurrence of PCOS in mothers of

daughters with this syndrome, but also the coexistence of polycystic ovary syndrome with the metabolic syndrome in the family. 94% of PCOS daughters' fathers are obese or overweight, and 79% presents the metabolic syndrome. The fact that girls suffering from PCOS are three times more likely to present metabolic syndrome than in the reference population after adjusting for BMI, proves that metabolic disorders in this group are not only due to excess body weight and fat, but are determined by genetic factors predisposing to the metabolic syndrome and insulin resistance regardless of the impact of BMI. (Leibel, Baumann, Kocherginsky, Rosenfield, 2006) and the epigenetic mechanisms related to androgen exposure in utero too.

In 2010 and 2015, genes of susceptibility to the occurrence of the PCO syndrome were identified. Three large genome studies of the Chinese (PCOS GWAS) and European (PCOS European GWAS) populations showed the presence of gene mutations in PCOS patients such as: LHCGR, FSHR, FSHB, THADA, INSR, FBN3, DENND1A, RAD50. (Jacha, Jakimiuk, Krzeczkowska-Sendrakowska, 2020) These genes are associated with patological functioning of the ovary, FSH and LH receptors as well as with the occurrence of insulin resistance and cardiovascular diseases. (Chen, Zhao, He, Shi, Qin, Shi, Li, You, Zhao, Liu, Liang, Zhao, Zhao, Sun, Zhang, Jiang, Zhao, Bian, Gao, Geng, Li, Zhu, Sun, Xu, Hao, Ren, Zhang, Chen, Zhang, Yang, Yan, Li, Ma, Zhao, 2011).

Further on, PCOS subtypes were distinguished, making the classification dependent on the identification of genetic factors. It is even postulated that the symptoms, genetic background, pathophysiology, and long-term consequences such as the risk of metabolic diseases are so different that they should not be considered the same disease any longer. (Dunaif & Fauser, 2013).

The reproductive subtype (21-23%) includes: high LH concentration, high SHBG concentration, low BMI, low insulin concentration. Women in the reproductive subtype are significantly more often carriers of one or more DENND1A variants (P = 0.03). This mutation affects the signaling cascade that increases the transcription of steroidogenic genes resulting in increased androgen production in the ovarian tissue cells. (Dapas, Lin, Nadkarni, Sisk, Legro, Urbanek, Hayes, Dunaif, 2020). The metabolic subtype (37-39%) shows low LH levels, low SHBG levels, high BMI, and elevated insulin and glucose levels. However, we still recognize polycystic ovary syndrome in patients presenting both extreme phenotypes and in many patients who have mixed disorders also.

Tab. 1. PCOS subtypes. (Dapas et al., 2020)

PCOS subtype	reproductive	metabolic
DENND1A mutation	+	-
LH	↑	↓
SHBG	↑	↓
Glucose serum level	N	↑
Insulin serum level	N	↑
BMI	N or ↓	↑

2. Is PCOS an autoimmune disease?

Due to the oligo/amennorhea type of menstrual and ovulation disorders characteristic to PCOS there is a disproportion in the levels of hormones occurring in the natural menstrual cycle in which ovulation occurs. Lack of ovulation results in a lack of the corpus luteum, which causes a deficiency of progesterone. That makes relative hyperestrogenism state. In the physiological cycle, the increase in estrogen concentration is counterbalanced by the increase in progesterone concentration. It is known that estrogens are pro-inflammatory hormones. They increase the secretion of IL-4 in Th2 lymphocytes, IL-1 in monocytes, IL-6 in T lymphocytes, and interferon-γ in Th1 cells. During the normal menstrual cycle, the concentration of IL-6 increases during the follicular phase, which decreases with the onset of the luteal phase. The PCO syndrome lacks this balance between the effects of estrogen and progesterone. Relative hyperestrogenism contributes to the increased incidence of estrogen-dependent neoplasms in PCOS (greater incidence of breast and endometrial cancer). Thus, the very endocrine status in polycystic ovary syndrome (relative excess of estrogens) predisposes to autoimmune disorders. (Angstwurm, Gärtner, Ziegler-Heitbrock, 1997).

3. PCOS and Hashimoto's disease - common features and autoimmune background

In women suffering from PCOS, a more frequent coexistence of both tissue-specific antibodies, incl. anti-TPO and anti-nuclear antibodies, such as ANA or anti-ds-DNA. (Ayse, Bercem, Bilmez, Imga Nasiroglu, Mazhar Tuna, Isik, Berker, Guler, 2015). Non-specific

markers of inflammation are also elevated in PCOS: ESR, CRP, TNF-alpha, IL-6. (Jakubowska, Bohdanowicz-Pawlak, Milewicz, 2008). The proper functioning of the mechanisms related to T-reg cells is of fundamental importance for autoimmune reactions and the process of embryo implantation. A reduced number of regulatory T cells has been demonstrated in endometriosis and Hashimoto's disease. In women suffering from PCOS, a reduced amount of regulatory T lymphocytes in the blood was also found, which, according to some researchers, is most likely due to a defective response in the IL-2 signaling pathway (defective expression of the IL-2 receptor subunit). This fact alone proves that the consequences of PCOS disorders contribute to the promotion of autoimmune diseases (Krishna, Joseph, Subramaniam, Gupta, Pillai, Laloraya, 2015).

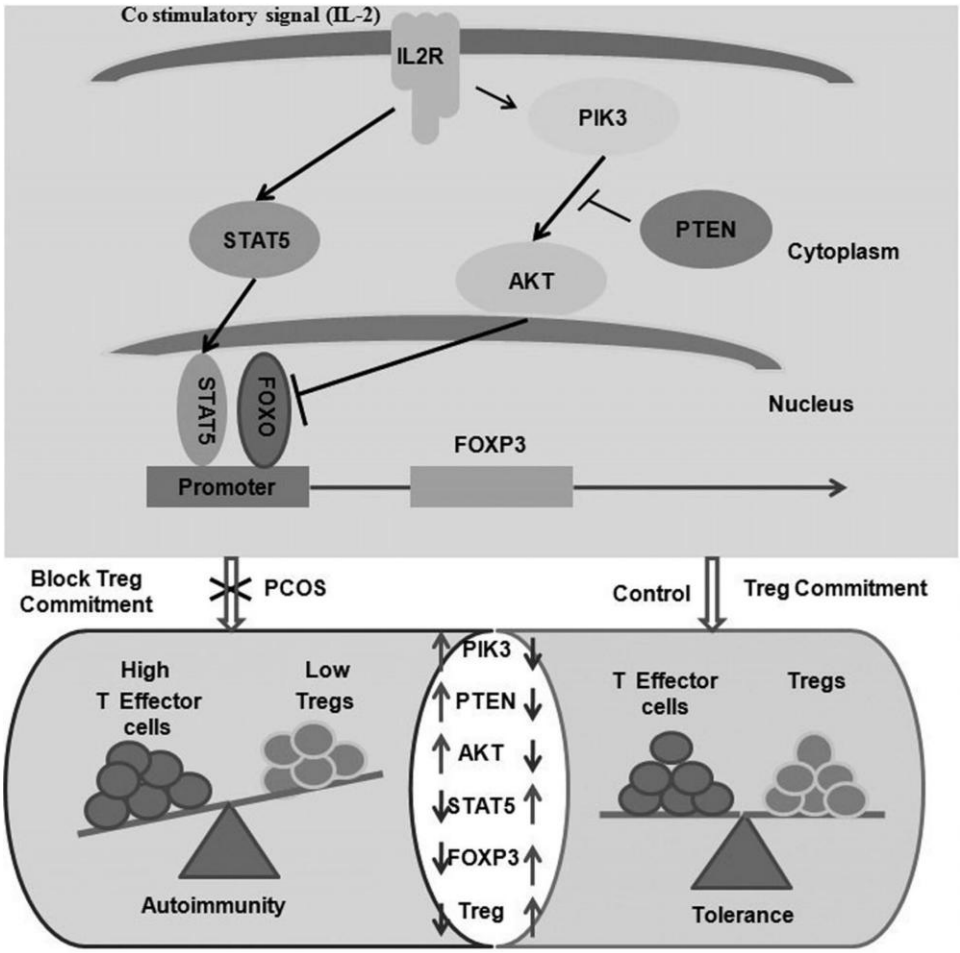

Fig. 1. Reduced Tregs in Peripheral Blood of PCOS Patients - a Consequence of Aberrant Il2 Signaling
(Krishna, Joseph, Subramaniam et al. 2015)[1]

[1] *The Journal of Clinical Endocrinology & Metabolism*, Volume 100, Issue 1, 1 January 2015, Pages 282–292, https://doi.org/10.1210/jc.2014-2401.

Additionally, the association of PCOS with Hashimoto's disease is even stronger due to for the presence of genetic polymorphisms, which predispose to the occurrence of both of these diseases. They are: *FBN3-a*gene associated with the activity of TGF-β and the level of Treg cells; *CYP1B1*- a gene involved in the metabolism of estradiol and *GNRHR*.

The best documented genetic link between PCOS and Hashimoto's disease is in the TGF-β signaling pathway. Factors involved in this pathway are good candidates for susceptibility genes to both syndromes because they play a key role in the immune system, hormone regulation, inflammation, cell proliferation, tissue differentiation, apoptosis, and related metabolic consequences such as insulin resistance. In PCOS, inflammation of visceral adipose tissue resulting in the chronic release of pro-inflammatory cytokines is a major contributor to insulin resistance. Treg cells suppress the pro-inflammatory effects of autoreactive T cells. CD4 + CD25 + Foxp3 + Treg cell depletion and increased inflammation in visceral adipose tissue have been found to contribute to insulin resistance in Hashimoto's disease. Suppression of the TGF-β signaling pathway combined with insulin resistance may lead to dysregulation of Treg cells and the promotion of autoimmunity in women with PCOS. (Zeber-Lubecka, Hennig, 2021)

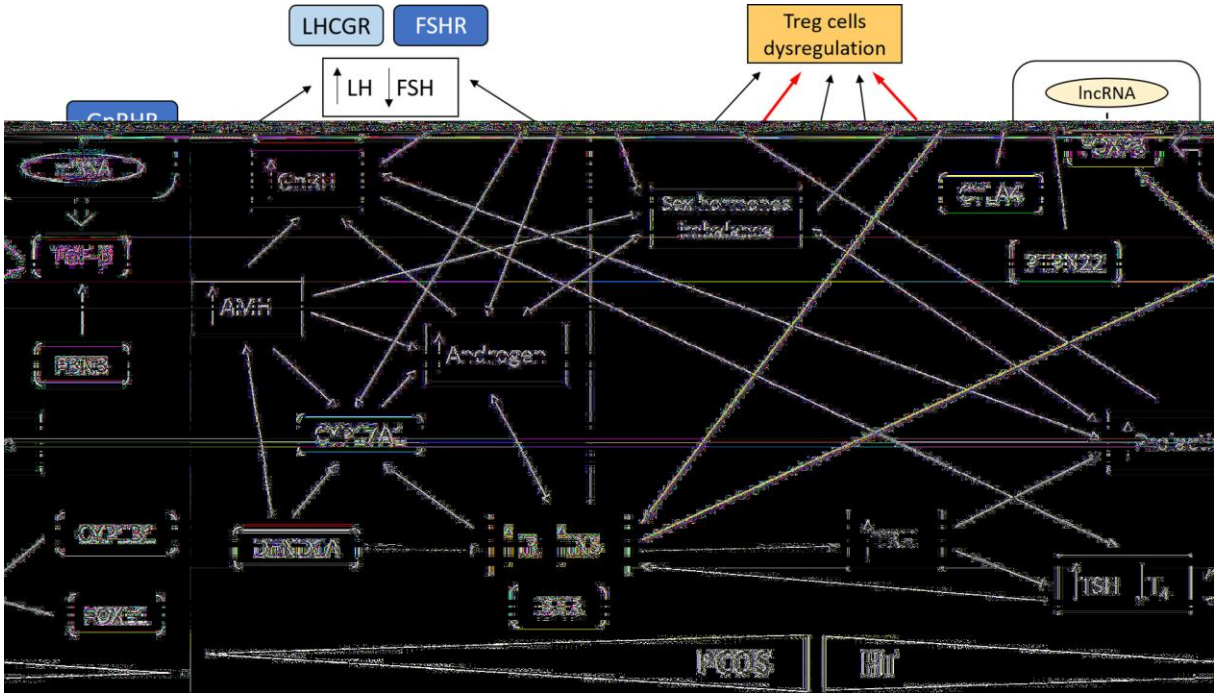

Fig. 2. Natalia Zeber-Lubecka [1, †] and Ewa E. Hennig [1, 2, *]Genetic Susceptibility to Joint Occurrence of Polycystic Ovary Syndrome and Hashimoto's Thyroiditis: How Far Is Our Understanding?

4. PCOS and endometriosis - opposing or related diseases?

The coexistence of endometriosis and PCOS seems to be much more complicated. Regarding to endocrine status, these diseases seem to be quite opposite to each other. Some authors called such diseases *diametric diseases*. In the pathogenesis of both these diseases, prenatal exposure to abnormal testosterone levels is postulated. The difference is that in the case of endometriosis, we talk about intrauterine and postnatal exposure to deficit testosterone concentrations, e.g. due to the action of antiandrogenic substances, and in the case of PCOS exactly the opposite - increased maternal androgen levels may result in the development of PCO in the child in the future. Another issue that connects both diseases is the malfunction of the hypothalamic-pituitary-ovary axis. In the case of PCOS, due to exposure to high concentrations of androgens, sensitivity to steroid-induced negative feedback loops is reduced, resulting in increased frequency and amplitude of gonadotropin releasing hormone (GnRH) and luteinizing hormone (LH) pulses with a corresponding increase in LH levels. An increased level of LH in relation to follicle stimulating hormone (FSH) causes an increased level of testosterone in the ovaries with a subsequent arrest of follicle maturation. Immature follicles release high levels of anti-Mullerian hormone (AMH), which further stimulates the release of GnRH while inhibiting the release of FSH. The ovulatory LH release is also diminished, resulting in longer or absent menstrual cycles.

In the case of decreased testosterone levels or increased levels of estradiol in prenatal life, the frequency of GnRH pulses is lower, which is reflected in the decreased LH level and increased FSH in relation to LH, the consequence is low testosterone levels in the ovaries and serum and low AMH, and thus faster follicle maturation and therefore shorter menstrual cycles. All these disorders occur in patients with endometriosis. It might seem that in this situation polycystic ovary syndrome and endometriosis should not occur together in the same patient, but from clinical experience we know that such situations do happen. How can we explain this fact? (Dinsdale& Crespi, 2021).

5. Endometriosis as an autoimmune disease

Endometriosis is a disease of unexplained etiology. Despite many theories, none has been proven. The hypothesis about the autoimmune basis of this disease seems to be the most probable. Almost every woman experiences menstrual reflux during menstrual bleeding through the fallopian tubes into the pelvic cavity. In most of them, however, these morphotic elements and fragments of the endometrium are phagocytosed by macrophages due to efficient elimination by cells of the immune system. In some women, these endometrial fragments are not recognized as foreign, the lack of a proper immune response causes them to remain active in the pelvic space, implanting into the peritoneum, intestinal

wall, and bladder. They act like cancer. They grow out of control, sometimes resulting in changes in distant organs. The presence of endometrial tissue in the lungs and even in the brain has been described. The presence of endometriosis in the pelvic cavity can lead to adhesions, obstruction of the fallopian tubes, disorders of the bladder (dysuria) or gastrointestinal tract (dyschezia), painful sexual intercourse (dyspareunia). Painful menstruation significantly worsens the quality of life of patients, they are the reason for taking painkillers, absenteeism, and sometimes they can cause mood disorders, including depression. Advanced endometriosis is a common cause of infertility. Patients are referred to assisted reproduction (ART) procedures, but these methods often fail as well. The in vitro fertilization procedure may also end in the death of the embryo due to the lack of a proper environment for the development of pregnancy. Correct embryo implantation is possible only in a normal endometrium (impaired receptivity). The tissues of the abnormal endometrium changed in the course of endometriosis can secrete various types of endotoxins that prevent the embryo from developing.

To date, no effective method of treating endometriosis has been developed. Laparoscopic procedures are performed to remove pelvic endometriosis foci, the so-called chocolate ovarian cysts, adhesions, and to improve general fertility conditions and reduce symptoms, but endometriosis often recurs. The appearance of new foci is observed even a few months after the procedure. Endometriosis often accompanies other autoimmune diseases. It most often coexists with Hashimoto's disease and celiac disease, but other autoimmune diseases can also occur.

6. Immune disorders in patients with endometriosis

In the pathomechanism of endometriosis, disorders of the immune system are taken into account, because in patients with endometriosis, altered activity of the immune system cells has been found in the peripheral blood, in the peritoneal fluid and in the endometrium (Hanada, Tsuji, Nakayama, Wakinoue, Kasahara, Mori, Ogasawara, and Murakami, 2018). These disorders relate to the activity of macrophages, NK cells, cytotoxic lymphocytes and dendritic cells. Recently, attention has been paid to the role of regulatory T lymphocytes in the development of endometriosis (Gogacz, Winkler, Bojarska-Junak, Tabarkiewicz, Semczuk, Rechberger, and Adamiak, 2014). In patients with endometriosis, there is a decrease in the number and activity of regulatory T lymphocytes (CD4 + 25 + FOXp3 +), which means that endometrial fragments are not removed, they are implanted in the peritoneum, and then spread to adjacent tissues and organs (Da Gama Coelho Riccio, Santulli, Marcellin, Abrão, Batteux, Chapron, 2018). In patients with infertility, the following diseases are often observed, such as: polycystic ovary syndrome, autoimmune thyroid disease, endometriosis, celiac disease. The common underlying causes of Hashimoto's

disease, celiac disease, and endometriosis are understood. Most likely their coexistence is associated with altered activity of cells of the immune system. But why are endometriosis and Hashimoto's disease so common in patients with polycystic ovary syndrome?

Recent studies have shown that depletion of the androgen receptor in stem cells inhibits the function of regulatory T lymphocytes (Alawad, Altuwaijri, Aljarbu, Kryczek, Niu, Al-sobayil, Chang, Bayoumi, Zou, Rudat, and Hammad, 2015). Two conclusions can be drawn from this work: 1) stimulation (targeting) of the androgen receptor prevents the process of differentiation of CD4 + cells into Treg and 2) TGF-β may be a further mediator of Treg activity. This finding would explain the mechanism of many autoimmune diseases. On the other hand, it is known that the TGF-β family also includes the AMH (anti-Mullerian hormone) glycoprotein, which is produced by granulosa cells in preantral and small antral follicles in the ovaries (Pellatt, Rice, Mason, 2010). Increased AMH concentration is one of the characteristic features of the PCO syndrome (Chen, Yang, Chen, Wu, Yang, Ho, 2008). The action of AMH is regulated by activation of the TGF-β receptor (Clemente, Jamin, Lugovskoy, Carmillo, Ehrenfels, Picard, Whitty, Josso, Pepinsky, and Cate, 2010). Like other members of the TGF-β family, AMH signals are transmitted by assembling the transmembrane serine / threonine kinase receptor complex type I and type II components, resulting in phosphorylation and activation of the type I receptor kinase by the constitutively active receptor II kinase domain (Shi, Massagué 2003).

7. Will immunomodulatory treatment be the causative treatment for PCO?

Recently, treatment with low doses of tacrolimus in mice with PCOS has been shown to prevent hormonal and immune dysregulation of the ovaries (Albaghdadi, Feeley, Kan, 2019). Tacrolimus is a macrolide antibiotic with immunomodulatory effects. This drug inhibits T cell proliferation, IL-2 receptor expression, and the production of IL-2 and IFN-γ. Low-dose tacrolimus therapy has been shown to improve ovarian immune function, increase endometrial progesterone receptor sensitivity, and promote uterine adaptation to pregnancy (Albaghdadi, 2021).

This is a very interesting observation, as it seems that PCOS may be caused by an innate decreased response to IL2 signaling and impaired activation of STAT5 (Krishna, 2015). Several genetic polymorphisms related to PCOS and autoimmune thyroid disease have already been described: polymorphism of the fibrillin 3 (FBN3) gene regulating the level of transforming growth factor β (TGFβ) and the level of regulatory T lymphocytes, the polymorphism of the gonadotropin releasing hormone receptor (GnRHR) gene and the polymorphism of the CYP1B1 gene estradiol hydroxylation. The increased ratio of estrogens to progesterone, high concentrations of estrogens in utero, impairing the development of the

thymus and its function in shaping immune tolerance may predispose to the development of autoimmune disorders in PCOS.

STAT5 is necessary for Treg development because it binds to the FoxP3 promoter and regulates the expression of FoxP3 (Burchill 2007). Preclinical studies showed that thymus exposed to more estrogen had a lower capacity to produce CD4 + CD25 + Treg lymphocytes, resulting in anovulation and development of ovarian cysts (Chapman, 2009). The dysfunction of Treg in PCOS also causes low expression of the leukemia inhibitory factor (LIF) in the endometrium of women with PCOS (Kara 2019). LIF is a Treg-cytokine that plays a key role in the preparation of the endometrium for embryo implantation and post-implantation development (Stewart 1992), and thus FoxP3 + regulatory T cells determine endometrial receptivity and embryo implantation.

The differentiation of Tregs from their naive CD4 + status is determined by the activation and expression of the transcription factor FoxP3, which is mediated by the modulating cytokines TGFβ, IL2 and IL15 (Guerin 2009). This critical process of differentiating CD4 + T cells into functioning FoxP3 + CD4 + CD25 + Treg cells may be defective in PCOS.

Disturbances can occur at any stage of this process. The target points for possible immunotherapy in PCOS may also be different.

8. Perhaps PCOS is one of the components of the autoimmune polynocrinopathy syndromes?

In 2020. metformin has been shown to increase the immunomodulatory potential of adipose-derived mesenchymal stem cells through STAT1 (Jang 2020). Perhaps this is why metformin is effective in PCOS - because metformin acts not only on metabolism, but also on the immune system. Insulin resistance induces the metabolic conversion of glucose to lactate through glycolysis, a process known as the "Warburg effect". Lactate causes inflammatory cells to migrate, create new blood vessels, and cause an abnormal immune response. Metformin also influences the immune response. Abnormal Treg function in PCOS causes increased synthesis of pro-inflammatory cytokines such as TNF-α, IL-6, leptin, resistin, PAI-1, TGF-β. High concentrations of these cytokines cause not only tissue insulin resistance, but also a pro-inflammatory state, endothelial dysfunction, and disorders of coagulation and fibrinolysis.

A very similar process is observed in endometriosis. Many studies have demonstrated the role of TGF-β in the pathophysiology of endometriosis (Young, Ahmad, Duncan, & Horne, 2017). Interestingly, TGF-β also induces the conversion of glucose to lactate by glycolysis (Warburg effect), (Young, Brown, Maybin, Saunders, Duncan, & Horne, 2014) - similar to insulin resistance in PCOS.

Lactate increases cell invasion, angiogenesis and immune suppression, all key stages in the development of endometriosis. Transformation of the microenvironment in endometriosis, inhibition of TGF-β with drugs that control immunological target points seems to be of key importance for stopping the development of endometriosis (Löffek, 2018). In patients with endometriosis, plasma levels of TGF-β are elevated and correlate not only with progression, but also with worse clinical results in infertility treatment (Miller, Ahn, Monsanto, Khalaj, Koti, and Tayade, 2017). TGF-β can act as a potent inducer of integrins and VEGF gene expression, thereby promoting tumor cell proliferation and tumor-induced angiogenesis.

Interestingly, inhibition of TGF-β receptor mediated signaling by the small molecule inhibitor galunisertib (LY2157299) restores drug response in MED12 deficient cells, suggesting that MED12 deficient tumors may benefit from anti-TGF-β therapy. (Huang, Hölzel, Knijnenburg, Schlicker, Roepman, McDermott, Garnett, Grernrum, Sun, Prahallad, Groenendijk, Mittempergher, Nijkamp, Neefjes, Salazar, ten Dijke, Uramoto, Tanaka, Beijersbergen, Wessels, Bernards, 2012). Med12 regulates ovarian steroidogenesis and uterine development. (Wang, Mittal, Castro, Rajkovic, Rajkovic, 2017). TGF-β has been shown to inhibit T cell proliferation and regulate lymphocyte differentiation. For example, TGF-β stimulates the production of regulatory T cells (Tregs) expressing CD25 and the transcription factor Foxp3 (Fontenot, Gavin, Rudensky, 2003). There is evidence of estrogen receptor (ER) and aromatase expression in ovarian stromal cells, but also in endometriosis and ovarian cancer (Rothenberger, Somasundaram, & Stabile, 2018). Such cells include CAF, myeloid derived suppressor cells (MDSC), dendritic cells, and transformed mesothelial cells. Estradiol inhibits both cellular and humoral immunity by activating ER-α on T cells, B cells, and NK cells, with ER-α46 being the dominant isoform (Wilson, Archid, & Reymond, 2020). Estradiol promotes the formation of a tumor microenvironment (TME) by increasing the Treg and MDSC populations, expressing programmed tumor cell death ligand (PD-L1), and inhibiting apoptosis induced by CD8 + T cells and NK cells. Estradiol reduces Th1 activity by promoting cytokine production (IL-6, IL-4, TNFα, IL-17A) and M2 TAM infiltration. The paracrine secretion of E2 and IL-6 by CAFS also contributes to this. The combination of estrogen receptor blockade and PD-L1 inhibition may be synergistic and independent of the sensitivity of tumor cells to estrogen signaling. Therapeutic strategies include direct blockade of TGF-β1. Galunisertyb may act synergistically with anti-PD-L1 checkpoint inhibitors (e.g., nivolumab, durvalumab) in blocking TGF-β1 suppression of host immune surveillance by Treg cells in the tumor microenvironment (Holmgaard, Schaer, Li, Castaneda, Murphy, Xu, Inigo, Dobkin, Manro, Iversen, Surguladze, Hall, Novosiadly, Benhadji, Plowman, Kalos, Driscoll, 2018). Peritoneal progression may be associated with induction of TGF-β (Rynne-Vidal, Au-Yeung, Jimenez-Heffernan, Perez-Lozano, Cremades-Jimeno, Barcena, Cristobal-Garcia, Fernandez-Chacon, Yeung, Mok, Sandoval, López -Cabrera, 2017). Many epithelial

carcinomas that metastasize to the peritoneum overexpress TGF-β. Perhaps the use of anti-PD-1 and / or anti-TGF-β drugs will facilitate the treatment of endometriosis correlated with high levels of TGF-β, which is characteristic to other autoimmune diseases and PCOS**.**

The elucidation of the immune disorders in the pathogenesis of PCOS and endometriosis seems to be crucial for the causal treatment of these diseases. It will probably reduce the risk of cancer, metabolic disorders, reduce pain and improve fertility conditions. (Schadendorf, Gawlik, Haney, Ostmeier, Suter, & Czarnetzki, 1993).

Summing up, it seems that pathophysiological use of immunotherapy is justified in endometriosis, as well as in PCOS with concomitant severe endometriosis, in cases where it is not possible to achieve pregnancy using other therapies used so far.

9. Celiac disease and Hashimoto's disease, PCOS and endometriosis

Hashimoto's disease, or autoimmune thyroiditis, is the most common autoimmune thyroid disease. Hashimoto's thyroiditis is characterized by the presence of anti-thyroid antibodies in the serum, such as thyroid peroxidase (TPO-Ab) and anti-thyroglobulin (TG-Ab) antibodies, which can damage thyroid cells. The association of Hashimoto's disease with many autoimmune diseases, especially celiac disease, has been explained by a common genetic factor. Similarly, some studies have shown that the incidence of Hashimoto's thyroiditis in celiac patients is 4-19% and may be related to sarcoidosis. On the other hand, elevated diagnostic markers of celiac disease include anti-gliadin antibodies (AGA) and anti-tissue transglutaminase (ATA) antibodies in patients with Hashimoto's thyroiditis may increase disease progression. Studies in the United States have shown a high prevalence of IgA-ATA positive titers in patients with autoimmune thyroid disease, especially Hashimoto's thyroiditis, compared to healthy subjects. In addition, several studies have investigated the relationship between anti-thyroid antibodies and anti-tissue transglutaminase or anti-gliadin antibodies in autoimmune thyroid disease. (Hadizadeh Riseh, Abbasalizad Farhang, Mobasseri, Asghari Jafarabadi, 2017).

It is believed that the coexistence of celiac disease and Hashimoto's disease is in part due to a shared genetic predisposition. The HLA-DQ2 and DQ8 haplotypes are over-represented in many autoimmune diseases, and the inheritance of these haplotypes and their associated immune phenotype may explain the relationship. Apart from the HLA system, it has been reported that both celiac disease and autoimmune thyroiditis are associated with a gene encoding a cytotoxic T cell-associated antigen (CTLA-4), a candidate gene for thyroid susceptibility to autoimmunity (Ch'ng, Jones, Kingham, 2007).

Diagnosing and treating celiac disease in high-risk patients should be beneficial in reducing complications such as malabsorption, infertility, osteoporosis, and the development of lymphoma. Treatment of celiac disease (i.e. a gluten-free diet) also improves the

absorption of medications for comorbid conditions such as hypothyroidism and osteoporosis. It is not known whether treating celiac disease reduces the likelihood of developing autoimmune disorders or alters their natural course. Sategna-Guidetti et al. (2001) showed that a gluten-free diet can reverse abnormalities in people with subclinical hypothyroidism, although, like Viljamaa et al. (2004), they found no correlation between the duration of gluten exposure in adults with celiac disease and the risk of the development of autoimmune thyroid disease. Ventura et al. (2000) found that diabetes and thyroid-related antibodies tended to disappear following a gluten-free diet (11.1% at diagnosis, 5.6% after 6 months, and no diabetes-related antibodies after 12 or 24 months). and 14.4%, 11.1%, 6.6% and 2.2% for thyroid-related antibodies, respectively), while Mainardi et al. (2002) found no correlation between anti-thyroid antibodies and the introduction of a gluten-free diet. Among a cohort of 9 celiac patients with autoimmune cholestatic liver disease (seven primary biliary cirrhosis, one primary sclerosing cholangitis, and one autoimmune cholangiopathy) detected at screening, Volta and colleagues (2002) saw no clinical or biochemical improvement in cholestasis after gluten-free diet. A gluten-free diet probably needs to be started early, before autoimmune diseases take root in order to affect their course. Rami (2005) and his team, studying children with diabetes, found that asymptomatic celiac disease did not have a clear effect on metabolic control, but had a negative effect on weight gain. On the other hand, Sanchez-Albisua (2005) showed an increase in height and weight and a tendency to improve glycemic control in dietary celiac patients diagnosed in screening of children with type 1 diabetes. Acerini et al. (1998) also showed improvement in weight control. and glycemia in people treated with a gluten-free diet. These results underscore the clinical importance of celiac disease in patients with autoimmune diabetes.

Summary

Awareness of the coexistence of polycystic ovary syndrome with other autoimmune disorders is important to undertake proper diagnosis and treatment in patients trying to become pregnant. Sometimes patients undergo several ineffective assisted reproductive procedures (such as IUI or intrauterine insemination or IVF or in vitro fertilization) before they are properly diagnosed. In patients with infertility, time is very important, because a woman's older age is associated with a smaller ovarian reserve and a poorer reproductive potential. The ineffectiveness of hormonal treatment (e.g. absence of pregnancy after ovulation stimulation) in polycystic ovary syndrome may indicate another undiagnosed disorder, e.g. Hashimoto's disease or celiac disease.

Patients with celiac disease may visit specialists other than gynecologists, such as endocrinologists or gastroenterologists, with or without any symptoms. There is ample evidence of a strong association between celiac disease and other immune-mediated

diseases, including autoimmune thyroid disorders, type 1 diabetes, primary biliary cirrhosis, inflammatory bowel disease, and autoimmune adrenal insufficiency. Some of these conditions share HLA haplotypes and non-HLA alleles, e.g., CTLA-4, which may underlie their pathogenesis. Thyroid function should be assessed in all patients with PCO, as well as celiac disease or endometriosis. Relatively cheap anti-tTG and EmA serological test kits are available for screening for celiac disease. Early diagnosis and dietary treatment reduce complications of celiac disease, such as malabsorption, osteoporosis, and the development of lymphoma, and improve drug absorption, and most importantly, improve the prognosis for pregnancy. Genetic diagnostics is also becoming more and more important, e.g. testing the TGF-β polymorphism (Rahmioglu, 2014).

It seems that in a significant proportion of patients, PCO may be accompanied not only by Hashimoto's disease, but also by endometriosis and celiac disease. Perhaps in the future, effective immune therapies will be developed for these patients so that they can enjoy motherhood.

In recent years, there has been a rapid development of clinical immunology, and the 2018 Nobel Prize for research on anti-PD-1 drugs has brought the scientific world to a new type of therapy - immune therapy. Currently, immunotherapy is used as the first-line treatment in many neoplastic diseases (melanoma, non-small cell lung cancer, bladder cancer, kidney cancer). Therapy of the so-called with biological drugs, it is already successfully used in many autoimmune diseases, such as rheumatoid arthritis, psoriasis or multiple sclerosis. Studies using immunotherapy in endometriosis are also published: TNFα blockers (D'Antonio, 2000), recombinant IL-12 (Somigliana, 1999), interferon α (Ali, 2000), anti-PD-1 drugs (Holmgaard, 2018) and finally anti-TGF β drugs (Löffek, 2018).

Despite the enormous progress in science, it would be best if the prevention of certain diseases was applied already in adolescence (e.g. metformin treatment, anti-inflammatory diet or physical activity in PCO syndrome). First, it is necessary to implement a causal procedure before proposing, for example, assisted reproduction (e.g. correction of hypothyroidism or a gluten-free diet in celiac disease), which is not accepted by all couples and in such cases still does not solve the problem of infertility and delays effective treatment in a situation of gradual progression. the decrease in the reproductive potential of both partners. Moreover, the education of doctors in this field is necessary. In Poland, access to many such multidisciplinary studies is payable, which is a problem for many couples.

It should also be noted that nowadays patients with PCOS often become pregnant after hormone stimulation of ovulation or after in vitro fertilization (IVF), whereas in the past such women were childless. Recently, many publications describe the meaning of the so-called fetal programming. During pregnancy, the development and maturation of, among others, the fetal organs, the brain, and the immune system. The hormonal, metabolic and immune disorders seen in a woman with PCOS can have health implications for the baby

developing in her womb. Probably all these disorders are additionally exacerbated by the influence of endocrine disruptors. Therefore, it is necessary to educate doctors and patients themselves about proper preparation for pregnancy in order to minimize the risk of health problems in the child.

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Promotion of reproductive and metabolic health - current trends in the treatment and prevention of polycystic ovary syndrome in different periods of life

Promocja zdrowia prokreacyjnego i metabolicznego – aktualne kierunki w terapii i profilaktyce zespołu policystycznych jajników w różnych okresach życia

Abstract: Polycystic ovary syndrome (PCOS) is one of the most common hormonal disorders and causes of infertility in women in reproductive age. Diagnostic criteria of PCOS in adult women include: ovulation disorders, hyperandrogenism and polycystic ovaries. According to most recommendations, 2 out of these 3 criteria are confirm the diagnosis of PCOS. In girls during puberty and in the first years after *menarche*, different diagnostic criteria of menstrual disorders should be taken into account (variable length of menstrual cycles, monophasic cycles) and the limited usefulness of ultrasound examination for PCOS diagnosis within 8 years after *menarche*. Fairly extensive differential diagnosis is also necessary, especially – exclusion of adrenal hyperandrogenism. Moreover, the diagnostic criteria of PCOS do not take into account the metabolic disorders found in most patients (obesity, insulin resistance, type 2 diabetes), which should be diagnosed as early as possible and treated appropriately. This is especially true for teenagers, in whom the unequivocal diagnosis of PCOS or its exclusion may be very difficult. Current recommendations regard hormonal contraception as the first-line therapy in PCOS, in both adult women and adolescents. Together with its beneficial effect on the reduction of hyperandrogenism and obtaining regular bleeding (which in fact are not menstruations), the unfavorable metabolic effects of hormonal contraception are emphasized, as well as the inadequacy of its use if it is expected to achieve or restore ovulation and fertility. The latest reports indicate the legitimacy of treatment aimed at correcting disorders of carbohydrate metabolism and its greater effectiveness compared to the use of oral contraceptives in both adult women and girls with PCOS. In the pharmacotherapy of insulin resistance, metformin is of fundamental importance, the use of pioglitazone, GLP-1 receptor agonists or inositols is also proposed. Adequate lifestyle and dietary modification are of major importance in the treatment and prevention of PCOS. The mechanisms of "inheritance" of PCOS and insulin resistance with the participation of epigenetic modifications are still better understood, taking into account the effects of exposure to androgen excess in utero, intrauterine growth retardation, and maternal obesity and hyperalimentation. This creates new possibilities for PCOS prophylaxis.
Keywords: hyperandrogenism, insulin resistance, ovulation, polycystic ovary syndrome, procreative health

Abstrakt: Zespół policystycznych jajników (PCOS) jest jednym z najczęstszych zaburzeń hormonalnych u kobiet w wieku rozrodczym, a zarazem jedną z najczęstszych przyczyn niepłodności. Kryteria rozpoznania PCOS u kobiet dorosłych obejmują: zaburzenia owulacji, hiperandrogenizm i policystyczną strukturę jajników. Według większości rekomendacji dla rozpoznania PCOS wymaganie jest spełnienie 2 spośród wymienionych 3 kryteriów. U dziewcząt w okresie pokwitania i

w pierwszych latach po *menarche* należy uwzględnić odrębności dotyczące kryteriów diagnostycznych zaburzeń miesiączkowania (zmienna długość cykli miesiączkowych, występowanie cykli jednofazowych) oraz ograniczoną przydatność badania USG dla potwierdzenia rozpoznania PCOS nawet w ciągu 8 lat po *menarche*. Konieczne jest również przeprowadzenie dość szerokiej diagnostyki różnicowej, w szczególności – wykluczenie hiperandrogenizmu nadnerczowego. Ponadto, kryteria rozpoznania PCOS nie uwzględniają stwierdzanych u większości pacjentek zaburzeń metabolicznych (otyłości, insulinooporności, cukrzycy typu 2), które powinny być możliwie wcześnie rozpoznawane i odpowiednio leczone. Jest to szczególnie istotne u nastolatek, u których jednoznaczne postawienie rozpoznania PCOS bądź jego wykluczenie może być bardzo trudne. Aktualne rekomendacje uznają antykoncepcję hormonalną za terapię pierwszego rzutu w PCOS zarówno u kobiet dorosłych, jak i u nastolatek z zaawansowanym dojrzewaniem. Obok korzystnego wpływu na redukcję hiperandrogenizmu i uzyskania regularnych krwawień (które *de facto* nie są miesiączkami) podkreślane są niekorzystne efekty metaboliczne antykoncepcji hormonalnej i nieadekwatność jej stosowania, jeśli oczekiwane jest uzyskanie bądź przywrócenie cykli owulacyjnych i płodności. Najnowsze doniesienia wskazują na zasadność leczenia ukierunkowanego na wyrównanie zaburzeń gospodarki węglowodanowej oraz jego większą skuteczność w porównaniu do stosowania doustnej antykoncepcji zarówno u kobiet dorosłych, jak i u dziewcząt z PCOS. W farmakoterapii insulinooporności podstawowe znaczenie ma metformina, proponowane jest także stosowanie pioglitazonu, agonistów receptora GLP-1, czy inozytoli. Istotne znaczenie w leczeniu i zapobieganiu PCOS przypisuje się odpowiedniej modyfikacji stylu życia i sposobu żywienia. Coraz lepiej poznane są mechanizmy „dziedziczenia" PCOS i insulinooporności, z udziałem modyfikacji epigenetycznych, uwzgledniające wpływ ekspozycji na nadmiar androgenów w życiu płodowym, wewnątrzmacicznego zahamowania wzrastania oraz otyłości i hiperalimentacji matki w ciąży, co stwarza nowe możliwości profilaktyki PCOS.
Słowa kluczowe: hiperandrogenizm, insulinooporność, owulacja, zdrowie prokreacyjne, zespół policystycznych jajników

Introduction

Polycystic ovary syndrome (PCOS) it is one of the most commonly diagnosed endocrinopathies in women, and the first clinical description of this disease entity dates back over 85 years (Stein, Leventhal, 1935). Basic criteria for the diagnosis of PCOS include menstrual/ovulation disorders, hyperandrogenism and polycystic ovarian structure, where, according to the "Rotterdam" criteria (Fauser, 2004), any 2 of the 3 criteria are required to be met, while, according to the criteria of The Androgen Excess and PCOS Society (AE-PCOS) (Azziz, Carmina, Dewailly, Diamanti-Kandarakis, Escobar-Morreale et al., 2009) evidence of hirsutism or hyperandrogenemia is required and at least one of the other criteria must be met. Depending on the adopted diagnostic criteria, it is estimated that PCOS may affect 6-13% of women of reproductive age (Bozdag, Mumusoglu, Zengin, Karabulut, Yildiz, 2016). Due to the occurrence of oligoovulation or anovulation, PCOS is also one of the most common causes of female infertility. Particularly large discrepancies concern the incidence of PCOS in adolescents. In the same group of girls, AE-PCOS criteria were met by 3% of girls, while the "Rottedam" criteria by as much as 18.5% (Hickey, Doherty, Atkinson, Sloboda, Franks et al., 2011). In more recent studies (Khashchenko, Uvarova, Vysokikh, Ivanets, Krechetova et al., 2020) the prevalence of PCOS in adolescents has been estimated at 2.2-7.5%, but among girls with menstrual disorders and hirsutism it was even 68%. At the

same time, it is known that there is a correlation between the nutritional status and the incidence of PCOS, and this syndrome is diagnosed several times more often in obese patients than in girls with normal body weight (Christensen, Black, Smith, Martinez, Jacobsen et al., 2013). Diagnosis of PCOS requires the fulfillment of specific diagnostic criteria and the exclusion of a number of diseases with a similar course. Unfortunately, there are cases of incorrectly diagnosed women, in whom adrenal hyperandrogenism was overlooked, *e.g.* in case of non-classic congenital adrenal hyperplasia (CAH), which implies a different pathogenesis of the disease and a different treatment. On the other hand, the diagnosis of PCOS in adolescents and young women with menstrual disorders is sometimes based on the criteria appropriate for adult women, without taking into account the physiological differences regarding the normal length of the menstrual cycle and ovarian structure assessed by ultrasound (US). Such patients often receive hormonal contraception (usually in the form of combined oral pills), which allow to achieve regular bleeding (being de facto not menstruation but "withdrawal" bleedings), and often also at least partial reduction of the symptoms of hyperandrogenism. Such management, however, does not take into account the significant role of metabolic disorders in the pathogenesis of PCOS, and it is also not aimed at restoring reproductive health and proper fertility potential. The results of recently published scientific studies indicate the legitimacy of using treatment aimed at correcting carbohydrate metabolism disorders in girls with PCOS. Adequate lifestyle and dietary modification are of great importance in both the treatment and preventing PCOS occurrence in every period of life.

Given the high prevalence of familial PCOS incidence in mothers and daughters, or even in several consecutive generations of women, the concept of the hereditary basis of this syndrome was put forward, which, however, has not been confirmed by the results of studies conducted in this area. Instead, factors such as exposure to excess androgens *in utero*, intrauterine growth retardation and related epigenetic modifications, have been shown to be of significant importance. This creates a need for endocrinological monitoring of girls born to mothers with PCOS and with other diseases that increase the risk of PCOS in female offspring. Girls with obesity, insulin resistance or premature and strongly expressed adrenal phase of sexual maturation (*adrenarche*) also constitute the PCOS risk group. A separate, difficult diagnostic and therapeutic problem are patients with primary amenorrhea, in whom the entire clinical picture suggests the diagnosis of PCOS.

1. PCOS diagnostic criteria in adult women

Polycystic ovary syndrome is diagnosed in patients with ovulation disorders (translating into secondary or, more rarely, primary amenorrhea or oligomenorrhoea), hyperandrogenism (clinical and/or laboratory) and polycystic structure of the ovaries on US

examination. There are some differences in the diagnostic criteria proposed by various scientific societies. According to the most commonly used "Rotterdam" criteria of 2003, proposed jointly by the European Society of Human Reproduction and Embryology (ESHRE) and the American Society for Reproductive Medicine (ASRM) (Fauser, 2004), in adult women for the diagnosis of PCOS, at least two of the following three criteria must be met: 1/ anovulation or oligoovulation; 2/ hiperandrogenism, 3/ polycystic ovarian structure (morphology) in US examination (PCOM). The Androgen Excess and PCOS Society (Azziz et al., 2009) set somewhat different criteria, according to which the diagnosis of PCOS requires the presence of hirsutism and/or hyperandrogenemia (a *sine qua non* condition) and – additionally – chronic anovulation or PCOM.

According to the Position Statement of the Polish Society of Endocrinology (PSE), the Polish Society of Gynecologists and Obstetricians (PTGO) and the Polish Society of Gynecological Endocrinology (PSGE) (Milewicz, Kudła, Spaczyński, Dębski, Męczekalski et al., 2018), ESHRE/ASRM criteria are recommended for the diagnosis of PCOS in adult women (Fauser, 2004), with minor modifications proposed by the authors.

It is also necessary to exclude other endocrinopathies, especially androgen excess of adrenal origin, including late-onset "non-classical" CAH and androgen-secreting tumors, as well as Cushing syndrome, acromegaly, hypothyroidism and hyperprolactinemia; in the case of secondary amenorrhea, a pregnancy test is required as well (Milewicz et al., 2018).

It is also known that PCOS patients have an abnormal, elevated gonadotropin ratio LH:FSH, which is important in the pathomechanism of ovarian dysfunction (leads to the predominance of testosterone synthesis under the influence of LH over its aromatization under the influence of FSH); this is not included in the diagnostic criteria. In the diagnostics of PCOS, it is proposed to perform a stimulation test with gonadoliberin (GnRH), however this test should be considered only as an auxiliary procedure (Lewandowski, Cajdler-Łuba, Salata, Bieńkiewicz, Lewiński, 2011). Moreover, women with PCOS are often overweight or obese, and have disorders of carbohydrate metabolism, mainly insulin resistance, which are also not included in the diagnostic criteria of PCOS, although the reduction of excess body weight and the correction of metabolic disorders may be of key importance for the success of PCOS therapy.

2. PCOS diagnostic criteria in the first years after *menarche*

Determining the diagnosis of PCOS in girls is particularly difficult as some of the symptoms considered pathognomonic in adult women should be considered physiological during puberty (Milewicz et al., 2018). In the first years after *menarche*, menstrual cycles can be monophasic (anovulatory) and need not be regular during this period, the picture of PCOM is also normal in healthy girls. Therefore, it is assumed that in adolescents the

necessary condition for the diagnosis of PCOS is confirmation of ovarian hyperandrogenism (Hecht Baldauff, Arslanian, 2015; Ibáñez, Oberfield, Witchel, Auchus, Chang et al., 2017). Few years ago, a comprehensive study, concerning pathophysiology, diagnosis and treatment of PCOS in adolescence, was published by an international consortium of authors (Ibáñez et al., 2017). The diagnostic criteria for PCOS proposed in this paper are presented in Table 1. Last year, another international evidence-based guidelines for PCOS in adolescents appeared (Peña, Witchel, Hoeger, Oberfield, Vogiatzi et al., 2020), in which the authors have proposed both the required diagnostic criteria for PCOS and a list of not recommended tests, as well as exclusion criteria. These recommendations are presented in Table 2, while the differences in the interpretation of menstrual disorders in adolescents and in the first years after *menarche* – in Table 3.

Table 1. PCOS diagnostic criteria in adolescents, according to Ibáñez et al. (2017)

Required	**Optional***	**Not recommended****	**Comments**
Irregular mentruations, *oligomenorrhoea* Hyperandrogenism: biochemical or clinical (*e.g.* progressive hirsutism)	Polycystic ovaries (PCOM) Severe cystic acne	Obesity Insulin resistance Hyperinsulinemia Biomarkers (*e.g.* AMH, testosterone/DHT ratio) *Acanthosis nigricans*	Generally must be 2 years post *menarche* Must be ruled out other disorders with hyperandrogenism (non-classic CAH, Cushing syndrome)

*Optional criteria should be used only together with the required criteria
**Criteria associated with PCOS but not diagnostic
Abbreviations: PCOM – polycystic ovarian morphology; AMH –antymüllerian hormone; DHT – dihydrotestosterone; CAH – congenital adrenal hyperplasia

Although in the initial period there may be mainly monophasic cycles of various lengths, their observation seems advisable, because irregular menstruation lasting more than 2 years after the *menarche* is considered a risk factor for menstrual disorders later in life (Witchel, Oberfield, Rosenfield, Codner, Bonny et al., 2015). Girls with PCOS may also initially experience heavy bleeding, preceding oligomenorrhoea and secondary amenorrhea (Urbańska, Hirnle, Olszanecka-Glinianowicz, Skrzypulec-Plinta, Skrzypulec-Frankel, Drosdzol-Cop, 2019). Polish authors (Milewicz et al., 2018) recommend the use of the following biomarkers for the assessment of ovulation: observation of the regularity of menstruations, ultrasound monitoring, determination of serum progesterone in the luteal phase of the cycle and measurements of basal body temperature (BBT).

Table 2. PCOS diagnostic criteria in adolescents, according to Peña et al. (2020)

Criteria required	**Investigations not recommended**	**Exclusion of other conditions**
Irregular menstrual cycles and ovulatory dysfunction (age-dependent interpretation, see Table 3); if anovulation is suspected in adolescents or women with regular menstrual cycles, progesterone level should be measured Hyperandrogenism a. biochemical (calculated free testosterone concentration, free androgen index) confirmed with high-quality tests; in women on hormonal contraception, assessment should be performed after its withdrawal for 3 months b. clinical: moderate or severe comedonal acne in early puberty, moderate or severe inflammatory acne in peri-menarcheal period, hirsutism (assessment according to Feriman-Galwey scale, no uniform cut-off established)	Pelvic USG – in patients with a gynaecological age of <8 years (*e.g.* <8 years post *menarche*) – the high incidence of polycystic ovaries in healthy adolescents and young women; US may be performed to investigate other uterine or ovarian abnormalities AMH – lack of established cut-off levels in studies on large populations of different ages and ethnicities, the necessity of improved standardization of assays	Pregnancy – the most common cause of amenorrhea in sexually active teenagers Hypothalamc amenorrhoea Non-classic CAH (21-hydroxsylase deficiency – asesment of 17-OHP in follicular phase of menstrual cycle, test with Synacthen) Hypothyroidism Hyperprolactinemia Cushing syndrome Glucocorticoid resistance Androgen-secreting ovarian and adrenal tumors

Abbreviations: US – ultrasonography, AMH –antimüllerian hormone, CAH – congenital adrenal hyperplasia, 17-OHP – 17-hydroxyprogesterone

Table 3. Criteria of irregular menstrual cycles in adolescents, according to Peña et al. (2020)

Time post *menarche*	**Definition of irregular menstrual cycles**
<1 year	Irregular cycles are normal
1-3 years	<21 days or >45 days
>3 years	<21 days or >45 days or <8 cycles/year
>1 year	Any single cycle >90 days
Primary amenorrhea by age 15 years or >3 years from beginning of breast development	

From a clinical point of view, particularly important is the recommendation that adolescents with symptoms suggestive of PCOS, who do not meet diagnostic criteria of this syndrome, should undergo systematic monitoring and symptomatic treatment. In patients from such a defined "risk group" of PCOS, it is recommended to reassess the regularity of

menstruations 3 years after the *menarche*, while ovarian structure in US examination 8 years after the *menarche* (in the patients using hormonal contraception, it should be discontinued 3 months before the examinations). It is important not only to make girls and their families aware of the increased risk of PCOS, the consequences of delayed diagnosis and treatment of this syndrome, but also to avoid overdiagnosing PCOS (Peña et al., 2020).

3. PCOS phenotypes in adult women – basics of personalized therapy

Depending on the dominant symptoms, there are 3 basic phenotypes of PCOS: metabolic, related to hyperandrogenism and reproductive (Conway, Dewailly, Diamanti-Kandarakis, Escobar-Morreale, Franks et al., 2014), and the related need for personalization of therapy was clearly expressed in the common Position Statement of PSE, PTGO and PTGE (Milewicz et al., 2018). The most common is the metabolic phenotype associated with the presence of classic PCOS symptoms (*i.e.*, fertility disorders, hyperandrogenism, and PCOM), abdominal obesity and carbohydrate metabolism disorders: insulin resistance (40-70% of cases), glucose intolerance (30-35% of cases), type 2 diabetes (8-10% of cases) (Milewicz et al., 2018; Pasquali, 2006). Moreover, these patients have an increased incidence of lipid metabolism disorders, non-alcoholic fatty liver disease, and the risk of cardiovascular diseases. The next of the phenotypes mentioned is dominated by clinical and biochemical symptoms of hyperandrogenism, which may be associated with impaired fertility, PCOM and metabolic disorders. It is recommended to assess the androgen profile in girls with treatment-resistant acne or hirsutism, and in the case of particularly high testosterone levels – exclusion of an ovarian or adrenal tumor. Detailed recommendations can be found in the previously quoted Position Statement of Polish scientific societies, concerning the diagnostics and therapy of PCOS (Milewicz i in., 2018). In the case of the reproductive phenotype, the main problem are disorders of menstrual cycle (*oligomenorrhoea*) and of ovulation, with secondary amenorrhea and anovulation, leading to infertility. They are associated with abnormalities in folliculogenesis and PCOM. In these patients, testosterone levels and the free androgen index (FAI) may be normal or only slightly elevated, hirsutism and acne do not occur, and overweight or obesity is observed only in some cases. There are also patients who cannot be clearly assigned to one of the phenotypes.

Given the clinical differences in the course of PCOS, as well as the different age of the patients, from puberty through reproductive age up to menopause and postmenopausal period, it seems obvious that these differences should be taken into account when planning treatment. In the case of the metabolic phenotype, weight reduction and improvement of insulin sensitivity are essential, achieved through lifestyle modifications (dietary management and increased physical activity) leading to weight loss, usually in combination with pharmacotherapy. Dietary recommendations for adults with insulin resistance include

a diet with negative balance of 500-600 kcal/day in relation to the total energy expenditure, limiting the consumption of simple sugars (also in the form of sweet drinks and excessive amounts of fruit juices), in favor of consuming products with a low glycemic index and high in fiber (whole grains, non-starchy vegetables, raw fruit), eating calcium-rich foods (milk and dairy), reducing alcohol consumption (moderate consumption as part of a balanced low-calorie diet does not appear to have an adverse effect on insulin sensitivity); it is also important to distribute meals correctly throughout the day, with the greater supply of calories in the first half of the day and including breakfasts rich in products with a low glycemic index (Gołąbek, Regulska-Ilow, 2019). When assessing the practical effectiveness of the recommended modifications, it is worth quoting the results of a study conducted among PCOS patients and support groups, which showed that although most of them try to implement dietary recommendations, they achieve their health goals only in a small percentage (about 12%) (Arentz, Smith, Abbott, Bensoussan, 2021). This indicates the need for close multidisciplinary cooperation between physicians, dieticians, psychologists, physiotherapists and personal trainers in caring for these patients.

The primary drug in the treatment of patients with the metabolic phenotype of PCOS is metformin, whereas the proposed second-line treatment is low-dose hormonal contraception (Milewicz et al., 2018). Metformin acts in a multi-directional way by inhibiting the production of glucose by the liver (by inhibiting glycogenolysis and gluconeogenesis), increasing the sensitivity of tissues to insulin (by increasing peripheral glucose uptake and tissue consumption), inhibiting glucose absorption (by delay its absorption in the intestine), stimulation of intracellular glycogen synthesis and increasing the capacity for transmembrane glucose transport (by activating all glucose transporters), together with beneficial effects on the lipid profile and weight reduction; the drug also reduces the production of androgens by the adrenal glands and ovaries. Metformin may also increase the ovulation rate in patients with PCOS (Cwynar-Zając, 2021). Indications for the use of metformin in Poland include – in addition to the treatment of diabetes and insulin resistance – also PCOS therapy, however in children and adolescents they are limited to the treatment of diabetes after the age of 10. The authors of Polish Position Statement (Milewicz at al., 2018) emphasize that metformin is not a first-line drug in women with oligoovulation, hyperandrogenism and infertility. Nevertheless, other Polish authors (Otto-Buczkowska, Grzyb, Jainta, 2018) believe metformin should be the first-line drug in young girls with POCS, which can be used both as monotherapy and in combination with anti-androgens. In recent years, there has been an increased interest in the use of GLP-1 receptor agonists and inositols in PCOS patients with insulin resistance and disorders of carbohydrate metabolism. Meta-analysis of the studies conducted so far shows that GLP-1 analogues are more effective than metformin in terms of weight reduction and improvement of insulin sensitivity in overweight or obese PCOS patients. Combined use of these drugs is also beneficial (Ma,

Ding, Wang, Deng, Sun, 2021). Another metaanalysis and systematic review of studies on the comparison of the effectiveness of myo-inositol and metformin showed no significant advantage of any of the drugs in terms of the effect on the hormonal profile and ovarian function, however indicating that myo-inositol may be more effective in improving fertility (Azizi Kutenaei, Hosseini Teshnizi, Ghaemmaghami, Eini, Roozbeh, 2021). In a study conducted in a group of girls and women with PCOS aged 14-48 years, beneficial metabolic effects of inositol were found (improvement of insulin sensitivity, reduction of glucose, insulin and glycosylated hemoglobin concentrations, with no effect on lipid metabolism) compared with the combined contraceptive pill (increase in serum cholesterol and triglycerides, worsening of insulin resistance) and an untreated control group (De Diego, Gómez-Pardo, Groar, López-Escobar, Martín-Estal et al., 2020). The authors of the latter publication indicate that the current recommendations and clinical practice in the case of PCOS are not sufficiently focused on the treatment and prevention of hormonal and metabolic disorders. It is worth emphasizing that all the above-mentioned therapeutic options were included in the Position Statement of PDE, PSGO and PSGE, published 3 years ago (Milewicz et al., 2018).

In women whose main problem is hyperandrogenism, most recommendations (Conway et al., 2014; Fauser, 2004; Milewicz et al., 2018) advise the two-component contraceptive therapy, with progestogen of anti-androgenous activity. However, the greater risk of deep vein thrombosis should be taken into account when using preparations with an anti-androgenic component (drospirenone, cyproterpone acetate), and also containing gestodene and desogestrel, than using most androgenic progestogens (lewonorgestrel, norethisterone, norgestimate) (Peña et al., 2020). There are also important contraindications to the use of hormonal contraception related to the action of the estrogen component, which may be partially limited while maintaining the efficacy of therapy by reducing the dose of ethinylestradiol from 30-35 μg to 20 μg (Milewicz et al., 2018). Apart from the increased risk of thrombosis, the negative influence of contraceptives on the lipid metabolism (increase in total cholesterol and LDL-cholesterol fraction) is emphasized together with deterioration of insulin sensitivity, both in the fasting state (increased HOMA index), as well as after an oral glucose load. This leads in the long term to an increased risk of cardiovascular diseases, which may be particularly unfavorable in overweight and obese patients who experience cumulative metabolic complications of obesity and used hormonal therapy. In recent years – after the publication of these recommendations – the study on adolescents has been published, indicating greater effectiveness of therapy aimed at correcting metabolic disorders vs. hormonal contraception with regard to the restoration of ovulation and their comparable effectiveness in the reduction of hyperandrogenism (Ibáñez, Díaz, García-Beltrán, Malpique, Garde et al., 2020). Issues related to PCOS therapy in adolescents will be presented in detail later in this paper.

Another therapeutic option is the use of spironolactone – a diuretic, the actions of which also include inhibition of androgen secretion and their binding to receptors in hair follicles, as well as inhibition of 5α-reductase activity; it is recommended to add a contraceptive at the same time (Milewicz et al., 2018). Due to the relatively long time of therapy required to reduce the clinical symptoms of hyperandrogenism, especially hirsutism, it is advisable to perform cosmetic procedures (laser epilation, eflornithine).

In women with a reproductive phenotype, the primary goal of PCOS therapy is to restore ovulation. In obese patients, the mainstay of treatment is lifestyle modification, usually with the addition of pharmacotherapy with metformin. In the next stage, drugs that induce FSH secretion are used – clomiphene citrate and letrozole; laparoscopic ovarian cauterization can also be performed (Milewicz et al., 2018). The authors of a meta-analysis involving 4,168 patients and 8,310 stimulated cycles showed that letrozole was more effective in inducing ovulation than clomiphene, noting that both in Europe and in the USA the drug is used in this indication "off-label" (Tsiami, Goulis, Sotiriadis, Kolibianakis, 2021). Similar observations were presented several years earlier by Hilgers (2004), who also compared the different dosing regimens and noted the possible reduction in the thickness of the endometrium in patients receiving clomiphene. Recent studies have confirmed greater endometrial receptivity during the "implantation window" in women with PCOS after using letrozole compared to clomiphene (Wang, Lv, Li, Bai, Yang, 2021). A detailed discussion of these issues is beyond the scope of this paper.

It seems that although the determination of the reproductive phenotype of PCOS will concern mainly women of reproductive age who are trying to get pregnant, restoring ovulation (and in a broader perspective – fertility) may be a more important goal in terms of reproductive health than just obtaining regular bleeding and reduce the severity of hyperandrogenisation symptoms at any stage of life. This approach is confirmed in the latest publications on the therapeutic management of girls with PCOS (Calcaterra, Verduci, Cena, Magenes, Todisco, 2021b; Ibáñez et al., 2020). To improve the general health of patients, it is also important to correct metabolic disorders and reduce cardiovascular risk, which is not achieved with the use of hormonal contraception only.

4. Hyperandrogenism and PCOS-related metabolic disorders in adolescents – therapeutic options

As mentioned before, the initial symptoms of PCOS – irregular and often monophasic cycles, acne and discrete hirsutism – are to some extent similar to the changes observed during normal puberty. However, a recently published study of Polish authors (Milczarek, Kucharska, Borowiec, 2019) showed that in girls with suspected PCOS, the combined occurrence of menstrual disorders and hirsutism is associated with an increased risk of

laboratory-confirmed hyperandrogenism. The maintenance or progression of these symptoms over a longer period of observation, as well as disturbances in the metabolic profile of patients (not included in the criteria for the diagnosis of PCOS) are also of great importance. Obesity and metabolic disorders should be included in the diagnostic and therapeutic process in girls with suspected PCOS not only as components of this syndrome, but primarily as risk factors for diabetes, cardiovascular diseases and infertility later in life (Otto-Buczkowska et al., 2018). Research by Polish authors (Drosdzol-Cop, Tymińska-Bandoła, Bil, Stojko, Skrzypulec-Plinta, 2017) showed that up to 80% of girls with PCOS were overweight or obese. Otherwise, in earlier American research (Hoeger, 2007), impaired glucose tolerance was observed in approximately 40% of obese teenagers with PCOS.

As in the case of adult women, in the treatment of PCOS patients in developmental age, lifestyle modification is essential, achieved primarily through the implementation of a properly balanced diet (changing eating habits) and increasing physical activity. The need to pay attention to the emotional disorders observed in these girls is also emphasized (Peña et al., 2020). Detailed dietary recommendations are aimed at reducing the glycemic load in meals (consuming complex carbohydrates from unprocessed foods), prolonged gastric emptying time (consumption of fiber, especially soluble fiber), as well as ensuring an optimal supply of vitamins, microelements, polyunsaturated fatty acids and other nutrients. More and more attention is paid to dietary supplements with beneficial effects in patients (including teenagers) with obesity and PCOS (inositols, omega-3 fatty acids, berberine, curcumin), using pre- and probiotics and maintaining an optimal gut microbiome. The use of nutritional therapy and dietary supplements in teenagers with PCOS and insulin resistance is treated as a preventive action aimed at restoring ovulation and protecting the fertility of these girls (Calcaterra et al., 2021b).

Current recommendations include the use of two-component contraception with a progestogen component with anti-androgenic effect as first-line pharmacotherapy in girls with PCOS in the 4-5th stage of puberty, in the same time paying attention to the potential side effects of these preparations and the small number of randomized clinical trials in this age group (Hecht Baldauff, Arslanian, 2015; Ibáñez et al., 2017; Milewicz et al., 2018). Despite the beneficial effects of using anti-androgen preparations, Milewicz et al. (2018) emphasize that the use of preparations containing ethinylestradiol and levonorgestrel in adolescents reduces the risk of thrombosis. In turn, Ibáñez et al. (2017) point at a particularly unfavorable effect of cyproterone acetate on the lipid metabolism and conclude that the use of hormonal contraception actually leads to pseudo-normalization of the menstrual pattern and anovulation-related infertility. Hecht Baldauff i Arslanian (2015) recommend conducting a detailed family history of thrombotic diseases and exclusion of factor V Leyden deficiency. Peña et al. (2020) indicate the legitimacy of choosing preparations containing 30 µg of ethinylestradiol and "low-risk" progestogens (levonorgestrel, norethisterone, norgestimate).

All the authors pay attention to the small number of randomized trials on the use of combined contraceptive pills in girls.

The present study, which is a review of current medical recommendations, does not deal with bioethical issues, however, in the case of using hormonal contraception, these problems are important enough that they should be taken into account when deciding on the type of therapy.

In girls with PCOS, progesterone may be used in the second phase of the cycle to achieve regular monthly bleeding (Milewicz et al., 2018). However, this recommendation does not seem fully feasible, taking into account the high frequency of monophasic cycles and the prolongation of the follicular phase in ovulatory cycles typical of PCOS, whereas administration of progesterone to achieve regular bleeding requires its use on a regular schedule, usually from day 16 to day 25 of the cycle, regardless of the appearance of ovulation.

Another potential option is the use of anti-androgenic preparations (flutamide, finasteride, cyproterone acetate in high doses), which are not currently approved for the treatment of girls and adolescents; however, clinical trials are conducted on their use in the case of particularly severe symptoms of hyperandrogenism. A study conducted in the Swedish population showed that the initiation of therapy with anti-androgen preparations in girls under 18 years of age increases the chances of obtaining natural (spontaneous) conception, in comparison with women who started treatment later (the analysis included patients using various preparations: combined contraceptive pills containing ethinylestadiol and dienogest, drospirenone or desogestrel, as well as spironolactone, cyproterone acetate, finasteride and dutasteride, eflornithine, flutamide and bicalutamide) (Elenis, Desroziers, Persson, Sundström Poromaa, Campbell, 2021).

A group of researchers led by Ibañez, who has been dealing with PCOS in girls for many years, has published in recent years the results of studies comparing various pharmacotherapy methods in girls with PCOS. The first study showed that combined contraceptive pills and metformin had a similar effect on reducing hirsutism and improving lipid metabolism indicators, but metformin produced a greater reduction in obesity as expressed by a reduction in body mass index (BMI), while the use of oral contraception allowed for greater regularity of menstrual cycles and a greater reduction in the severity of acne (Ibáñez et al., 2017). The results of another study comparing the effects of using a combined contraceptive pill (containing ethinylestradiol and levonorgestrel) and combined SPIOMET therapy (i.e. spironolactone at a dose of 50 mg/day, pioglitazone at a dose of 7.5 mg/day and metformin at a dose of 850 mg/day), aimed primarily at correcting metabolic disorders, in non-obese girls with PCOS seem to be particularly interesting. (Ibáñez et al., 2020). Both pharmacotherapy methods have been shown to be similarly effective in terms of the effect on body weight (fat and lean body mass) and the reduction of androgen levels.

However, in the case of SPIOMET therapy, a better reduction of visceral adipose tissue and insulin secretion was achieved. During the first year after the end of treatment, a 3-fold higher frequency of ovulation was found in the group of girls who received SPIOMET therapy than in the group of girls who used contraceptive pills, moreover – normoovulation was achieved only in patients from the SPIOMET group, while the frequency of anovulation was 10 times higher in the group previously receiving hormonal contraception. It is worth emphasizing once again that this study did not include obese girls, who should be expected to experience more severe metabolic disorders. In another study, the same group (Díaz, Bassols, López-Bermejo, De Zegher, Ibáñez, 2020) assessed the profile of circulating micro-RNAs in girls with PCOS and found reduced levels of miR-451a in them. Researchers proposed to calculate a "metabolic health index" from miR-451a expression and fasting insulin concentration. The values of this index turned out to be significantly higher after the end of SPIOMET therapy than in the group after hormonal contraception. As the conclusions of the conducted research, the authors of the discussed report emphasized the advantage of SPIOMET therapy over the use of hormonal contraception in girls with PCOS in terms of increased insulin sensitivity and a greater frequency of normal ovulations, which also persisted after the therapy withdrawal. At the same time, they warn against initiating PCOS therapy with oral contraception, which leads to reduced fertility due to anovulation or oligoovulation and, as a consequence, to the use of assisted reproductive techniques, which is associated with an increased risk of complications and potentially with consequences for the lifetime in offspring (Ibáñez et al., 2020). These conclusions are important in terms of implementing – also in adolescents – hormonal contraception in order to "regulate menstruations", sometimes without full diagnostics and for many years. Taking into account the mechanism of their action, consisting in inhibiting ovulation by blocking the cyclical activity of the pituitary and ovaries, and achieving regular "withdrawal" bleeding, the possibility of a quick, spontaneous return of normal ovulation cycles shortly after the withdrawal of contraception in patients with previous menstrual disorders in the course of PCOS may raise some doubts. When planning the implementation of such therapy, however, one should take into account the limitations of using both pioglitazone (in Poland, the registration indications cover only the treatment of type 2 diabetes in adults as a second- or third-line drug), and spironolactone (it is necessary to avoid the use of the drug during pregnancy due to the risk of feminization of male fetuses and the potential reduction of placental perfusion).

According to the current state of knowledge, the therapy of girls with PCOS should be conducted comprehensively, including lifestyle and dietary modifications, as well as pharmacotherapy aimed at correcting metabolic disorders and reducing the severity of hyperandrogenism, with the aim of restoring ovulation and the proper fertility potential.

5. PCOS risk factors in girls – the possibilities of prevention

It is known that premature onset of the adrenal phase of puberty (*adrenrche*), *i.e*. the presence of pubic hair in girls before the age of 8, may precede the occurrence of PCOS, however, on the other hand, this syndrome only develops in some patients with premature *adrenarche* (Ibáñez et al., 2017; Oberfield, Sopher, Gerken, 2011). The risk of PCOS in this group of girls is especially increased in the case of persistent hyperandrogenism and obesity. Such girls require the exclusion of non-classical CAH and – in justified cases – Cushing's syndrome. At the same time, it should be borne in mind that the earlier age of *adrenarche* is correlated with higher BMI values (Hoeger, 2007). Higher testosterone levels were also found in obese girls compared to the control group of girls with normal body weight at the same age, wherein these differences were significant already at the age of 8 and were maintained throughout adolescence (Reinehr, de Sousa, Roth, Andler, 2005). Obese girls in the early stages of puberty had lower levels of sex hormone binding protein (SHBG) and higher FAI values, as well as many times greater insulin secretion after intravenous glucose load than girls with normal body weight at the same stage of puberty (Nokoff, Thurston, Hilkin, Pyle, Zeitler et al., 2019). It is also known that children with low birth weight for gestational age (SGA) and/or intrauterine growth restriction (IUGR) are at increased risk of hyperandrogenism, insulin resistance, premature *pubarche* and PCOS. For the normal course of adolescence, proper nutrition of children in the early stages of life is also important. A lower incidence of premature puberty in breastfed girls and an earlier onset of puberty in overfed infants were observed (Calcaterra, Cena, Regalbuto, Vinci, Porri i in., 2021a).

6. PCOS risk factors in fetal life – the possibilities of prevention

Pregnancy is the period during which the mother's organism prepares the fetus for life in an external environment. This specific programming of the mechanisms of coping with the effects of unfavorable factors takes place largely with the participation of epigenetic changes that permanently affect the expression of genes: DNA methylation, modification of histone proteins, activation or silencing of genes with the participation of non-coding RNAs (D. Goyal, Limesand, R. Goyal, 2019). According to the historical "thrifty phenotype" hypothesis, insulin resistance is to be an adaptive mechanism ensuring the redistribution of glucose to the brain in the case of fetal malnutrition. (Barker, 2002). In animal studies, fetal hypotrophy has been shown to be associated with altered expression of certain micro-RNAs (*e.g*. miR-29a), leading to reduced cellular glucose utilization (which in turn is one of the mechanisms leading to the development of insulin resistance), as well as with disorders of methylation of key genes for metabolism, where these patterns persist in later periods of life (Vaiserman, Lushchak, 2019; Zhou, Gu, Shi, Li, Hao et al., 2016). Similar are adverse effects

of obesity or overweight in the mother before pregnancy, as well as the mother's diet during pregnancy rich in sugars and fats. These situations are associated with the supply of excessive amounts of energy in the form of glucose and fats to the placenta and the fetus, which results in reprogramming of metabolism and appetite regulation with a significant contribution from epigenetic mechanisms (Şanlı, Kabaran, 2019). The authors of the cited study emphasize the need to control the mother's body weight before and during pregnancy, which, along with healthy nutrition, can improve the "metabolic environment", contributing to the reduction of the risk of metabolic disorders programmed in fetal life.

It is known that daughters of mothers with PCOS have elevated AMH levels after birth and hyperandrogenism and insulin resistance later in life. In genome wide association studies (GWAS) 19 genes related to the risk of PCOS, located on neuroendocrine, metabolic and reproductive pathways were identified (Hiam, Moreno-Asso, Teede, Laven, Stepto et al., 2019), however, despite the high frequency of inheritance of PCOS (about 70%), its genetic background has been documented only in 10% of cases. Nevertheless, gene methylation disturbances were found to be associated with the risk of PCOS in the GWAS studies, and confirmed or postulated epigenetic mechanisms include, among others, hypomethylation of LH/hCG receptor genes (leading to increased androgens secretion stimulated by LH) and changes in methylation of AMH, AMH receptor and insulin receptor genes. Exposure of the fetus to the excess of androgens is also of particular importance (Abbott, Kraynak, Dumesic, Levine, 2019). These reports indicate that some of the factors leading to PCOS, previously considered hereditary, are modifiable, which implies the possibility of preventing the transmission of PCOS from mother to daughter in the next generations.

Summary

Polycystic ovary syndrome is a disease of multifactorial etiology, the pathomechanism of which involves the action of genetic (mainly epigenetic) and environmental factors, starting from the perioconceptive or even preconcepive, embryonic and fetal period, through childhood and adolescence, with full manifestation in women of reproductive age. The clinical picture of this syndrome in girls is different from its course in adult women, and some physiological symptoms found in the first years after *menarche* (irregular menstruations, monophasic cycles, severe acne, polycystic structure of the ovaries) are the basis for the diagnosis of PCOS in adult women. Criteria for the diagnosis of PCOS in adolescents have been developed, however, it is also necessary to provide long-term observation and appropriate therapy for girls from the "PCOS risk group" who only partially meet these criteria.

The recommendations of international scientific societies regarding PCOS therapy in adolescents have so far proposed the use of hormonal contraception as the first-line

treatment. In recent years, more and more attention has been paid to the need to take into account metabolic disorders (obesity, insulin resistance or glucose intolerance) in therapeutic management. It is necessary to implement a comprehensive management, including modification of lifestyle and eating habits, and – additionally – pharmacotherapy aimed primarily at correcting metabolic disorders. In the most recent reports (Calcaterra i in., 2021b; Ibáñez et al., 2020) the aspect of focusing the therapy on restoring or obtaining fertility in adolescents, and not only in women trying to become pregnant (often after many years of uninterrupted use of hormonal contraception, not always preceded by full PCOS diagnostics) is also underlined. The authors directly emphasize the negative impact of hormonal contraception on the possibility of ovulation within at least a few months after discontinuation of contraception (Ibáñez in., 2020). Nutritional therapy is also of particular importance in the aspect of fertility protection (Calcaterra et al., 2021b). The implementation of these important recommendations should contribute to the improvement of the reproductive health of adult women with PCOS and metabolic disorders related to this disease, as well as of girls diagnosed with PCOS or at increased risk of PCOS. Appropriate therapeutic management in patients with PCOS may lead not to only faster obtaining pregnancy, but also to reducing the incidence of PCOS in their daughters.

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The effect of depressiveness and reframing on family life satisfaction in infertile and post-miscarriage couples: dyadic analyses

Efekt depresyjności i strategii przekształcenia znaczenia sytuacji na poziom zadowolenia z życia rodzinnego małżeństw bezpłodnych i po poronieniu: analizy diadyczne

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Abstract: Couples struggling with infertility, as well as those after experiencing a miscarriage, deal with many types of stressors, in the face of which they react with anxiety, regret and depression, which negatively affects fertility and is associated with an increased risk of miscarriage. The use of different coping strategies seems to have different effects on the stress of infertility and miscarriage experiences. The aim of the study was to investigate the relationship between depression related to infertility and miscarriage and satisfaction with family life, as well as the role of reframing in predicting family life satisfaction in the group of depressive infertile and post-miscarriage couples. The study involved 90 couples: 50 couples after miscarriage and 40 couples diagnosed with infertility. The participants completed a questionnaire examining the level of depressiveness (Giessen Test), coping strategies in the family (F-copes) and the family assessment scale (Flexibility and Cohesion Evaluation Scales; SOR). The actor partner interdependence model was used for data analysis. The findings showed that the higher level of partner depressiveness in both infertile and post-miscarriage couples predicted lower family life satisfaction in women and men, while husband depressiveness was significant for women's family life satisfaction, but not the other way around. The reframing strategy used by partners in both studied groups significantly weakened the relationship between partners' depressiveness and the level of satisfaction with life. Stress is one of the most important risk factors influencing the results of infertility treatment and spontaneous miscarriage, therefore it is important to identify all factors related to depression symptoms and life satisfaction of infertile and post-miscarriage couples.
Keywords: depressiveness, family life satisfaction, infertility, miscarriage, reframing, stress

Abstrakt: Pary zmagające się z bezpłodnością, jak i te po doświadczeniu poronienia poddawane są działaniu wielu stresorów, w obliczu których reagują lękiem, żalem i depresją, co negatywnie wpływa na płodność i wiąże się ze zwiększonym ryzykiem poronienia. Stosowanie różnych strategii radzenia sobie wydaje się mieć różny wpływ na stres związany z niepłodnością i doświadczeniami poronienia. Celem pracy było zbadanie związków miedzy depresyjnością związaną z niepłodnością i poronieniem a zadowoleniem z życia rodzinnego oraz roli stosowania strategii przekształcenia

znaczenia sytuacji w przewidywaniu zadowolenia z życia rodzinnego w grupie depresyjnych par bezpłodnych oraz po doświadczeniu poronienia. W badaniu wzięło udział 90 małżeństw: 50 par z doświadczeniem poronienia oraz 40 par ze zdiagnozowaną niepłodnością. Uczestnicy wypełnili kwestionariusz badający poziom depresyjności (Test Giessen), strategii radzenia sobie z kryzysem w rodzinie (F-copes) oraz skalę oceny rodziny (Flexibility and Cohesion Evaluation Scales; SOR). Do analiz danych zastosowano actor partner interdependence model (APIM). Analizy wykazały, że wyższy poziom depresyjności partnerów zarówno z grupy małżeństw bezpłodnych jak i po poronieniu jest predyktorem niższego zadowolenia z życia rodzinnego u kobiet i mężczyzn, natomiast depresyjność męża ma istotne znaczenie dla zadowolenia z życia rodzinnego kobiet, ale nie odwrotnie. Strategia przekształcenia znaczenia sytuacji stosowana przez partnerów w obu badanych grupach w sposób istotny osłabia związek między ich depresyjnością a poziomem zadowolenia z życia. Stres jest jednym z ważnych czynników ryzyka mających wpływ na wyniki leczenia niepłodności i samoistne poronienia, dlatego ważnym jest zidentyfikowanie wszelkich czynników związanych tak z depresyjnością, jak i z zadowoleniem z życia niepłodnych par i tych po doświadczeniu poronienia.
Słowa kluczowe: depresyjność, niepłodność, poronienie, strategia przekształcenia znaczenia sytuacji, stres, zadowolenie z życia rodzinnego

Introduction

Although the majority of childless men and women highly appreciate the family and declare high motivation to have children (Testa, 2012), more and more couples in Poland remain childless (Młynarska, Rytel 2020; Młynarska, 2013). Among them there are couples who postpone procreation within or without a certain time perspective (Kalus & Szymańska, 2019; 2020). Many of them remain permanently childless. The reason for this may be the socio-economic situation and professional aspirations of young adults (Dembińska, 2019; Dorbritz, 2008). However, as the literature analysis shows, the most common cause of childlessness is infertility (Caselli et al., 2017; Koperwas, Głowacka, 2017; Guzikowski, 2009; Gawrych, 2015). WHO (2020) reports that the phenomenon of infertility affects about 10% of couples in the reproductive period in the world. In Poland, this disease affects 15 to 20% of couples of reproductive age (Stefanowicz, 2020). It is interesting to note that in highly developed countries primary infertility is dominant, while in developing countries secondary infertility is more common. Primary infertility refers to the inability to successfully conceive and give birth to a living child. Secondary infertility refers to the inability to achieve a second or subsequent pregnancy and childbirth in women or couples who were previously fertile (Kalus, 2014; Bielawska-Batorowicz, 2014). Research shows that 35% of infertility cases are caused by female, a similar percentage is attributed to male causes, 10% are causes resulting from disorders in both partners, and 20% is the so-called idiopathic infertility, i.e. without an indicated reason (Koperwas, Głowacka, 2017). Infertility is defined as "a disease that always affects two young people in the period of their greatest activity, and its cause may lie with a man, a woman or both" (Koperwas, Głowacka, 2017, p. 32).

It is estimated that 8-12% of couples worldwide experience difficulties in conceiving a child, and about 10-15% of pregnancies end in miscarriage (Bręborowicz, 2015). Nowadays, the term miscarriage describes the loss of pregnancy until the 22nd week of its duration. It occurs through the expulsion of the fetal egg from the uterus, and its weight does not exceed 500g (Chu et al., 2020; Hendriks et al., 2019; Skrzypczak, 2015). This is a common phenomenon, as evidenced by the available estimates, which show that even 15-25% of all pregnancies may end unfavorably in its early stages (Laudański, 2020). It is a traumatic event that provokes the experience of grief, which can trigger symptoms of mental disorders: depression, anxiety disorders and PTSD (Guzewicz, 2014; Farren et al., 2016; Krosch, Shakespeare-Finch 2017). Experiencing loss together, partners' openness and a strong, lasting relatioship allow partners not only to return to the state before the occurrence of a difficult event, but also to come out stronger (Hamama-Raz et al., 2010; Kiełek-Rataj et al., 2020; Hiefner, 2021).

1. Experience of Infertility or Miscarriage and Mental Health and Relationship Satisfaction

Fertility problems are believed to affect physical and mental health in all cultures and societies (Greil, Slauson-Blevins, & McQuillan, 2010). Couples struggling with infertility and those after a miscarriage experience many types of stressors, many anxieties related to the infertility treatment process itself, and the greatest threat for them is the loss of hope for parenthood (Kiełek-Rataj et al. 2020; Farren et al., 2016; Krosch, Shakespeare-Finch 2017). Infertility and the process of its treatment may threaten the feeling of control over the course and outcome of treatment, as well as violate the sense of privacy in the details of the couple's intimate life. When faced with stress related to infertility, women react with anxiety and a lower quality of life (Rooney & Domar, 2018), anxiety, depression and regret (Amini, Ghorbani, Afshar, 2020; Galhardo, Alves, Moura-Ramos, & Cunha, 2020).

Pregnancy loss is a traumatic event, often followed by a state of mourning. An orphaned mother may experience emptiness, anger and regret accompanied by physical symptoms such as pressure and breathing disorders, and difficulty sleeping. It is a natural response to the loss of a loved one and an attempt to come to terms with this situation (Libera, 2009; Krosh, Shakespeare-Finch, 2017). Miscarriage exceeds the resources and capabilities of the person experiencing it, which can lead to the feeling of strong tension and the breakdown of the ability to cope with stress, affecting all areas of everyday functioning (Lipczyński, 2007). Problems in the partners' conversation about loss and inadequate assessment of mutual needs disturb communication and relationship satisfaction, making it difficult to recover (Bielan et al., 2010). Women are more likely than their partners to develop mental disorders as a result of the symptoms they experience, the most common of which are

anxiety disorders, depression and PTSD (Farren et al., 2018). Difficulties in managing the experienced crisis result from the nature of the perceived loss. People for whom the miscarriage was associated with the loss of the expected child may feel the lack of mementos that would allow them to get used to the loss, and serve as proof of the existence and reality of the mourned loved one (Baranowska, 2017).

Experiencing a miscarriage can evoke intense emotions related to a lost child and lost motherhood (Ockhuijsen, van de Hoogen, Boivin, Macklon, de Boer, 2014). After experiencing a miscarriage, couples face three different waiting periods: (1) from loss of pregnancy to attempted conception, (2) between trying to conceive again and conception, and (3) between conception and confirmation that the pregnancy is safe. Medical waiting periods, which have been defined as those during which patients wait for test results that could potentially endanger their well-being (Boivin & Lancastle, 2010) appear to have a clear emotional signature. Waiting periods are a source of stress for the couple because the outcome of each is unpredictable and difficult to control (Boivin & Lancastle, 2010), and predicting loss causes increased anxiety and a prolonged state of mental suffering (Thiemann & Thiemann, 2020). Losing a desired pregnancy evokes helplessness and fear, and can lead to both immediate and long-term stress reactions, such as guilt, sadness (Chu et al., 2020; Robinson, 2014). It can also coexist with other psychological factors, such as anxiety and depression (Kiełek-Rataj et al. 2020), emotional disorders of a chronic, acute or transient nature (Musters et al., 2013), which is associated not only with the low quality of life of women after a miscarriage (Tavoli et al., 2018), but at the same time a significantly higher risk of another miscarriage (Qu et al., 2017; Terzioglu et al., 2016).

2. Infertility and Miscarriage as Dyadic Experiences

Although women want children more than men (Alosaimi et al., 2017), they suffer the consequences and suffering of infertility more acutely than men (Cserepes, Kollár, Sápy, Wischmann, Bugán, 2013; Kim, Shin, Yun, 2018) and experience more emotionally grief and depressive symptoms after a miscarriage (Chen, Chang, Kuo, Chen, 2020; Huffman, Schwartz, Swanson, 2015; Nagórska, Bartosiewicz, Obrzut, Darmochwał-Kolarz, 2019), however, both problems are dyadic in nature. Experiencing fertility problems in marriage is a complex process that can either strengthen or worsen family relationships (Kiełek-Rataj et al. 2020). The problem of infertility may lead partners to question the purpose and meaning of the relationship, it may arouse extreme emotions of resentment, rage, guilt and shame (Luk, Loke, 2015). Infertile women often involve their spouses in the treatment process to feel that the partner is in control of everything and seek the partners' support, which contributes to lowering the level of depression (Kiełek-Rataj et al. 2020). Men, on the other hand, may experience infertility, in the context of their own self-esteem, indirectly based on how their

infertility is perceived by their partner and how it affects her well-being (Farrren et al, 2016; 2018). The sense of responsibility of men and the support they provide to partners during the fertility treatment process, positive dyadic coping with this situation can reduce the stress associated with treatment and reduce depressive symptoms (Chaves, Canavarro, Moura-Ramos, 2018). The approach to male, not female infertility is essential to the marital satisfaction of both partners (Farren et al, 2018). Women who have their husbands' support in the fight against infertility experience four times less suffering than women who feel lonely in this process (Patel, Sharma, Kumar, & Binu, 2018). Partner's support has also been recognized as an important predictor of adaptation to infertility, especially in infertile men (Martins, Peterson, Almeida, Mesquita-Guimarães, Costa, 2014). Infertility may also lead to strengthening the bonds of partners, better communication and satisfaction (Ferreira, Antunes, Duarte, & Chaves; 2015; Onat, Beji, 2012).

In the case of loss of pregnancy, depressed mood, increased anxiety and depression may last up to a year after the miscarriage (Chu et al. 2020; Farren et al. 2018), which certainly affects the mutual relations between partners (Kiełek-Rataj et al. 2020). Women facing miscarriage require social and emotional support (Fernández-Basanta, 2019; Chen et al., 2018). Many of them admit that their partner is their primary source of strength (Horstman, Holman, 2018). Men mourn less intensely than their female partners (Fernández-Basanta, 2019). Their main challenge is dealing with the sadness of their partners, which often leads to frustration (Fernández-Basanta, 2019; Desjardins, Stephenson, 2012) and helplessness resulting from the feeling that men's primary role is to support their wives after loss (Wang, Chen, 2010). At the same time, they report poorer quality of communication and sex life (Chu et al. 2020). Men rarely raise the topic of miscarriage openly, unless with another person with a similar experience or planning further pregnancies with their female partner, but they do so reluctantly (Meaney, Corcoran, Spillane, & O'Donoghuel, 2017). Research results suggest that open communication, sharing thoughts and feelings, effective listening, showing caring and empathy can help a grieving woman transform sadness into an experience of personal development (Tian & Solomon, 2018), and at the same time help both partners to make sense of their joint loss (Horstman & Holman, 2018).

3. Coping Strategies with Infertility or Miscarriage

Earlier studies emphasized that the process of adaptation to an aversive event consists of a primary appraisal, i.e. the assessment of the possibility of modifying the situation in order to reduce its negative impact on the individual, and a secondary appraisal, i.e. the assessment of the possibility of modifying circumstances in order to better adapt to them. In particular, secondary appraisal may include various strategies to try to assign meaning based on past experiences, redefine situations, anticipate future events to avoid

disappointment and pain, assign control to another person, and identify protective factors that would avoid aversive situations in the future (Farren et al., 2019; Kiełek-Rataj et al., 2020).

Personal assessment of the importance of the problem has a significant impact on the psychological well-being of people, especially in the face of suffering and difficult life events such as infertility (Gourounti et al., 2010). It turns out that seeking social support is only helpful in some areas of stress related to infertility (Martins et al., 2011; Martins et al., 2013). In many societies, infertility and the resulting childlessness are stigmatized and lead to feelings of guilt (Jansen & Onge, 2015, Patel et al., 2018). Despite the prevalence of infertility, women often do not share their stories out of shame, guilt, and low self-esteem (Rooney & Domar, 2018). Sometimes the support of family and friends, who usually already have children, is perceived as inappropriate and is not readily accepted (Guzewicz, 2014). Similarly, in the case of couples suffering from miscarriage, in whom there is a greater need to feel safe and in control than to openly share their experiences (Farren et al, 2016; 2018). Despite the undeniable benefits of social support, it is also worth focusing on other strategies that may turn out to be more effective for couples in some situations. There are a number of infertility stress management strategies used by infertile couples. Women most often choose passive strategies, i.e. those focused on emotions, such as conversations, religious rituals, and avoidance strategies or waiting for a miracle (Alosaimi et al., 2017; Karaca, Unsal, 2015; Onyedibe, Aliche & Ugwu, 2019), while men prefer active strategies, i.e. focused on the problem (Mohammadi, Samani, Navid, Maroufizadeh, Sabeti, 2018). Passive coping turned out to be a positive predictor of stress (Chu et al. 2020), a higher level of anxiety and depression (Lechner, Bolman, & Van Dalen, 2007), while active coping was a negative predictor of stress (Van den Broeck, D'Hooghe, Enzlin, Demyttenaere, 2010) and positive improved overall well-being (Bayley, Slade & Lashen, 2009). The selection of strategies for coping with the problem of infertility, in addition to gender, turns out to be related to the level of perceived stress and the perception of infertility as a loss or as a challenge. Women struggling with the problem of infertility experience high anxiety, uncertainty and lack of control (Dana, Narimani, Mikaeili, 2013; Yazdani, Kazemi, Fooladi, & Samani, 2016), which is associated with more frequent use of avoidance strategies, self-blame, denial and distraction (Gourounti et al., 2012, Iordăchescu et al., 2021, Zurlo, Della Volta, Vallone, 2020) and perceiving the problem of infertility as a loss (Kalus, 2014). Also, infertile men with higher levels of stress most often adopted blame and avoidance strategies (Babore, Stuppia, Trumello, Candelori, Antonucci, 2017, Nagórska, Obrzut, Ulman & Darmochwał-Kolarz, 2021). Women with lower levels of stress, who assessed infertility as a challenge, used the strategies of positive reframing, sense of humor, emotional or instrumental support to a greater extent (Benyamini, 2008, Nagórska et al., 2021). Additionally, in the context of the

perceived greater potential benefits of experiencing infertility, women reported better emotional well-being (Bayle, Slade, & Lashen, 2009).

Women with a history of miscarriages more often use strategies focused on the problem than on emotions (Côté-Arsenault, 2007), they seek information and support (Andersson, Nilsson, Adolfsson, 2012), or positive assessment strategies (Ockhuijsen et al., 2014), which it can be adaptive, although it requires a radical reevaluation of life goals. Research indicates the negative impact of passive strategies and the positive impact of active coping strategies on the level of perceived stress (Casu, Zaia, Fernandes Martins, Parente Barbosa, Gremigni, 2019).

4. Research Goal

Couples' responses to infertility and miscarriage appear to be extremely varied, and factors favoring more adaptive coping still need to be identified. The search for meaning is almost ubiquitous and is judged to be very important in understanding and dealing with the event. Therefore, our study attempts to explain the relationship between the depressiveness of infertile couples and the experience of miscarriage and their life satisfaction, taking into account the mediating role of reframing the meaning of the situation, which refers to the ability of partners to redefine stressful events to make them more manageable (Canon, 2017).

Both the diagnosis of infertility and the experience of miscarriage may be a great challenge for a marriage, requiring the reconstruction of the values, goals and needs of marriage (Kiełek-Rataj et al. 2020). It is a process that can significantly burden relationships (Berghuis & Stanton, 2002, Swanson et al., 2003) and cause deep depression, anxiety and depression (Swanson et al., 2007). Therefore, it was expected that the lowered mood of partners from both groups (infertile and post- miscarriage) would translate into lower satisfaction of the spouses with family life. Finally, a cognitive coping strategy, such as reframing, will modify the perception of a stressful event, such as infertility and miscarriage, to such an extent that it will translate into the level of managing difficult emotions and, consequently, higher family life satisfaction .

Our study included spouses who experienced prenatal loss of a child and spouses with diagnosed infertility. Significant relationships were expected between partners' depression, their use of strategies to transform the meaning of the situation, and family life satisfaction. The variables of both partners are considered correlated dyadic variables, therefore we used the actor-partner interdependence model (APIM, Kenny, Kashy, & Cook, 2006) to understand the processes in the relationship between two people in a relationship experiencing the same stressor. Taking into account the itercorrelation of dyadic data, proposed by Kenny (1996), APIM (Fig. 1) simultaneously estimates (1) the effect of wife and

husband' depressiveness on their own family life satisfaction (actor effect) and (2) the effect of wife and husband' depressiveness for mutual family life satisfaction (partner effect).

Hypothesis 1 (H1) The depressiveness of partners predicts their lower family life satisfaction (actor's effects)

Hypothesis 2 (H2) Partners whose spouses have higher depressiveness scores report lower family life satisfaction (partner effects).

We also analyze whether the strategy of reframing effects the relatioship between the spouses' depressiveness and their family life satisfaction :

Hypothesis 3 (H3): The use of reframing strategy by partners weakens the relationship between their depressiveness and family life satisfaction .

The present study is part of a larger research project aimed at understanding how the family system works in the face of child loss.

5. Research Method

5.1. Study group

The study involved 90 married couples (N = 180): 50 couples after miscarriage and 40 couples diagnosed with infertility. The criteria for qualifying for the study were the experience of infertility or miscarriage and being married. The mean age for women after miscarriage was 35.12 (*SD* = 7.55), and for men 36.92 (*SD* = 7.34); for women with infertility 34.70 (*SD* = 7.88), and for men 36.93 (SD = 7.48). The mean duration of the relationship of couples after miscarriage was 11 years (*SD* = 8.07), and of couples with infertility was 9.23 (*SD* = 6.81). Among couples who had a miscarriage, 74% already had children from previous pregnancies. 92% of infertile couples were childless.

5.2. Research procedure

The study was conducted in the Opolskie and Śląskie voivodships. Access to the surveyed persons was possible through gynecologists, midwives and nurses working in gynecology and obstetrics departments. After the candidates gave their consent, they were contacted by phone. Each couple who agreed to the test met individually, usually at home. The respondents then received two packages of questionnaires in envelopes, which they could seal after filling in. The respondents completed the questionnaires at home, without the researcher being present. The researcher then made an appointment to collect the completed questionnaires and spoke to respondents if they so requested. A total of 103 married couples were examined, but data from 13 couples was rejected due to numerous deficiencies in the spouses' surveys. All participants were informed that the study was confidential and that they could withdraw from it at any time. All respondents gave their

informed consent to participate in the study. The study was conducted in accordance with the Declaration of Helsinki.

5.3.Measures

The demographic questionnaire authored by the researchers was used to collect data, including age, gender, marriage duration and relationship type, number of children, employment status, level of education, infertility data (e.g., were you or your wife / husband treated for infertility?) and miscarriage (e.g. pregnancy?)

The FACES IV scale (Flexibility and Cohesion Evaluation Scales, Olson, 2011), adapted from Margasiński (2013), consists of 62 items forming 8 scales: balanced cohesion and balanced flexibility, disengaged, enmeshed, rigid and chaotic, followed by family communication and satisfaction with family life scale. In our analyzes, we used the family life satisfaction scale. The reliability of the tool, measured by the Cronbach's alpha value in our study, for the family life satisfaction scale was 0.93.

The Giessen test (Januszewski, 1992) is used to assess one's own image as well as the image of a spouse or partner. It consists of 40 items to which the respondents refer on a scale from -3 to +3, where 0 is a neutral value. The test items consist of 6 scales: social resonance, pliancy, control, depressiveness, openness, and social potency. For the purposes of this article, analyzes are presented limited to the depressiveness dimension, characterized as a state of depression, high reflectiveness, high level of anxiety and fear, as well as self-criticism, suppression of anger and dependence. Cronbach's alpha value for the depressiveness scale in our study was 0.60.

The Family Crisis Questionnaire (F-COPES; McCubbin, Olson & Larsen, 1981) is a 30-item self-report questionnaire designed to assess the family's coping with stress. The respondents refer to the given statements by marking on the 5-point Likert Scale from "I strongly disagree" to "I strongly agree". It consists of five subscales: acquiring social support, seeking spiritual support, mobilizing family to acquire and accept help, passive appraisal, and reframing. The analyzes used the subscale reframing understood as a redefinition of a difficult situation, an attempt to give it a different, acceptable meaning. Cronbach's alpha for the transforming the significance of the situation was 0.60. The method is the Polish version of D. H. Olson's tests developed by Radochoński (1987).

5.4. Analysis strategies

Means with standard deviation were calculated for all variables. Pearson's correlations were used to test the intercorrelation matrix between the variables, and the *t*-test for dependent samples was used to analyze the differences between the sexes in the variables. Correlations for each variable between males and females assume nonindependence of dyad scores (Cohen, Schulz, Weiss, & Waldinger, 2012). The variables of

both partners are considered to be a common dyadic construct, therefore the actor-partner interdependence model (APIM) (Kenny, 1996) was used for the analysis, taking into account the interdependence of dyadic data. All analyzes were performed as part of Structural Equation Modeling (SEM; Mueller & Hancock, 2010) using the lavaan package. To investigate the differences between the sexes, the difference between the actor's effects in a woman and in a man was calculated, as well as the difference between the effects of a partner in a woman and a man (Kenny & Ledermann, 2010). All tests were performed at the significance level of 0.05. A hypothetical model was assessed using goodness-of-fit indices that included chi-square and the root mean square error of approximation of the sample to the ideal population (RMSEA; acceptable fit ≤0.08) (Hu, Bentler, 1999).

6.Results

The minimum sample size necessary to detect the actor and partner effects for APIM analysis at the assumed power level of 0.80 and alpha 0.05 is 91 diads (APIMPower; Ackerman, Ledermann, and Kenny, br). Our sample consists of 90 dyads, so we can conclude that despite the relatively small number, it is still a sufficient number for APIM analysis. Means, standard deviations, and the paired *t*-test examining differences between the sexes are presented in Table 1.

Table 1. Descriptive statistics and gender differences

	Men		Women		*t*
	M	*SD*	*M*	*SD*	
Depressiveness	22,47	4,68	27,31	5,13	6,82***
Family life satisfaction	38,94	6,46	37,86	8,12	-1,61
Reframing	26,67	3,87	25,92	4,98	-1,62

n = 90 dyads; *p < .05; **p < .01; ***p < .001

The results of the *t*-test (Table 1) showed that there were no significant differences between the sexes in terms of satisfaction and reframing. Women obtained significantly higher results than men on the depressiveness scale. Comparing the groups of infertile couples and those after miscarriage (Table 2), we observe that there were no differences between men and women from both groups in terms of depressiveness, however, infertile women and men had significantly higher scores on the life satisfaction scale than men and women after miscarriage. The reframing strategy is more often used by infertile women than women after a miscarriage. The spouses' results correlate significantly in terms of the use of the reframing strategy and life satisfaction, but not in terms of depressiveness (Table 2).

Table 2. Descriptive statistics and t-test results for infertile and post-miscarriage couples

	Men		Women		*t* Men/ Women
	Infertility	Miscarriage	Infertility	Miscarriage	
	M/SD	*M/SD*	*M/SD*	*M/SD*	
Depressiveness	21,92/4,76	23,15/4,54	26,56/4,73	28,25/5,50	-1,24/-1,57
Family life satisfaction	40,56/6,34	36,92/6,11	40,46/7,22	34,6/8,08	2,75**/3,63***
Reframing	26,9/4,16	26,38/3,51	27,12/5,24	24,43/4,25	0,64/2,63**

n = 40 infertile dyads i *n* = 50 post-miscarriage dyads. *p < .05; **p < .01; ***p < .001

Both in the case of men and women, there were few weak and moderate correlations between the studied variables (Table 3). The reframing strategy in women positively correlates with their own life satisfaction, while the use of this strategy by men is associated with their own and their partners' life satisfaction. The depressiveness of both spouses negatively correlates with the satisfaction with their own and their partners' lives.

Table 3. Intercorrelations between the variables for women (_A) and men (_P)

		1	2	3	4	5	6
1	Reframing_A	1					
2	Family life satisfaction _A	,29**	1				
3	Depressiveness _A	-0,14	-,23*	1			
4	Reframing_P	**,54****	,23*	-0,14	1		
5	Family life satisfaction _P	0,16	**,64****	-0,08	,36**	1	
6	Depressiveness _P	-0,10	-,34**	**0,06**	-,21*	-,43**	1

Correlations between spouses are shown in bold diagonal font;
n = 90 dyads; *p < 0,05; **p < 0,01

The spouses are statistically distinguishable on the basis of gender (chi square (6) = 117.99, p <0.001) (Kenny, Kashy, & Cook, 2006). The variables were centered to the mean to avoid the multicollinearity effect (Aiken & West, 1991). In Model 1 (Table 4), which is the base APIM (Fig. 1), we examine the relationship between depressiveness and family life satisfaction. Two hypotheses are tested:

H1: Depressiveness predicts lower family life satisfaction (actor effects)

H2: Partners whose spouses show higher depressiveness experience lower family life satisfaction (partner effects)

As predicted (H1), in both men and women, we observe significant negative actor effects of the depressiveness on family life satisfaction . The partner effect turned out to be statistically significant only for women, which partially confirms our hypothesis (H2) about the negative effect of partner depressiveness on the spouse's family life satisfaction.

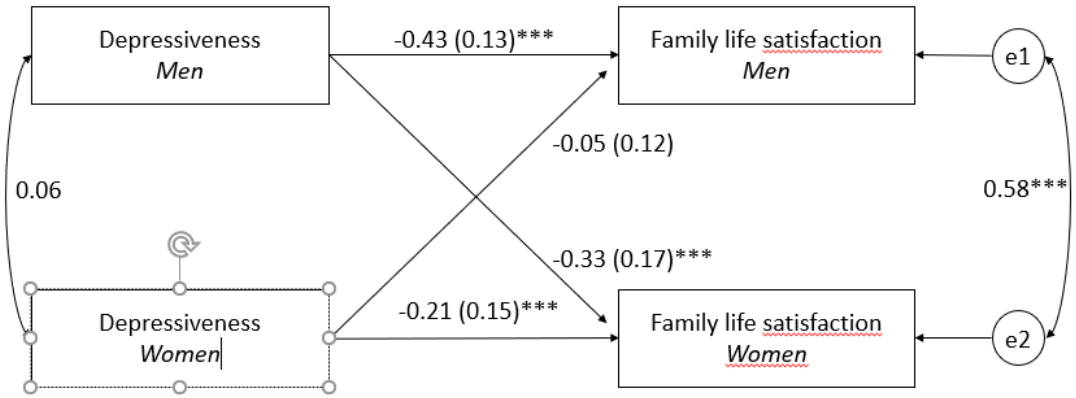

Figure 1. Depressiveness and life satisfaction in infertile and post-miscarriage couples. Rectangles represent independent and dependent variables; two circles represent the residual variables (e1, e2: residual errors on family life satisfaction for men and women, respectively); the arrows describe the actor and partner effects. The two-headed arrows on the left show the covariances between the independent variables; The double-headed arrow on the right shows the correlation between the two residual variables; standardized coefficients (β) are given with the standard error in parentheses.*p <0.05; **p <0.01; ***p <0.001;

There were no significant differences between the actor effects (p = 0.22) or partner effects (p = 0.57), indicating the same pattern in both sexes. The difference between partners' intercept was -0.39 (p = .63, 95% CI [-1.98, 1.2]); the partial interclass correlation between the results of family life satisfaction for both spouses in the context of predictors was 0.58 (p = <.001, [0.27, 0.64]). Therefore, if one of the partners achieves a high / low score on the family life satisfaction scale, resulting from his / her own and spouse's depressiveness, the other partner also shows a high / low score on the family life satisfaction scale.

Table 4. Effects of partners' depressiveness on family life satisfaction

	Effects	Estimates	95% CI	p	Beta	r
Model 1	*Women*					
	Intercept	37.29	35.41 to 39.18	<.001		
	Actor	-0.34	-0.64 to -0.04	.029	-0.21	-0.23
	Partner	-0.57	-0.90 to -0.24	<.001	-0.33	-0.34
	Men					
	Intercept	37.68	36.21 to 39.16	<.001		
	Actor	-0.59	-0.85 to -0.33	<.001	-0.43	-0.43
	Partner	-0.07	-0.30 to 0.17	.565	-0.05	-0.06
Model 2	*Women*					
	Intercept	29.49	22.04 to 36.94	<.001		
	Actor	-0.23	-0.51 to 0.06	.119	-0.15	-0.23
	Partner	-0.48	-0.79 to -0.17	.002	-0.32	-0.34
	Men					
	Intercept	27.19	20.14 to 34.24	<.001		
	Actor	-0.48	-0.72 to -0.24	<.001	-0.32	-0.43
	Partner	0.02	-0.20 to 0.24	.879	-0.01	-0.06

The family life satisfaction of women after a miscarriage is on average 3.90 (p = 0.011), and of men 2.84 (p = 0.014) lower than the family life satisfaction of infertile women and men. In model 2 (Table 4), the relationship between partners' depressiveness and family life satisfaction is moderated by the spouses' reframing strategy. The effect of applying the reframing strategy turned out to be significant for both women (β = 0.37; p = 0.006, 95% CI [0.103, 0.629]) and men (β = 0.443, p <0.001, 95% CI [0.186, 0.701]). When controlling for covariates, the actor effect for men and the partner effect for women weakened somewhat, but still remained significant, while the actor effect for women turned out to be statistically insignificant. This means that the reframing strategy used by partners in both studied groups significantly weakens the relationship between their depressiveness and the level of satisfaction with life. Especially in the case of women, the effect of their own depressiveness on family life satisfaction ceases to be significant in the context of the reframing strategy used by both spouses. The fit of the model to the data turned out to be satisfactory (Chi-square = .16; RMSEA = .00).

7. Discussion

Both the diagnosis of infertility and the experience of miscarriage have a significant impact on the quality of life of married couples, mainly from an emotional and social perspective. The aim of this study was to analyze the relationship between the depressiveness of infertile partners and couples after a miscarriage and the ways of coping with the problem in the context of their family life satisfaction .

We observe a strong negative relationship between the depressiveness of both spouses and their satisfaction with family life (H1). Women obtained significantly higher scores on the depressiveness scale than men, which confirms the results of other studies reporting higher emotional costs of women compared to men related to infertility (Cserepes et al., 2013, Kim et al., 2018) and the experience of miscarriage (Chen et al., Nagórska et al., 2019). However, the higher level of women's depressiveness did not translate into their husbands' family life satisfaction. The partner's depressiveness effect was significant only in the case of women (H2). This is in line with previous research suggesting that partner traits have a stronger effect on women than on men (eg Lyons, Sullivan, Ritvo, & Coyne, 1995). Other studies confirm that among men, personal competences are more important in coping with stress than spouse's support, while for women, spouse's support is the most important (Benyamini, Gozlan, & Kokia, 2009). Our analyzes have been limited only to reframing strategy, but it can be assumed that men who cope with stress on their own at the cognitive level also have a greater potential to support their wives, which translates into higher life satisfaction. The reframing strategy used by partners in both studied groups significantly

weakens the relationship between their depressiveness and the level of family life satisfaction (H3).

The effect of own depressiveness on family life satisfaction ceases to be significant in the context of the reframing strategy used by both spouses, especially in the case of women. Uncontrolled stress leads to a higher level of anxiety than controlled stress (Berg, Upchurch, 2007). Higher control is associated with greater use of cognitive restructuring (Frazier, Mortensen, & Steward, 2005). Research shows that people are prone to experience positive changes in the psychological sphere if they can give meaning to a difficult experience (Neimeyer, Baldwin, & Gillies, 2006). It turns out that even in the situation of significantly higher results on the depressiveness scale in women, the use of a positive reframing of the experienced problem by both women and their husbands is so effective that it reduces the impact of depressiveness, leads to stress reduction and greater life satisfaction (Nagórska and in., 2021, Zurlo, Della Volta & Vallone, 2020).

At the same time, infertile women and men achieved significantly higher results on the life satisfaction scale than women and men after experiencing a miscarriage. This may be associated with more frequent use of the reframing strategy by infertile women than women after miscarriage, which would additionally confirm the effectiveness of the strategy used. At the same time, it is worth mentioning that in women after a miscarriage, but also in their partners, clinically significant levels of anxiety, depressiveness and symptoms of post-traumatic stress were found (Farren et al., 2021), which persisted even 12 months after the loss (Meaney et al., 2017), which confirms the severity of the problem and may explain the lower level of family life satisfaction of partners who experienced a miscarriage.

This study has several strengths, which undoubtedly include the selection of groups of respondents struggling with the problem of infertility and miscarriage. Both phenomena constitute a huge confession to the modern world, especially in the era of the unprecedented COVID-19 pandemic, which not only affects the economy and the general functioning of societies (Vaughan, Shah, Penzias, Domar, Toth, 2020), but is also an additional significant stressor, the negative consequences of which may also affect couples treating infertility and increase the risk of miscarriage (Qu et al., 2017, Terzioglu et al., 2016). Another strength that should be emphasized is the dyadic nature of the research. Thanks to APIM analyzes, it was possible to study the effects of partners' depressiveness on their family life satisfaction, taking into account the reframing strategy, while controlling for the spouse's depressiveness and reframing strategy (Kenny, 1996).

Conclusions and limitations

Our results indicate a strong relationship between the depressiveness of infertile and post-miscarriage spouses and their family life satisfaction. At the same time, they underline the importance of a reframing strategy applied by both partners.

Contemporary medical knowledge confirms that infertility may also have a psychogenic basis (Wass, Stewart, 2011). Many authors indicate that infertility and miscarriage are phenomena burdened with severe stress (Rooney, Domar, 2018, Boivin, & Lancastle, 2010), which not only reduces the life satisfaction of infertile spouses (Galhardo et al., 2020) and after miscarriage (Tavoli et al., 2018), but is also associated with poorer effects of infertility treatment (Rooney & Domar, 2018) and is a significant risk factor for miscarriage (Chen et al., 2019, Qu et al., 2017). Therefore, there is a great need for professional psychological help offered to infertile couples and after experiencing a miscarriage, according to individual needs, using modern techniques of modern medicine (Greil et al., 2010, Lafarge, Kathryn Mitchell, Fox, 2017). Male involvement in the infertility treatment process is also of particular importance (Chaves et al., 2018) and in particular waiting periods related to miscarriage (Swanson et al., 2003).

Among the limitations of the presented study, its cross-sectional nature, which makes it impossible to infer causal relationships between the analyzed variables, should be mentioned. Future longitudinal studies will allow the presented analyzes to be deepened. Another limitation is the relatively small group of respondents, which does not allow separate analyzes of both groups, or advanced analyzes distinguishing, for example, the cause of infertility / miscarriage, which could significantly affect the perception of the problem by spouses (Benyamini et al., 2009), having children, which is known to be a protective factor (Volgsten, Jansson, Skoog Svanberg, Darj, Stavreus-Evers, 2018), or the number of previous miscarriages or the duration of fertility treatment, which translate into higher rates of depressiveness (Chen et al., 2020, Volgsten et al., 2018).

There is no doubt that studying the consequences and determinants of coping with the situation of infertility and miscarriage is of great importance for understanding the problems and needs of spouses struggling with these difficult experiences and for appropriate support. Bearing in mind that the number of spouses who cannot have children is systematically increasing, it is worth looking for ways to effectively help and support them at various stages of coping with these traumatic situations, as well as in the pursuit of having children.

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Ethical and Legal Aspects of Using the Abortion Pill RU-486 in Italy in the Years 2020-2021

Aspekty etyczno-prawne stosowania pigułki aborcyjnej RU-486 we Włoszech w latach 2020-2021

Abstract: In some countries, one of the most difficult bioethical challenges of the SARS-CoV-2 coronavirus pandemic has been a sharp rise in the number of chemical abortions performed in hospitals, outpatient clinics, or at home. Limited access to medical services at public and private healthcare facilities and the development of telemedicine have resulted in the practice of chemical abortion having largely moved from hospitals and clinics to the home. Chemical abortion is a method used only in the early stages of pregnancy, i.e. up to 7-9 weeks. The first stage of abortion involves taking RU-486, a pill containing a preparation called Mifepristone which kills the newly conceived life in the mother's womb. The second stage of chemical abortion involves the use of a preparation called Misoprostol, which leads to the expulsion of the dead embryo from the woman's body. The main goal of the article is to analyze the ethical and legal dispute in Italy in the years 2020 and 2021 concerning new ways of using the abortion pill RU-486. In August 2020, the Italian Ministry of Health decided that chemical abortion – performed using the medical preparation RU-486 – should not be practiced at hospital gynecological and obstetric wards, but in day hospitals, without the requirement of hospitalization for women performing such abortions. Analyses carried out in the article show that chemical abortion not only kills the life of a human embryo, but in some cases may also be dangerous to the life and health of the mother. The liberalization of chemical abortion in Italy has led to an increase in the number of unborn children who are aborted, as it facilitates access to this type of abortion and makes it a procedure that is largely self-administered at home. The Italian dispute over home abortion and the RU-486 pill is linked to other serious bioethical debates that are currently taking place in many countries around the world.
Keywords: bioethics, chemical abortion, pharmacological abortion, RU-486, medical ethics

Abstrakt: W niektórych krajach jednym z najtrudniejszych wyzwań bioetycznych pandemii koronawirusa SARS-CoV-2 jest gwałtowny wzrost liczby aborcji chemicznej przeprowadzanej w szpitalach, w przychodniach lub w warunkach domowych. Ograniczony dostęp do usług medycznych w placówkach publicznej i prywatnej służby zdrowia oraz rozwój telemedycyny doprowadziły do tego, że praktykowanie aborcji chemicznej przeniosło się w dużym stopniu ze szpitali i przychodni do domu. Aborcja chemiczna jest metodą stosowaną tylko we wczesnym okresie ciąży, tj. do 7-9 tygodnia. Pierwszy etap zabiegu aborcyjnego polega na przyjęciu tabletki RU-486, która zawiera preparat o nazwie Mifepriston powodujący uśmiercenie nowopowstałego życia w łonie matki. Drugi etap aborcji chemicznej polega na zastosowaniu preparatu o nazwie Mizoprostol, który doprowadza do wydalenia martwego embrionu z organizmu kobiety. Głównym celem podjętych w artykule rozważań jest analiza sporu etyczno-prawnego we Włoszech w latach 2020-2021, który dotyczy nowych form stosowania pigułki aborcyjnej RU-486. W sierpniu 2020 r. włoskie Ministerstwo Zdrowia podjęło decyzję, że aborcja chemiczna – przeprowadzana przy użyciu preparatu

medycznego RU-486 – nie powinna być praktykowana na szpitalnych oddziałach ginekologiczno-położniczych, ale w placówkach funkcjonujących w trybie dziennym (*day hospital*), bez obowiązku hospitalizacji dla kobiet dokonujących tego rodzaju aborcji. Przeprowadzone w artykule analizy wykazały, że aborcja chemiczna nie tylko uśmierca życie ludzkiego embrionu, ale w niektórych przypadkach może być także niebezpieczna dla życia i zdrowia matki. Liberalizacja aborcji chemicznej we Włoszech spowodowała wzrost liczby abortowanych nienarodzonych dzieci, ponieważ maksymalnie ułatwia dostęp do tej procedury medycznej, czyniąc z tego rodzaju aborcji zabieg realizowany w dużym stopniu samodzielnie w domu. Włoska dyskusja dotycząca aborcji domowej i pigułki RU-486 łączy się z innymi poważnymi debatami bioetycznymi, które są obecnie prowadzone w wielu krajach świata.
Słowa kluczowe: bioetyka, aborcja chemiczna, aborcja farmakologiczna, pigułka RU-486, etyka medyczna

Introduction

One of the very important consequences of the SARS-CoV-2 coronavirus pandemic is the emergence of new bioethical issues which have become an extremely difficult challenge for broadly understood medical ethics and social ethics. New moral problems include the need to define relevant criteria for patients' access to intensive care in life-threatening situations and insufficient number of hospital beds or ventilators, the way of bidding farewell to the bodies of those who died of COVID-19, or the need to develop fair rules for access to appropriate vaccines for all people internationally (Refolo, Sacchini, Spagnolo, 2020).

In some countries, one of the most difficult bioethical challenges of the pandemic has been a sharp rise in the number of chemical abortions performed in hospitals, outpatient clinics, or at home. Limited access to medical services at public and private healthcare facilities and the development of telemedicine have resulted in the practice of chemical abortion having largely moved from hospitals and clinics to the home. Since 2020, in countries such as the United States, Canada or the United Kingdom, some gynecologists have increasingly started writing out prescriptions for RU-486 abortion pills to pregnant patients on demand, the pills being then sent by medical staff to the patients' homes. Telemedicine has created entirely new possibilities, allowing doctors to direct the administration of medicines and medical preparations via a webcam. The advocates of this way of practicing chemical abortion argue that it is safer for women's lives and health, as limiting their contact with the hospital during the pandemic protects them from infection with the coronavirus (Lattarulo, 2021; Rotili, 2020; Spagnolo, 2020b).

One country where new forms of chemical abortion have led to a very difficult bioethical debate is Italy. In the summer of 2020, the Italian Ministry of Health announced that chemical abortion – performed using the medical preparation RU-486 – should not be practiced at hospital gynecological and obstetric wards. Health Minister Roberto Speranza decided that such abortions should be carried out in dispensaries and one-day outpatient clinics. Under the new guidelines provided by the Italian Ministry of Health, a woman

undergoing a chemical abortion receives the RU-486 pill at a healthcare facility and after half an hour from taking the preparation goes back home, where the human embryo is then aborted. The new regulations have sparked a heated public debate in Italy over fundamental philosophical, ethical and bioethical issues.

The main goal of the article is to analyze the ethical and legal dispute in Italy concerning new ways of using the abortion pill RU-486. The study will primarily analyze publications from the years 2020-2021 relating to this important bioethical dispute. The intended cognitive achievement is to define the basic ethical principles that should be used in the evaluation of various forms of chemical abortion. Clarification of such criteria is extremely important not only in Italy, but also in Poland and many other countries, as modern methods of chemical abortion are now increasingly replacing traditional surgical abortion on a global scale (Kućko, 2019).

1. Characteristics of chemical abortion

Since the late 1980s, surgical abortion has been replaced by new forms of chemical abortion, also known as medical or pharmacological abortion. Revolutionary changes in the way abortions are performed have been brought about by a chemical preparation called Mifepristone, commonly known as RU-486 or the "month after" pill. It was created by the French scientist Étienne-Émile Baulieu at the Roussel Uclaf laboratory in Romainville in 1980. "In the country on the Seine, the preparation was introduced into pharmacies in 1988. By now, the pill has been approved for marketing in dozens of countries around the world, including Australia, China, Estonia, Finland, France, Spain, India, Germany, United States, Sweden, United Kingdom" (Kobyliński, 2017: 80). The preparation developed by the French scientist is the most widely known agent used for performing chemical abortions today. In many countries, the chemical preparation RU-486 is officially called the abortion pill. In some scientific papers and publications, chemical abortion is also referred to as "DIY" abortion (Klein, Raymond, Dumble, 2013; Spagnolo, 2020a).

Mifepristone is responsible for blocking the female pregnancy hormone progesterone and stopping the development of the human embryo. Pharmacological abortion is a method used only in early pregnancy, i.e. up to 7-9 weeks. The first stage of abortion involves taking the RU-486 pill which contains 200, 400 or 600mg Mifepristone. The use of this abortive agent inhibits the development of pregnancy and results in killing the newly conceived life in the mother's womb. The second stage of chemical abortion consists in the administration of a preparation called Misoprostol. It is a synthetic analogue of prostaglandin E1, also used in many countries in the prevention and treatment of gastric ulcers. Misoprostol is manufactured, among others, by the American pharmaceutical company Pfizer/Pharmacia under the trade name Cytotec. If after taking the "month after" pill, the human embryo is not

expulsed, three days after taking RU-486 the woman should take a Misoprostol pill which results in removing the conceived child who has been killed from the mother's body (Morresi, Roccella 2010).

Misoprostol acts by provoking uterine contractions that lead to the expulsion of the dead embryo. Two weeks after taking the preparation it is advisable to visit a gynecologist in order to make sure that there are no remains of the dead embryo in the uterus. Studies in some countries show that 5-8% of women who have had a chemical abortion also need to undergo surgery to remove embryonic remains. It is worth emphasizing that the RU-486 pill is a typical abortifacient. If this medical preparation is used at 7-9 weeks of pregnancy, then the unborn child who is being killed already has a beating heart and a functioning brain. The baby already displays first nerve reflexes as its muscles and skeleton are being formed. Scientific studies stress that the abortion pill has an efficacy of 93-95%, which means that in about 5-7% of cases the mother must undergo surgery to finish the abortion procedure or stop a major bleeding (Kobyliński, 2017).

2. The bioethical revolution of 2020

On 12 August 2020, the Italian Ministry of Health published new rules for performing chemical abortion using RU-486. Relevant regulations are contained in a special circular entitled "Guidelines for voluntary termination of pregnancy using Mifepristone and prostaglandins." A few days earlier, on August 8, Health Minister Roberto Speranza announced the document's publication on Facebook and Twitter as follows: "The new guidelines, based on scientific evidence, provide for voluntary termination of pregnancy using the pharmacological method in day hospitals up to week 9. This is an important step forward in full compliance with Law 194, which is and remains a civilization norm" (Poggio, 2020). Law 194, referred to in the post published by the Italian Minister of Health, is the abortion law adopted in the country on the Tiber in 1978, commonly referred to as Law 194 or Law 194/1978.

Until the new guidelines were published, the practice of chemical abortion using RU-486 in Italy had been regulated by the law of 2010. Thus, the new law of August 2020 amends the guidelines of 2010 which provided for a three-day hospitalization of women performing chemical abortions. This means that under the old regulations hospitalization was mandatory – no pharmacological abortion was allowed in day hospitals. Medical abortion could be performed up to the 7th week of pregnancy. The 2010 guidelines specified that the risks associated with pharmacological abortion could only be compared with those involved in a surgical abortion if the pregnancy was terminated in a hospital. Even if it might appear that the chemical abortion procedure is less invasive than surgical abortion, it does not mean

that no complications may develop after the former which threaten the health and life of the mother and are difficult to predict.

The Italian Law 194/1978 provides that the entire abortion process must be carried out in hospitals or facilities specified in the regulations. As a result, no abortion may be performed at home. It is worth noting, however, that in the 1970s, when the Italian abortion law was enacted, chemical abortion did not yet exist, and the most commonly practiced form of abortion was a surgical procedure. At the beginning of this century, along with the approval of the RU-486 pill for marketing in Italy, the Ministry of Health resolved to develop appropriate legislation, which was not present in the 1978 Law. Relevant guidelines were published in 2010. The provision about a three-day hospitalization for women who terminate pregnancy using the chemical procedure was dictated by the fact that taking abortion pills may lead to a number of dangerous complications.

The opinion of the Supreme Health Council (*Consiglio superiore della Sanità*) which accompanied the ministerial guidelines of 2010 explicitly stated the medical view that women who have taken the RU-486 pill should not be discharged from hospital on request to go home before the end of the entire process of chemical abortion in order to avoid a situation where the embryo's expulsion from the mother's organism does not take place in hospital, but at home, entailing a risk to the woman's health. The Supreme Health Council stressed in their opinion that a woman should not be left alone with her physical and mental suffering. The side effects of the abortion pill have been widely described in scientific literature: abundant and prolonged bleeding, fainting fits, increased pressure, nausea, vomiting, abdominal pain and cramps, endometriosis, so-called incomplete abortion. As for the last adverse effect, a percentage of women in Italy who have taken RU-486 need to be hospitalized in order to complete the chemical abortion procedure by way of a surgery (Kobyliński, 2018).

It is worth noting that in the years 2010-2020 there was no uniform, nation-wide model for the use of chemical abortion in the country on the Tiber, as the authorities of a number of regions, exercising their political autonomy and articulating their independence from the central government in Rome, did not respect the 2010 guidelines of the Ministry of Health. In regions such as Emilia Romagna, Lazio, Liguria and Lombardy, local authorities authorized the administration of RU-486 in day hospitals. The Toscana region, on the other hand, went even further and permitted the use of abortion pills also in dispensaries and outpatient clinics. Under the new rules, introduced in some regions of Italy before 12 August 2020, a woman who took the RU-486 pill remained in a day hospital, dispensary or outpatient clinic for about half an hour until the first medical consultation. She then went home and returned after 48 hours to take Misoprostol, which causes expulsion of the dead embryo from the mother's womb. Consequently, the new guidelines of August 2020 may be said to have legalized the practice of chemical abortion already in place in some regions of

the country on the Tiber. The real novelty of this document was the extension by two weeks of the period during which pharmacological abortion is permitted.

According to Pino Noia, gynecologist and President of the Italian Association of Catholic Gynecologists and Midwives (*Associazione Italiana Ginecologi Ostetrici Cattolici*), the first victim of the Italian Minister of Health's decision of August 2020 is honest prenatal science, which is nowhere to be found in the guidelines. According to the President, there are no scientific arguments that justify postponing the use of RU-486 from 7 to 9 weeks. Scientific research unequivocally confirms that the later a woman performs an abortion, the higher the risk of various complications and negative health consequences. Pino Noia categorically states, therefore, that chemical abortion is never simple, painless or safe, contrary to what is claimed by its advocates (Zambrano, 2020). Scientific research confirms that women are more likely to suffer from profuse bleeding after pharmacological abortion than following surgical abortion. The risk of major blood loss is lower in women who have undergone a medical abortion up to the 49th day of pregnancy compared to those who have performed this form of abortion between the 7th and 9th week of pregnancy. This means that moving the time limit to 9 weeks poses a considerable risk to women's health.

3. Liberalization of chemical abortion from the legal and ethical perspective

In August 2020, the Italian Ministry of Health published new guidelines after the Supreme Health Council had expressed a favorable opinion on the matter. The Italian Association of Gynecologists and Midwives (*Società Italiana Ginecologi e Ostetrici*) took exactly the same position as regards the liberalization of chemical abortion. Unfortunately, the Ministry of Health has classified all files of this case, most importantly not publishing any information on the various risks associated with the use of RU-486. Consequently, the general public could not be informed about the "for" and "against" arguments contained in documents prepared by the Supreme Health Council and the Italian Association of Gynecologists and Midwives. Clearly, these were not unanimous decisions. However, as the documents were classified, Italian citizens were unable to familiarize themselves with the position of those scientists who were opposed to issuing a positive opinion on the liberalization of chemical abortion.

Critics of the new guidelines believe that the public has the right to information concerning this case. Moreover, they argue that the new rules violate the abortion law that had been in force in the country on the Tiber for more than 40 years. Those challenging the new guidelines point out that since liberalization of using RU-486 concerns the very essence of Law 194/1978, the Ministry of Health may not implement such changes by publishing its decision in a circular, but that there should be a serious parliamentary debate on the matter. This position was expressed, among others, by Alberto Gambino, President of the Science &

Life Association, one of Italy's strongest pro-life organizations. In his view, the ministerial guidelines have no legal force and are not binding on regional authorities, which have separate legislative powers in the area of healthcare.

Alberto Gambino notes that Law 194 provides for a procedure which begins with an information phase in order to address the causes that may have led to an application for abortion. The procedure is then continued if serious indications are found to justify termination of pregnancy. Except for medical assistance provided in accordance with the protocol set out in Law 194/1978, abortion is and remains a criminal offence. The President of the Science & Life Association argues that the introduction of a new medical protocol concerning chemical abortion cannot be effected by way of an ordinary ministerial circular. He believes that any amendments to the 1978 Abortion Law must be introduced by way a parliamentary debate, which is the only democratic tool that allows the whole of society, through its representatives, to present their position (Morresi, Roccella, 2020).

Another legal issue that has emerged in the debate around the Ministry of Health's new guidelines concerns the autonomy of regional authorities from the central government in Rome when it comes to the management of Italy's public healthcare. It is part of a major dispute that has been going on for many years in the country on the Tiber over granting greater political and financial independence to individual regions. In the context of this dispute, authorities of the Piedmont region decided to reject the guidelines developed by Minister Roberto Speranza. In the autumn of 2020, the Piedmont authorities commissioned expert legal opinions which clearly show that the liberalization of chemical abortion – introduced by the Ministry of Health's guidelines – is incompatible with the Italian Abortion Law 1978. Consequently, RU-486 is used in this region only when the woman performing an abortion is hospitalized, rather than in day hospitals, clinics, or at home. Moreover, the local authorities have significantly expanded the various forms of assistance offered to pregnant women who are considering killing their unborn children, so that they change their minds and give birth to new human beings (Morresi, Roccella, 2020).

On 14 August 2020, the Pontifical Academy for Life spoke on the new guidelines of the Italian Ministry of Health. In a special note they stressed that the new solutions adopted in the document should be revised. "The first deals with removing the requirement that the full protocol of chemical abortions be performed on an inpatient basis (but in reality that requirement has been often by-passed). Now, the drugs can be administered or furnished to an outpatient, followed by the expulsion of the dead embryo from the mother's womb after she has returned home. If the mother's concomitant physical pain becomes too intense or she experiences complications, particularly excessive bleeding, a dedicated emergency healthcare facility is to be available. The second change extends the time within which a chemical abortion may be performed—up to nine completed weeks of gestational age (63 days) instead of the earlier seven. The surgery can therefore take place at a more advanced

stage of pregnancy, when uncertainty and risk may be greater" (Pontifical Academy for Life, 2020).

The authors of the Vatican document state that the new guidelines of the Italian Ministry of Health relegate chemical abortion even further to the private sphere. On the other hand, it is important to ensure that the intense emotional reactions caused by pregnancy are experienced more broadly and more fully, especially at the beginning of pregnancy. The particular delicacy of this moment is due to the transformation of becoming a mother (and parents), when the presence of the conceived child puts into question precisely the most personal aspects: body, space, time, etc. "Allowing an abortion, with all the problems it creates, to take place in the home means distancing abortion even further from the web of social relations and from the world of shared responsibility — precisely the web and world that Law 194 attempted to salvage. It might be easy to argue — and with some good reasons — that the hospital environment is not necessarily the best place to provide the intended accompaniment and support or that in any event they come into play only during the lead-up to a decision to terminate a pregnancy. But precisely for this reason it is necessary not to give up searching for more suitable methods and tools to bring about a shared project: accompaniment and support for the nascent and conceived life, and for families, remain the test bench for an attentive and caring society that knows how to build its future with wisdom and foresight" (Pontifical Academy for Life, 2020).

The position presented by the Pontifical Academy for Life has been criticized by a group of conservative Catholic intellectuals who are members of the Advisory Board of the Pontifical Theological Institute "John Paul II" for Marriage and the Family Sciences. They expressed their concern and strong dissatisfaction with the position of the Pontifical Academy for Life. In their view, the document of the Vatican dicastery uses ambiguous language in its criticism of the new Italian guidelines on chemical abortion, completely disregarding the moral condemnation of abortion. The document of the Pontifical Academy for Life does, in fact, evoke the provision of the Law of 1978 which states that the Italian State, by guaranteeing the right to conscious and responsible procreation, recognizes the social value of motherhood and protects human life from its beginning. Even though the legislator sets out the conditions under which termination of pregnancy is legal, it also states that abortion cannot be regarded as a tool of birth control. Under the Law, family counsellors should support a woman who is considering termination of pregnancy by informing her of all aspects of this medical procedure and seeking, together with her, to remove those causes which may lead her to terminate pregnancy. Researchers at the Pontifical Theological Institute "John Paul II" for Marriage and the Family Sciences also say that the Abortion Law of 1978 is one of the most important causes of the major demographic crisis already faced by the country on the Tiber (Negrotti, 2020; Ognibene, 2020).

On August 19, 2020, *L'Osservatore Romano* published a very important article entitled "Women's Health and the Risks of RU-486." Its author is Giuseppe Noia, professor of prenatal medicine at the Catholic University of the Sacred Heart in Rome. He believes that the decision of the Italian Ministry of Health to extend the time limit for taking the RU-486 abortion pill from 7 to 9 weeks and leave out mandatory hospitalization of the women raises some very profound and difficult questions about the psychological, social, medical and scientific aspects of such decisions. Noia says that abortion continues taking its toll on innocent victims everywhere and devastates the lives of many women; for this reason, the decision to extend the abortion practice in the country on the Tiber is extremely disturbing, increasing the chances of killing children who, by their existence, only ask to be allowed to come into this world (Noia, 2020).

The Catholic University of the Sacred Heart in Rome professor disagrees with the supporters of RU-486 who claim that chemical abortion is simple, painless and safe. He says that the alleged simplicity of taking the pill, without any follow-up medical examination to monitor the abortion and its possible complications, is nonsensical and profoundly devastating at the psychological level for the relationship that develops between the mother and the child. From the very beginning of pregnancy, the woman is aware of the child's existence, and this awareness is independent of the baby's dimensions in grams and centimeters; rather, it is proportional to the child's "presence." The notion that removing a small embryo is tantamount to a minor injury is scientifically untrue. Noia argues that pharmacological abortion tries to leave unsaid the scientific truth about this biological, immunological, hormonal and psychodynamic relationship that is formed between the embryo, or child, and its mother from the very moment of conception. With the development of medical sciences we now know that from the fourth week of pregnancy the embryo begins to develop a whole series of patterns at the sensory, gustatory and olfactory level, also through its relationship with the mother. A cellular exchange begins between the child's organism and the mother's body. The child sends stem cells to the mother, which, passing through the placenta, arrive with the blood at pathological areas in her body to cure them: the fetus is in fact its "mother's doctor." For her part, the mother develops a strong and intimate perception of the child's presence, supporting it with oxygen and dietary supplements: this mutual relationship is called "maternal-fetal symbiosis" and is a wonderful mystery which science is now able to study and begin to understand (Noia, 2020).

The Catholic University of the Sacred Heart in Rome professor rejects the claim that termination of pregnancy with RU-486 is painless. On the physical level, it is associated with very painful cramps. On the psychological level, it generates hyperactivity in the woman, for it is she who must take the pill, becoming the actor, protagonist and observer of her child's agony and the hemorrhagic episodes which may appear anywhere and anytime for up to two weeks, without any warning, in many cases exposing the woman to the devastating

experience of seeing the embryo expelled from her body. Chemical abortion is associated with the risk of many health complications. Moreover, after taking the abortion pill, pregnancy may still continue. This probability increases the later in the pregnancy the abortion pill is taken. Continuation of pregnancy after chemical abortion is doubly devastating both psychologically and physically, because if the woman revises her choice and wants to continue the pregnancy, she will face another problem as the use of an abortion pill may cause malformations in the fetus. On the other hand, if she wanted to repeat the abortion procedure, she would have to use medical preparations in higher doses, with an even more serious risk to her own health (Noia, 2020; Verlicchi, 2020).

Summary

The social discussion in Italy over the liberalization of chemical abortion is an important part of the contemporary bioethical debate, which is becoming increasingly global in dimensions. Analyses carried out in this article substantiate several important research conclusions.

Firstly, the new rules on the use of RU-486 adopted in Italy on 12 August 2020 are yet another step towards the trivialization of killing human life at the initial stage of its development. The decision taken by the Italian Ministry of Health will contribute to an increase in the number of aborted children, as it facilitates women's access to chemical abortion and makes it a medical procedure performed at home largely on their own. Removing the requirement of hospitalization and postponing the time limit on using the abortion pill from 7 to 9 weeks of pregnancy seriously increases the risk of various complications that accompany this medical procedure and are well documented in scientific literature. One must not forget that in some cases the RU-486 pill not only kills the human embryo, but may also be harmful to the woman who takes it. Mifepristone not only destroys new human life at the initial stage of its development, but may also be dangerous to the life and health of the woman.

Secondly, the recent liberalization of chemical abortion in Italy testifies to the profound world-view changes that have taken place in its society over the last few decades. 2021 marked the 40th anniversary of the referendum held in the country on the Tiber on 17 May 1981 which concerned amendments to Law 194/1978 making abortion legal up to the third month of pregnancy. In the spring of 1981, Italians went to the polls to vote on two referendum proposals that sought to amend the abortion law in force at the time. The proposal made by left-wing groups aimed at completely liberalizing abortion, while organizations fighting to protect conceived life proposed to place restrictions on abortion practices (Scandroglio 2021). As many as 79.43% of the population of the Italian Republic went to the referendum polls. Both proposals were rejected: 88.42% of voters said "no" to the

liberalization of the Abortion Law of 1978, while 68% of Italian citizens said "no" to the tightening of abortion regulations. Consequently, the referendum did not result in amending Law 194/1978. Forty years after those events, it must be concluded that Italian society has become much more pro-abortion. While in 1981, abortion was still a moral and social problem in the country, in the collective consciousness of the Italian society it has now become only an individual, private matter of the woman (Kobyliński, 2020).

Thirdly, changes in the use of RU-486 in Italy have combined with the liberalization of access to EllaOne, called the "five days after" pill. In October 2020, the Italian Medicines Agency decided that it would no longer be necessary to have a medical prescription for EllaOne, a drug used in so-called emergency contraception up to five days after intercourse. The medical preparation EllaOne has both contraceptive and abortive effects. Given that the pill may also act as an abortifacient, the manner in which it is administered should fall within the legal framework of Act 194/1978, which requires an interview at an outpatient clinic or with a trusted doctor, followed by the issuance of a medical certificate. In the case of minors, the Law requires an opinion of the parents or legal guardians. The solution adopted in Italy in the autumn of 2020 leads to a profound trivialization of contraception and abortion: a minor may simply go to the pharmacy and buy an EllaOne pill. There is no doubt that the liberalization of access to this preparation significantly increases the number of crypto-abortions in the country on the Tiber (Kućko, 2020; Sartea, 2020).

Fourthly, the dispute over chemical abortion has revealed profound doctrinal changes that have occurred among Italian Catholics in recent years. Fewer and fewer philosophical and theological arguments are present in statements by representatives of the Catholic Church in the country referring to ethics, natural law, the criteria for the beginning of human life, the moral evil of abortion, etc. Most often, they are dominated by legal arguments relating to the implications of Law 194/1978. Among Catholics in Italy, acquiescence to killing life at the initial stage of its development is becoming more and more widespread. A new understanding of conscience and natural law is also beginning to prevail. As a result, conscience is now understood as an act of unconditional will, thus being granted a primacy which it cannot have unless each of us becomes a "law unto ourselves." Once conscience is stripped of its reference to natural law, and each individual becomes radically autonomous and represents "a law unto themselves", one of the consequences of such philosophical and theological changes is acquiescence to the legalization of various forms of chemical and surgical abortion.

Fifthly, the Italian discussion concerning RU-486 is related to other serious bioethical debates that are currently taking place in many countries around the world. One such country is France. In the country on the Seine, a fierce parliamentary debate over amendments to the Bioethical Law has been going on since 2019. One of the proposed changes concerns the possibility of creating human-animal chimeras. Such interspecies

embryos would be used in laboratories for various medical experiments and clinical trials. In addition, the law provides for the possibility of experimenting on artificially created and unused human embryos, for example by creating transgenic, or genetically modified, embryos. Embryos used for research would have to be killed by the 14th day of their development at the latest. The research, theoretically carried out in order to gain a better understanding of the causes of miscarriages and genetic diseases, would have to be approved by the governmental Biomedical Agency, but there is no doubt that the bill would open the door wide for genetic eugenics and transhumanism. Should the authorities in Paris grant their consent to mixing human and animal cells, this would mean crossing yet another Rubicon in the modern biotechnological revolution (Dzwonkowska, 2020; Waleszczyński, 2019). The creation of human-animal chimeras, manipulation of human embryos, and treatment of human life at an early stage of its development as mere laboratory material are all manifestations of the progressive dehumanization and objectification of human existence.

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PART II.
LIFE AND HEALTH

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Does emotional intelligence really ensure a happy life?
The mediation role of emotional competencies

Czy istotnie inteligencja emocjonalna zapewnia szczęśliwe życie?
Mediacyjna rola kompetencji emocjonalnych

Abstract: The study was focused on relations between the abilities to recognize facial emotions, emotion understanding abilities, emotional competencies and well-being. It was expected that the relation between emotional intelligence and well-being is mediated by emotional competencies. Statistical software IBM SPSS AMOS 21 was used to test mediation models involving emotional abilities as the independent variable, emotional competencies as the mediator variable, and well-being as the dependent variable. The participants were 144 students aged between 18 and 32 (M = 20.59; SD = 1.82). Two tests were used to measure emotional intelligence: *Emotional Intelligence Scale – Faces* (EIS-F, in Polish: *Skala inteligencji emocjonalnej – twarze,* SIE-T) by Anna Matczak, Joanna Piekarska and Elżbieta Studniarek, and *Emotion Understanding Test* (EUT, in Polish: *Test rozumienia emocji*, TRE) by Anna Matczak and Joanna Piekarska. Emotional competencies were estimated with a self-descriptive questionnaire PQEI (in Polish: PKIE) by Anna Matczak et al. Well-being was measured with the use of a *Depression Symptom Questionnaire* (DSQ, in Polish: *Kwestionariusz symptomów depresyjnych, KSD*) by Anna Matczak and Katarzyna Martowska. It was found that emotional competencies are the mediator of the relation between emotional intelligence and well-being. The study also shows that having high emotional potential (emotional abilities) itself does not guarantee well-being. It is acquired emotional competencies, meaning the skills of coping in different emotional situations, that may significantly contribute to improving the person's physical and mental state. At the same time, emotional intelligence is a prerequisite for the development of such competencies, although more than that is necessary. The results of the study confirm the difference between emotional abilities and emotional competencies constructs and point out the importance of emotional competencies for the person's well-being.
Keywords: abilities to recognize facial emotions, emotion understanding abilities, emotional intelligence, emotional competencies, physical and mental state

Abstrakt: Badania dotyczyły związków między zdolnościami do rozpoznawania emocji na twarzy, zdolnościami do rozumienia emocji, kompetencjami emocjonalnymi i samopoczuciem. Oczekiwano, że relacja między inteligencją emocjonalną a samopoczuciem jest mediowana przez kompetencje emocjonalne. Korzystając z programu statystycznego IBM SPSS AMOS 21 przetestowano modele mediacyjne, w których zmienną niezależną były zdolności emocjonalne, zienną pośredniczącą

kompetencje emocjonalne, a zmienną zależną samopoczucie. Badani to 144 studentów w wieku od 18 do 32 lat (M = 20,59; SD = 1,82). Do pomiaru inteligencji emocjonalnej zastosowano dwa testy: *Skalę Inteligencji Emocjonalnej –Twarze* (SIE-T) autorstwa Anny Matczak, Joanny Piekarskiej i Elżbiety Studniarek oraz *Test Rozumienia Emocji* (TRE) autorstwa Anny Matczak i Joanny Piekarskiej. Kompetencje emocjonalne szacowano za pomocą samoopisowego kwestionariusza PKIE autorstwa Anny Matczak i współpracowników. Natomiast samopoczucie mierzono z wykorzystaniem *Kwestionariusza Symptomów Depresyjnych* (KSD) autorstwa Anny Matczak i Katarzyny Martowskiej. Okazało się, że kompetencje emocjonalne są mediatorem związku między inteligencją emocjonalną a samopoczuciem. Z badań wynika również, że samo posiadanie wysokiego potencjału emocjonalnego (zdolności emocjonalnych) nie gwarantuje dobrego samopoczucia. To nabyte kompetencje emocjonalne, czyli umiejętności radzenia sobie w różnych sytuacjach o charakterze emocjonalnym mogą w istotny sposób przyczyniać się do lepszego samopoczucia jednostki. Zarazem warunkiem koniecznym, choć niewystarczającym, kształtowania się tychże kompetencji jest inteligencja emocjonalna. Rezultaty badań potwierdzają odmienność konstruktów, jakim są zdolności i kompetencje emocjonalne oraz wskazują na znaczenie kompetencji emocjonalnych dla dobrostanu jednostki.
Słowa kluczowe: inteligencja emocjonalna, kompetencje emocjonalne, samopoczucie, zdolności do rozpoznawania emocji na twarzy, zdolności do rozumienia emocji

Introduction

In 2007, Anna Matczak asked an intriguing question in *Studia Psychologiczne* journal: *Can emotional intelligence be harmful?* Since the origin of the concept of emotional intelligence, which is often claimed to have occurred in 1990 (Mayer, DiPaolo, Salovey, 1990; Salovey, Mayer, 1990), many research results have been published which show a positive role of emotional intelligence in almost all areas of human life and its importance for people nearly from the moment of birth.

In the deluge of this positive information we may have the impression that psychology has finally found a panacea for all the problems of the contemporary human and if we only have a sufficient level of emotional intelligence, we will be healthier, better fit, creative, coping with stress and happy humans. Although though a lot of time have passed since the appearance of the concept of emotional intelligence in scientific and popular science literature, there is still some disagreement among researchers and practising psychologists about its nature and structure. Without discussing in detail the issues connected with the already commonly known distinctions between emotional intelligence understood as a set of abilities, competencies, personality traits or character features (see e.g. Jasielska, Leopold, 2000; Ledzińska, Zajenkowski, Stolarski, 2013; Matczak, 2006; Matczak, Knopp, 2013; Matczak, Knopp, 2019; Martowska, 2012; Mayer, Salovey, Caruso, 2000; Nęcka, 2003; Petrides, Furnham, 2001; Piekarska, 2020a, 2020b; Szczygieł, 2006; Śmieja, 2018; Wytykowska, Petrides, 2007) and the multiplicity of ways of measurement resulting from such distinctions (test-based or questionnaire-based), it is worth considering what are the repercussions of this variety for the results of scientific research.

If we analyse the data concerning correlates of emotional intelligence with well-being, on which we focus in this article (or associated concepts such as physical and mental health,

satisfaction with life), we can see that most of the spectacular results proving its high importance are obtained with the use of questionnaire-based measurements (see e.g. Extremera, Salguero, Fernández-Berrocal, 2011; Malinauskas, Malinauskiene, 2020; Martinez-Pons, 1997; Rey, Extremera, Pena, 2011; Szczygieł, Mikolajczak, 2017); its role is not so consistently proved when estimated with the use of tests: then correlation coefficients are usually low or insignificant (cf. Brackett, Mayer, 2003; Extremera, Ruiz-Aranda, Pineda-Galan, Salguero, 2011; Extremera, Sánchez-Álvarez, Rey, 2020; Lopes, Salovey, Straus, 2003; Matczak, Piekarska, Studniarek, 2005; Ruiz-Aranda, Extremera, Pineda-Galan, 2014); although there are also some correlation coefficients which prove its moderate correlation (cf. Rey, Extremera, Trillo, 2013).

Furthermore, correlations between the results of test and questionnaire measurements of emotional intelligence are usually either low, especially when the impact of personality factors is controlled (Austin, 2004; Brackett, Mayer, 2003; Brackett, Rivers, Shiffman, Lerner, Salovey, 2006; Ciarrochi, Chan, Bajgar, 2001; Gohm, Clore, 2002; Warwick, Nettlebeck, 2004; Zeidner, Shani-Zinovich, Matthews, Roberts, 2005), or insignificant (Austin, 2005; Davies, Stankov, Roberts, 1998; Gutiérrez-Cobo, Cabello, Fernández-Berrocal, 2017a; Gutiérrez-Cobo, Cabello, Fernández-Berrocal, 2017b; Livingstone, Day, 2005; Matczak et al., 2005).

These ambiguous study results may confirm that tests and questionnaires do not really measure the same variable; tests measure emotional abilities – the "mechanics"[1] of emotional intelligence, which determine maximal performance, and questionnaires allow for the evaluation of emotional skills – the "pragmatics" of emotional intelligence, meaning emotional competencies concerning typical performance. Maximal performance is revealed in difficult situations and reflects the top level of an individual's capacities, whereas typical performance is manifested in everyday situations and is determined by motivational dispositions such as personality and temperamental traits (Ackerman, 1994; cf. Matczak, 2008).

It is worth mentioning that the division into emotional intelligence and emotional competencies is well-known in literature and many authors support the usefulness of such a distinction (Cherniss, 2002; Jasielska, Leopold, 2000; Matczak, 2004; Nęcka, 2003). Certainly, the distinctness of these two concepts does not mean independence of the dispositions they refer to. Both emotional intelligence and emotional competencies are instrumental dispositions, determining the capacity to act effectively. They are interrelated: emotional

[1] The division into mechanics and pragmatics comes from Baltes and Smith (1990), but the Authors refer it to the concept of intelligence. They think that the mechanics of intelligence is composed of the basic elements of information processing, independent of the content, whereas the pragmatics involves declarative and procedural knowledge, strongly saturated with contextual data and culturally conditioned. Some authors identify intelligence pragmatics with wisdom (cf. Maruszewski, 2008).

intelligence (which is cognitive in nature) is the potential, constituting a good starting point for the development of emotional competencies (which are behavioural in nature) (cf. Matczak, Martowska, 2011).

Within emotional intelligence itself, different groups and kinds of abilities can be identified. Mayer and Salovey (1999) identified four groups of abilities: perceiving and expressing emotions, assimilating emotion in thought, understanding emotions and reflectively regulating emotions. Some factor analyses do support this idea (cf. e.g. Brackett, Mayer, Warner, 2004; Day, Caroll, 2004). However, we may have some doubts as to whether all the identified components really have the same nature. It seems that the concept involves both purely cognitive abilities such as perceiving and understanding emotions and those which are rather competencies: assimilating emotions in thought or emotional regulation. This way of thinking may also be supported by factor analyses, giving two separate factors: *cognitive* (formed by elements concerning the recognition of emotions in oneself and in others and understanding them) and *operational* (represented by elements concerning the assimilation of emotion in thought and emotional regulation) (cf. Matczak, 2008). Yet, we cannot ignore the fact that some researchers have achieved different two-factor solutions indicating the potential existence of experiential emotional intelligence, including abilities to recognise emotions and use them in thought and action, and the strategic one, involving emotion understanding and regulation. A lot suggests that different factor solutions may be equally good (Day, Caroll, 2004; cf. Matczak, 2006). Many studies devoted to relations between emotional intelligence measured with tests (mainly MSCEIT) and well-being present the relation of the total score of the test either with the results of questionnaires or with factor results (experiential and strategic). There are few studies presenting the relation between the perception of emotions measured with tests and various indicators of well-being. Some data may even prove that high abilities to recognize one's own emotions may increase the sensitivity to everyday stresses (Ciarrochi, Deane, Anderson, 2002), and accurate perception of emotions (especially negative ones) may be detrimental to social relationships (Elfenbein, Ambady, 2002). Other study results mostly show the lack of relation between test-measured abilities to recognise emotions and different well-being measures (cf. Gohm, Corser, Dalsky, 2005; Matczak at al., 2005; Piekarska, 2020b; Ruiz-Aranda et al., 2014), although in clinical groups (of people suffering from depression, schizophrenia or addicted to psychoactive substances) lower abilities to recognize facial emotions are usually observed (cf. Davies, Gibson, 2000; Edwards, Jackson, Pattison, 2002; Green, Waldron, Coltheart, 2007; Łosiak, Siedlecka, 2013; Kucharska-Pietura, David, 2003; Mandal, Pandey, Prasad, 1998; Mendoza et al., 2011; Silver, Bilker, Goodman, 2009; Tremeau, 2006; Vernet, Baudouin, Franck, 2008). Still, the results of studies in clinical groups are not unambiguous, especially when emotional valence is taken into account (Brüne, 2005; Łosiak, Siedlecka, 2013; Murphy, Cutting, 1990). Furthermore, in clinical groups, deficits or brain structure damage can

probably be responsible for a lower level of abilities discussed here (cf. Bryan, 2007; Krawczyk, Lelek, Mróz, Kamenczak, Chrostek Maj, 2009; Kucharska-Pietura, David, 2003; Namiki, Hirao, Yamada, Hanakawa, Hayashi, Murai, 2007; Mier et al., 2010; Spaletta et al., 2001).

There are also relatively few data concerning the relations between emotion understanding abilities (measured with tests) and the indices of well-being. Research results are not unambiguous. For example in research by Joanna Piekarska (cf. Matczak, Piekarska, 2011) a positive though weak correlation between the *Emotion Understanding Test* (EUT) scores and satisfaction with life was observed. The emotion understanding abilities (apart from the abilities to regulate emotions) also proved to be the predictor of life quality when combined with the control of personality traits, emotionality and cognitive intelligence (Karim, Shah, 2014). In other studies with the use of MSCEIT, no relation was found between understanding emotions and mood, satisfaction with life and subjective sense of happiness (cf. Gohm at al., 2005; Ruiz-Aranda et al., 2014).

Now it is worth returning to the question posed at the beginning of the *Introduction*: *Can emotional intelligence be harmful?*

On the one hand, if emotional intelligence really belongs to the family of intelligence types, in accordance with the general definition it serves adaptational functions, so the answer should be negative. On the other hand, some data have been gathered which prove that high abilities to recognise emotions may be unfavourable (Ciarrochi et al., 2002; Elfenbein, Ambady, 2002), and excessive concentration on one's own emotions may lead to a harmful phenomenon of mental rumination (Gohm et al., 2005). It can be concluded, then, that a very high level of certain emotional abilities may be disadaptational, especially when it is not accompanied by equally high skills of emotional regulation (cf. Matczak, 2007; Nęcka, 2000).

It should be emphasized here that a high level of emotional abilities does not implicate having high emotional competencies, especially if the high level of emotional abilities is accompanied by shyness and/or social anxiety, which may make it difficult for the individual to engage in experiences of emotional nature and to acquire emotional competencies.

Thus the adaptational importance of emotional abilities is more "potential", since they may not be implemented in action if they are not translated into concrete skills (cf. Matczak at al., 2005).

Generally, it may be concluded that having excellent emotional abilities does not have to be connected with well-being. What may have a positive impact on well-being is high emotional competencies, which enable the individual to function effectively in emotional situations. At the same time, we must not forget that emotional intelligence is a prerequisite for the development of such competencies, although more than that is

necessary. Hence, we can think that emotional intelligence can also have a favourable influence on well-being, although this influence may not be direct but occur indirectly, through emotional competencies.

1. The study problem and hypotheses

In the study presented below, it was checked what are the correlations between emotional intelligence, emotional competencies and well-being. The following assumptions were made: (a) Emotional intelligence is a set of cognitive abilities, and the best way to measure it is tests, (b) Emotional competencies are complex skills which allow to cope effectively in emotional situations, (c) Emotional competencies develop thanks to emotional experiences; emotional intelligence is a necessary condition to develop emotional competencies.

The aim of the presented study was to check the hypothesis arising from the above-mentioned facts: *emotional competencies are a mediator of the relation between emotional intelligence and well-being.*

Besides, it was expected that: *abilities to recognise facial emotions are positively and moderately correlated with abilities to understand emotions.*

Although some data, especially in the area of neuropsychology, already support the distinction between the abilities to recognise facial emotions and the emotion understanding abilities, it does not mean these abilities are independent. The abilities to perceive emotions are regarded as fundamental and are the condition of the development of other emotional abilities, including e.g. understanding emotions. On the other hand, accurate recognition of sincere and insincere emotional messages is possible thanks to emotional knowledge, which can be acquired thanks to the ability to understand and analyse emotions.

2. Method

2.1. Participants and procedure

144 participants aged between 18 and 32 (M = 20.59; SD = 1.82), including 77 women and 67 men, took part in the study. The results of 140 participants aged between 18 and 32 (M = 20.61; SD = 1.84) were included in the final analysis, excluding four atypical observations (Mahalanobis distance) from the base. The respondents were students of different university faculties, living in and near Warsaw. The study was conducted in a group using the paper-and-pencil method, and it was anonymous.

2.2. Measures

Physical and mental state (well-being) was measured with the use of a *Depression Symptom Questionnaire* (DSQ, in Polish: *Kwestionariusz symptomów depresyjnych*, KSD) by Anna Matczak and Katarzyna Martowska (2011). The questionnaire comprises 15 items – expressions referring to different symptoms which may prove that the person is not functioning properly: anxiety, irritation, tiredness, the sense of hopelessness, lack of motivation, sleeping difficulties, excessive sleepiness, no appetite, overeating, aversion to interpersonal contacts, aversion to going out, changeable mood, tearfulness, pain, thoughts about death. The task of the respondent is to determine whether and how often he or she has had these symptoms during the last month in a three-point scale: from *never* (0 points), through *rarely* (1 point), up to *often* (2 points). The result of the study is the general score being the sum of points obtained in all the questions. The higher the score, the worse the condition. The questionnaire's reliability estimated in the group N = 689 is Cronbach's a = .80.

Emotional competencies were measured with a self-descriptive *Popular Questionnaire of Emotional Intelligence* (PQEI, in Polish: *Popularny kwestionariusz inteligencji emocjonalnej*, PKIE) by Anna Matczak et al. (Jaworowska, Matczak, 2005). Although this tool, as the name suggests, was designed to study emotional intelligence, thanks to its questionnaire nature it can be treated it as a method allowing to evaluate emotional competencies (see *Introduction*). PQEI includes 94 items in the form of statements formulated in first person singular; the respondent decides in a scale from 1 (*strongly disagree*) to 5 (*strongly agree*) how well the statements refer to himself or herself. The reliability of the tool is satisfactory. Cronbach's a for the total score is equal or higher than .90 (depending on the studied group).

Two tests were used to measure emotional intelligence. The first is *Emotion Understanding Test* (EUT, in Polish: TRE) by Anna Matczak and Joanna Piekarska (Matczak, Piekarska, 2011). It consists of 30 tasks grouped into 5 sub-tests with 6 tasks each. In the first sub-test, the participant is asked to organize words describing emotional states of the same kind from the word denoting the weakest emotion to the word denoting the strongest one. In the second sub-test, the task is to find a word which means an emotion or state opposite to the presented one. The third sub-test involves looking for simple emotions which make up a complex emotion. In the fourth one, a list of different situations is presented, and the participant must provide the names feelings or states which are most probably to occur in these situations. In the fifth sub-test, the task is to indicate conditions which make it probable that certain emotional reactions will occur in certain situations. The score of EUT is computed by adding up the points received in 5 sub-tests. The test's reliability estimated with Cronbach's a was equal or higher than .78.

The other test was *Emotional Intelligence Scale – Faces* (EIS-F, in Polish: *Skala inteligencji emocjonalnej – twarze*, SIE-T) by Anna Matczak, Joanna Piekarska and Elżbieta Studniarek

(Matczak at al., 2005). The test material is 18 photos of faces expressing eight positive emotional states (four of them are presented by a woman and four, by a man) and 10 negative emotional states (five presented by a woman and five, by a man). Different sets of emotion names (six in each set), both positive and negative, are assigned to each photo. The respondent's task is to decide whether the face in the photo expresses the listed emotions and each time mark one of three possible answers: *yes, no, hard to say*. The instruction stresses that the answer *hard to say* should only be chosen in exceptional cases. The result of EIS-F is computed by adding up the scores achieved in all the tasks. Since each emotion name is a separate test item, the total number of points the respondent can obtain is 108 (18 photos x 6 names assigned to each photo). The test's reliability estimated with Cronbach's *a* was equal or higher than .77.

3. Results

Table 1 presents the means, standard deviations and correlation coefficients for emotional intelligence (emotional abilities), emotional competencies and well-being (physical and mental state)

Table 1. Descriptive statistics and correlation coefficients for the studied variables

Variables	*M*	*SD*	1	2	3
1. Abilities to recognise facial emotions	78.96	8.01			
2. Abilities to understand emotions	21.44	3.62	0.42*		
3. Emotional competencies	340.01	39.60	0.24*	0.22*	
4. Physical and mental state/Well-being	12.80	4.56	-0.15	-0.10	-0.42*

* $p < .05$.

As Table 1 shows, a positive, moderate correlation was found between the results in EIS-F, which measures the abilities to recognise facial emotions, and the results in EUT, used to measure the abilities to understand emotions. Both kinds of abilities proved to be positively though weakly correlated with emotional competencies. No correlation was however found between emotional abilities and well-being. Emotional competencies proved to be negatively moderately correlated with the score in the Depression Symptom Questionnaire, which means that the higher emotional competencies, the better physical and mental state.

Previous research shows that both emotional abilities (emotional intelligence) and emotional competencies may have a positive influence on the person's well-being. A regression model was created in the IBM SPSS AMOS 21 program, and the results of tests which measure emotional abilities (EUT and EIS-F) and emotional competencies (PQEI) were entered as the predictors of well-being. The model did not prove to be well fitting the data: χ^2

= 37.774; $p < .001$; $df = 3$; GFI = .876; CFI = .410; NFI = .419; RMSEA = .289 (.211-.374). The values of path coefficients between the abilities to recognize facial emotions and emotion understanding abilities and well-being proved to be insignificant. Emotional competencies, in turn, proved to be significantly, moderately correlated to well-being (the value of the path coefficient was -.41, β =-.047). Thus it may be concluded that emotional competencies are significantly correlated with well-being: the higher emotional competencies, the better the person feels.

Taking into account the fact that both the abilities to recognise facial emotions and the emotion understanding abilities may be regarded as indices of the same theoretical construct – emotional intelligence – they were combined into one latent variable in order to check whether the model with consideration of the latent variable of emotional intelligence and emotional competencies variable will be improved.

But the model still did not fit the data well: $\chi^2 = 10.875$; $p < .001$; $df = 2$; GFI = .964; CFI = .849; NFI = .833; RMSEA = .179 (.085-.289).

Although it turned out that emotional abilities are not directly related to well-being, it can still be assumed – as its has already been mentioned – that they provide the basis for the acquisition of emotional competencies. That is why the author decided to check whether emotional competencies are really a variable mediating between emotional abilities and well-being.

The hypothesis was verified (the test of mediation effect) in accordance with the proposal by Cohen and Cohen (1983) in a model of structural equations (in the program IBM SPSS AMOS 21). These authors claim that to detect mediation it is enough to find that the relations: independent variable – mediator and mediator – independent variable are statistically significant. The mediation test is supplemented with evaluation of the significance of differences between beta coefficients of paths between the independent variable and the mediator and between the mediator and the dependent variable (MacKinnon, Lockwood, Hoffman, West, Sheets, 2002). Tests by Sobel, Aroian and Goodman are used to assess the significance of differences. The first of them is used to analyse mediation of large samples (over 50 observations). The Aroian test is also designed for large samples but it is better than the Sobel test, as it includes the correction of denominator of the test statistics. The Goodman test is recommended for small samples. In the presented study, the Aroian test was used.

An analysis was carried out in which the mediator variable between emotional intelligence (which were respondents' scores in the EIS-F and EUT tests) and well-being were emotional competencies (overall score in PQEI). The model proved to be well fitting the data: $\chi^2 = .227$; $p = .893$; $df = 2$; GFI = .999; CFI = 1.000; NFI = .997; RMSEA = .000 (.000-.076); it explains 18% of variability of the scores obtained by participants in *Depression Symptom Questionnaire (DSQ)*. The measurement model of the slack variable (emotional intelligence) is

of good quality (loads .68 and .62, reconstructed variances .46 and .38 – for the abilities to recognise facial emotions and the abilities to understand emotions, respectively). Emotional intelligence significantly, moderately affects the level of emotional competencies (the value of path coefficient was .36; β = 6.300). Increasing the index of emotional intelligence by one point translates into the increase of emotional competencies by 6.300 points. Emotional competencies significantly affect well-being (the value of path was -.42; β = -.051); the increase of emotional competencies by 1 point results in lowering the well-being score by .051 points (the lower score in *Depression Symptom Questionnaire*, the better condition). The result indicating that emotional competencies are a mediator between emotional intelligence and well-being was confirmed by the result of Aroian test $Z = 2.427$; $p < 0.05$.

To sum up, it may be concluded that emotional intelligence indirectly influences well-being, although this influence is moderate.

Discussion

The starting point for the presented research was looking for the answer to the question: *Can emotional intelligence be harmful?*

The obtained results did not prove it. Also, it was proved that emotional intelligence is not directly related to well-being.

It is worth asking why such a relation did not occur. We may suppose that emotional intelligence (the abilities to recognise facial emotions and the emotion understanding abilities) may be equally favourable and unfavourable for the individual's well-being.

There is no doubt that emotions serve important adaptational functions, and quick and efficient processing of emotional stimuli enables the individual to function effectively in the society. Facial expressions are one of the most important ways of communication; thanks to emotions expressed (both consciously and unconsciously) on the face, people share messages concerning the emotions experienced at the moment. Accurate recognition of emotions expressed on the face is a valuable source of information of the emotional states of other people and of the importance and value of their different experiences, and thus allows to react appropriately to non-verbal messages they send.

Besides, accurate recognition of other peoples' emotions and associating those emotions with particular events and conditions builds emotional knowledge and allows to develop emotion understanding abilities. The awareness of the causes of the occurrence of emotions and their possible consequences, the knowledge about how emotions may affect one's functioning and the knowledge of social expectations concerning the way and degree of explicitness of expressing emotions are the basis of conscious emotional regulation. Hence, both the abilities to recognize emotions and the emotion understanding abilities may be

beneficial for the person's well-being, and thus, emotional intelligence understood this way may promote good physical and mental state.

However, certain literature data (mentioned before) may suggest that an extremely high level of emotional abilities may not be adaptational.

Perceiving emotions indicating disapproval, dislike, hostility or boredom in interaction partners may lead to exceeding the optimum level of emotional arousal. In accordance with the Yerkes-Dodson law, both the quantity of arousal (intensity of emotions) and the quality of arousal (quality of emotions) affect the efficiency of actions. Extreme emotional experiences may be adaptational if emotional equilibrium is restored in a reasonable timescale. If it does not happen, however, then high abilities to recognise facial emotions may not ensure well-being.

Paradoxically, high emotion understanding abilities are not necessarily adaptational. The awareness of occurring emotions or their possible consequences, predicting changes in emotion dynamics (sequence) and associating them to possible social interaction scenarios may not be positively related to well-being.

If it is really so that particularly high emotional competencies may be both favourable and unfavourable for our physical and mental state, maybe emotional competencies, especially the kind responsible for emotional regulation, are decisive for one's well-being?

The skills of controlling one's emotions make you able to consciously influence their occurrence and course, both in yourself and in others. This allows to engage in some emotions or separate from others depending on the evaluation of their information value and usefulness. High emotion regulation skills also enable you to control your emotions, purposefully reinforce or calm them, thus preventing excessive arousal, adjusting the way of expressing emotions to social standards, and the level of of expressing them so as not to allow them harm interpersonal relations. There is no doubt, then, that effective regulation of one's own and others' emotions, in other words, wise emotion management, translates into the person's well-being. This is proved by the results of previous studies in which a relation between abilities to regulate emotions and the individual's well-being was found (e.g. Extremera, Fernandez-Berrocal, 2005; Extremera, Fernandez-Berrocal, 2006; Lopes et al., 2003; Rey et al., 2011; Ruiz-Aranda et al., 2014).

This is also confirmed by the results of the study presented here, which showed that emotional competencies are really related to well-being: the higher the competencies, the better the person feels. At the same time, it proved that emotional intelligence is positively correlated with emotional competencies and indirectly influences one's well-being through emotional competencies.

It is worth noting that the relation between emotional abilities (emotional intelligence) and emotional competencies was not very strong (which also corresponds to the results of previous studies). This may be connected, first of all, with the different nature of

the variables – EUT and EIS-F measure emotional intelligence, while PQEI, emotional competencies. As already stressed, having a high level of emotional intelligence does not implicate having high emotional competencies. What is more, we need to remember that emotional intelligence was measured with tests, and emotional competencies were estimated with a self-descriptive questionnaire. The results obtained in the latter considerably depend of self-knowledge but also self-evaluation of the participants. It can be assumed that people with a high level of emotional intelligence will be more aware of the complexity of emotional functioning conditions, and hence they will evaluate their own abilities more carefully.

General intelligence may also have some importance for the divergence between the results of tests and questionnaires: particularly gifted children have higher results in tests measuring emotional intelligence than in self-descriptive questionnaires (Zeidner et al., 2005).

The obtained study results also prove that abilities to recognise facial emotions are positively and moderately correlated with emotion understanding abilities. This relation seems to be obvious. The basis for the development of emotion understanding abilities is the abilities to recognize emotions, both one's own and others'. It is thanks to perceiving emotions that mental representations of emotional events appear, which are later subject to cognitive processing. Emotion recognition abilities are also developed thanks to emotion understanding abilities: for example differentiating between sincere and insincere emotional messages, weaker and stronger emotions, or not mistaking two similar emotions require emotional knowledge, which develops thanks to the abilities to understand emotions.

The relation between emotion recognition abilities and emotion understanding abilities is obviously a reciprocal one, and also they become the basis for acquiring emotional competencies. Emotional competencies, in turn, especially regulatory competencies, allow the person to effectively function emotionally among other people.

In the presented study, the measurement of temperamental traits was not taken into consideration, but it seems these traits would be good to consider in future research. It is so because, as we can assume, a certain combination of emotional abilities and temperamental traits may be particularly unfavourable for the person's well-being. Disorganisation of functioning, with equally high emotion recognition and understanding abilities, is more probable in high reactive people, characterized by lower stimulation processing capacity and lower emotional resistance than low reactive people, who are resistant and mentally strong.

As we know, emotional experiences and situations are a strong source of stimulation; the same emotional experience may cause an excess of the optimum level of arousal in a high reactive person, while in a low reactive one, it will remain within the optimal range.

Besides, high reactive people may be more exposed to the deficiency of emotional and social training than low reactive ones. The reason is that high reactive people may due to their temperamental determinants avoid highly emotional situations or limit their social

contacts so as not to incur excessive psychophysiological costs. Thus the people may have fewer opportunities to intensive emotional training and the development of emotional competencies.

The presented research definitely has some limitations. Firstly, the sample group was not very numerous. Secondly, temperamental dispositions were not taken into consideration in the study. As mentioned in the discussion, it would be useful to analyse different result configurations, involving temperamental traits apart from instrumental dispositions (emotional abilities and competencies). It seems, however, that despite its limitations, the presented study has some information value and can provide some input to knowledge on the importance of emotional competencies for an individual's well-being.

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Supporting school inclusion of students with disabilities and special educational needs - selected challenges and solutions

Jak wspierać proces inkluzji szkolnej uczniów z niepełnosprawnościami i specjalnymi potrzebami edukacyjnymi – wybrane wyzwania i propozycje rozwiązań

Abstract: Nowadays, a fairly widely accepted idea regarding education is that schools should provide an inclusive environment. However, the process of inclusion cannot be accomplished spontaneously. If such a process is not actively supported, it may contribute to the growth of intolerance, stereotypes, exclusion and school violence. If inclusive education is to become more than merely a slogan, it is necessary to provide support to all involved, including teachers. In light of the research, the self-assessment of teachers' competencies in educating students with developmental disabilities and special educational needs is relatively low. The article describes possible challenges in making schools more inclusive environments and proposes possible means of supporting teachers in selected areas of inclusion.
Keywords: disability, inclusive education, school inclusion, social health, special educational needs

Abstrakt: Współcześnie, dość powszechnie akceptowanym poglądem dotyczącym szkoły jest, to że powinna być środowiskiem włączającym. Jednak proces inkluzji nie odbywa się samorzutnie, jedynie poprzez fakt przebywania w tej samej przestrzeni klasy szkolnej uczniów z niepełnosprawnościami, specjalnymi potrzebami edukacyjnymi i ich tzw. pełnosprawnych rówieśników. Co więcej, jeśli proces taki nie jest wspierany, może przyczyniać się do wzrostu nietolerancji, utrwalania stereotypów, wykluczenia i przemocy szkolnej. By zatem edukacja włączająca nie była jedyni sloganem, konieczne jest wsparcie dla wszystkich uczestników tej sytuacji, w tym dla nauczycieli. W świetle badań, samoocena ich kompetencji w zakresie pracy z dziećmi z zaburzeniami rozwojowymi, niepełnosprawnościami nie należy do wysokich. Tekst ten poświęcony jest charakterystyce wybranych wyzwań związanych z inkluzja szkolną i zaproponowaniu rekomendacji wspierających nauczycieli w tych sferach.
Słowa kluczowe: edukacja włączająca, inkluzja szkolna, niepełnosprawność, specjalne potrzeby edukacyjne, zdrowie społeczne

> „(...) the inclusion of children with disabilities is one of the most complex and poorly understood areas of education" (Lindsay, Proulx, Scott, Thomson, 2014, p. 102).

Introduction

At present, a relatively widely accepted (at least on a declarative level) view is that schools should provide an inclusive environment. In other words, it is assumed that students, when faced with the variety of differences that exists among their peers (for example, regarding their level of ability, health and social functioning) will develop attitudes that lend themselves well to functioning in inclusive societies. For those experiencing more serious difficulties, schools should provide a space to experience a sense of belonging, of feeling valuable and of social well-being, or at least, at the bare minimum, a sense of safety within the school environment. This is not merely a humanistic postulate, but a human rights issue. It is important to emphasise that such a process is not something that will happen automatically simply as a result of placing students with and without disabilities within a shared school space. If these processes are not supported, such a situation can even contribute to rising intolerance and reinforcement of stereotypes. "It cannot be said that spending time together necessarily brings people closer, sometimes it can separate them further" (Kowalik, 2001, s. 47). Supporting all participants in these situations is therefore crucial. That also includes teachers, who bear the responsibility for handling a variety of serious challenges daily, including creating an inclusive environment free of discrimination based on ability, health and developmental difficulties. Exclusionary practices have a negative impact on the social atmosphere in educational facilities, feeding into rising inequalities, conflicts and an overall sense of distrust. The considerations presented here are primarily relevant to the situation of children and youth who study at general schools. Certainly, the issues surrounding health, support, social relations and participation are worth discussing in the context of special education schools as well, but due to the differences in the social and organisational contexts and the staff preparation, they require separate consideration.

The analysis presented here is of a general character due to, among others, the wide scope of the issues under discussion. There are numerous reasons for this, such as the great diversity of the group described as 'disabled', and the complexity of issues surrounding the processes of inclusive education (Szumski, 2019).

1. School inclusion and social health

In evaluating the overall school functioning of students (its quality and effectiveness, also regarding inclusion and evaluating its efficacy), it is important to pay attention to its different dimensions: academic (regarding learning, results, achievements etc), emotional

(the attitude towards school, liking or disliking it) and social (for example, relations with others). It is the last aspect that is the primary focus of my investigation, even though these dimensions certainly co-exist, overlap and exert influence over one another. In the fifteen proposed classifications of dimensions of health analysed by K. Walentynowicz-Moryl (2016) along with the self-explanatory physical aspect, a social dimension is always present. Its specific character stems from the fact that "the range of social health exceeds the boundaries of an individual, it is in part situated outside (Heszen, 2005)". It concerns a particular person and, at the same time, speaks to the wider (so-called) social health.

The relationship between health and social issues is also expressed in the indicator of social health proposed by F. Jany-Catrice (2009). One of its six dimensions relates to inequalities. The researchers point to a range of variables that determine the social aspects of health, such as the quantity and quality of interpersonal bonds, the range of social engagement, functioning within social roles and the satisfaction derived from them, autonomy, communicative abilities and the network of friends (Walentynowicz-Moryl, 2016) etc. It is important to emphasise that a lack of friendship is one of the primary risk factors of becoming a victim of peer group bullying (Plichta, 2010). A reader can easily find a range of sources showing that concerning the aforementioned dimensions of social health, persons with disabilities experience difficulties and in comparison to the general population achieve lower indicators (such as higher levels of loneliness, less engagement with social roles and higher rates of dependency on others). This indicates, among others, the conceptual proximity of the social aspect of inclusion and the social aspect of health.

5. Special educational needs and the risk of exclusion

There is a considerable group of young people who require higher than average levels of support in the realisation of their educational needs (often described as special educational needs). For example, the results of the TALIS survey indicate that around 60% of Polish teachers work in schools in which the degree of students with diagnosed special educational needs exceeds 10% (Henrik et al., 2014). While on one hand, it is a positive measure to identify the group which requires higher levels of support, on the other, it is important to keep in mind the risk of wrongfully ascribing this group of an incredibly diverse character with certain shared characteristics.

The differences between young people with disabilities may concern the type of disability (sensory, motor, intellectual), its level (for example mild, moderate or severe), the need for support and resources, abilities, coexisting issues, but also the strong suits, interests, temperament, character traits etc. Under educational law (MEN Directive, 2017), the group of people described as having special educational needs also includes students with chronic illness, those undergoing crises, those with learning difficulties, but also those with

extraordinary abilities. At times, such young people require support in more than one area of special educational needs. It is one of the difficulties in formulating recommendations for such a diverse group. Their school situation can be vastly different depending on the type of disability they have, and the greatest difficulties tend to be experienced by students with intellectual disabilities (Buchnat, 2019).

As P. Hutchison, D. Abrams and J. Christian (2005) note, exclusion violates a fundamental human need of belonging to a social group, being deprived of which brings many negative consequences (such as lower self-esteem, anxiety, anger, self-blame, difficulties concentrating). For some, experiencing exclusion may bring about antisocial and aggressive reactions, while others develop more passive reactions such as withdrawal and self-harm. It can also lead to succumbing to the majority's expectations, which is not always a constructive strategy. The perception of 'Others' as violating the needs or norms of a specific community may lead to the group developing intolerant outlooks and making attempts at increasing the in-group coherence by isolating and excluding certain individuals. Therefore, strategies that promote integration within the group (such as resitting students and working in diverse teams) and create a group identity centred around shared goals can be guidelines to follow in preventing exclusion.

6. The risk of focusing on disorders

It is important to note that perceiving someone through a diagnostic label can, outside of providing some benefits (such as identifying those requiring assistance), lead to the danger of overlooking the person's qualities outside of their disability. Formal diagnoses influence the school situation of such students. For example, D. Shifrer (2013) speaks of adults' lowered expectations towards students with a diagnosed learning difficulty. Rather than using the label of 'special educational needs', I consider the description of 'students requiring a special realisation of educational needs' a more fitting category. Seen from this perspective, the focus is not the needs being somehow 'special', but on the fact that some people simply require more support and assistance in finding ways of having these needs met. Overlooking or ignoring the universality of educational needs may engender a perception that there is a distinct group that requires something unique or special. Most often, however, it concerns resources that should be accessible to all, and what is needed is simply to make them accessible to those in more complicated situations. Educational needs (Głodkowska, 2019) such as curiosity, cognitive exploration, a sense of self-worth, interpersonal communication and self-determination (self-directedness?) are of a universal character. Understanding this counters the myth of the nature of needs as specific only to some.

One of the most important aspects of work in education is to pay attention to students not merely through the lens of their diagnosis ('what's wrong with them') as the need to be seen and to receive positive attention is shared by everyone. Paying attention to the person and not their specific attributes can constitute an important compensatory mechanism because the people in question often receive attention which is not rooted in an interest in who they are, but in the difficulties or problems they experience, perceived through the lens of their disability or disorder.

Special education needs and disabilities constitute "all-inclusive" minorities (Riley, 2006), which means that the behaviours of those with such diagnoses are not perceived through the same categories applied to others, with the disability itself seen as the root cause of their issues instead. A closely related conceptual category is that of diagnostic overshadowing in the context of recognising so-called 'difficult behaviours', meaning new symptoms experienced by those with intellectual disabilities or autism, which then serve as an all-purpose explanation of their behaviour (for example, 'that's just what autistics do'). As a consequence, the same issues in non-disabled students are interpreted as having other explanations (they are caused by stress, disadvantageous circumstances or poor mental wellbeing) than their peers with official diagnoses.

7. The role of teachers in school inclusion

The importance of modelling behaviour towards students with disabilities by teachers cannot be overlooked. This is reflected in the statement made by a parent participant in a research study: "You teachers can have immense influence — positive or negative — on how other students perceive a child with a disability. As leaders within the school environment, you shape the in-class atmosphere. Be mindful of not creating one which encourages others to persecute a child with autism" (author's translation from Sciutto, Richwine, Mentrikoski, Niedzwiecki, 2012). Examples of stigmatising experiences (Mueller, 2019) of young people with special educational needs are not merely situations rooted in peer behaviour; such experiences can also be caused by teachers (for example, being placed in a group of those with lower abilities in a certain field). Some research subjects pointed to specific moments in which they realised they are different from others, even though they did not previously perceive themselves as such. Other studies indicate that teachers' self-assessment of competence in working with children with developmental disorders and disabilities is not high (Plichta, 2019). Similarly, the quality of offered training in working with such students is appraised as low. It is important to emphasise this within the overall diagnosis of the described context as teachers are often on the receiving end of unfair judgment, whereas they are also in need of support. Sometimes the issues experienced by a

student with a disability require a multimodal, specialised approach which exceeds the capabilities of a single, often inadequately trained person.

Although there are many issues we have limited influence on (such as educational policy and the contents of the curriculum), we do have freedom in adopting appropriate perspectives on in-school issues and dynamics which are key in shaping our relationships with students and influence them to a high extent. Assuming an understanding perspective (Olechnowicz, 1999) by teachers is expressed in their willingness to approach children with understanding, also towards their difficult behaviours, and being prepared to search for answers and engage with complex issues. In practice, this is expressed by developing certain hypotheses, applying appropriate methodologies and testing their efficacy. If the need arises, it is also crucial to repeat these steps and re-test.

A key element of a teacher's skill set is diagnostic skills. This is reflected in the words of Janusz Korczak (1924): "What fever, cough and vomiting are to a doctor, a smile, a tear or a blush are to a teacher. There is no symptom without meaning. One must note and consider everything, reject the accidental, connect the meaningful, search for underlying laws". Within the scope of these considerations, this will largely concern recognising the psychosocial situation of students with disabilities or developmental difficulties. The benefits of learning in an environment shared with their typically developing peers do not merely give a chance for higher educational achievement, but also significantly impacts socio-emotional functioning, which is reflected, among other factors, in the quality and quantity of social bonds (Venetz, Zurbriggen, Schwab, 2019). A large majority of research on the effects of inclusion (especially older studies) were focused on academic results and many of them indicated that students with special educational needs perform better in such environments rather than in separate schools. Newer analyses pay more attention to the socio-emotional aspects of inclusion, such as acceptance within the class environment. These studies indicate that students with SEN are often less accepted (Schwab, 2015) and evaluate their time in school in a more negative way than the rest of their peers (Skrzypiec et al., 2016).

The diagnostic skills of teachers should be reflected, among other things, in their attempt to understand so-called difficult behaviours. For students with disabilities, many aspects of the school environment (such as noise, unpredictability, learning spaces not being adapted appropriately, interactions with peers, an abundance of stimuli) may trigger problematic behaviours. Although the majority of research points to the heightened risk of becoming a victim of peer bullying among people with disabilities, in some cases it is their aggressive behaviours that can be a problem, the causes of which tend to be overlooked. According to A. Kaukianen and his fellow researchers (2020, p. 276), participating in peer violence may be interpreted as attempts at establishing one's position within a group, which can otherwise be difficult, with bullying then "representing their awkward, desperate attempts at struggling to keep one's face" (author's translation).

It is also important to note that the precision with which teachers evaluate the socio-emotional aspect of inclusion is not often investigated. However, the data gathered indicates large discrepancies between the self-evaluation of students and their appraisal by adults. Research centred around attitudes towards the inclusion of students with disabilities makes it apparent that teachers overestimate the social standing of students with special educational needs. Positive socio-emotional indicators are then clearer and more precise means of evaluation than negative responses (Zhu, Urhanhne, 2014) such as isolation and rejection. This can partially be explained by the fact that some of the issues experienced by students are not easily noticeable for teachers (such as their emotional state and difficulties with peer relationships). Teachers overestimate the emotional aspect of inclusion — in other words, students with special educational needs enjoy school less than teachers tend to think.

Retrospective research on students (Venetz et al., 2019) usually presents a more positive view of the school environment than current studies. This 'rosy view effect' points to the need for creating opportunities to talk to students and discover their opinions, keeping in mind that they are not always prone to discussing the experienced issues spontaneously (usually, data on students with disabilities comes from the perspective of their able-bodied peers and teachers). In light of this, an important recommendation for working with students requiring extra support is that the teachers be proactive, not merely in responding to the students existing issues and diagnosing them, but also in preparing the whole class for the inclusion of a new student, especially one with a disability. Such efforts preceding the arrival of new students are compared by K. Novak and D. Rose (2016) to preparing a buffet for guests. Upon their arrival, something could be whipped up spontaneously, but it's better to anticipate different culinary preferences. Currently, such an approach to education is described as UDL — Universal Design for Learning. It is based on the assumption that it is possible to differentiate efforts, requirements and manners of motivating in such ways that they can encompass all students.

8. The importance of regularity in pro-inclusion behaviours

> "In education, a variety of seemingly trivial issues might come with serious consequences" (Meirieu, 2003, p. 43).

In educational work, it is worth appreciating the importance of everyday, regular activities. In schools, we often encounter event-like efforts, such as organising particular days/weeks/workshops devoted to a particular problem, which can enable an increased awareness and a building of consciousness around it. However, it is the repeated, everyday gestures that play the biggest role in shaping attitudes, for example towards people with disabilities. 'Attitudes' are among the most used (perhaps overused?) buzzwords in

education. Considering its definitional meaning, an attitude is something of a relatively stable character, meaning it takes a relatively long time to acquire and an equally long time to unlearn. In pedagogic work, we cannot forget about tailoring our efforts to the different aspects that comprise an attitude, which is said to include three components: an emotional, cognitive and behavioural one. Therefore, when striving to have a positive impact on shaping attitudes, our actions should be geared towards expanding the students' knowledge (for example, on what disability is), emotionally engaging them (building empathy) and teaching specific behaviours (for example ways of reacting when witnessing a person with a disability struggling with a difficulty). There is an impression that too often, pedagogically important questions are only talked about (in a one-way manner, with a teacher warning, postulating etc.) Such an 'overtalked' preventative approach is hardly adequate in the face of serious challenges such as issues of social inclusion which are reflected in the everyday dilemmas regarding fair grading, the treatment of others or showing respect. It is important to emphasise that when considering effectiveness, it is apparent that regular efforts that are present in everyday practice are more effective than 'special occasion' ones.

9. The need for reflection on the details of the undertaken efforts

Reassigning students to different seats seems one of the most obvious, common measures used in the classroom environment. However, in most cases, it is used as a punitive mean to discipline a student for something like talking to another student during class. Used as such, it is hard to notice the immense potential of this measure. J. Pyżalski (2019) points to the pedagogic aspect of reassigning seats and its capability to generate everyday encounters between different students. Keeping in mind the important limitations of this practice, it is essential to introduce rules around seat reassignment, incorporating this strategy in new class settings, notifying students that the arrangements are temporary and there will be regular changes, that the assignment is made at random. The students' parents must be notified of this measure and its intended goals. In cases of specific special educational needs, it is important to remember that this method will be of limited use, for example, due to the strong need for environmental stabilities in students on the autism spectrum.

Another method intended to improve the understanding of certain students' situations described by J. Pyżalski (2019) is organising educational sessions (talks, workshops) about the specifics of special educational needs. Despite their great educational potential, they can be counterproductive if they are forced by a teacher without consultation with students and their parents. Such approaches necessitate preparing the student with special educational needs in ways that respect their autonomy and the right to decide to what extent such meeting may touch upon their personal situation.

10. The risk of overprotection

It is important to note that out of good intentions (such as caring for the safety of students with special educational needs), a mistake can be made in overprotecting them. Research shows decisively that students with disabilities experience a higher risk of social isolation (Plichta, 2019). On one hand, there is a need for attention which is crucial in recognising different, sometimes easily overlooked symptoms of mistreatment or exclusion from class life. On the other, it is important to be mindful of not going overboard in making such protectiveness visible as it can send a further signal to peers of the difference and 'weakness' of the student with special educational needs. Such attitudes in adults might be a risk factor in the process of becoming a victim of peer aggression. Another aspect of 'overprotecting' is interfering with the process of emancipation, learning coping mechanisms and participation in normal interactions.

In short, a 'deficit model' is based on seeking to 'fix' students and concentrates on issues that are not changeable, on limits and barriers. Currently, strength-based approaches are proposed in their place (Wehmeyer et al., 2017). Such approaches focus on opportunities for growth, potential, resources, creating an individualised programme of support and trying to see school as part of a wider context of the students' lives and their future. Naturally, efforts to solve problems through different means of improvement cannot be overlooked in professional pedagogic work. However, it is essential to acknowledge the importance of the second pillar crucial to the achievement of assumed aims (not just our aims, but also those of the person we seek to support). This pillar stands for searching for the person's strengths and harnessing them in educational work.

11. The need for supporting parents of students with special educational needs

An important issue necessitating wider consideration is the need to increase the teachers' sensitivity to the singular and often very difficult situation of parents of children with disabilities and developmental disorders. This is a group characterised by a high degree of diversity — among them, there are those in relatively advantageous situations, along with others who need a high level of support. In schools, there exists a need for something more than simply responding to the support needs as expressed by parents. Proactivity in this area is important (for example, inquiring how the parents are doing and whether they need assistance). Research shows that even in special schools this is not common practice (Pyżalski, Plichta, 2015). Working together is an often-postulated form of parent-teacher relations. However, the need for help should not be overlooked. Parents are not always capable of engaging in cooperation, but there is a high probability they will experience

a need for support (it is experienced by up to 90% of parents of children with disabilities and half of them require assistance in more than one area, for example, material and emotional support at the same time) (Douma et al., 2006). Another aspect of relationships with parents is opening up to their perspective and knowledge about the child and their needs (for example in terms of formulating educational goals and planning for the future). It seems that to postulate giving basic respect is banal but in light of the research results, it is not just children with disabilities themselves but also their parents that encounter inappropriate treatment. "Here (in a special school — author's note) all the children are the same and nobody is surprised by anything. The kids feel important and we as parents also feel understood; the teachers treat us in a friendly, compassionate way. It's not like in other schools" (Pyżalski, Plichta, 2015).

12. Educational priorities in the time of a pandemic

As this text has been written at a particular time (the third wave of the pandemic of the SARS-CoV-2 virus, which causes the COVID-19 disease), it is important to note a few issues around distance learning. They can help to better care for students in more difficult situations, experiencing various inequalities, including digital ones. These can be different: from infrastructural issues (such as access to modern devices or broadband internet), digital competencies or received support. M. Kent and K. Ellis (2015) note that decreased access to new technologies puts those with disabilities in more disadvantageous positions when extreme situations arise. These inequalities are not necessarily caused by disabilities or developmental disorders but they might to a higher degree affect children in special residential centres, child care homes, foster care and large families. A priority area for support in distance learning during the crisis is not merely to concentrate on teaching, but maintaining and strengthening relationships with other people (such as teachers and peers). W. Poleszak and J. Pyżalski (2020) emphasise that one of the most important support factors in situations of crisis (meaning sudden situations causing strong emotions, primarily fear, that disorganise everyday life and trigger defence mechanisms) in the sense that we are not left alone with the problem.

It is also important to make sure that the expectations placed on students are flexible, for example in terms of the tasks they need to carry out and their documentation (such as allowing them to use mobile phones). The internet can also serve as a tool for providing instructions for parents (for example as teacher-prepared video materials explaining how to correctly do a specific exercise together with the child). Distance learning presents a risk situation in which existing inequalities (such as poverty, learning difficulties and loneliness) may deepen. Therefore, it is advised to use methods that are as non-exclusionary as possible. Among others, it is about keeping a balance between synchronic methods (such as online

classes in real-time) and asynchronous ones (such as recordings, podcasts and tutorials). The latter category minimises the difficulty of participating in a class at an arbitrary time. "An asynchronous teacher presence (in the form of pre-prepared video materials, explanations, instructions or guidelines) is also a good solution for students who, when using these resources, have an unlimited capacity to go back to something unclear to them without having to ask the teacher to repeat something. In a traditional classroom setting, this can be difficult due to both psychological reasons (feelings of awkwardness, shame and uncertainty), as well as time constraints" (Plichta, 2020, p. 76).

In the case of students who possess limited resources for dealing with the challenges of the present situation (such as students on the autism spectrum, with intellectual disabilities, chronically ill or experiencing other crises), it is not the didactic aspect that is a priority today, but questions of basic needs, such as safety and belonging. As a finishing remark, I refer to J. Humphrey's and N. Hebron's (2015) view that if the inequalities in the real, everyday social participation (for example in the classroom environment, but also in relationships outside of school) of young people with disabilities are not limited, the rhetoric of the benefits of inclusive education will remain an empty slogan.

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Association between emotional intelligence and adolescent risky sexual behavior

Zależność między inteligencją emocjonalną i ryzykownymi zachowaniami seksualnymi u młodzieży

Abstract: Risky sexual behavior of young people have a number of adverse consequences in the health, psychological and social dimension. Therefore, it is extremely important to undertake actions promoting proper sexual behaviors among young people and more conscious and responsible attitudes towards this sphere of life. In order for the introduced educational and preventive actions to be effective, it is necessary to precisely recognize the factors protecting from risky sexual behavior and the factors increasing the risk of such behaviors. The paper attempts to answer the question about the role of emotional intelligence of adolescents as a protective factor against risky sexual behavior. The first part outlines the problem of risky sexual behavior of adolescents - its types, sources and consequences. Next, the most important models of emotional intelligence are presented, and its relation to the effectiveness of functioning on different levels of life is discussed. Finally, the article describes the relations between emotional intelligence of adolescents and the tendency to engage in risky sexual behavior, referring to both psychological theories and empirical data.
Keywords: emotional intelligence, risky sexual behavior, adolescents

Abstrakt: Ryzykowne zachowania seksualne młodzieży niosą szereg niekorzystnych konsekwencji w wymiarze zdrowotnym, psychologicznym i społecznym. Stąd też niezwykle ważne jest podejmowanie działań propagujących u młodzieży właściwe zachowania seksualne i bardziej świadome oraz odpowiedzialne postawy wobec tej sfery życia. Aby wprowadzane oddziaływania edukacyjne i profilaktyczne były skuteczne, konieczne jest dokładne rozpoznanie czynników chroniących przed ryzykownymi zachowaniami seksualnymi, oraz czynników zwiększających ryzyko takich zachowań. W artykule podjęto próbą odpowiedzi na pytanie o rolę inteligencji emocjonalnej młodzieży jako czynnika chroniącego przed ryzykownymi zrachowaniami seksualnymi. W pierwszej części zarysowano problematykę ryzykownych zachowań seksualnych młodzieży – ich rodzajów, źródeł oraz konsekwencji. Następnie przedstawiono najważniejsze modele inteligencji emocjonalnej oraz omówiono jej związek z efektywnością funkcjonowania na różnych płaszczyznach życia. Wreszcie opisano zależności między inteligencją emocjonalną młodzieży a tendencją do podejmowania ryzykownych zachowań seksualnych, odwołując się zarówno do teorii psychologicznych, jak i danych empirycznych.
Słowa kluczowe: inteligencja emocjonalna, ryzykowne zachowania seksualne, młodzież

1. Adolescent risky sexual behavior - types, causes and consequences

Adolescence is a special developmental period in human life. This is when transition from the world of children to the world of adults takes place then. Adolescents seek their place in life, intensely shape their value system, and try to form their place in the social environment. It is a time of intensive learning, experimenting and making important decisions. As Jankowiak and Gulczyńska (2014, p. 173) write, the personal identity that emerges at that time "is the result of integrating personal choices with the expectations of society, accepting some alternatives and rejecting others." These important decisions also involve the sexual sphere, as adolescence is a time of discovering one's own sexual identity, engaging in new sexual behaviors, and engaging in first intimate relationships (Jankowiak, Gulczyńska, 2014). The transition from childhood sexuality to adult sexuality is one of the important developmental tasks of adolescence, and the correct course of this process is crucial for the later sexual and procreative health of a person (cf. e.g. Woynarowska, 2015). The appearance of sexual desire in this period results in increased interest in this sphere of life and motivates adolescents to undertake various forms of sexual activity. One of the most important tasks an adolescent has to face is acquiring the ability to create an intimate relationship integrating physical and emotional closeness as a whole composed of qualitatively different but equivalent elements (Jankowiak, Gulczyńska, 2014). However, this is not easy primarily because of the marked sexual disintegration of adolescence, i.e., the disjunction between emotionality, arousal, and desire (see, e.g., Izdebski, Wąż, Mazur, Kowalewska, 2017). Probably in no other developmental period is the disproportion between sexual maturity and psychological maturity as great as in adolescence. Biological maturation then significantly precedes emotional, social, and moral maturation (Izdebski, Niemiec, Wąż, 2011).

Tremendous developmental challenges combined with emerging physical and psychological maturity, make adolescents particularly vulnerable to a range of dangers and behavioral disorders. As research indicates, individuals in this developmental period are particularly predisposed to risky behaviors (Gołembowska, 2017; Lewczuk, 2018), i.e. actions that carry the risk of negative consequences for the individual's physical and mental health on the one hand, and for their social environment on the other (Dzielska, 2017; Ostaszewski, 2017; see also Baranowska, 2016).

According to research, these types of behaviors tend to be cumulative - engaging in one type of risky behavior can increase the likelihood of engaging in other risky behaviors, further increasing health risks (Imacka, Bulsa, 2012; Lemańczyk, 2019; Ostaszewski, 2017). For example, researchers point out that the use of various types of psychoactive substances promotes risky sexual behavior in adolescents. This was evidenced, among other things, by a

study by Donovan and colleagues (Donovan et al., 1991), which found that precocious sexual activity, alcohol and marijuana use, and delinquency were linked.

Among the various types of risky behaviors, those that relate to the sexual sphere are often mentioned. Broadly speaking, risky sexual behaviors are "behaviors that have repercussions for the individual and their environment in the area of sexuality" (Lubelska, 2010, p. 138). A similar definition is cited by Baranowska (2016, p. 520) according to which these are "sexual activities that cause many repercussions for the physical, psychosocial and sexual development of the individuals who engage in them". Machaj, Roszak, and Stankowska (2010) list the following criteria for recognizing risky sexual behavior: 1) threat of loss of health or life, bodily harm, 2) evocation of difficult emotions and adverse psychological states, 3) exposure to unplanned, unwanted pregnancy, 4) lack of control over one's own body and/or mind, 5) pursuit of non-sexual goals by sexual behavior. 6) transgression of general human values (e.g., coercion, violence), 7) violation of norms of social coexistence. In the literature on the subject, risky behaviors of adolescents often include precocious sexual initiation, not using or using ineffective methods of contraception, cohabitation with multiple partners, frequent changes of partners, casual sexual contacts, engaging in various types of erotic games, during which sexual intercourse takes place, including group sex, sexual violence, sponsorship, sexting, i.e. sending to others via instant messaging content, photos or videos of a sexual nature with one's own participation (Baranowska, 2016; Imacka, Bulsa, 2012; Lewczuk, 2018; Van Ouytsel, Van Gool, Walrave, Ponnet, Peeters, 2016).

Adolescent risky sexual behavior is a growing social, psychological, and health problem. It carries a number of risks, such as increased risk of sexually transmitted diseases, risk of unplanned, too early pregnancy (and related complications for mother and child, such as prematurity or higher infant mortality), risk of abortion, as well as a number of psychological consequences (e.g. increased risk of depression, anxiety, suicidal thoughts and attempts, aggression and low self-esteem; Imacka, Bulsa, 2012). Negative sexual experiences often evoke strong emotions, e.g., anxiety or repulsion, disturb the process of forming proper bonds with others, contribute to lower mood and deterioration of psychological well-being, and may lead to the formation of neurotic sexual attitudes (Lewczuk, 2018; Moore, Harden, Mendle, 2014; Wróblewska, 2021). At the same time, data collected in various countries, including Poland, show that the propensity of adolescents to engage in risky sexual behavior is increasing. In the last two decades, the percentage of adolescents initiating sexual life has increased, and at the same time the age of this initiation has decreased (e.g., Lewczuk, 2018; Woynarowska, 2015). This raises the question of the sources of risky sexual behavior in adolescents..

Determinants of risky sexual behavior can be found on several levels. First, the cause may be insufficient sexual education at school and in the family (e.g., Coakley et al., 2017;

Długołęcka, Lew-Starowicz, 2010). Second, the family situation of the young person may be important, e.g., family structure, relationships between individual family members, parental attitudes of the mother and father, etc. (e.g., Izdebski, Wąż, Mazur, Kowalewska, 2017; Przybysz-Zaremba, 2017). Third, peer group influences are not insignificant (e.g., Keto, Tilahun, Mom, 2020; McCord, 1990). Peers can not only act as counselors and impart knowledge about sex, but also provide certain patterns of behavior in this sphere. Social influences, however, cannot be limited only to the environment closest to the young person. We should also remember about the influence of the general socio-cultural context in which young people are brought up. Some researchers draw attention to the phenomenon called "sexualization of culture" or "sexplosion", i.e. "widespread invasion of the topic of sexuality in the arena of social life, which takes place through the mass media (...), conveying a simplified image of sexuality, its banalization and trivialization" (Królikowska, 2009, p. 20; see also Lewczuk, 2018). This oversaturation of the content available on the Internet, television, youth press, etc. with sexual themes may have a negative impact on adolescents, making them more inclined to initiate intercourse at a very young age and to undertake more advanced, often risky sexual activities, and may additionally cause sex to become mutonomized, i.e. detached from other spheres of functioning (Jankowiak, Gulczyńska, 2014; Imacka, Bulsa, 2012; Lewczuk, 2018). In addition to the aforementioned social influences, adolescents' risky sexual behavior is also conditioned by individual factors. Among them, those related to the emotional sphere are often mentioned - emotional immaturity, inability to control emotions, irritability, explosiveness, hyperactivity, tendency to aggression (e.g. Baranowska, 2016).

While describing factors predisposing to risky sexual behaviors, it is also worth mentioning protective factors. These include, among others: individual characteristics (e.g. level of intelligence, learning abilities, attention skills, verbal skills, self-control mechanisms, social skills), supportive relationships with close people and positive features of the family environment (e.g., secure attachment between parents and child, emotional support shown to the child by the parent(s), democratic style of upbringing) and support coming from outside the family environment and features of the local environment, e.g. safe neighbourhood, good school climate, teacher support (Ostaszewski, Rustecka-Krawczyk, Wójcik, 2009).

Researchers agree that in order to function properly in the sexual sphere, it is necessary to achieve a certain level of psychological maturity (Machaj, Roszak, Stankowska, 2010). Emotional maturity seems to be of particular importance here. Imieliński (1984) believes that such emotional dimensions as: the predominance of higher, social feelings over lower, egoistic ones, emotional balance, i.e. the ability to control strong negative emotions, emotional independence from influences and pressures of the social environment, the lack of aggressiveness and sense of low value, the ability to adapt to life in society by shaping

tolerance, understanding and empathy, striving for personality development (altruistic feelings) are decisive for correct sexual functioning. Such emotional maturity is manifested by the maturity of relationships, and thus responsible functioning in the sphere of sexual life (Machaj, Roszak, Stankowska, 2010). On the other hand, the lack of emotional maturity predisposes to engaging in risky sexual behaviors that serve the purpose of coping with negative emotions, eliminating emotional tension, building self-esteem, and establishing social relations, which, however, are inappropriate because they are based on, for example, subordination, violence, or cruelty (Machaj, Roszak, Stankowska, 2010). As the literature on the subject consistently refers to emotional maturity and the possession of certain emotional abilities as factors potentially reducing the likelihood of adolescents undertaking risky sexual behaviours, in this context it is worth taking a closer look at the meaning of emotional intelligence.

2.Emotional intelligence and its role in human functioning

Currently, two opposing approaches dominate in considering emotional intelligence. Some researchers define it very broadly, including in its scope not only cognitive abilities but also personality traits, i.e. dispositions that determine tendencies (e.g., Matczak, Knopp, 2013). These types of models are referred to as mixed models. For example, Goleman (1999), perhaps the most well-known representative of this trend, defines emotional intelligence as self-control, drive, persistence, and motivational ability, while in his later work he writes about its five areas - understanding emotions, managing emotions, motivating oneself, recognizing others' emotions, and maintaining interpersonal relationships. Another researcher, Bar-On (1997), defines emotional intelligence as "a range of noncognitive abilities, competencies, and skills that enable an individual to cope effectively with environmental demands and pressures" (Bar-On, 1997, p. 3). The researcher lists five areas of functioning that he believes are components of emotional intelligence and are important for success. These are intra- and interpersonal skills, adaptability, stress management, and overall mood.

On the other hand, in the second approach emotional intelligence is understood in accordance with the traditional way of defining intelligence, as a set of abilities, or dispositions of an instrumental, agility nature, determining the ability to process emotional information (e.g., Matczak, Knopp, 2013). Representatives of this current are Mayer and Salovey (Mayer, Caruso, Salovey, 2016), who believe that emotional intelligence includes: the ability to accurately perceive, evaluate and express emotions, the ability to assimilate emotions into cognitive processes, the ability to understand and analyze emotions and use emotional knowledge, as well as the ability to regulate emotions and emotional control.

A similar distinction was introduced by Petrides and Furnham (2001), who draw attention to the difference in constructs such as emotional intelligence understood as an

ability and emotional intelligence understood as a personality trait. The former determines so-called "maximal behaviors," i.e., behaviors that an individual displays under particularly motivating conditions, while the latter determines typical behaviors, i.e., behaviors that are most often displayed in everyday life situations. In other words, emotional intelligence-ability determines one's capabilities, while emotional intelligence-trait determines one's preferences, so it is not an instrumental disposition, but a motivational one (e.g., Petrides, Furnham, 2001; Matczak, Knopp, 2013). It should be added that mixed models refer rather to emotional intelligence understood as a trait, while Salovey and Mayer's model - to emotional intelligence understood as an ability. The distinction between the two types of emotional intelligence is extremely important, because despite the use of the same term – "emotional intelligence", depending on the approach, it may be understood in completely different ways.

According to research, both emotional intelligence understood as a trait and emotional intelligence understood as an ability are associated with the effectiveness of human functioning in various areas of life. However, the most significant role of emotional intelligence is revealed in relation to interpersonal relations. It turns out that people with high emotional intelligence are more positively perceived by others, more popular, and their relationships with other people are more intense and characterized by greater durability and higher quality (Alonso-Ferres, Valor-Segura, Expósito, 2019; Antonysamy, Asgarali Patel, Velayudhan, 2020; Gündüz, 2019; Negi, Balda, 2019; O'Connor, Izadikhah, Abedini, Jackson, 2018; Szczygieł, Weber, 2017; Wollny, Jacobs, Pabel, 2020). They also cope better with conflict and interpersonal problems (Alonso-Ferres, Valor-Segura, Expósito, 2019; Monteiro, Balogun, 2015; Vashisht, Singh, Sharma, 2018). Emotionally intelligent people are more likely to engage in altruistic and cooperative behaviors (Barragan Martin et al., 2021; Enwereuzor, Ugwu, 2021; Huang, Shi, Liu, 2018; Mandal, Mehera, 2017). At the same time, they themselves are more likely and willing to use social support, have a better perception of the available support network, and are more satisfied with it (Gecaite-Stonciene, Levickiene, Mickuviene, 2016; Malinauskas, Malinauskiene, 2020; Metaj-Macula, 2017; Rey, Extremera, Sánchez-Álvarez, 2019). However, the role of emotional intelligence cannot be reduced only to functioning in interpersonal relationships. Research shows that it also promotes psychological well-being and physical health (Antiniene, Lekavičiene, 2017; Baudry, Grynberg, Dassonneville, Lelorain, Christophe, 2018; Delhom, Gutierrez, Lucas-Molina, Meléndez,2017; Extremera, Quintana-Orts, Mérida-López, Rey; 2018; Fernández-Berrocal, Extremera, 2016; Gascó, Badenes, Plumed, 2018; Sánchez-Álvarez, Extremera, Fernández-Berrocal, 2016). Furthermore, emotional intelligence is positively associated with levels of self-esteem, feelings of happiness and life satisfaction, greater resilience to stress, and adaptive coping styles (Afolabi, Balogun, 2017; Cejudo, Rodrigo-Ruiz, López-Delgado, Losada, 2018; Davis, 2018; Extremera, Rey, 2016; Lea, Davis, Mahoney, Qualter, 2019; Park,

Dhandra, 2017; Pérez-Fuentes, Molero Jurado, del Pino, Gázquez Linares, 2019; Szczygieł, Mikolajczak, 2017; Vashisht, Singh, Sharma, 2018). Emotional intelligence may also be one of the accurate predictors of school, academic, and career success (Aritzeta et al., 2016; Nguyen, Nham, Takahashi, 2019; Vratskikh, Al-Lozi, Maqableh, 2016; Urquijo, Extremera, Azanza, 2019). In turn, its deficiencies may increase the risk of psychiatric disorders, suicide attempts, aggressive and pathological behaviors, and the use of stimulants and addictions (Domínguez-García, Fernández-Berrocal, 2018; Extremera, Quintana-Orts, Mérida-López, Rey, 2018; García-Sancho, Salguero, Fernández-Berrocal, 2017; Gonzalez-Yubero, Palomera, Lázaro-Visa, 2019; Leite, Martins, Trevizol, Noto, Brietzke, 2019; Megias, Gómez-Leal, Gutiérrez-Cobo, Cabello, Fernández-Berrocal, 2018; Trinidad, Johnson, 2002). The cited studies show that the importance of emotional intelligence is revealed in virtually all spheres of human functioning. Based on this, it can be hypothesized that it will also play a role in behaviors of sexual nature. The next part of the article will be devoted to this issue.

3.The relationship between emotional intelligence and engaging in risky sexual behavior in adolescents

Unfortunately, little research has been conducted to date on the relationship between emotional intelligence and sexual risk behaviors. Most of the available data concern either risky behaviors in general or non-sexual risky behaviors. Nevertheless, first conclusions can already be drawn from them.

As mentioned earlier, empirical evidence shows that individuals endowed with higher emotional capacities are less likely to engage in behaviors that threaten their mental health and well-being. Emotional intelligence is inversely associated with, among other things, the use of psychoactive substances, addictions, and actions that violate social norms or criminality. Such behaviors can be considered risky.

One component of emotional intelligence seems particularly important here - the ability to regulate emotions. As Mayer and Salovey argue (e.g., Mayer, Caruso, Salovey, 2016), the essence of this ability is, among other things, coping with negative emotions, the ability to modulate their intensity, to control them, while being open to them and avoiding suppressing them altogether. The literature theorizes that deficits in this ability - dysfunctional emotion regulation styles and highly emotionally motivated behavior - may be an important predictor of risky behavior in adolescence (Cooper, Wood, Orcutt, Albino, 2003). Adolescents who lack the ability to manage their emotional experiences may have a stronger tendency to engage in risky behaviors in an attempt to cope with negative affect or in an effort to block, suppress their feelings (e.g., Hessler, Katz, 2010). Research has found that both total surrender to emotions, a complete lack of control over them, and avoidance or suppression of emotions are detrimental. Both extremes of abnormal emotional regulation

increase the tendency for risky behavior (Cooper, Shapiro, Powers, 1998). For example, a link has been shown between deficits in the ability to cope with one's emotions and reaching for stimulants to relieve unpleasant experiences (Cooper, Russell, Skinner, Frone, Mudar, 1992; Farrell, Danish, 1993; Wong et al., 2013). Experiencing strong anger or sadness may be particularly relevant here. A number of studies have found that if an adolescent is unable to cope with these emotions, the likelihood of them turning to psychoactive substances increases (Swaim, Oetting, Edwards, Beavais, 1989). In turn, better awareness and the ability to regulate experienced anger have been associated with a lower likelihood of reaching for hard drugs (Hessler, Katz, 2010).

Empirical data suggest that low emotional regulation abilities may also be a significant predictor of adolescents' sexual risk behaviors (Hadley, Houck, Barker, Senocak, 2015; Rizor, Callands, Desrosiers, Kershaw, 2017). This is explained, among other things, by the fact that in adolescence the capacity for emotional regulation is still in the formative stage (Cole, Martin, Dennis, 2004), and thus individuals in this developmental period are still characterized by increased impulsivity, sensation seeking, and a general tendency to take risks, which forms the basis for sexual risk behavior (Giugliano, 2008).

In addition to emotional regulation skills, the ability to perceive and understand one's own and others' emotions, as well as the ability to express emotions, also play an important role in adolescent functioning. Deficits in these lead to problematic behavior and disrupted relationships with others (e.g., Hadley et al., 2015; Hessler, Katz, 2010; Rizor et al., 2017). Researchers have argued that engaging in risky sexual behaviors, including sexual compulsivity and intense sexual sensation seeking, may be one way that adolescents with deficits in emotional expression skills cope with negative affect and distress (Gross, 2014).

Rizor and colleagues (2017) examined the relationship between the two aforementioned components of emotional intelligence, the ability to express emotions and the ability to regulate emotions, and risky sexual behavior in adolescents and young adults. The results confirmed that deficits in both abilities are associated with an increased tendency to engage in risky sexual behavior. A unique part of this research is to examine the impact of the emotional intelligence of the intimate relationship partner on a person's sexual behavior. They found that teens may take more sexual risks when their partners are characterized by low emotional regulation and expression. The researchers explain this by saying that deficiencies in these abilities in a partner cause more conflict in the relationship, higher levels of stress and tension, which the adolescent may try to alleviate through risky sexual behavior.

Significant relationships between emotional intelligence and engaging in risky sexual behaviors were also observed in a study by Ugoji (2009) among adolescent Nigerian secondary school students. The researcher examined the influence of religiousness, emotional intelligence, students' self-esteem and the role of media messages on adolescents'

engaging in risky sexual activities. Although each of these factors was found to be significant, religiousness and emotional intelligence were most strongly associated with risky behaviors, with the direction of the relationships being negative.

Research among adolescents has consistently found associations between levels of emotional intelligence and number of sexual partners. Lando-King and colleagues (2015) examined associations between three components of emotional intelligence as defined by Bar-On (1997), namely interpersonal skills, intrapersonal skills, and stress management skills, and risky sexual behaviors in 253 sexually active adolescent girls aged 13 to 17 years at high risk for pregnancy. Indicators of sexual behavior were number of partners, engaging in conversations with partners about the risks of sex, and use of contraception. Each of the components of emotional intelligence measured was found to be significantly associated with another of the indicators listed. Girls with higher intrapersonal skills had significantly fewer sexual partners in the past six months. Interpersonal skills, on the other hand, were a significant factor in the subjects initiating conversations with their sexual partners about the risks of sex, while higher stress management skills translated into more frequent and more consistent use of contraceptives (condoms). Based on the results, the researchers concluded that a high level of emotional intelligence may be a kind of protective buffer against risky sexual behavior.

Similar results were obtained by Hessler and Katz (2010), who found that adolescents who were better able to manage negative emotions (e.g., anger and sadness) had fewer sexual partners. In turn, having more sexual partners was associated with difficulty regulating emotions in both childhood and adolescence. Additionally, these researchers found that deficits in emotional regulation skills already present in middle childhood were a significant predictor of risky sexual behavior in adolescence.

The studies cited above suggest that deficits in emotional intelligence may predispose adolescents to engage in risky activities. On the other hand, there is empirical evidence that high levels of emotional intelligence may serve as a protective factor for adolescents because they are associated with better social functioning, higher ability to cope with stress and problems, and greater social support (Barragan Martin et al., 2021; O'Connor et al., 2018). The sphere of sexual functioning is inextricably linked to the emotional sphere (e.g., Silva, Pereira, Esgalhado, Monteiro, Afonso, Loureiro, 2016). Sexual behaviors are often performed in a highly emotionally charged context. The relationship between emotional intelligence and adolescents' risky sexual behaviors can therefore be traced at many levels. Several of these will be discussed below.

As mentioned earlier, adolescents often engage in risky situations or behaviors in order to suppress negative emotions, detach from them, or dampen their intensity (Rizor et al., 2017; Cooper et al., 1998). If adolescents lack the ability to express and cope with negative emotions, they may seek to relieve stress through more immediate, short-term strategies to

reduce tension, such as substance abuse or sexual behavior (Flanagan, Jaquier, Overstreet, Swan, Sullivan, 2014; Rizor et al., 2017). This often leads to more impulsive, risky sexual decisions. Individuals with higher emotional intelligence are able to appropriately internalize these emotions, and they are more efficient at regulating their emotions - able to modulate their intensity and exert control over them, so they do not need to resort to risky sexual behaviors to cope or lower their stress levels.

People who have difficulty entering and maintaining interpersonal relationships sometimes try to establish or maintain them through sexual behavior. The research cited earlier shows that people with high intelligence have better interpersonal relationships, better understanding of relationships, and longer-lasting and higher-quality relationships with others, so they do not need to resort to or consent to sex just to maintain the relationship at all costs and avoid loneliness (e.g., Hessler, Katz, 2010).

Another explanation involves the fact that a better understanding of one's own emotional experiences and those of others enables one to "listen to oneself" more deeply, to consider one's real needs and motivations, to understand other people's intentions, and to assess risks more adequately. Thus, it fosters more thoughtful and mature decisions related to the sexual sphere. Emotional intelligence may foster a better understanding of sexual issues and, in particular, sexual risk behaviors because interactions with sexual partners and decisions about sexual activity are usually accompanied by emotions (Lando-King et al., 2015). In addition, the ability to emotionally self-regulate and accurately interpret one's own and others' emotions may influence better communication with one's partner, which is especially important when dealing with sensitive issues such as the topic of sex, and may thus foster decisions about safer sexual practices (Lando-King et al., 2015).

Sometimes decisions about sex are made by young people under external pressure, such as peer pressure. Meanwhile, research on emotional intelligence shows that it promotes greater assertiveness and resistance to peer pressure. For example, Mayer and colleagues (Mayer, Perkins, Caruso, Salovey, 2001) found that in a variety of real-world social situations, students with higher emotional intelligence were better able to resist friends' requests to participate in activities that they found distressing, disruptive, and disapproving. Students with lower levels of emotional capacity, on the other hand, generally did what their friends asked them to do, even if they felt the behaviors were inappropriate. Other studies have found that adolescents with higher emotional intelligence may be more resistant to peer pressure to smoke and drink alcohol (Trinidad, Johnson, 2002). Similar relationships can be expected with regard to sexual behavior.

Another issue concerns the social support received by adolescents. Let us remind that help and understanding from the environment are important factors protecting from risky sexual behaviors. At the same time, as research shows, people with higher emotional intelligence have a wider social support network, more often receive help and are more eager

to use it. They also have better relationships with others, and their interpersonal relationships are less superficial and more lasting. Therefore, they are more likely to receive help, information and advice from those around them, and they are more willing to use this support and make better use of it, which may reduce the risk of making inappropriate sexual decisions.

Concluding thoughts

As the problem of risky sexual behaviours of young people seems to be growing, it is necessary to undertake actions promoting proper sexual behaviours and more conscious and responsible attitudes towards this sphere of life. Risky sexual behaviors of young people have many adverse consequences in terms of health (both physical and psychological well-being) and social. That is why it is so important to recognize the sources of such behaviors and to search for protective factors. With such knowledge it will be possible to introduce educational interventions promoting appropriate sexual behaviors and protecting against unfavorable ones.

In the light of the data presented above, it is justified to include elements of emotional education and to stimulate the development of abilities that are components of emotional intelligence. It turns out that emotional abilities - mainly the ability to regulate negative emotions, but also the ability to perceive and understand one's own and others' emotions as well as the ability to express emotions adequately - are among the factors reducing the tendency of adolescents to engage in risky sexual behaviors. There is hard scientific evidence for the high effectiveness of intervention or prevention programs that focus on building emotional skills in youth (e.g., Houck et al., 2016; Houck, Barker, Hadley, Menefee, Brown, 2018). Building adolescents' social and emotional skills, then, may be an effective strategy for preventing their risky sexual behaviors.

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Developmental Regularities and the Issue of Adopting Homosexual Orientation by Adolescents - a Review of Research and Opinions

Prawidłowości rozwojowe a problematyka przyjmowania orientacji homoseksualnej przez młodzież - przegląd badań i opinii

Abstract: The article responds to practical dillemas of parents, psychologists or educators who come across teenagers declaring their homosexual orientation. In this overview, the authors discuss primary developmental factors and they point out the dynamic specific of adolescence, comprising also a psychosexual growth. Current research review shows that sexual orientation has a developmental and often fluent character, mostly in a heterosexual direction, and that a research on homosexuality leads to the conclusion, that it's etiology is multifactoral, with predominance of environmental over the genetic factors. For these reasons, early declarations of homosexual orientation uttered by teenagers rather should not be supported.
Keywords: sexual orientation, sexuality, homosexuality, developmental factors, adolescence

Abstrakt: Artykuł podejmuje kwestie praktycznych dylematów rodziców, psychologów czy wychowawców spotykających się z nastolatkami deklarującymi swoją homoseksualną orientację. W przeglądowym tekście autorzy omawiają podstawowe czynniki rozwojowe i dynamiczną specyfikę okresu dorastania, obejmującą także rozwój psychoseksualny. Przegląd współczesnych badań wskazuje, że orientacja seksualna ma charakter rozwojowy i nierzadko płynny, z reguły w kierunku heteroseksualnym, a badania nad przyczynami homoseksualizmu doprowadzają do konkluzji, iż jego etiologia jest wieloczynnikowa, z przewagą oddziaływań środowiskowych nad genetycznymi. Z tych powodów wczesnych deklaracji o orientacji homoseksualnej głoszonych przez nastolatków raczej nie powinno się wspierać.
Słowa kluczowe: orientacja seksualna, seksualność, homoseksualizm, czynniki rozwojowe, dorastanie

Introduction

This piece of work is devoted to the difficult and usually controversial issue of homosexual orientation in adolescents. This is a research area undertaken by few authors, usually avoided by Polish psychologists. It is a kind of blank spot. The issues of sexual orientation, in particular homosexual orientation, is usually connected with a natural conflict

between various scientific disciplines. For developmental psychology or psychopathology, the basis is a descriptive perspective, whilst for areas such as educational psychology, pedagogy of upbringing, or sexology it is not sufficient, after all, these are the disciplines of science which are to develop specific educational recommendations addressed to young people. There is no doubt that from the point of view of researchers dealing with the difficult issues of sexual orientation, it is easier to remain on the descriptive level, focused on explaining phenomena and various dependencies. However, the education/ counselling/preventive dimensions in relation to adolescents cannot be avoided. In this sense, the following piece of work is also the area of psychology of education and pedagogy and may have applications for sexology. Parents, psychologists, or tutors who work with adolescents may encounter a situation when they hear declarations or doubts about from adolescents their sexual orientation. We dealt with such situations both in our academic work and in the practice of working with adolescents and parents. Questions arise, what should be the reaction of people accompanying adolescents in their puberty process? Should declarations made by adolescents, such as "I am a lesbian" or"I think I am a gay", be supported or, on the contrary, stopped. In this piece of work, we will touch both levels, descriptive as well as educational and advisory. The first part presents an overview of contemporary findings concerning factors of psycho-sexual development, mechanisms of developing personality and sexual orientation, and the regularities of psycho-sexual development in adolescence. The second part consists of an overview of the opinions of various authors concerning declarations of homosexual orientation made by adolescents. We will also present our conclusions in this regard.

The article is composed of several thematic parts. In the first part, the commonly known developmental conditions and regularities of adolescence will be outlined as the necessary background to describe the issue of sexual orientation. The second part is devoted to describing the mechanisms of shaping sexual orientation, including the emergence of homosexual orientation. The third part includes a review of research on the issue of constancy/variability of sexual orientation. In the summary, dilemmas of the psychologist-teenager relationship will be discussed, also with regard to the specificity of the psycho-therapeutic relationship.

1. Developmental background and dynamics of changes

Reflections on the shaping of sexual orientation cannot be separated from the general developmental background. Below, mainly for readers who are not more familiar with psychology, we will cite the findings commonly accepted in developmental psychology which refer to developmental factors and the specific nature of changes in adolescence as an

indispensable plane for describing the regularities related to the formation of sexual orientation.

For many decades, there have been fierce disputes about what influences the development of a person's personality and identity to a greater extent - whether biological endowment or the influence of the environment in which an individual lives. These disputes are called "nature or upbringing", "heredity or environment", "genes or culture", where nature is understood as the influence of widely understood biological factors (genes, hormones, neuroanatomical structures), and where upbringing means the environment. From today's perspective, these disputes seem to be ahistorical. It is difficult to find researchers who would support only one of the factors. The vast majority of today's researchers of the genetics of behaviour, individual differences, temperament, or personality recognise development as the resultant of the interaction between genes and environment (Oniszczenko & Dragan, 2008; Pinker, 2012; Plomin et al., 2001). The mutual influence of genetic predispositions and environmental interactions, as defined by Pervin and John (2002), is always a dynamic interaction that can give different results. First of all, the same experiences can have a different impact on people who have different genetic predispositions. Secondly, individuals with different genetic predispositions may cause different reactions of environment (parents react differently to an excitable child, and differently to a calm and sensitive child), and thirdly, environments are created by people of various integrity (an extrovert looks for a different environment than an introvert). As the authors conclude:

"From some point in the course of development, it becomes impossible to define to what extent a person is a "recipient" of environmental influences, and to what extent a person is their "creator" (Pervin & John, 2002, p. 345).

One determinant cannot be considered apart from the other:

"Genes and the environment cannot be considered as separate factors. They are rather different aspects of a single system. (...) Genes can influence the environment, and the environment can regulate genes activity" (Kosslyn & Rosenberg, 2006, s. 144).

Understanding personality determinants, temperamental features, and finally, psychological gender and sexual orientation cannot take place in any other way than through the analysis of interactions between biological determinants (genes, hormones) and the environment. Any attempts to simplify these analyses to one or the other factor appears today as unjustified reductionism. This does not mean, however, that a mechanical interpretation should be adopted as binding, with the same influence on the development of both factors; everything indicates that they differ depending on what features we are looking at. As noted by Pervin and John:

"Genetic factors are generally more important for characteristics such as intelligence and temperament, while for values, ideals, and beliefs, they are less important" (Pervin & John, 2002, p. 9).

Adolescence generally covers the period from 10/12 to 20/23 years old and is divided into two sub-periods: early adolescence (range 10-16 years old) and late adolescence (17-20/23 years old) (Oleszkowicz & Senejko, 2016) . It is the time of the most turbulent changes, covering practically all spheres of an individual's functioning. During adolescence, dynamic hormonal changes occur as a result of transitioning through puberty, e.g., as compared to childhood, the level of secretion of sex hormones (testosterone in boys, oestrogen and progesterone in girls) increases 20 times in boys and 6 times in girls (Wolański, 2012). Research shows that there are intense changes in the brain which matures and develops rapidly. The density of the grey matter decreases, some synapses are lost, whilst others develop. This may be accompanied by an increased susceptibility to negative environmental influences and increased sensitivity to environmental stresses (Dahl, 2004; Strauch, 2004). The development of formal thinking, characterised by the ability to conceptual and abstract thinking, synthesis and analysis skills, and the ability to take into account many variables, is linked to the late stage of adolescence in Piaget's (2012) concept of the development of intelligence. According to Bryant and Coleman (1995), before the age of 16, the threshold of formal thinking is exceeded by a smaller part of the population. In terms of emotional development, adolescence is characterised by frequent states of emotional ambivalence (Rosenblum & Lewis, 2004), the prevalence of negative feelings over positive ones (Larson & Richards, 1994), and frequent states of adolescent depression (Modrzejewska & Bomba, 2009). There are numerous changes in self-esteem, and the sense of self-esteem and identity evolves. According to the widely accepted concept by Erikson (2004), building an identity is one of the main challenges of adolescence. Marcia (1966), distinguished four types of identity, which differ in the levels of exploration and involvement, treated as development criteria: diffuse (diffusive) identity, mirror identity (assumed, taken over), deferred (moratorium) identity, and achieved (mature) identity (Czyżowska, 2005; Miluska, 1996). Diffuse identity is perceived as the least advanced in terms of development, whilst the most advanced in terms of development is achieved identity, which may occur in adolescents in late adolescence, same as moratorium identity (Musiał, 2007). Moral development is related to the development of identity. According to the classic concept of development of Kohlberg's moral reasoning (1984), it is subject to certain developmental regularities, and it is shaped differently in individual developmental periods. The main feature in the development of morality is the direction from heteronomy to moral autonomy. Only after the age of 16, an individual can reach the post-conventional phase, i.e., based on their own, well thought out, and adopted moral principles.

The above review of various spheres of human development shows that adolescence is characterised by dynamics and numerous changes, which seems to be its main feature. The concept of developmental stability is not associated with the period of adolescence - both at the level of physical, emotional, moral, and social development. The same regularities apply to the sphere of sexual development.

2. Development of sexuality and sexual orientation

With a very large conceptual diversity in the field of personality theories, it seems that at the level of generalisations there is a certain consensus among researchers: personality is generally defined as a complex pattern of psychological features such as feelings, thoughts, attitudes, which are manifested almost automatically in every sphere of psychological behaviour of a person (Millon et al., 2013; Pervin & John, 2002). On the other hand, sexual orientation is usually understood as a lasting, emotional and sexual attraction to people of the same sex. Questions arise about the mutual dependence between the personality, and sexual orientation, whether sexual orientation is part of personality, or whether it should be treated as an autonomous dimension of a human being "next to" personality. This is an important question. If we treat sexual orientation autonomously, then it is justified to look for specific factors influencing its formation. However, if we consider orientation as part of personality, then reflections on personality development also include the development of sexual orientation. It seems that the concept of personality is a broader term. It includes sexual orientation and identity. These issues are not considered very broadly by researchers, the exceptions include the model of Seligman et al. (2017), in which the authors proposed the division of erotic life into several layers, each of which is based on a lower layer. The undoubted advantage of this model is the ordering of concepts and indicating boundaries between what is norm and pathology. 5 levels were distinguished: gender identity (basic layer, the awareness of being a woman or a man), sexual orientation - heterosexual, homosexual and bisexual (if an individual does not accept their fantasies and homosexual behaviours, the state is referred to as egodystonic homosexuality (incompatible with the ego), which is distinguished as a mental disorder in the International Classification of Mental Diseases and Disorders ICD-10 (kept by WHO, still in force in Poland), sexual preferences (interests) (related to an object, situations, body parts, objects causing sexual arousal), gender role (the way an individual socially marks their masculinity or femininity), and sexual realisation (the degree of adequacy of behaviour with the appropriate person and in the appropriate erotic situation). The distinguished terms are further used in the context of Seligman's model. All these layers make up a specific pattern and constitute a component of a human personality. Therefore, reflections on the shaping of gender identity and sexual orientation are, in a broader perspective, considerations about factors that contribute to

human development. To conclude, it does not seem that there are serious reasons to consider psycho-sexual development as a less complicated process than personality development, or as a process dependent on one gene.

Human sexual orientation is the result of biological and psychological sex. Its formation is a long process, beginning at the genetic configuration, then the course of the foetal stage, when at about the third month in boys it is possible to distinguish primary sexual features in the form of testes, through reaching biological sexual maturity, to sexual activity and reproduction. Between the ages of 2 and 3, a sense of gender identity evolves, children acquire the ability to assign themselves to a specific gender. Children gain a sense of gender stability at the age of 6-7, they also begin to use stereotypical beliefs about men and women, they prefer playing in gender-separate groups. As shown by studies by Alexander, Wilcox, and Woods (2009), in the last years of preschool children spend only 9% of their time playing with representatives of the opposite sex. Such segregation persists in younger school grades and gender separation generally lasts until the beginning of puberty, when interest in the opposite sex, usually of a heterosexual nature, develops (Eliot, 2011). Achieving biological maturity and reproductive ability does not end the process of shaping psycho-sexual identity (gender role in Seligman's concept), understood as statements "I am a heterosexual woman" or "I am a homosexual man". After all, the processes of developing psycho-sexual and social maturity take place simultaneously. These three dimensions cannot be separated in the context of the discussion on the sense of psycho-sexual identity and individual maturity.

Mayer and McHugh (2016, p. 7) in a meta-analysis of contemporary research on sexuality, make a summary of the influence of individual development factors, claiming that: "Recognition of sexual orientation as an innate, purely biological quality, the assumption that “People are born this way” is not supported by scientific evidence.”

Such a position seems to prevail in the world of modern science, which was admitted, amongst others, by the American Psychological Association:

“There is no consensus among scientists as to the exact reasons why a particular person develops a heterosexual, bisexual or homosexual orientation. While many researchers have examined the possible role of genetic, hormonal, developmental, social, and cultural factors, none of the research findings allow the conclusion that sexual orientation is determined by any particular factor or factors. Many believe that both nature and upbringing play a complex role” (American Psychological Association, 2018). In recent years, there has been a gradual evolution in the position of the American Psychological Association. In official brochures from previous years (2008, 2009), as well as in earlier publications, the American Association strongly opposed the possibility of effective sexual reorientation from homosexual to heterosexual, both through natural change and during reorientation therapy (also referred to as reparative or conversion). In the APA *Handbook of*

Sexuality and Psychology of 2014, edited by Tolman and Diamond (a committed lesbian), we find a number of chapters in which sexual orientation is treated as fluid (Bockting, 2014; Diamond, 2014; Kleinplatz & Diamond, 2014; Rosario & Schrimshaw, 2014). There is also a shift away from the suggestions of exclusively biological conditioning of homosexuality ("born this way"), which were dominant in previous years, in favour of the interactive theory. In fact, similar conclusions were reached by the authors of a recent research published in *Science*, which analysed nearly half a million genomes (Ganna i in., 2019). From a wide group of Polish psychologists declaring their affirmative approach to homosexuality (see: Iniewicz, Mijas, & Grabski, 2012), in the last publication by Grunt-Mejer and Iniewicz (2020, s. 29) they present a similar opinion:

"It is now assumed that sexual orientation, understood primarily as a relatively permanent romantic and sexual attraction towards persons of a given gender, can be shaped by many influences: from genetic and hormonal to social and psychological, none of which has a strictly determining role or explains most of the variance".

Research on identical twins provides significant arguments that the nature of sexual orientation is not inborn. These twins have identical genes and essentially the same hormonal conditions during pregnancy. In research on monozygotic twins (MZ), the influence of a biological factor is considered significant when there are relationships at the level of 75% or more, relationships at the level of 25% are considered weak, and at the level of 50% as medium. If sexual orientation was solely genetically determined, then MZ twins should "always" or "almost always" have the same sexual orientation. However, they have no such. Whitehead (2011) analysed the 8 largest contemporary research on MZ twins. The results of this research showed 20-22% agreement of homosexual orientation in men and 18-37% in women in monozygotic twins - it can be seen especially in the case of women that we are dealing with large statistical deviations. After taking into account possible variances, it was estimated that the homosexual orientation concordance in MZ twins was 11% in men and 14% in women (Paszewski, 2016; Whitehead & Whitehead, 2018). To compare - when identical twins were examined for the same weight and height at puberty, the agreement was found at 91-97%. In other words, weight and height are mainly biologically determined (Silventoinen et al., 2008), whilst sexual orientation does not show such determinism. It is worth noting that these results show not only the lack of the "homosexual gene" but also that sexual orientation cannot be treated as the sole result of prenatal hormonal influences.

Since sexual orientation is not innate, the homosexual orientation is not inborn. There is no single universally accepted theory among researchers explaining the causes of homosexuality. It is generally pointed out that homosexuality is a combination of many factors, such as:

- biological, e.g., effects of genes, effects of hormones before birth;
- social, e.g., relationships with parents, siblings, peers;

– cultural, e.g., customs in a given epoch.

Diamond and Rosky (2016, p. 365) write:

"One fact about sexual orientation is almost universally shared by scientists: it does not have a single cause. Rather complex biological and non-biological causes interact with one another and give shape to adult expressions of homosexuality, the set of factors varying from person to person and between genders".

Brodziak and Kłopotowski (2013, p. 264) express themselves in the same spirit:

"The attempts to explain the causes of homosexuality through the interaction of a single causative agent prove inconclusive."

The authors refer to the existence of a fairly wide stream of correlation research, which compiles samples of the heterosexual and homosexual populations and looks for biological differences between them. When such differences are found, researchers sometimes suggest biological determinants of homosexuality. Two such publications became famous in the 1990s. The translation of the formation of homosexuality in terms of changes within one gene (Hamer et al., 1993) was unsuccessful, these studies were not confirmed in other centres, and their author explained that he was "misunderstood" (Hamer & Copeland, 2007). Similarly, the research by Le Vay (1991), which suggested there was a nucleus of the hypothalamus called INAH3, differentiating between homosexuals and heterosexuals, has not been positively verified. As part of such searches, Lalumiere et al. (2000) showed that homosexuals were more often left-handed; There have been reports of differences between homosexuals and heterosexuals in the ratio of index to ring finger length (Manning et al., 1998), penis size (Bogaert & Hershberger, 1999), daily activity (Hall & Kimura, 1995; Rahman & Silber, 2000). Whitehead and Whitehead (2018, p. 183–184), summarising this research trend, enumerate 18 factors related to biological determinants differentiating the studied groups of homosexual orientation from heterosexual: artistic predispositions, autoimmune thyroid disorders in the mother, fluctuation asymmetry (including asymmetry of facial features), atypical biological sex, hermaphroditism (in a small number of cases), congenital disability, left-handedness, novelty-seeking, obesity (in women), having older brothers (in men), physical impairment, polycystic ovary syndrome, specific features of temperament ("tomboy" type in women, "female" men), pregnancy during adolescence (possible hormonal influences), physical features unusual for women (in women), problems with eye-hand coordination, X chromosome inactivation (in mothers).

In turn, with regard to the correlation between homosexual orientation and environmental conditions, Whitehead and Whitehead (2018, p. 184–185) distinguished 46 such factors, three times more than biological ones, including alienation from the father in early childhood, overprotective mother (towards boys), a mother who needs and expects a lot (from boys), an emotionally unavailable mother (for girls), parents who have not been able to direct identification with their gender, no "fighting" games in boys, no identification

with gender, aversion to team sports (boys), teasing by colleagues due to poor eye-hand coordination, sexual abuse or rape, social phobia or extreme shyness, loss of a parent due to death or divorce.

It must be remembered that in science, finding a correlation does not automatically mean cause-effect relationships, which can be extremely complex and multi-faceted. Although such dependencies may occur, they may very well turn out to be a random coincidence.

To sum up: for contemporary researchers, the prevailing view seems to be that homosexuality is a product of complex relationships between social, cultural, and biological factors, but a greater role is played by the influence of environmental factors, and the influence of biological factors is considered indirect and rather weak (Bailey, Miller, & Willerman, 1993; Bearman & Brückner, 2002; Garnets, 2002; Paszewski, 2016; Peplau & Garnets, 2000; Savin-Williams & Ream, 2007; Whitehead & Whitehead, 2018). The individuality of the individual's reactions and the importance of cultural differences are emphasised, such an approach is called multivariate or interactive theory.

3. Dynamic of sexual development

According to Kernberg (1998), during adolescence, we can talk about sexual disintegration of adolescents, characterised by a gap between showing emotions (tenderness, love, care) and excitement and desire. Young boys are characterised by immaturity, being unstructured, and being unrestrained. Immaturity consists in willingly taking up sexual and pornographic topics, comparing oneself with peers, exposing sexual organs, bragging about sexual experiences, and "gains". The disorder manifests itself in the excessive and inadequate attribution of sexual content and meanings to other people and objects, the lack of clear rules, the lack of clear sexual preferences, and even the lack of clear gender orientation. Unrestrainedness consists in the lack of control of drives, experiencing numerous states of sexual arousal, which may be accompanied by frequent masturbation. Control is expressed in trying to hide them from adults. In the case of girls, the developing sexuality is manifested primarily by the desire for emotional ties and the need for closeness. Sexual disintegration in girls is often expressed through demonstrative denial and the elimination of sexuality. Another way is to approach a person of the same sex, usually older, more mature, attractive. Behind this is the desire to be understood, cared for, and longing for a romantic feelings, devoid of sexual desire (Beisert, 2012).

Many contemporary research show fluidity and changes in sexual feelings during adolescence. Kinnish (2005) conducted a longitudinal study of 420 men and 342 women of heterosexual, homosexual, and bisexual identity, asking respondents to specify their preferences every five years, starting at the age of 16. It turned out that one or more identity

changes occurred in 3% of heterosexual women and men, in the homosexual group changes occurred in 39% of gays and 64% of lesbians (a statistically significant difference between the sexes), in the bisexual group in 66% of men and 77% of women. Dimensions analyses of sexual fantasies, romantic attraction, and sexual behaviour showed significant differences between the genders in the homosexual group, with lesbians reporting significantly greater variability in all three dimensions. Savin-Williams and Ream (2007) conducted a longitudinal study of a large sample of over 10,000 adolescents, measuring their sexual orientation at 16, 17, and 22 years of age. In the group of 16-year-olds, heterosexual feelings prevailed - 79.85% of the respondents (boys 77.4%, girls 91.1%); the next modality was the lack of strong targeting - 13.95% (boys 15.5%, girls 12.4%), then bisexual feelings - 5.1% (boys 6.3%, girls 4.3%) and homosexual feelings 0.95% (boys 0.9%, girls 1.0%). At the age of 22, in the same group of respondents, the percentage of people with heterosexual orientation increased to 87.2% (boys 91.1%, girls 83.3%), the number of undecided people decreased to 3.75% (boys 3.8%, girls 3.7%), the percentage of people declaring bisexual feelings increased to 8.3% (boys 4.3%, girls 12.3%), the percentage with a homosexual orientation was 0.8% (boys 1%, girls 0, 6%). Sexual feelings in men are more stable than in women, but it also fluctuates. Although sexual tendencies are fluid in adolescence, most changes are made towards heterosexuality. As the authors analyse, a 16-year-old who judges himself to be non-heterosexual is 25 times more likely to be heterosexual at 17 than a heterosexual 16-year-old who as a 17-year-old will become non-heterosexual. Research by Ott et al. (2011) showed that although a large group of 12-year-olds experience uncertainty as to whether they are heterosexual, at the age of 23, the vast majority of this group is already convinced of their heterosexuality. The advantage of these studies is their initiation in the age group of 12-year-olds, i.e., at the beginning of puberty (girls) or in the pre-pubertal period (boys), and an impressive research sample of 13,840 adolescents. It turned out that in the youngest surveyed teenagers, uncertainty (unsure) about their own orientation prevails, with age these indicators decrease, and heterosexual feelings increase. The same relationship - variability of non-heterosexual feelings towards heterosexuality and greater stability of heterosexual feelings was demonstrated in research carried out in New Zealand (Dickson et al., 2013) and in earlier research by Remafedi et al. (1998). Diamond (2000) demonstrated the fluidity of feelings, behaviours and a sense of sexual identity in women. Bancroft (2019), a long-term director of the Kinsey Institute, admits that there is a body of evidence that sexual orientation is not always established early and remains the same.

According to Polish research by Izdebski (2006), 3.1% of women and 1.8% of men revealed that they used to feel homosexual attraction, but do not feel it now. In a later publication, we find that 2% of respondents feel homosexual attraction, 4% felt it only in the past (Izdebski, 2012, p. 760).

To sum up, based on Kinnish et al. (Kinnish i in., 2005, p. 173–174), it can be stated that:

"The belief that sexual orientation is innate and immutable has been challenged from many theoretical perspectives, such as the theory of social stigma, developmental psychology, the theory of social constructivism, and evolutionary psychology (Baumeister, 2000; D'Augelli, 1994; Diamond & Savin-Williams, 2003; Kitzinger, 1987; Kitzinger & Wilkinson, 1995; Richardson, 1984). (...) Individuals may experience variability in sexual orientation throughout their lives, Sexual orientation is perceived as constantly evolving from individual sexual and emotional experiences and the influence of the cultural context."

A specific challenge for the supporters of the thesis about the inherent nature and invariability of sexual orientation is bisexual identity. As described by Bancroft (2019, p. 272–273), the gay movement rejected bisexuality as an identity, considering it a justification for men who had difficulty accepting their own homosexual identity and constituting a threat to the political benefits resulting from the thesis of innate and unchanging homosexual orientation. Research by Weinberg (1994, after Bancroft, 2019) shows that in the examined bisexual group heterosexuality was first established, and the homosexual component appeared later. Establishing a bisexual identity usually came late (at the age of twenty or later) compared to groups identifying as purely heterosexual or homosexual, there were also differences in the experience of bisexuality between women and men.

One phenomenon that should be taken into account when discussing the emerging homosexual orientation in adolescents is the relationship between sexual harassment and the later belief in one's own sexual otherness. Imieliński (1963) cites research on inmates of correctional facilities and boarding schools: as many as 78% of people with homosexual inclinations from these environments experienced homosexual seduction (or even rape). The author states that those seduced between the ages of 6 and 14 were characterised by heterosexual indifference or disgust, while seduction over the age of 14 resulted in the development of bisexuality. More recent research also shows similar dependencies. Purely homosexual women experienced sexual harassment in childhood more than twice as often as purely heterosexual women (17% vs. 39%). It was also associated with a higher risk of sexual abuse in adulthood (Hughes i in., 2010). There are a number of research reports showing a disproportionately high proportion of adult homosexuals or bisexuals (compared to the heterosexual population) who have experienced childhood sexual abuse (Brennan et al., 2007; Rothman et al., 2011; Tomeo et al., 2001). The declaration of non-heterosexuality, commonly known as coming out, in these cases may not be so much a manifestation of sexual integration as a call for help.

The research conducted so far on the effects of coming-out on adolescents indicates that such a decision has negative consequences for mental and physical health as well as social relations. Norwegian studies show that early coming out in the case of adolescents

(under 15 years of age) increases the risk of suicide attempts (Hegna & Wichstrøm, 2007). Research by Remafedi et al. (1998) shows that in the case of adolescents feeling sexually attracted to their own sex, two factors turned out to be protective against committing suicide attempts: delaying coming out and not engaging in sexual behaviour. Adolescents declaring themselves as non-heterosexual engage in sexual intercourse earlier than their peers (Garofalo et al., 1998). Boys who engage in sexual contact with men are particularly vulnerable to STDs and HIV (Lemp i in., 1994). Even education about condom use does not help prevent infection (Altman, 2008). Furthermore, men who have sex with men are 19 times more likely to become infected with HIV than the rest of the population. As many as 4% of this population becomes infected with HIV before the age of 25. For comparison, in the general population of people under the age of 25, only a fraction of a percent is infected with HIV (GAP Report, 2014). Recent data shows that 57% of new AIDS infections in Western Europe, Central Europe and North America are men who have sex with men (UNAIDS, 2018). Adolescents who define themselves as non-heterosexual are also more likely to become addicted to drugs and alcohol than their heterosexual peers (Garofalo et al., 1998; Halkitis et al., 2005; McCabe et al., 2005).

Summary

Differences in attitudes towards homosexual orientation result from different answers given to the basic question about its causes. If it is assumed that homosexual orientation is essentially inborn and constant, then the model of affirmative therapy is justified and supports the manifestations of homosexual behaviour in adolescents, treated as signals of a true homosexual nature emerging. Such a narrative is dominant in many authors who do not hide their affirmative approach to homosexuality and bisexuality. The consequence of such an approach will be the reversal of the traditional cause-and-effect order, e.g., disturbances in the parents-teenagers relationship will be described in terms of an inadequate reaction of parents to the homosexual signals sent by the child (Iniewicz, 2012). Nevertheless, we believe that the arguments provided by behavioural genetics and developmental psychology support the opposite view of treating sexual orientation as less genetically determined and variable in the course of life. There do not seem to be any serious reasons to treat psychosexual development as a process less complicated than personality development, as a process dependent on one or several genes. A natural consequence of this approach is a place for reorientation therapy in adults and not supporting homosexual behaviour in adolescents.

Teachers, tutors, educators, psychologists, and finally parents may come across a situation in which a teenager declares his homosexual orientation. There can be many reasons for this. Perhaps a teenager confuses their fascination and friendship with

homosexual inclinations, perhaps some signals coming from the body (for example, night ejaculation, the occurrence of which coincided with the overnight stay at a friend's) make them feel so. Perhaps there are fantasies or dreams with erotic content involving people of his own sex, perhaps someone is trying to convince him that he is gay or a lesbian. Perhaps having an orgasm during same-sex sexual harassment prompts him to conclude that this is evidence of his homosexuality. Perhaps, as stated by Savin-Williams (2006), making declarations about one's sexuality is a call for help in freeing oneself from threatening conditions.

As the review of scientific findings shows, such claims from adolescents are unlikely to be supported. Broadly understood development, including the development of sexual orientation, lasts for years, it may turn out that after some time such feelings have disappeared, the teenager himself will decide that homosexual feelings were only temporary. If these feelings persist, it will be easier for him to deal with them without being labelled gay or lesbian. Perhaps such experiences resulted from completely different problems, e.g., because of sexual harassment and its misinterpretation as evidence of one's homosexuality. As sexual orientation in adolescence is in the process of being formed, young people may experience dreams, fantasies and even engage in homosexual behaviour - but, in most cases, such behaviour should not be interpreted as manifesting an established homosexual orientation. According to Paszewski (2016), there are many indications that each homosexual person has an individual history of forming his or her orientation, which, after all, can change. Hence, presenting to adolescents that sexual orientation is innate and unchanging appears to be unsubstantiated by scientific evidence. As shown in the cited research, most of the time there is a natural evolution towards heterosexuality. The question is whether the message based on the affirmation of homosexuality is not a form of violence against adolescents?

As already mentioned, adolescents who identify as non-heterosexual significantly more often than the rest become victims of sexual violence (forced sexual intercourse), 1 in 6 people declaring themselves as "non-heterosexual" in comparison with 1 in 19 heterosexual adolescents become victims of sexual violence during adolescence (Kann et al., 2016). Abused children and adolescents will primarily need assistance with sexual abuse trauma. Research showing a relationship between early sexual activity and health complications leads to the conclusion that early coming out and adopting a gay/lesbian identity is not a good solution also in this aspect.

In a famous text, Littman (Littman, 2018, 2019) points to a sudden increase in the number of cases of rapid-onset gender dysphoria as a result of the influence of the Internet and social media, and the functioning of youth in specific "information bubbles". A natural question arises to what extent these phenomena also affect youth adopting a homosexual

orientation. These mechanisms seem to be noticed by Brodziak and Kłopotowski (2013, p. 265):

"It seems that too little attention has been paid to thorough prospective studies on adolescents with yet unknown sexual orientation, in whom it often changes. These people are nowadays influenced by previously rare cultural and educational patterns. Instead of parents' influences - now friends: peers, and especially older colleagues in school and the environment, and permissive contemporary (often niche) cultural patterns disseminated by the mass media have an overwhelming influence".

Obuchowska and Jaczewski (2002, p. 15), based on their extensive clinical and therapeutic experience, state:

"We are very against making a diagnosis of homosexuality in young people under 17 and 18 years of age. A young person, even with a large baggage of homosexual experiences, may - in a way that is unclear to us - overnight resign from their current homosexual orientation and assume a heterosexual role (it happens)".

In the context of the previously presented regularities regarding changes in the area of shaping sexual orientation, it is impossible to disagree with this approach. It should be noted, however, that some mental health researchers recommend that adolescents come out, treating it as a symptom of integrating sexuality and creating a mature identity, usually, such positions result not so much from a review of scientific research, but theoretical premises based on various therapeutic concepts, most often psychodynamic approaches. In this context, the previously mentioned Savin-Williams, a respected psychologist specialising in research on the non-heterosexual population, is known in Poland from the book *Mom, Dad. I'm Gay,* 2001; Polish edition (2011) emphasizes in a work written a few years later:

"Despite speculation by some clinicians, the claim that it is a good solution for a teenager to identify with their sexuality has not been proven. Clinicians like to assume that failure to adopt gay etiquette may be a symptom of psychological problems. The individual's resistance to accepting a sexual identity, they maintain, suggests a state of denial, denial, fear of confronting one's own sexual reality. But how can this view be reconciled with the overwhelming evidence - provided by the same clinicians - for alarmingly high levels of depression, drug use, risky sexual behaviour, and suicidal tendencies among adolescents who adopt the gay/lesbian label? Is it possible that young homosexuals adopting the label are more unhealthy than those who are sexually attracted to their own sex and who do not accept the label?" (Savin-Williams, 2006, p. 204).

The author refers to research by Sandfort (1997), which showed just such dependencies between coming out in adolescents and problems in the field of mental health and risky behaviour. Savin-Williams adds:

"It is true that in some cases, making declarations about one's sexuality is a cry for help in freeing oneself from threatening conditions, and other people are healthy because

they have different bases for self-determination than sexuality. More developmentally adequate foundations" (Savin-Williams, 2006, p. 204).

The author draws attention to the increasingly popular rejection of labels concerning their sexuality by teenagers. For some, the label "gay" or "lesbian" is a label associated with political activism with which they do not want to be identified. Others see this label as reducing their identity to sexuality and therefore refuse to come out. Still others consider their sexuality to be much less important to their identity than other aspects of their person (e.g., personality traits, passions, social roles). The researcher believes that this is a positive phenomenon.

The introduction deals with the topic of natural differences between various scientific disciplines in looking at the phenomenon of sexual orientation. It is also worth discussing the issue of the therapeutic relationship. The Code of Professional Ethics of the Psychologist of the PPA emphasises the need to respect the dignity of the human person, his subjectivity and autonomy as well as the right to unhampered development. In therapeutic practice it is carried out with the help of the so-called therapeutic contracts, i.e., possible areas of work that are accepted by both the client and the therapist. Based on our knowledge of the community, we are convinced that if a client with a homosexual orientation but with problems of a different nature (e.g. in the area of interpersonal conflicts) approached the therapist, the vast majority of psychotherapists (including the authors of this piece of work) would work only in this area, without any pressure to the necessity to change sexual orientation. However, the specificity of the psychologist-adult client relationship cannot be automatically transferred to the psychologist-teenage client relationship, and, in our opinion, it cannot be cut off from the educational and advisory dimensions. The achievements of developmental psychology show that adolescence is characterised by high dynamics of changes, it is the proverbial time of a "hormonal storm" causing large fluctuations in mood, emotionality or objects of identification, usually without full formal thinking abilities. It would be a kind of paradox to leave adolescents to themselves with regard to their dilemmas regarding the shaping of sexual orientation, in a situation where in other areas of life the society imposes certain restrictions on them resulting from the lack of formal maturity and full civil rights. In this context, the suggestion addressed to teenagers to refrain from coming out seems perfectly justified. It is also supported by a number of cited research reports pointing to the variability of sexual orientation, led by the longitudinal studies by Savin-Williams and Ream (2007) and Ott et al. (2011) carried out in impressive numbers.

In the case of a psychologist as a counsellor/therapist relationship, the client-teenager's welfare is understood in the first place as their right to broad, exhaustive information about developmental regularities and mechanisms of shaping sexual orientation.

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Embodied narratives: communicative value of tattoos

Ucieleśnione opowieści: komunikacyjna wartość tatuażu

Abstract: Since the '50s there is a steady rise in popularity and social acceptance towards tattooing. While people may choose to get a tattoo for a variety of reason, it seems that for the majority they are meaningful and convey personal messages and stories in symbolic form. This article focuses on communicative quality of tattoos, derived from their narrative design. First, the social meaning of the very fact of being tattooed is discussed, drawing on prevailing social prejudice and stereotypes. Then, tattoos are analyzed from the standpoint of personal narratives, showcasing various meanings that can be deciphered both by the others and by tattoees themselves. Finally, the dynamic and relative nature of tattoos is examined, with a closing reflection upon the reason why getting tattoos might be so compelling.
Keywords: narrative; non-verbal communication; tattoos

Abstrakt: Od lat 50-tych ubiegłego wieku obserwuje się stały wzrost popularności i społecznej akceptacji wobec tatuażu. O ile istnieje wiele możliwych przyczyn dla których jednostka decyduje się na tatuaż, dla większości osób niesie on znaczenie, prezentując symboliczny przekaz bądź osobistą historię. Niniejszy artykuł poświęcony jest komunikacyjnej wartości tatuaży w kontekście ich narracyjnej natury. W pierwszej kolejności omówiony został społeczny odbiór osób wytatuowanych w odniesieniu do pokutujących uprzedzeń i stereotypów. Następnie podjęto się analizy różnych znaczeń tatuażu jakie mogą być odkryte zarówno przez zewnętrznych obserwatorów, jaki i przez samego wytatuowanego. Wreszcie, omówiona została zmienność i względność znaczeń zawartych w tatuażach, z końcową refleksją nad możliwym wyjaśnieniem fenomenu ich popularności.
Słowa kluczowe: komunikacja niewerbalna; narracja; tatuaże

Intoduction

Tattooing, as a form of body modification, is a millennia-old practice. The oldest human remains bearing permanent markings on the skin are approximately 7,000 years old, while tools that were probably used to make tattoos are even older, dating back to 40,000 years ago (Scheinfeld, 2007). Though their popularity fluctuated over centuries, according to Kluger (2015, 2019) the overall prevalence of tattoos in modern Western societies (the United States, Europe and Australia) ranges from 10% to 29%, with steady rise of public interest during the last two decades. Prevalence of tattoos in younger generation is even higher – for instance, it is estimated that every 4 in 10 Americans between 18 and 34 years of age have at least one tattoo (Ipsos, 2019). In Poland, the overall percentage of tattooees in general population is slightly lower, albeit still approximating 8% (Cybulska, 2017).

Why so many people decide to get a tattoo? While ancient tattooing is suspected to have been strictly ritualistic and tattoos served the sole purpose of status markings or personal talismans, studies on motives for tattooing in the contemporary world show a vast array of possible reasons. Comprehensive research by Wohlrab, Stahl and Kappeler (2007) shows that people may choose to get tattoos in order to beautify their bodies, to show endurance in the face of pain involved in the procedure, as a form of rebellion against authorities or societal norms or to just entertain the idea of being tattooed. However, for the majority tattoos hold a deeper, personal meaning, as symbolic representations or narrations of times, events and people (Alten-Muri, 2020). In a similar fashion, the non-tattooed seem implicitly assume meaning behind every tattoo, exhibiting readiness for their interpretation. To describe this phenomenon, DeMello (2000) uses the term "tattoo narrative", stressing both the potentially story-like quality of tattoos as well as the need of the viewers to uncover this meaning. This cultural expectation is strong, forcing many tattooees to actually invent a story *post factum* for tattoos that were done without any profound reason. The author explains that a convincing narrative or a compelling message found in a tattoo design allows the public to justify and destigmatize the act of permanently changing one's body.

If one agrees upon the fact that tattoos can convey meaning or a message and, therefore, be used as tools in communication process, the following questions arise. For those that choose to tell their stories via tattoos, what are those stories about? If a tattoo contains a message of sorts, who are the intendent recipients of it? Are such "tattoo narratives" always legible, universal and timeless or do they inevitably succumb to reinterpretations and misunderstandings?

1. The tattoo

Before dwelling upon the answers to the questions outlined above, it should be noted that the very fact a person is tattooed seems to be a message in and of itself, irrespective of the peculiarities of design. People seem to have preconceived notions of who tattooees are, attributing them certain personal characteristics. Those assessments may vary depending on the size, location and number of tattoos, albeit tattooed people (women in particular) are generally viewed as more delinquent, risk-prone, impulsive and less intelligent, empathetic or spiritual than their non-tattooed counterparts (e.g. Kluger, 2017; Roggenkamp, Nicholls, Pierre, 2017). At least partly, it seems to be a remnant of the past – tattoos were once considered deviant and unruly as first wearers were members of the underclass and representative of truant, chaotic lifestyles: sailors, criminals, bikers or punks. This negative social connotation seems to prevail even after the "tattoo Renaissance" of the late '50 that transformed tattooing from marginalized practice to sought-after art, endorsed by people from all walks of life. Stereotypes and prejudice are particularly visible when assessed

indirectly, as implicit attitudes (see e.g. Zestcott, Tompkins, Kozak-Williams, Livesay, Chan, 2017), showing that the change in cultural perception of tattooed individuals is more superficial than profound. Certainly, this trend is not universal, as to some tattooed bodies appear as stronger, more dominant or attractive than the non-tattooed (e.g. Galbarczyk, Ziomkiewicz, 2017). Tattooed individual might also give the impression of boldness and courage, as the procedure of getting a tattoo is painful and the change is permanent (e.g. Wohlrab et al., 2007). Either way, it seems that tattoos rarely leave the spectators indifferent and can elicit positive or negative emotions regardless of their designs. This initial reactions of viewers to tattooees, whether they are drawn to or repulsed by their tattoos, influences the course of subsequent interaction. In some cases, this first impression might result in avoiding the contact altogether.

Many individuals are fully aware of the impact their tattooed bodies might have on the non-tattooed. Some choose to use this phenomenon to their advantage, consciously manipulating the way others perceive them, increasing or decreasing likelihood of certain social interactions and outcomes. An analogous mechanism seems to be at work on a detailed level, when people decide upon specific designs and/or symbols to be incorporated into their tattoos to create certain impressions (see below). Here, however, it is not the case of a specific tattoo project but rather the case of being tattooed at all. For instance, some criminals choose to be heavily tattooed knowing that it might be intimidating for other inmates, creating "tough", presumably dangerous, social appearance (Vegrichtova, 2018). The individual, in turn, might be recognized by potential aggressors as equal, reducing the probability of an altercation. That is the reason why in a study conducted by Velliquete, Murray and Evers (2006) some tattooees call their tattoos a protective social "armor". In a similar fashion, unattractive, appalling tattoos are often done by smaller, feminine-looking prisoners as self-protection from sexual abuse (see Handoko, 2016). Tattooed bodies are used as intimidation tools also outside of penitentiary system. Competitive, professional sports provides numerous examples. For instance, in a study of basketball players, conducted by Belkin and Sheptak (2017), participants admitted that they use the presence of tattoos on their opponents as a heuristic, "sizing up" their competition before the game. The players also point out that sportsmen who are tattooed seem to be more marketable and are endorsed by the media as cool, hardcore or "on edge", gaining more attention and popularity than their non-tattooed counterparts, buying into the "bad boy" archetype.

As Kosut (2000) states, tattooed people engage in conversations with others, even if they do not intend it or realize it. It seems that not only a tattoo but also a tattooed body conveys certain messages that are readily deciphered by the public eye. As the meaning of "being tattooed" seems to be interpreted according to cultural stereotypes, the wearer does not have any agency over it – unlike the process of conveying meaning in specific tattoo designs.

2. The others

As studies conducted by Kosut (2000) or Strübel and Jones (2017) show, tattooees – especially those who possess many visible tattoos – are well aware of their communicative value. Knowing others will probably inquiry about the designs and judge the rationale behind them, most will put much thought into their tattoo projects. If possible, the size and location are also deliberately chosen, as both influence social visibility of a tattoo and therefore the audience of the message. For those tattooed, the body becomes a canvas or a "billboard" available to socially display person's statement or the message (see Atkinson, Young, 2001). The question is, what kind of information can be, and usually is, communicated to the public through tattoo designs?

Traditionally, within the framework of social interaction, tattoos – when inspected by an educated beholder – can manifest certain aspects of group membership, status and heritage. Tribal markings, present in tattoo practice for centuries, often bore a plethora of information about the wearer. *Moko*, elaborate face etchings of the Maori people in New Zealand, are a striking example of multiple meanings cleverly hidden in the design. For instance, a male face was divided into several "fields" with each field allocated to hold certain category of information. Right-hand side represented father's heritage, while left-hand side contained information about mother's status and lineage. Some fields presented information about birth order and birthright, others – rank of the individual within the group, their occupation or personal identification (see e.g. Cisco, 2010). Face tattoos wore by both indigenous men and women of the Kalinga in the Phillipines and the Atayal of Taiwan served similar informative purposes, as Salvador-Amores (2014) points out. Just like in case of the Maoris, certain elements of tattoo designs communicated individual's ancestry and bloodline. Further marks on cheeks, chins and forehead were added when youngsters reached physical maturity, signaling to the group their availability for marriage. Other symbols and linework present in the designs communicated certain skills mastered by the wearer, such as weaving for women and headhunting for men. The location, number and elaboration of each design corresponded to a personal success as a tribesman. Some elements of the tattoos were basically inherited, while the right for others to appear in the designs must have been earned. It is worth noting that in all of those cases these meaningful drawings adorn a person's face, making them impossible to hide or miss during social interaction. Their communicative function is therefore obvious – those are visual representations of one's identity, a "package" of readily available personal information.

A contemporary approximation of the above described idea seems to be visible in prison tattoos. According to Shoam (2015), who studied Russian inmates tattoos in Israeli penitentiary system, markings on their skin often create a visible "casefile" of a person,

showcasing to other prisoners one's status, allegiance and criminal history. Stars in designs and crowned snakes often signified "royalties" - high-rank prisoners and gang leaders. Gang crests helped identify members of different groups with a glance of an eye. Flower tattoos, such as tulips or roses, were signs of a youngster joining the criminal world, sometimes embellished with skulls or daggers to mark active participation in crime since childhood. Many designs – often worn on fingers – informed the viewer about crimes committed or "specialization", such as thief, drug dealer or murderer. Dots or crosses can be markers of convictions while drawing of a cat may symbolize a permanent resident in the penitentiary system (see also Goscillo, 2012). Just as in case of tribal tattoos, a great number of biographical information could be encoded into tattoo designs, shared with the public and decoded just by watching an inmate undress or shower. Similarly, to be properly understood one must be versed in prison symbolism, making the images culture-bound and readable only for those who were properly acculturated. Most importantly, in cases of both tribal and inmate tattoos the function of the markings is the same – broadcasting most important facts about a person and their life, irreversibly shaping how (and which) social interactions will be carried out.

Tattoos can not only be a vehicle for basic personal information, but also complex expressions of the self. Contemporary tattoos, unlike catalogue "flash" tattoos from previous decades, are individually designed and customized according to one's wishes, turning them into personal statements that hallmark different aspects of the self (e.g. Johnson, 2007). Some people choose to tattoo symbols pertaining to their area of interests and hobbies. Some depicts important events from their lives, marking personal milestones with a tattoo (see also below). Tattooees can also decide upon carving onto their skin visuals symbolizing values they profess, their beliefs or their life goals. Possibilities for the message and the created meaning are virtually endless. Therefore, some call one's collection of tattoos "a window to personality" (Johnson, 2007). Through the visual, tattooed individuals can consciously present themselves, or parts of themselves, in a certain way to others. Hence, it can be argued that tattoos can serve as an impression management tools, influencing what becomes obvious and openly communicated to others even before any deliberate interaction takes place (see Doss, Hubbard, 2009).

Tattoos are also often expressions of the connection we feel with our friends, family and significant others. Tattooed depictions of partners, parents or children (both realistic and abstract, such as partner's fingerprints or footprints of a newborn child) are often thought of as tokens of love and commitment. As Johnson (2007) argues, in many cases such images are deliberately placed on the skin for the others to see, to state the significance of the relationship and as a proof of one's deep investment. In a similar fashion, group tattoos are sometimes used to communicate and strengthen the bond between the members. Apart from an obvious example of gang tattoos, one of Oksanen and Turtiainen's (2005) interviewees

states that everyone in his family gets one specific tattoo, marking them all members of the same "clan". Family bonds can thus be strengthen through the ink, allowing members to mutually communicate the feeling of belonging and connection. Eschler, Bhattacharya and Pratt (2018) also notice that tattoos can be used as a message of support and encouragement for significant others, especially in trying times. The authors provide an example of a woman who copied all of her husband's, who was suffering from cancer, tattoos onto her skin. The purpose was to show him that all the struggles connected with the illness are experienced by both of them alike and that all challenges will be faced by them together.

Some tattoos can carry even more profound, intimate meanings. They might be signs of a struggle, an illness or a traumatic event that happened in person's life. Such people often choose to memorialize the experience and/or subsequent changes in symbolic form on their skin. So called survivor tattoos serve multiple purposes and recipient of the message is not always the collective other but often the self (see below). In the social context specifically, as Alten-Muri (2020) points out, such tattoos may be used as a springboard for discussions about the event in a way that is safe for the individual. Trauma victims are often conflicted, wanting to share their experiences with others but not to dwell upon them or relive them at the same time. The design on the skin allows them to control the narrative, shaping the way they tell others about the event, augmenting or diminishing certain aspects of it when needed. Trauma survivors often find it easier to talk about their difficult experiences with therapists or health professionals through the tattoo commemorating the event, not the event directly. This action allows them to engage in potentially healing exchange without feeling caught up or overpowered by the experience. Thus, the tattoo elicits and facilitates communication in scope and form that is acceptable for the victim.

Similarly, cancer survivor tattoos serve a variety of communicative purposes. The symbols of the illness, understood not only within the group of tattooed patients and former patients but in broader social context (e.g. ribbon tattoos), are markers of having certain life-altering experiences. By their symbolism alone, two strangers can recognize themselves as having been through the same struggles, immediately creating shared context and mutual understanding. Moreover, many cancer survivors consciously choose to have tattoos that are visible and attention-grabbing, actually hoping for other to notice and inquire about them. The wearers state that they want to "re-embody" the illness that is often invisible to others, to give statistics a face. Therefore, they choose to be advocates for all the people sharing the same fate as so called "public survivors" (Eschler et al., 2018). Here, tattoo symbolism is used to open discussions and raise awareness.

Finally, sometimes the intended recipients of the message conveyed by a tattoo are of another realm. According to Krutak (2015), many tribal tattoos were not meant for the wearer or the community, but for inhabitants of the spiritual plane. Apotropaic tattoos were messages of peace and allegiance so the spirits could see an individual as a kindred spirit,

not as a prey. Such designs had protective properties, warding off evil. In a similar fashion, many indigenous communities believed that tattoos could be carried onto the afterlife. This exceptional quality of tattoos stems from rituals surrounding tattooing – it was not only a corporeal, but also a spiritual change. As Scheinfeld (2007) describes, the Maoris, the Lakotas of North America and the Inuits of the Arctic regions all believed that an individual is recognized and evaluated by the gods based on their face and body tattoos. Here, the tattoo showcases life of an individual and, if proven worthy, serves as a passage into the afterlife. Indigenous people of the Phillipines and Taiwan also believed that their face and body tattoos will allow them to be themselves after their death, recognized by their ancestors and accepted as own (Salvador-Amores, 2014). Without their tattoos, people were doomed to wander the spiritual world alone and aimlessly, strangers to both gods and other spirits. Here, tattoos extend from the physical to the spiritual, connecting the two.

A similar idea is present in contemporary religious tattoos, albeit the views of major religions on the tattooing itself are conflicting. In both Judeo-Christian tradition and in Islam tattoos are discouraged or even strictly prohibited, as the body is viewed as sacred, a temple of God, that should not be altered. At the same time, as certain passages from the scriptures are often open for interpretation, religious tattoos can be somewhat accepted if done to show allegiance and devotion. For the tatooees themselves, wearing religious symbols, depictions of God or the saints serves two communicative purposes. First, many state that their tattoos are a way of praising God's glory and the pain present during tattooing is considered a sacrifice in His name. Thus, tattooing becomes a religious ritual, a way to worship the divine and demonstrate devotion. Second, religious symbols are not only viewed as expressions of one's faith, but also as a deliberate form of preaching to the others (see Scheinfeld, 2007). Tattoos are then are one of ways to spread the message of God and feel connected to the divine.

3. The self

In the light of the above, it is clear that tattoos may encapsulate multiple messages and meaning for the viewers to unfold. Nevertheless, a following question may arise: if tattoos are discursive in nature, what is the purpose of a tattoo hidden from sight? Indeed, some people decide upon designs that are small and/or invisible in daily life, as their location can or usually is covered e.g. by clothing. Therefore, the number of potential observers (and recipients of the message) is limited to those close to the person or to tattooee only. Yet, even in this case, tattoos seem to preserve their communicative function as the message may be intended just for the wearer, as a form of communication within oneself using the skin as the medium. Thus, tattoos can be also conceptualized as self-stories (Kosut, 2000), stories about ourselves told to ourselves.

What may be the function of such self-stories? As it was stated already, people often choose to get tattoos as permanent markers of important life events and profound changes (Oksanen, Turtiainen, 2005). For some, a tattoo may mark their coming-of-age, a rite of passage asserting their independence from authority. For others, adopting different social roles, both personal (a partner, a parent) and professional, may warrant a commemorating tattoo. Frequently, tattoos signify trying times and difficult life experiences. In other cases they may illustrate inner, spiritual change – such may be the case of religious proselytes. When a collection of one's own tattoos is inspected by the wearer, it is possible to reflect back upon this personal journey, transformations in particular as tattoos often capture the self in transition, as it is disappearing to become something new. Hence, tattoos serve as a map of life experiences, visual timestamps accompanying our own narrations about ourselves. To describe the process, Velliquette et al. (2006) use the term "personal myth" – a story by us about us to us that integrates our past, present and expected future into a coherent whole. Here, tattoos are a vehicle and embodiment of different elements constituting our personal myth. The story, in turn, is pivotal in constructing (and redefining) our identity (see also Strübel, Jones, 2017).

Even if we choose to analyze tattoos in separation, not as an interconnected system of personal meanings, they still can "speak" to the wearer. Individuals working through difficult experiences may decide upon a tattoo that will serve as a personal message of encouragement. For instance, people who engaged in self-harm may choose to tattoo a message (visual or verbal) over their scars not in an attempt to hide them, but to serve as a warning, stopping them from injuring themselves further (Alten-Muri, 2020). Similarly, former addicts might have tattoos depicting the reality of the struggle of living and fighting with addiction. Such designs are not only stories of redemption, but also constant reminders of the losses and the price to be paid should they ever feel the desire to walk old ways (Pagliarini, 2015). Sometimes people choose to tattoo a message of hope for themselves. Previously described survivor tattoos often serve such function, being a source of faith and confidence in one's ability to overcome various life obstacles. Companion animal tattoos, studied by Hill (2020), fulfill similar purpose. Owners, of course, choose to immortalize their pets on their skin to honor often life-long bond and stress the importance of the relationship. But for many the tattoo, just like the animal it represents, is also a source of strength, courage and comfort in their daily struggles.

Tattoos, even if hidden from public sight, seem to always have an audience to receive the message and uncover their meaning. In the case of designs intended for the wearer only, tattoos provide a unique opportunity for different versions of the self – the present one and the one hidden in the design – to clash and interact. Still, one important question remain about the message itself. Is the meaning as permanent as tattoos themselves?

4. The message

When analyzed longitudinally, tattoos uncover intriguing duality. The design on the skin, once done, is everlasting and unchanging. At the same time, it seems that their symbolic and semantic values are subjective, dynamic and open for reinterpretation. The wearer and the public may understand same tattooed image alternatively. Interpretations by different members in the community might also vary. What is more, with passing time some meanings might disappear while new ones emerge, on both cultural and personal level, potentially changing the narrative altogether. Thus, the semantics of tattoos is subjected to cycles of deconstruction and reconstruction.

It should be noted that tattoos frequently convey more than one message to begin with, not only for the viewer but also for wearers themselves. For instance, one of tattooees interviewed by Martin (2013) presented multiple meanings behind his *maneki-neko* cat tattoo. At the same time, the drawing symbolized his bellowed cat, a music album by one of his favorite bands that used the symbol on the cover and a talisman for good luck and fortune. Another person explained the meaning of his Icarus tattoo as a personal warning, an homage to James Joyce as well as his coming-of-age symbol, signifying his maturity as an artist. It is clear that, apart from rather codified tribal or prison tattoos, all the meanings behind a tattoo might not be grasped by the public from visual analysis of the image only. If not accompanied by a detailed narration of the "personal myth", the public interpretation will arguably be limited to the significance of the drawings in accordance with cultural symbolism. Therefore, it can be stated that in most cases tattoos convey meaning, but some aspects of it can only be revealed through direct communication with the wearer, signifying their narrative limitation.

As it was already suggested, tattoos are subjected to multiple reinterpretations by the wearer during different stages of life. Santos (2011) personal story may serve as an excellent example. While enrolled in a conservative college, the author obtained a Ralph Lauren tattoo as a symbol of rebellion against the rules and as a stylish fashion item. Later in life, the tattoo became a sign of consumerism, superficiality and a source of embarrassment and aversion that led the author to a cover-up tattoo. As a minister, he chose the symbol of a Taizé dove. In the end, the whole journey became a symbolic triumph of the spiritual over the material. Therefore, the meaning of a tattoo may change over the years, mirroring wearer's personal and spiritual development.

The story and the meaning behind one's tattoos are also results of constant negotiation between the cultural and the personal, a "battleground of meanings" (Oksanen, Turtiainen, 2005). For instance, universally acclaimed symbols may be individualized within the design, subsequently altering their connoted meaning. One of Martin's (2013) interviewees wore a tattoo of a seraphim with tattered wings, all in blue, weeping over a

goalie mask. This image of an angel, contrasting its usual depictions as powerful entity able to disperse darkness, created a new and personal representation of grief and sorrow over lost sibling. Similarly, for young underground musicians who participated in Handoko's (2016) study, universally recognized anarchy sign tattoos held different personal meanings – a symbol of personal rebellion for one, a memory marker of a certain event involving another subculture for the other.

On the other hand, cultural understanding of universal symbols may dominate over personal meaning (or lack thereof) hidden in tattoo designs. As Madfis and Arford (2013) point out, a person may simply like the idea of a teardrop or a spider tattoo on their face or hands, but the most common public understanding of such drawings will be inevitably derived from prison symbolism. Thus, the wearer will be constantly challenged with negative impressions and alternative, unwarranted interpretations overriding and, in a way, invalidating personal meaning. As culture's dictionary of symbols is constantly evolving, even innocuous tattoos without any prior cultural references might be negatively reinterpreted with time. To prove this point, the authors give an example of young man with "La Vida Loca" tattoo on his neck to signify his difficult upbringing and delinquent youth, who suffered serious abuse after a well-known artist released a song with the same title. Such situations frequently cause irritation, distress and, understandably, tattoo regret that may lead to a cover-up or an attempt to remove it at all.

Concluding remarks

There is little doubt that for most of those who choose to be tattooed both the process of permanently marking their skin and the design itself are meaningful. The significance of tattoos is closely connected to their expressive and communicative nature that enables the wearers to tell their stories to a variety of audiences, including their own selves. But, in the light of ever-changing semantics of those designs, the last question arise. Why do people choose to change their bodies in such a way? Unlike piercings that can be taken out or pieces of clothing that can be undressed, tattoos are defined by their permanence. The wearer, therefore, risks personal inadequacy as the message on their skin might become outdated, misunderstood or obsolete.

Pagliarini (2015) might provide a compelling answer. She argues that in the contemporary, post-modern world all traditional systems of referencing have dissolved and everyday communication becomes virtualized, impersonal and incorporeal. In this "ontological insecurity" people often feel disconnected and fragmented. Therefore, tattooing may be viewed as a way to re-materialize the self through engraving meaning onto the body. Narrating and negotiating this meaning allows us, in turn, to re-establish connections with

others as well as with ourselves, bringing back order and a sense of structure to our experiences.

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Families with a child with ASD and Down syndrome - their attitudes and values

Rodziny z dzieckiem z ASD oraz z zespołem Downa – ich postawy i wartości

Abstract: We are all called to live and improve the world for ourselves and others. Every person, even if he or she is a person with a disability, and with an impaired ability to perceive and understand, is a fully human subject who has an inalienable right to life and development, a right that belongs to every human being. A human being always has his or her dignity and a particular, unquestionable value. The most complete community for every human being is the family. It is the foundation of a fulfilling life, even for a child with such serious dysfunctions as ASD or Down syndrome. Having a child with ASD, or a child with Down syndrome, undoubtedly causes difficulties for the whole family in many areas. Social and cultural changes can affect how a family with a child with ASD or Down syndrome works. Thus, they may affect difficult parenting: motherhood or difficult fatherhood. At the same time, there is still a lack of research and analysis devoted to such families, to the perceived positive changes in the family system as a whole, and in the families themselves. The aim of this analysis is to try to answer the question of what attitudes and values parents of children with ASD and Down syndrome present. The research used the Attitudes Towards Disabled Persons Scale, the Attitudes Towards Disabled Persons Questionnaire and the Axiological Questionnaire by A. Sękowski. The research conducted using a diagnostic survey confirms that families characterised by a high level of moral and religious values present positive attitudes towards people with disabilities, including children with Down syndrome and ASD. Maximum assistance and support should be provided to families with a child with ASD and Down syndrome, in order to enable optimal development of children with ASD and Down syndrome in psychomotor and intellectual development by accepting and stimulating their subjectivity, and securing a space full of love and empathy.
Keywords: ASD, family, Down syndrome, attitudes, values

Abstrakt: Wszyscy jesteśmy powołani do tego, aby żyć i doskonalić świat dla siebie i innych. Każda osoba, nawet wówczas, gdy jest osobą z niepełnosprawnością, i z zaburzoną zdolnością do postrzegania i rozumienia, jest w pełni ludzkim podmiotem, który ma niezbywalne prawo do życia i rozwoju, prawo przynależne każdemu człowiekowi. Istota ludzka zawsze ma swoją godność i szczególną, niepodważalną wartość. Najpełniejszą wspólnotą dla każdego człowieka jest rodzina. Jest ona fundamentem realizującego się życia również w sytuacji, gdy jest to dziecko z tak poważnymi dysfunkcjami jak ASD, czy dziecko z zespołem Downa. Posiadanie dziecka z ASD czy dziecka z zespołem Downa niewątpliwie wpływa na trudności w wielu obszarach funkcjonowania całej rodziny. Przemiany społeczne i kulturowe determinują funkcjonowanie rodziny z dzieckiem z ASD, czy z dzieckiem z zespołem Downa. Tym samym mogą wpływać na trudne rodzicielstwo: macierzyństwo czy trudne ojcostwo. Jednocześnie brak jest nadal badań i analiz poświęconych takim rodzinom, dostrzeganym pozytywnym zmianom w całym systemie rodzinnym, i w nich samych. Celem podejmowanej analizy jest próba odpowiedzi na pytanie, jakie postawy i wartości prezentują rodzice dzieci z ASD i z zespołem Downa. W badaniach wykorzystano Skalę Postaw Wobec Osób

Niepełnosprawnych, Kwestionariusz Postaw Wobec Osób Niepełnosprawnych oraz Kwestionariusz Aksjologiczny A. Sękowskiego. Prowadzone badania z wykorzystaniem sondażu diagnostycznego potwierdzają, że rodziny charakteryzujące się wysokim poziomem wartości moralnych, religijnych prezentują pozytywne postawy wobec osób niepełnosprawnych, w tym dzieci z zespołem Downa i z ASD. Należy zabezpieczyć rodzinom z dzieckiem z ASD i zespołem Downa maksymalną pomoc i wsparcie, tak, aby jednocześnie umożliwić optymalny rozwój dzieciom z ASD oraz z zespołem Downa w rozwoju psychomotorycznym i intelektualnym poprzez przyjęcie i stymulowanie ich podmiotowości, i zabezpieczenie przestrzeni pełnej miłości i empatii.
Słowa kluczowe: ASD, zespół Downa, rodzina, postawy, wartości

Introduction

The most perfect community for every human being is the family. The family is the space of love, the space of life, attitudes, but also development. Each family is a special space of life for the child, and the first interactions always take place within the family. As a unique and individual space for its members, the family influences the child with its unique interaction. The family is therefore a fundamental and special value for every child (Kiliszek, 2019). The experiences of parents of children with ASD and Down syndrome are particularly difficult (Kostiukov, Strzelecki, Poniewierski, Samborski, 2019). Despite the advances in knowledge on this topic that have been made in recent years and the change in approaches to the problems faced by parents of such children, there is still no unified theory on this issue (Drabata, 2019). As early as at the time of diagnosis, parents experience a great deal of negative experiences, feel hurt and rejected, and are unable to cope with such a difficult challenge. In such families, therefore, a difficult process of shock, breakdown, disbelief, rejection of the situation and escape from the problem begins. Parents often isolate themselves and enter a trajectory of suffering. The escalation of negative emotions occurs especially in the first year of diagnosis but also in the following years, and it happens that, over time, the number of negative experiences decreases in favour of the satisfaction of contact with the child who, as it turs out, they love more and more (Auliffe, Thomas, Falkmer, Cordier, 2019). The great challenge around the world today is not only to give birth to a child with Down syndrome, but also to show it to the world without shame. At the same time, it is a challenge for the modern world to raise children with ASD who appear in families more and more frequently.

Indeed, the diagnosis of a child with ASD poses unique challenges for parents. The whole family system often has to reformulate its own goals, dreams, attitudes and values (Chrostowska, 2018). For parents, this is a very serious crisis situation that causes an escape into loneliness or triggers suffering. It is undoubtedly a long-term burden for parents, siblings, but also for the whole family system (Barłóg, 2020). At the same time, having a child with Down syndrome or ASD can eventually trigger many positive attitudes and values within the whole family system. Many such families become integrated in positive attitudes

after some time and being with a child with a disability triggers a lot of positive feelings full of happiness and joy and special values.

1. ASD and Down Syndrome

ASD is nowadays one of the most common disorders and according to the state of the art Autistic Specrum Disorder is classified as a developmental disorder, as an exemplification of holistic developmental disorders (Currenti, 2010). It is a neurodevelopmental disorder considered to be one of the most severe developmental disorders. Autism is characterised by abnormalities in social development, in the formation of social relationships, in interaction, in cooperation with other people, in communication and in behaviour, particularly in restricted patterns of both activities and interests (Banasiak, 2020). In line with the World Health Organization, the term ASD (or *autistic spectrum disorders*) is established in the ICD-10. In the current classification of the American Psychiatric Association (DSM - 5), one diagnostic category was created from the so-called triad of autistic disorders. The term holistic developmental disorder was dropped and replaced with three categories: autistic disorder, Asperger syndrome and holistic developmental disorder not otherwise diagnosed in the autistic spectrum disorder, i.e. ASD (Barłóg, 2020).

High-functioning children are children with Asperger syndrome. The term is attributed to a psychiatric doctor named Hans Asperger, who described this type of disorder in children in 1944. Nowadays, Asperger syndrome is a disorder characterised by difficulties in understanding social behaviour with immature empathy and difficulties in controlling emotions (Attwood 2013).

Down syndrome, first described by physician Langdon Down in 1866, is the most common form of severe mental retardation, although not all people with Down syndrome are severely mentally retarded. The vast majority function at the level of moderate mental retardation. There are three karyotypes that cause Down syndrome: regular chromosome 21 trisomy, mosaicism, and translocation. Different types of translocations and, rarely, combinations of mosaic translocation can also be observed (Raaya Alon, 2019).

2. Motherhood and fatherhood of parents of children with ASD and Down syndrome

One of the most important roles in a person's life is parenthood, the fulfilment of the role of mother or father, and the greatest joy for parents is the information about the birth of their child. The diagnosis of the birth of a child with a disability is an unspeakable shock for parents and is often associated with the suppression of this first information from

consciousness. The news that a child has been born with Down syndrome, but also the diagnosis that a child has ASD, is particularly traumatic. This diagnosis puts parents in a situation of crisis and distress, extremely difficult to accept. Parents must assume the role of difficult fatherhood and difficult motherhood (Aksamit, 2018). In this first, painful information, parents experience a sense of isolation, a sense of loneliness, a sense of hopelessness and despair (Gosztyła, Prokopiak, 2017). Research confirms that the escalation of many difficult, negative experiences occurs within the first year of diagnosis. It is only the positive experiences of parents connected with caring for their child that slowly give satisfaction from contact with their child and the belief that things can be better or the child will change positively (Jaranowska, 2016).

3. Attitudes and values of parents of children with ASD and Down syndrome

The term attitude was introduced to literature by William Thomas and Florian Znaniecki at the beginning of the twentieth century to indicate the processes of individual consciousness that determine a person's attitudes towards another person, other people or the community. In contemporary literature, the issue of attitudes is analysed in relation to such components as: behavioural, affective, cognitive (Chrzanowska, 2015).

Attitudes are most often perceived on the basis of a certain behaviour, and in relation to people with disabilities it is an ongoing disposition to accept or negate the disability, which may be accompanied by certain stereotypes, prejudices or even stigma. The very etymology of disability terminology can be a label for the person to whom it is addressed (ibidem). At the same time, the specific resources of a family with a child with Down syndrome and a family with a child with ASD include the adopted value system. Many definitions, but also classifications of values, are found in the literature. As early as in antiquity, it was believed that the good occurs independently of human aspirations and desires. Without the most basic resource of values or the formation of humanity, it is impossible to function in a sense of responsibility, to function in axiological readiness and action. This is a humanistic and moral assessment at the same time (Szmyd, 2017).

4. Methodology of author’s own research

The aim of author’s own research was to search for knowledge concerning parents' attitudes towards particularly difficult types of disability, i.e. towards children with Down syndrome and children with ASD. It was also a search for factors, circumstances which have a decisive influence on such attitudes and values. The main problem was contained in the question of what attitudes do the surveyed parents of children with Down syndrome and parents of children with ASD have towards disability. As specific problems, the research

questions were formulated to ask whether the surveyed parents present mostly positive attitudes and whether these attitudes are differentiated by such demographic variables as the gender of the surveyed parents, the gender of the child, the age of the parents, the age of the child, the education of the parents. The next question asked what values are presented by parents of children with Down syndrome and parents of children with ASD. The research used the method of diagnostic survey with the use of such techniques as Scale of Attitudes towards Disabled Persons, Questionnaire of Attitudes towards Disabled Persons and Axiological Questionnaire (Sękowski, 1991). The research was conducted in Podkarpackie Voivodeship in 2021. A total of 88 parents were interviewed, including 44 parents of children with Down syndrome and 44 parents of children with ASD.

5. Results

Demographic variables were analysed in the study. Thus, in the group of the examined parents of children with ASD, 75.0% were mothers, i.e. women, and 25.0% were fathers, i.e. men. In the group of parents of children with Down syndrome, 63.6% were women, i.e. mothers of children with Down syndrome, while 36.3% were men, i.e. fathers of children with Down syndrome. The study confirmed that in the case of the surveyed parents by age of the respondents, the least numerous were young parents, i.e. under 30 years of age. The majority of the surveyed parents with a child with ASD are educated - 63.5 % have a university degree. The results are different in the group of parents with a child with Down syndrome, where almost half of the parents surveyed have a secondary or vocational education (47.7 %) and 52.2 % have a university degree. The surveyed children with Down syndrome were aged 0 to 5 years, which is 45.5%, followed by those aged 6 to 15 years, i.e. 43.9% and far fewer aged 16 to 25 years, i.e. 18, 0%. In the group of children with ASD, those aged 0 to 5 years were 20.4%, followed by those aged 6 to 15 years (45.3%) and those aged 16 to 25 years (43.9%). In terms of gender, more than half of children with Down syndrome were girls (59.0%) and 40.9% of children with Down syndrome were boys. In the group of children with ASD, the vast majority were boys (61.3%) and girls constituted 38.6%.

As a result of the survey with the Attitudes towards Disabled Persons Scale, parents taking care of a child with disabilities on a daily basis presented their attitude towards such persons as definitely positive. Selected results from author's own research are presented below.

- The vast majority of surveyed parents of children with Down syndrome (77.2%) and with ASD (65.9%) say that people with disabilities can start their own families.
- All surveyed parents of children with Down syndrome (100.0%) and almost all with ASD (97.7%) accept a person with a disability as their friend.

- The vast majority of surveyed parents admit that they can work with a person with a disability (100.0%, 90.9%).
- The vast majority of parents of a child with Down syndrome (86.3%) and the same number of parents with a child with ASD admit that such people can have achievements, for example in sports.
- Most of the surveyed parents of children with Down syndrome (77.2%) and parents with a child with ASD (84.1%) admit that such people can also earn their living.
- The vast majority of parents with a child with Down syndrome (86.3%) and parents with a child with ASD believe that a person with a disability can provide assistance to a non-disabled person.
- Almost all surveyed parents claim that close contacts with people with disabilities should be sought (90.9% of parents with Down syndrome, and 100.0% of parents with a child with ASD).
- Most of the surveyed parents believe that children with disabilities should not be treated with great indulgence (59.1% of parents with a child with Down syndrome and 79.5% of parents with ASD).
- There are also parents who, despite many everyday difficulties resulting from caring for a child, admit that "there are no differences in the behavior of people with and without disabilities" (31.8% of parents of children with Down syndrome and 25.0% of parents with a child with ASD).
- Most of the surveyed parents claim, however, that such people are not more unhappy (86.3%) and less patient (27.2%) in the opinion of parents of children with Down syndrome, and 93.1% and 18.1% respectively in the opinion of parents children with ASD.
- A smaller percentage of the surveyed parents with a child with Down syndrome (27.2%) and ASD (20.4%) believe that people with disabilities are more childish and that they are often naive.
- Despite the fact that the surveyed parents have already accepted the fact of their own child's disability, in 13.5% of parents of children with Down syndrome and in 9.0% of parents of children with ASD, the sight of a person with a disability causes fear, anxiety, certain fears and even a sense of helplessness.
- Few of the respondents (13.6% of parents of children with Down syndrome and 15.9% of parents of children with ASD) admit that the sight of a person with a disability still makes them anxious, and that the behaviour of people with disabilities is often still annoying for them.
- Half of the parents surveyed (50.0%) believe that people with disabilities still have difficulties in social interaction with non-disabled people.

- More than half (68.1%) of parents of children with Down syndrome believe that such a person can be more easily offended, while parents of children with ASD (56.8%) disagree with this statement.
- The vast majority of parents surveyed (90.9% with a child with Down syndrome and 79.5% with a child with ASD) are of the opinion that children with disabilities should not be educated only in schools and special childcare centres.

In conclusion it should be stated that both in relation to positive characteristics, as well as in relation to negative characteristics, the vast majority of parents surveyed present similar attitudes and opinions, formulating similar answers. Their attitudes towards people with disabilities, enriched by their experience of working with a child with disabilities, change in a positive and accepting direction, especially in the group of parents with a child with ASD.

Next, selected results from a study of parents of children with Down syndrome and parents of children with ASD, using the Attitudes to Disability Questionnaire, will be presented. Due to the limitations of this article only selected outcomes are presented. The results obtained using another tool confirmed again that both positive and negative statements are similar in the group of parents with a child with Down syndrome and a child with ASD.

- More than half of the surveyed parents of children with Down syndrome (52.7%), and half of the parents with a child with ASD say that they would accept a person with a disability as their best friend (50.0%).
- All respondents or 100.0% of parents of children with Down syndrome, and 93.1% of parents of children with ASD would accept a person with a disability as their neighbour. Similarly, all respondents (100.0%) accept a person with a disability in their company, and as a companion, as a playmate of siblings, as a visitor to their home and as a classmate of their child (100.0%).
- Approximately half of the parents surveyed say they would accept such a person as their life partner (54.5% of parents of children with Down syndrome and 50.0% of parents of children with ASD).
- The vast majority of parents surveyed (81.8% of parents of children with Down syndrome and 77.2% of parents of children with ASD) say they would show up with a person with a disability in a public place.
- All parents surveyed would invite such a person to their home (100.0%).
- Similarly, 100.0 % of parents with a child with Down syndrome, and 90.9 % of parents with ASD say that people with disabilities have the opportunity to express themselves creatively in various areas of arts and creativity.

- The vast majority of surveyed parents of children with Down syndrome (88.6%), and (90.9%) parents of children with ASD believe that people with disabilities can achieve benefits from education.
- Only 9.09% of parents with a child with Down syndrome and 4.5% of parents with ASD believe that people with disabilities cannot participate in similar forms of entertainment as non-disabled people.
- All surveyed parents of children with Down syndrome (100.0%) and 88.6% of parents with ASD confirm that people with disabilities are capable of experiencing feelings.
- About half of the surveyed parents of children with Down syndrome (50.0%) and parents with ASD (54.5%) believe that people with disabilities can compensate for their deficits.
- All respondents (100.0%) of parents with Down syndrome and ASD claim that people with disabilities should not stay in a closed childcare institution, and only one of the surveyed parents cannot agree with this view.
- Also few of the surveyed parents of children with Down syndrome (9.0%) and with ASD admit that people with disabilities are aggressive (18.1%).
- The vast majority of parents surveyed disagree with the statement that people with disabilities come from neglectful backgrounds (81.8% of parents of children with Down syndrome, and 90.9% of parents with ASD).
- Very few of the parents surveyed believe that contact with people with disabilities is burdensome (22.7%) and that people with disabilities are unhappy (4.5% of parents with Down syndrome and 9.05% of parents with ASD).
- Almost all parents of children with Down syndrome and parents with a child with ASD (95.4%) disagree with the statement that the physical appearance of people with disabilities offends them. Also 77.2% of the first group and 75.0% of the second group of parents surveyed do not confirm that people with disabilities are fearful.
- Few of the parents surveyed feel pity at the sight of people with disabilities (22.7%) and over half of them (54.5%) disagree with this view. Similarly, a small number of 13.6% of parents with a child with Down syndrome and 9.0% of parents with a child with ASD believe that seeing people with disabilities makes them feel fearful and anxious and that the behaviour of people with disabilities is often annoying.
- Half of the parents surveyed believe that people with disabilities find it difficult to socialise (50.0%). More than half (68.1%) of the surveyed parents of a child with Down syndrome agree that such a person is easier to offend. In contrast, 79.5% of parents of children with ASD disagree with this statement.

- Nearly all surveyed parents (90.9% of children with Down syndrome and 79.5% with ASD) are of the opinion that children with disabilities should not be educated only in schools, special childcare and educational centres.

In general, it should be noted that both in relation to the so-called positive and negative features, the respondents from the group of parents of children with Down syndrome and from the group of parents of children with ASD gave similar answers, which may indicate the presentation of similar attitudes of the surveyed parents towards people with disabilities. The situation of parents with a child with Down syndrome, with a visible disability of their child, undoubtedly causes this group of parents to perceive more negative features, i.e. problems resulting from their social relationships, a sense of loneliness, helplessness, but often also from the perceived social distance.

Interpretation of selected results from author's own research using the Axiological Questionnaire.

The research has confirmed that parents of children with disabilities such as Down syndrome and ASD present a whole range of values which help them to love their child with disability more and to find the sense of meaning in their own life, to overcome borderline situations like crises and breakdowns resulting from difficult situations caused by the child's behaviour, especially with ASD, but also by the isolation of the environment, especially with regard to parents of a child with Down syndrome.

- For the vast majority of parents surveyed, it is religion that plays a unique and huge role in their lives, helping them to get through successive breakdowns and crises. This is true for 91.9% of parents of children with Down syndrome and 77.2% of parents with ASD.
- Only a few of the respondents, i.e. 9.1 % of parents of children with Down syndrome and 11.3 % of parents with a child with ASD, are not interested in religious matters, while the majority of the respondents (86.3 % of parents of children with Down syndrome and 68.1 % of parents with ASD) consider themselves to be religious. However, more than half of the respondents (63.3 % of parents of children with Down syndrome and 70.4 % of parents of children with ASD) declare that they pray very often. Only a few of the parents surveyed admit not going to church (4.4% of parents of children with Down syndrome and 18.1% of parents of children with ASD).
- The research confirmed that parents of children with disabilities (100.0% of parents of children with Down syndrome and 95.4% of parents of children with ASD) claim that the family has a valuable and irreplaceable function in society.
- The vast majority of respondents i.e. 70.4% of parents of children with Down syndrome and 68.1% of parents of children with ASD believe that their mission is to act selflessly for others. They are very keen to help others, the weaker ones, and to participate in many organizations and aid campaigns.

– Only a few of the parents surveyed agree that people should not be constrained by any moral rules. This is stated by 4.5% of parents with a child with Down syndrome and 18.1% of parents with ASD.

Discussion of results and conclusion

The research confirms the great moral value that children with disabilities, even those as difficult for parents as Down syndrome or ASD, can have on the family system as a whole and on parents in particular. A child with Down syndrome or ASD affects not only the person affected, but also other people in their lives who are involved. It affects many aspects of the family and especially the parents' lives and can determine the child's abilities and limitations, but also the functioning of the whole family system (Pawlikowska, Maciejewska, 2018). Parents' attitudes are being modified towards acceptance of "otherness" and in particular towards appreciation of their child's efforts to function similarly in the world of healthy non-disabled people. For both parents of children with Down syndrome and parents of children with ASD, education is not a determining factor of attitudes towards people with disabilities, as the vast majority of parents surveyed are educated people, concerned about the welfare of their own children with disabilities. Regardless of the disability of the surveyed children, the presented attitudes of parents of children with Down syndrome and ASD are largely positive. Parents, despite the difficulties, believe in the possibility of integration and inclusion, normalization of the lives of people with disabilities, and even demand this normalization, meeting the special needs of their children, and the right to education like for others. The appearance of any developmental abnormalities in a child is always a stressful situation for parents expecting help and support (Wrona, Wrona, 2016).

The research also shows that parents involved in helping others, characterised by a high level of moral and religious values, tend to present positive attitudes towards the weak, the vulnerable, those in need of help and support, towards people with disabilities and their families. It is also an attitude of taking responsibility for one's own actions and for the welfare of a child with Down syndrome or ASD. Self-awareness, motivation, control of emotions, the ability to set goals, to make decisions, solve problems, evaluate difficult situations independently, and the ability to self-motivate are important here (Mitchel, 2016). It is also involvement into activities, inclusion strategies, introducing the child with a disability into the process of inclusive education, i.e. teaching children with special educational needs in a typical mainstream school environment. All of this results in parents taking determined action to improve the situation of their child with Down syndrome or ASD. Searching for the best strategy for the child (Niedbalski, 2019), the best doctor for the child, the best therapy or rehabilitation, worrying about the child's future, are the main actions of parents (Drabata, 2019). The attitudes and values presented by parents of children

with Down syndrome and ASD are still not always supported in Poland by the professional system of help and support for such families (Chrostowska, 2018). However, for such families as families with a child with Down syndrome and families with a child with ASD, love is stronger than pain and motherhood and fatherhood is a unique vocation and value for them (Sozańska, 2016).

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The quality of communication between spouses raised in nuclear and single-parent families

Poziom komunikowania się u małżonków pochodzących z rodzin pełnych i niepełnych

Abstract: The article concerns marriage communication among husbands and wives raised in nuclear and single-parent families. Marital communication is a crucial factor determining the quality and stability of marriage. Moreover, communicating spouses are a source of role models for their children. Research on a sample of 296 participants (148 couples) using the Communication in Marriage Questionnaire (KKM) by Mieczyslaw Plopa and Maria Kaźmierczak indicates irregularities in communication between spouses raised in single-parent families. Dysfunctional communication in marriage mainly consists in low commitment to communication with the spouse and a high level of depreciation.
Keywords: marriage communication, nuclear families, single-parent families, quality of marriage

Abstract: Artykuł dotyczy komunikacji w małżeństwie u mężów i żon pochodzących z rodzin pełnych i niepełnych. Zagadnienie komunikacji w małżeństwie jest istotnym czynnikiem warunkującym jakość małżeństwa i jego trwałość, ale także komunikujący się małżonkowie są źródłem wzorców dla swoich dzieci. Badania przeprowadzone w grupie 296 osób (148 par małżeńskich) za pomocą Kwestionariusza Komunikacji Małżeńskiej KKM Mieczysława Plopy i Marii Kaźmierczak wskazują na nieprawidłowości w komunikowaniu się wśród małżonków pochodzących z rodzin niepełnych. Dysfunkcje w komunikacji małżeńskiej dotyczą głównie niskiego poziomu zaangażowania w komunikację z partnerem oraz wysokiego poziomu deprecjacji.
Słowa kluczowe: komunikacja w małżeństwie, jakość małżeństwa, rodziny pełne, rodziny niepełne

Introduction

In every marriage there has to be communication concerning both important and everyday matters. It not only serves the purpose of information exchange between husband and wife but also impacts the quality of the relationship. An important task for spouses is to establish a pattern of communication that will enable mutual understanding and the experience of intimacy. One may ask at this point: To what extent is this pattern related to their experience in their families of origin? Do the interaction patterns found in families of origin impact on the marital communication of grown-up children raised in those families?

Are young people raised in single-parent and broken families, in which they did not have the opportunity to observe everyday communication between mother and father, capable of communicating with their spouses in a satisfactory manner? The present article is a reflection on these issues.

1. The Family System

Family is the first, basic, and essential life environment for every person (Jakubiak & Nawrot-Borowska, 2016; Wolska-Długosz, 2016, Strużyńska, 2020). It satisfies important needs and helps accomplish important life tasks, thus increasing self-esteem; it also shapes the adolescent child's sense of identity. It is in the family that behavior patterns develop and that specific views and attitudes are assimilated. Family is a source of principles and behavior patterns for children (Brzezińska, Appelt, & Ziółkowska, 2016; Ostafińska-Molik & Wysocka, 2016; Zalewska, 2017). More and more often, family is considered as a system with its own norms and rules and a variety of measures to maintain its coherence; it is, moreover, seen as a system that has specific goals and specific ways of satisfying the needs of its members (Jankowska, 2016; Ryś, 2001; Segal, Qualls, & Smyer, 2018).

The family system is an organized composition of elements that make up a coherent whole (Bajkowski, 2017; Drożdżowicz, 2020), and a change in any of its components influences the remaining ones (attesting to its holistic nature). The elements of the system are interrelated, and circular causality creates a feedback loop, making it possible for someone or something to be both a cause and an effect of specific behaviors (Józefik, 2020; Margasiński, 2015; Rostowska, 2008). The individuals who make up a family are dependent on one another, share a common history, and are bound by emotional ties (Plopa & Połomski, 2010). Family members together make up a network of interrelations. Each of them is an individual person and at the same time bears the marks of the whole system (Ryś, 2001; Wampler & Patterson, 2020). A family is a whole, and changes concerning any of its elements influence the remaining ones. A change of internal or external conditions forces the entire family system to engage in adaptive actions, enabling proper functioning. This is the case, for example, when the parents separate or divorce or/and when a new family member is adopted, or when a close family member dies. Such events may bring about profound changes to the functioning of the remaining individuals in the family, considered as a whole. The more the loss or gain in a situation of family breakdown or reconstruction concerns the parents, who constitute the central subsystem, the greater the changes of this kind. The existing behavior pattern is upset and a new one is sought, better suited to the current conditions (Grzesiuk & Jakubowska, 2005; Walęcka-Matyja & Janicka, 2021).

The family system consists of hierarchically organized subsystems (Drożdżowicz, 2020; Franczyk, 2021). The basic subsystems within the family are the marital, parental, and sibling subsystems (Bocakova & Kubickova, 2013; Rostowska, 2008).

The main relationship in the family system is the marital relationship (Braun-Gałkowska, 1992; Weryszko, 2020), which is why the married couple are sometimes called "the architects of the family" (Satir, 2000), and their sense of marital happiness impacts on their satisfaction with the family and overall satisfaction with life. What plays an important role in building a satisfying marital relationship is communication between the spouses, including the ability to resolve conflicts. The marital subsystem must learn cooperation and at the same time tolerance of each other's differences and independence (de Barbaro, 2020). High marriage quality in other dimensions also facilitates the constructive resolution of difficult situations, which means the relation functions as a feedback loop (Nurhayati, Faturochman, & Helmi, 2019; Weryszko, 2020).

2. The Communication Process

Communication is a complex process that concerns people interacting with one another. It takes place on different levels and varies in scope, from direct "face-to-face" communication between individuals, through communication in a group, to mass communication using complex media and channels, such as the Internet or television (Ogonowska, 2018). According to DeVito (2019), communication is dyadic, which means it takes place between two people who are bound by an established relationship. Accordingly, communication takes place between two siblings, between the spouses, between an employer and an employee, or between a teacher and a student. Matthew McKay, Martha Davis, and Patrick Fanning (2019) point out that effective communication is a basic life skill, building and maintaining relationships with others.

Communication can also be seen as a process consisting in information exchange by means of symbols. The symbols in this exchange are used in the form of words and various nonverbal indicators (Kaźmierczak & Plopa, 2008; cf. Beattie & Ellis, 2017). Accordingly, communication means the flow of information between the sender and the receiver—in an act of communication, the sender transfers content through some kind of channel to the receiver, whom this content is supposed to influence in a particular way (Jankowska, 2016). Interpersonal communication is based on individual interpretation of messages and takes place in a specific context, which means the same information transferred in a different situation may be interpreted differently (DeVito, 2019). In this process there are always factors that hinder the sending and reception of contents, referred to as information noise, which may considerably distort the information being communicated and sometimes even make it totally incomprehensible. The reception of a message is confirmed by the receiver's

answer or by the commencement of a particular action upon receiving the message—namely, feedback. Feedback is very important in every act of interpersonal communication, particularly in close relationships—for instance, in communication between spouses (Jankowska, 2016).

Every person develops their own unique style of communicating with others, referred to as conversational style (Tannen, 1986). It reveals the manner of coding or shaping the message. It also impacts on other people's ways (direct or indirect) of coding and interpreting the information received. The greater the self-awareness, the greater the ability to communicate clearly and directly. What is also of considerable significance is self-esteem, as it is related to the communicating partners' tendency to be frank.

Moreover, the consistency of message is also highly important in the process of communicating. One can speak of consistency when different components of this process convey the same meaning. The level of consistency is determined by the conversational styles in the family of origin (Galvin, Braithwaite, & Bylund, 2015).

Describing the gender aspect of the communication process, Judy C. Pearson, Richard West, and Lynn Turner (1995) suggest that differences in this respect are not so large as they are commonly reported to be. However, according to Deborah Tannen (1990), while women seek such forms of communication that encourage others to engage, men stress autonomy and power. Women are more willing than men to communicate in a less firm and more socially sensitive manner, while men are more willing to provide suggestions, opinions, and information (Anderson & Sabatelli, 1999). Men more readily interrupt others and take control of the conversation, particularly with a woman. Women more often use an indirect style (Tench, Topić, & Moreno, 2017); they are more sensitive to emotional messages, and formulate requests or suggestions more delicately (Mulac, 2009). Accordingly, women are oriented towards emotionality and building relationships, and their communication is characterized by greater expressiveness; men, by contrast, build vertical relations, and communication serves them to climb the ladder of social hierarchy—to position themselves as leaders or experts appraising reality rationally (Osior-Szot, 2018).

3. Communication in Marriage

In the system of communication in close relationships all behaviors are a form of communication; in other words, there is no situation in which nothing is communicated (Plopa, 2008). In marriage there should be communication concerning both important and everyday matters. Communication not only serves the purpose of information exchange but also significantly impacts on the quality of the relationship (cf. Khezri, Hassam, & Nordin, 2020). Ronald Adler, Lawrence Rosenfeld, and Russel Proctor (2018) report that the lack of effective communication contributes to the severing of the marital bond and to the

breakdown of marriage much more often than other factors. What also plays an important role is the elimination of barriers to communication, which allows for enhancing the sense of security and mutual respect (Wróbel, 2021). The effectiveness of the marital communication system depends on clear and comprehensible messages received from each partner; therefore, an important task for the spouses is to establish a communication pattern that will enable mutual understanding and the experience of intimacy. The family is thus built through communication, and a shared narrative contributes to the maintenance of balance and harmonious relations (Segrin & Flora, 2019); it also positively influences the successful performance of the tasks set by the family system (Duda, 2017).

Given that marriage is a unique intimate relationship, communication in this case does not merely consist in interacting; its essential goal is also to support intimacy. It should therefore convey messages to the partner that give him or her a sense of being respected and valued. Intimacy between spouses may concern both the emotional sphere and the intellectual and actional spheres. Emotional intimacy manifests itself in mutual care, sensitivity, tenderness, and empathizing with each other's mental states. Its effect is a sense of security, acceptance, and support—one might say, a sense of happiness that releases human activity (Ryś, 2004). Another element that proves to be significant here is having what can be called a common code, openness to others, and communicating one's feelings, both positive and negative ones. The essence of intellectual intimacy consists in seeking a mutual exchange of experiences and reflections, which facilitates solving problems and treating the spouse as one's equal, a person with their own needs and goals (Ryś, 2004). Actional intimacy manifests itself in common strivings, in shared responsibility for the actions undertaken, and in overcoming obstacles together. It helps in the fulfillment of tasks associated with marriage and parenthood and in the partners' personal growth. Cooperation reinforces friendship between the spouses, thereby contributing to greater satisfaction with the marital relationship (Braun-Gałkowska, 1992; Ryś, 2004).

Mieczysław Plopa (2008) distinguishes three types of marital communication (all three take place simultaneously, and their levels determine the quality of communication between spouses): (1) supportive communication, which conveys appreciation and joy at the partner's existence, the recognition of the partner as a valuable person, and the approval of their ways of expressing themselves; it manifests itself in respect, openness, and interest in the needs and problems of the spouse; (2) committed communication, which highlights the spouses' closeness with each other and the uniqueness of the marital relationship, presupposing the ability to create a warm and intimate atmosphere, efforts to make the partner happy and prevent routine, and the disclosure of personal information about oneself so that the spouses can get to know each other better, develop mutual understanding, and learn each other's thoughts and expectations; (3) communication depreciating the spouse, which results in the partners drifting apart; it is characterized by aggressive behavior, lack of

respect for the other person's dignity (insults, arrogant behavior), and a desire to dominate and control the spouse.

Various difficulties appear in marital communication. Some of them stem from the content of messages or from the interlocutors' individual conversational characteristics (DeVito, 2019). Open contact with the other person is hindered by a sense of uncertainty, rooted in low self-esteem. Another difficulty in communication between spouses is the different nature of their psyche. Women's approach to married life is more emotional, while men's approach is more rational (Celmer, 1989). Married couples dissatisfied with their relationship show a tendency to reciprocate negative messages (Tryjarska, 2003). Research shows that the communication of negative contents is found more often among couples dissatisfied with marriage than among satisfied ones. This means communication is ineffective if it is criticism that dominates in messages to the spouse (Weryszko, 2020).

A significant component of marital communication is resolving conflicts—coping with situations that involve a clash of opposing views, aspirations, desires, or expectations. Most conflicts and misunderstandings stem from communication difficulties, particularly from the inability to identify one's own and the partner's needs and psychological characteristics and from the inability to send and receive messages. The research conducted by Aleksandra Szczęsna and Hanna Przybyła-Basista (2019) showed that men experiencing conflict situations found it more difficult than women to talk about problems openly or to come into close physical contact with their partner. They found it much easier to engage in specific actions to improve the functioning of the relationship (e.g., shared meals, shopping, or taking care of the partner's health). What women expected from men was support in the form of frank verbal and nonverbal communication. Thus, the messages communicated can either build or ruin the relationship. Resolving conflict situations constructively can contribute to an increase in self-knowledge and an enhancement of personal autonomy, thus strengthening cohesion in marriage. A conflict of this kind usually concerns facts; it does not strike at the partner's dignity and is not meant to hurt him or her; the emotions about current events are expressed in an honest and straightforward way. Communication in such situations is clear and transparent, and verbal messages are consistent with nonverbal ones.

Unfortunately, some conflicts lead to the disintegration of the relationship. They often concern speculations, conjectures, or fantasies, and spouses hurt each other by using unpleasant epithets. It sometimes happens that one of the partners shows disrespect to and humiliates the other, in which case commitment to the resolution of conflict is one-sided. This is where first contradictory messages appear, which leads to irritation or a sense of helplessness (Ryś, 2004).

4. Single-Parent Families

The original understanding of family was associated with relationships of consanguinity and included people linked by blood relationships or affinity; this is reflected in the structural definition, according to which "a family is composed of at least one parent and one child who are biologically related to each other and share a common place of residence" (Slany, 2002, p. 79). Considering the completeness of structure, Natalia Han-Ilgiewicz (1995, as cited in Koprowicz, Gumowska, & Piotrów, 2018) distinguished the following types of families: nuclear, single-parent (an unmarried mother with a child), incomplete (as a result of mother's or father's death), broken (left by mother or father), and reconstructed (including a stepfather, a stepmother, or an adopted child). In the Polish literature on family issues one can observe the view that the social norm is a nuclear family, which is a model of family based on indissoluble marriage, composed of parents and children (Walęcka-Matyja, 2014; Wilk, 2016). The lack of some personal components in this composition results in the incompleteness of the family structure. The terms proposed by scholars to refer to family structures other than nuclear point to difficulties or problems in the functioning of such families (Burkacka, 2017), for instance: broken families, dysfunctional families, fatherless families, or unmarried motherhood.

A family can be called a single-parent family when only one of the parents lives together with the children and takes care of them (Burkacka, 2017; Krasiejko, 2018). The causes behind the emergence of such families are diverse: from conscious decision to be a single mother, through the spouse's death, to divorce, separation, or informal break-up of the spouses and to migrations (Wolska-Długosz, 2016). Recent years in Poland have witnessed a consistent increase in the proportion of extramarital births in the total number of births and an increase in divorce rate. This has resulted in an increase in the number of single-parent families; such families constituted 11.0% of families raising children up to 16 years of age in 2010, which increased to 15.4% by 2019 (GUS, 2020). Among single-parent families the dominant model is a mother raising children on her own—such families account for 19.4% of Polish families (single fathers account for 2.8%). The causes of the current increase in the number of single mothers lie not so much in the spouse's death as in the increasing number of alternative forms of family life and in the processes of family disorganization that end up in divorce or separation. These factors lead to an increase in the number of extramarital births and to one parent, usually the mother, taking charge of the child (Marek-Zborowska, 2016). These families deserve attention because they struggle with various problems that concern the financial sphere on the one hand (lower income, with one person having to provide for the family; Kalinowski, Jabłońska-Porzuczek, 2016) and the

psychosocial sphere on the other. Raising a child on one's own is also a source of parental stress.

The cause of single parenthood can be divorce, the spouse's death or permanent absence, or children being born out of wedlock (Burkacka, 2017). A single-parent family is thus a characteristic type of structure in which parental tasks are performed by one parent and in which relations with the caregiving parent dominate in the child's life (Gawda, 2018).

The term "incomplete family" is also sometimes used to refer to those families in which both parents are lacking and the children are brought up by their older siblings, grandparents, or relatives, or to families with two parents in which one of the parents does not perform the tasks involved in parental duties due to work at a location distant from the place of residence (e.g., a sailor; Nowak, 2018).

A broken family is considered a type of single-parent or incomplete family, with emphasis placed on the fact that it is a family that failed in terms stability and is devoid of the presence of one or both parents as a result of separation or divorce (Szewczuk, 2010). In such cases, the child has to cope with the loss of a stable family that used to give a sense of security and with the absence of one of the parents in everyday life. Unfortunately, the child often witnesses pathological communication between the parents before and during divorce; he or she may also be used by one of the parents as a weapon against the other. Adaptation to the new life comes with time, but the stress associated with parents' divorce may have far-reaching consequences concerning, for instance, self-esteem or the ability to enter into relations with others (Brągiel, 2017; Olearczyk, 2008).

More and more often, children are brought up in so-called binuclear families, ones with two nuclei, where divorced or informally separated parents engage in raising their child to an equal degree. This means the child has two homes: mother's and father's (Burkacka, 2017).

The category of single-parent or incomplete families can be seen as including also nomadic (itinerant, visit-based) families—namely, the increasingly frequent situations in which the family functions only for some time because one of its members (usually the father) works far from home, and the children and the spouses see one another only during leaves or weekends and usually maintain their relationship via Internet connections. Upbringing in this kind of family resembles the functioning of a broken family. Such families account for approximately 4% of all families in Poland (Burkacka, 2017; Molesztak, 2017).

Both a nuclear family and a single-parent family may be an environment conducive to children's development, or the fulfillment of care and educational tasks may be threatened there. A single-parent family may struggle with difficulties in satisfying basic economic needs; it may also limit its educational and socializing functions—for example, due to the lack of identification of the father with the son. Problems may concern the single mother's authority, father's contacts with children during separation, or disciplining the children (e.g.,

a greater number of corporal punishments administered to sons). Single mothers may experience anxiety and fear, and they may tighten their relations with the child in order to compensate him or her for the father's absence. The situation of these families should not be generalized, however (Kuzdak, 2018; Matyjas, 2015; Wolska-Długosz, 2016).

Changes in the family structure undoubtedly modify the conditions of fulfilling parental functions and, consequently, the conditions of children's development and upbringing (McKay, Davis, Fanning, 2019). It is therefore reasonable to assume that adolescents' development and preparation for adulthood in single-parent families proceeds differently than it does in nuclear families (Parzątka-Lipińska, 2019). This, however, does not justify the opinion that a single-parent family fails to ensure an atmosphere favorable to upbringing and does not give children a chance for harmonious development. When one of the parents is missing in the family, the child's development is modified—due to incomplete intergenerational transmission, among other reasons. Growing up in a single-parent family, a young person does not receive all the necessary patterns of symbolization, evaluation, and categorization of experience, which impedes psychological functioning and the competent resolution of developmental tasks (Danielewicz-Mucha, 1995). The research conducted by Hanna Liberska (1998) showed the similarity of the systems of values of young people raised in nuclear families and those raised in single-parent families, but there were certain differences between these two groups in the hierarchy of values. In the preferences of adolescents brought up in single-parent families emphasis is placed on values associated with career and with moral and religious development, whereas for adolescents raised in nuclear families the most important values are those associated with social life and strong interpersonal ties, such as marriage, friendship, sociopolitical engagement, and the material sphere. Young people from the latter group combine aspirations oriented to family happiness and material welfare with engagement in the functioning of broader communities, while young people from single-parent families tend to be oriented towards their own professional and spiritual development. The system of values functioning in both groups of adolescents reflects the values commonly accepted in our culture, which means both nuclear and single-parent families create conditions for boys and girls to fulfill the developmental task of forming a system of values and, on this basis, to form a framework of life plans for the future. Also optimistic is the result showing that in difficult situations young people from both backgrounds tend to choose rational strategies. This portends well for the efficiency of functioning, both in adolescence and in the subsequent periods of life. Regardless of the family background, contemporary adolescents have relatively good well-being, high self-esteem, and positive attitudes to life. Liberska stresses that the group which has more favorable conditions for development is boys and girls raised in nuclear families, whom mothers provide with conditions for developing positive self-esteem and whose positive attitude towards their personal future has a greater chance to develop thanks to the father.

Basically, however, research results does not support the fears that a single-parent family is incapable of securing the proper functioning and development of adolescent children.

The research conducted by Bożena Matyjas (2015) revealed a complex picture of children raised in single-parent families. Half of the participants experienced a developmentally unfavorable home atmosphere of distrust, conflicts, excessive demands, severity, and criticism. The loneliness of the children in this group stems from disturbances regarding emotional bonds. The participants maintained positive relations with their siblings, who were quite often the only support for them. Disturbed emotional relations in the family lead to the development of negative behaviors that interfere with proper acceptance in the peer group, thus causing rejection and growing loneliness; this in turn may lead to lasting destructive changes and to problems in adult life (Przybysz-Zaremba, 2017).

5. Intergenerational Transmission

Intergenerational transmission is the transfer of psychophysical characteristics between parents and children, involving the biological and social environment. It is described as a kind of generational continuity regarding behavior patterns that result from an individual being part of and spending time with the family (Farnicka, 2016). The handing down of values in the family takes place thanks to two processes. The first of these concerns the marital relationship and consists in the modification of values as a result of mutual influences (through a mechanism referred to as the alignment of values, which is related to interpersonal attractiveness). The second process is associated with handing down values to the generation of children through social inheritance. This takes place directly—in the form of parents' intentional educational interventions (the modeling, identification, and shaping of the semantic structure of children's concepts by parents)—or indirectly, in the form of channels for incorporating values into the structure of children's personality through parental attitudes, emotional climate, and the satisfaction of psychological needs (Elżanowska, 2012).

According to Małgorzata Sitarczyk (1995) what plays the key role in intergenerational transmission is individual experiences, mainly those from early childhood (the events, situations, and contacts with the environment that provide stimulation and serve as the basis for further development), and family life factors, such as social imitation, identification, and modeling. Performing specific roles, parents provide their children with models, which means everyday contacts with the parents, observing how they pursue the values they have recognized as important in their life, and encouragement to live by these values make it possible for the children to internalize them and adopt them as their own.

The experiences from the family of origin, concerning socialization, position in the family, and interactions with mother and father, impact on young adults' interactions in

close relationships and on their preferences associated with upbringing, decision making, or exercising power. The research conducted by Paul Schrodt and Xavier Scruggs (2020) indicates that the family also provides family communication patterns. The transmission of various aspects of functioning from the family of origin into the family of procreation makes it possible to understand young adults' ways of functioning in marital and parental roles (Plopa, 2008).

6. Methodological Assumptions of the Present Study

The subject of the research presented in this article was the quality of marital communication in men and women raised in nuclear and single-parent families.

The study was meant to answer the following questions:

1) What are the levels of support, commitment, and depreciation shown to the spouse by husbands and wives raised in nuclear families?

2) What are the levels of support, commitment, and depreciation shown to the spouse by husbands and wives raised in single-parent families?

3) What are the levels of support, commitment, and depreciation experienced from the spouse by husbands and wives raised in nuclear families?

4) What are the levels of support, commitment, and depreciation experienced from the spouse by husbands and wives raised in single-parent families?

5) Are there differences in the levels of support, commitment, and depreciation shown to the spouse between individuals raised in nuclear families and those raised in single-parent families?

6) Are there differences in the levels of support, commitment, and depreciation experienced from the spouse between individuals raised in nuclear families and those raised in single-parent families?

We conducted the study using the Communication in Marriage Questionnaire (KKM), developed by Maria Kaźmierczak and Mieczysław Plopa (2008). The questionnaire comes in two versions: one for measuring self-reported behaviors and the other for rating behaviors experienced from the partner. Each version consists of 30 items and yields scores on three dimensions: Support, Commitment, and Depreciation.

Support is defined as showing respect to one's partner by appreciating their efforts, showing interest in their problems and needs, and solving problems together. Commitment is the ability to create an atmosphere of mutual understanding and intimacy, showing feelings to each other, highlighting the importance and uniqueness of the partner, adding variety to the daily routine, and preventing conflicts. Depreciation means showing aggression towards the partner, a desire to dominate the partner and control their actions, and a lack of respect for their dignity.

The participants were married people in their young adulthood, aged 22 to 35 years, bringing up at least one preschool child. We distinguished two groups among them:

1) Married people raised in nuclear families: 144 participants, 72 men and 72 women.

2) Married people raised in single-parent families: 104 participants, 52 men and 52 women.

7. Results

In the statistical analysis of research results we used arithmetical means, standard deviations, and Student's t-test to compute differences between the groups.

The Table 1 presents data concerning the behaviors self-reported by spouses raised in nuclear families.

Table 1. Self-Reported Behaviors of Spouses Raised in Nuclear Families: Differences Between Men and Women

KKM scales	Men		Women		Total sample		Student's *t*	CL
	M	*SD*	*M*	*SD*	*M*	*SD*		
Support – RS	40.51	5.97	41.82	5.82	41.26	5.91	-1.32	.09
Sten scores	sten 6		sten 6		sten 6			
Commitment – RS	31.00	6.17	33.17	8.56	32.24	7.68	1.69	.04
Sten scores	sten 5		sten 6		sten 5/6			
Depreciation – RS	23.51	9.34	22.68	9.90	23.04	9.64	0.51	.30
Sten scores	sten 6		sten 6		sten 6			

Note. *M* = arithmetic mean; *SD* = standard deviation; CL = confidence level; RS = raw score.

Source: authors' research.

One can observe that, in fact, all scores of spouses raised in single-parent families are medium.

Analysis shows that there was one statistically significant difference at .05 between men and women in commitment—namely, men rated their commitment to the relationship lower than women rated theirs.

The next Table 2 present the scores of spouses raised in single-parent families.

Table 2. Self-Reported Behaviors of Spouses Raised in Single-Parent Families: Differences Between Men and Women

KKM scales	Men		Women		Total sample		Student's *t*	CL
	M	*SD*	*M*	*SD*	*M*	*SD*		
Support – RS	38.2	9.57	42.0	5.03	39.9	8.07	-2.27	.01
Sten scores	sten 5		sten 6		sten 5			
Commitment – RS	29.9	7.49	30.5	6.05	30.17	6.86	-0.43	.33
Sten scores	sten 4		sten 5		sten 5			
Depreciation – RS	24.4	6.88	21.5	6.01	23.11	6.64	2.1	.02
Sten scores	sten 6		sten 5		sten 6			

Note. *M* = arithmetic mean; *SD* = standard deviation; CL = confidence level; RS = raw score. Source: authors' research

As in the case of spouses brought up in nuclear families, all scores of those raised in single-parent families were medium, except the score on commitment, which was low (i.e., men rated their level of commitment to the relationship as low).

The scores were the highest on depreciation (sten 6 for the whole group), particularly in men (sten 6)—they indicate a tendency to depreciate their wives. Women scored equally high on support (sten 6), which indicates a high level of support given to the partner.

Men's commitment scores were at the level of sten 4, which may stem from the lack of openness to communication with the spouse in the male subgroup. Significant differences between men and women raised in nuclear families were found in support (higher in women; $t = -2.27$, $p < .01$) and depreciation (higher in men; $t = 2.1$, $p < .02$).

Table 3. Differences in Self-Reported Behaviors Between Spouses Raised in Nuclear and Single-Parent Families

Group	KKM scales	Nuclear families		Single-parent families		Student's *t*	CL
		M	*SD*	*M*	*SD*		
Men	Support	40.51	5.98	38.2	9.57	1.67	.05
	Commitment	31.0	6.17	29.9	7.49	0.85	.19
	Depreciation	23.52	9.34	24.4	6.88	-0.55	.29
Women	Support	41.83	5.82	42.0	5.04	-0.15	.43
	Commitment	33.17	8.57	30.5	6.55	1.76	.04
	Depreciation	22.68	9.90	21.5	6.01	0.69	.24
Total group	Support	41.26	5.91	39.9	8.07	1.71	.05
	Commitment	32.24	7.68	30.17	6.86	2.08	.02
	Depreciation	23.04	9.64	23.11	6.64	-0.06	.47

Note. *M* = arithmetic mean; *SD* = standard deviation; CL = confidence level. Source: authors' research.

The comparison of total groups raised in nuclear and single-parent families revealed significant differences in the levels of support ($t = 1.71$, $p < .05$) and commitment ($t = 2.08$, $p < .02$), which were higher in spouses brought up in nuclear families.

The comparison of men raised in nuclear and single-parent families revealed a significant difference in the level of support for wives ($t = 1.67$, $p < .05$), which was higher in men raised in nuclear families. The comparison of women's scores in the two groups showed a significant difference in the level of commitment ($t = 1.76$, $p < .04$), which was also higher in women raised in nuclear families.

Regarding spouses brought up in nuclear families, the wives were more committed to marital communication, while the husbands were more supportive towards them, which means in their families there is a greater probability of satisfying relations than in the case of spouses raised in single-parent families.

Table 4. Evaluation of Partner Behaviors by Spouses Raised in Nuclear Families: Differences Between Men and Women

KKM scales	Men		Women		Total sample		Student's *t*	CL
	M	*SD*	*M*	*SD*	*M*	*SD*		
Support – RS	39.21	7.51	41.28	7.48	40.32	7.54	-1.67	.05
Sten scores	sten 5		sten 6		sten 5			
Commitment – RS	27.12	5.02	27.53	4.88	27.34	4.94	-0.49	.31
Sten scores	sten 4		sten 4		sten 4			
Depreciation – RS	26.21	7.17	26.21	5.65	26.04	6.37	0.29	.38
Sten scores	sten 7		sten 7		sten 7			

Note. *M* = arithmetic mean; *SD* = standard deviation; CL = confidence level; RS = raw score. Source: authors' research.

The analysis of the data presented in the Table 4 indicates medium scores on support received from the partner. There was a significant difference between husbands' and wives' scores ($t = -1.67$, $p < .05$)—women rated the support received from their husbands higher than men rated the support received from their wives.

Scores on the partner's perceived commitment were low (sten 4) and scores on depreciation experienced from the partner were high (sten 7).

The analysis of the results presented in the Table 5 showed that the scores on support received from the partner were medium bordering on low (both in men and in women).

Table 5. Evaluation of Partner Behaviors by Spouses Brought Up in Single-Parent Families: Differences Between Men and Women

KKM scales	Men		Women		Total group		Student's *t*	CL
	M	*SD*	*M*	*SD*	*M*	*SD*		
Support – RS	38.9	9.25	40.37	2.77	39.69	6.59	-1.27	.10
Sten scores	sten 5		sten 5		sten 4/5			
Commitment – RS	26.0	4.51	25.96	2.66	25.98	3.61	0.06	.47
Sten scores	sten 3		sten 3		sten 3			
Depreciation – RS	23.9	5.99	29.68	10.57	27.03	9.21	-3.75	.0001
Sten scores	sten 6		sten 8		sten 7			

Note. *M* = arithmetic mean; *SD* = standard deviation; CL = confidence level; RS = raw score. Source: authors' research

The participants scored low on their partners' perceived commitment to marital communication; both husbands and wives critically evaluated the level of their partners' commitment (sten 3). Spouses' scores on the Depreciation scale ranged from sten 6 to sten 8, indicating a tendency to manifest verbal aggression towards the partner and a desire to control him or her; such scores may also indicate a lack of respect for the partner's dignity. On this scale there was a significant difference between men and women ($t = -3.75$, $p < .0001$), with women reporting a higher level of depreciation experienced from the partner (sten 8).

Table 6. Differences Between Spouses Raised in Nuclear and Single-Parent Families in the Evaluation of Partner Behaviors

Group	KKM scales	Nuclear families		Single-parent families		Student's *t*	CL
		M	*SD*	*M*	*SD*		
Men	Support	39.21	7.51	38.9	9.25	0.21	.42
	Commitment	27.12	5.02	26.0	4.51	1.32	.09
	Depreciation	26.21	7.17	23.9	5.99	1.96	.03
Women	Support	41.28	7.48	40.37	2.77	0.96	.17
	Commitment	27.53	4.88	25.96	2.66	2.41	.008
	Depreciation	26.21	5.65	29.68	10.57	-2.78	.003
Total group	Support	40.32	7.54	39.69	6.59	0.73	.23
	Commitment	27.34	4.94	25.98	3.61	2.60	.005
	Depreciation	26.04	6.37	27.03	9.21	-1.05	.15

Note. *M* = arithmetic mean; *SD* = standard deviation; CL = confidence level. Source: authors' research

The data presented in Table 6 indicate that there were significant differences between men raised in nuclear and single-parent families in depreciation experienced from the spouse ($t = 1.96$, $p < .03$). Its level was higher in the group of men brought up in nuclear families (which means that they were either more critical or prepared to put up with more from their wives). Husbands raised in single-parent families evaluated their wives more favorably on this dimension.

We found significant differences also between women raised in nuclear and single-parent families in the evaluation of their husbands' commitment to communication ($t = 2.41$, $p < .008$), with wives raised in nuclear families scoring higher. A statistically significant difference existed also between wives raised in nuclear and single-parent families in the level of depreciating behavior they experienced from their husbands ($t = -2.78$, $p < .003$); women brought up in single-parent families experienced such humiliating behaviors from their partners more often.

In the comparison of scores between the total groups, only the difference in the partner's perceived commitment turned out to be significant ($t = 2.60$, $p < .005$), with spouses raised in nuclear families scoring higher.

Conclusion

The research results presented above leads to the conclusion that there are two pictures of communication in marriage, as there is no correspondence between self-reported behaviors and the evaluation of partner's behaviors. Spouses evaluate their contribution to marital communication as medium, and at the same time they judge their partners' contribution critically; this is the case particularly for commitment to marital communication and for depreciating the partner.

One can also conclude that communication between spouses raised in single-parent families is of lower quality than communication between spouses brought up in nuclear families. As far as self-reported behavior is concerned, higher levels of support and commitment to communication are reported by spouses raised in nuclear families. In partner behavior evaluations, the levels of the spouse's perceived commitment to communication is also higher among participants raised in nuclear families than among those brought up in single-parent families.

Evaluations differ in the case of depreciation experienced from the partner. Its level in men is higher in the group raised in nuclear families, while among women it is higher in the group raised in single-parent families. It should be noted that participants rated the level of their own depreciating behavior towards the partner as medium, while their evaluation of their partners' level of depreciating behavior was higher. The use of communication

depreciating the partner can contribute to the feeling of dissatisfaction with the relationship (Weryszko, 2020).

The subject of our study seems to be important, as the research conducted by other authors (e.g., Jankowska, 2016; Dakowicz & Dakowicz, 2021) revealed significant relations between marital communication and satisfaction with marriage. The quality of marriage is perceived as higher if a spouse evaluates both themselves and the other spouse as more supportive and committed to communication and as less depreciative. High scores on depreciation may therefore be a sign of dissatisfaction with marriage and a threat to its stability. The research results reported by Katarzyna Adamczyk (2013) indicate that spouses differ in how they evaluate their own commitment and that of the other spouse. As in our study, women rated their own abilities of creating an atmosphere of intimacy and understanding lower than men did. This study showed, moreover, that when one of the spouses evaluated the other one as supportive, he or she was more often evaluated as supportive too. Commitment ratings follow a similar pattern. Wives consider themselves more supportive than their husbands consider them to be, while husbands' communication is evaluated equally by husbands themselves and by their wives. It is reasonable to suppose that the source of these discrepancies lies in the different upbringing of boys and girls (Schaffer, 2021). In the case of women more attention is devoted to empathy and supportive behaviors, which is why they may rate themselves higher than their husbands rate them on the support they provide.

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Loneliness, Solitude and Isolation in the Family as Conceptualised by Jesper Juul

Samotność i osamotnienie w rodzinie w ujęciu Jespera Juula

Abstract: This article presents an analysis of the theory of relations and upbringing in the family as conceived by Jesper-Juul, whereby the focal point of the study rests on solitude, loneliness and isolation. The research was conducted using an analytical-synthetic method elaborated on the basis of the works of this pedagogue and therapist.
The obtained results indicate an ontological dimension of loneliness in the family, and the need for its prior experience to guarantee one's capacity to forge satisfying future relationships. The analysis of Juul's work leads to the conclusion that solitude and loneliness experienced in the family promote emotional growth of partners and that of the child. The work further focuses on destructive loneliness, i.e. isolation. The predominant conclusion drawn therefrom is that solitude and loneliness in the family carry a relationship-building potential. In the era of the COVID-19 pandemic, undertaking an in-depth analysis of this problem is particularly justified.
Key words: isolation in the family, Jesper Juul, family, loneliness and solitude in the family

Abstrakt: Artykuł stanowi oryginalną analizę teorii relacji i wychowania w rodzinie Jespera Juula w perspektywie samotności i osamotnienia, dokonaną w oparciu o metodę analityczno-syntetyczną na kanwie prac pedagoga i terapeuty rodzin. Uzyskane wyniki badań wskazują na ontologiczny wymiar samotności w rodzinie, potrzebę jej uprzedniego doświadczenia dla jakości tworzonych relacji. Analizy twórczości Juula prowadzą do wniosku, że doświadczenie samotności sprzyja rozwojowi partnerów w rodzinie oraz rozwojowi dziecka. W pracy wskazuje się również na przejawy destrukcyjnej samotności, czyli osamotnienia w rodzinie. Najważniejsze wnioski prowadzą do konkluzji, że samotność w rodzinie ma moc relacjotwórczą. Artykuł stanowi wkład w pogłębione rozumienie problematyki samotności i osamotnienia w rodzinie. W dobie pandemii COVID-19 podjęcie analizy tego problemu jest szczególnie uzasadnione.
Słowa kluczowe: Jesper Juul, osamotnienie w rodzinie, samotność w rodzinie

Inroduction

Jesper Juul (1948 - 2019) was a Danish family therapist and pedagogue. His work gained him international recognition from both parents and scholars. His books have been translated into over a dozen languages. The work of Jesper Juul seems to be of paramount and truly ground-breaking importance when it comes to the perception of relationships in the family unit and, in particular, with the regard to the relationship unfolding between

parents and children. This educationalist is credited with creating a new educational paradigm based on the transition from obedience to responsibility[1]. Following an in-depth analysis of Juul's work, one may venture to formulate a thesis which holds the Danish therapist as the creator of pedagogy of family relations in itself. Juul combines theory and practice relating to family life in a hitherto unprecedented way for pedagogy. The term "upbringing" is deliberately avoided in this approach. Juul's concept of supporting the development of a child in the family unit (or actually supporting the development of each family member, regardless of their age) goes far beyond what is commonly understood in pedagogy under the term "upbringing" in (Salamucha, 2004). Jesper Juul outlines the principles and the foundations of family life, which are aimed at safeguarding the well-being of both individual family members and the family as a whole. He then shows how these foundations determine the daily functioning of families. One of the spaces present in the lives of families – and one which is also linked to their well-being – is the space of loneliness and solitude.

The aim of the article is to analyse the essence and meaning of the space of loneliness and solitude, while also shedding light on the dangers of loneliness in the family, as conceptualised by Jesper Juul. The following research problems have been adopted: What is the essence and meaning of loneliness and solitude in the family, as defined in the works of Jesper Juul? What are the spaces of solitude in the family as perceived by Jesper Juul? What are the dangers posed by isolation within the family system, as conceptualised by Jesper Juul? The article was written based on the analytical and synthetic method, which had been elaborated on the basis of the works of Jesper Juul (in their respective Polish translations).

1. Loneliness and Solitude in the Family – Introduction

Loneliness in the family is not an individual matter, but an issue that impacts the entire community. The quality of the functioning of the family as a whole, as well as of its individual members, depends on the qualitative manner in which the space of solitude is utilised in the family. As argued by M. Wałejko on philosophical grounds, loneliness and solitude (as well as isolation) are personal existential states of a human being (Wałejko, 2017). Following T. Gadacz, the Author adds that “loneliness is an inseparable part of human nature and existence. To be a person means to be lonely and independent”. So being lonely, nowadays, often viewed pejoratively, especially in the context of family life and children's development, is in fact a natural state for human beings. Moreover, the experience of loneliness determines the quality of relationships built with other people. E. Lévinas proved that (ontological) loneliness does not result from breaking up a relationship, but rather, it precedes every new relationship (Kulig, 2014). Nevertheless, the very way in which

[1] http://www.family-lab.pl/jesper-juul/, accessed on: 11/08/2020.

loneliness is experienced (on a psychological level) by specific individuals may vary. It depends, among other factors, on the meaning ascribed to loneliness and solitude by individual persons.

Jesper Juul's works tackle both of the above-specified dimensions of solitude: the ontological (the existential) one and the psychological one. The former is source-based: its adoption (*implicite*) results in an affirmative perception of solitude in the psychological dimension (*explicite*). For Jesper Juul, solitude is one's ally in the process of personal development.

2. Solitude Conducive to the Development of Partners in the Family

Change is a natural part of life. It is also a natural feature of any love relationship. This changeability of the facets of love results from the intrinsic nature of the love relationship and of love itself (Wojciszke, 2010). Hence, one could venture a statement that love relationships are subject to periodisation. According to Juul, in the first 7 years of the relationship, the collective identity of "us" dominates over the separate identity of "me and you". And so, the partners feel a strong unity with each other or strive to achieve it, as if experiencing or seeking to experience full union and oneness with their partner; as Juul phrases it, they wish to experience a "mutual fusion" (Juul, Øien, 2012, p. 46). However, the growth of love and the process of personal development of the partners both require the experience of a crisis of this unity, which, in turn, leads to a rediscovery and redefining of one's individuality (and for some people, this will be a first-time discovery). So it is necessary to leave a certain symbiosis with another human being and to enter the space of one's own loneliness and solitude. The time and space of solitude and loneliness are needed to be able to gain a new understanding of oneself, of one's feelings and experiences. It is a space of solitude whereby we are allowed to reflect on who we are and what we want – to see and experience oneself separately – as opposed to in relation to another human being. The understanding of the self, which can only take place in the space of solitude, as if in separation from others, is indispensable to be able to understand and accept one's partner for who he or she really is. Therefore, first of all, a person should get to know and understand themselves, and only once they are armed with this knowledge, gained in the space of solitude, will they be able to establish a responsible relationship with another human being.

Jesper Juul repeatedly emphasised that the well-being of parents is a very important variable for the well-being of their children. Investing time and energy in the relationship with your partner does not mean that this time is being taken away from your children, but it is rather to be perceived as an investment in their happiness. This is in line with the *parents first* philosophy. On psychological and pedagogical grounds, there is no doubt that the basic family system is that of parents (de Barbaro, 1997, pp. 45-55). When analysing Juul's texts,

one could even venture out one step further. For the parents' system and their relationship to be satisfactory, the philosophy of *myself first* needs to be recognised and implemented. Only once a person familiarises themselves with their own self, only upon liking oneself and accepting oneself, only upon learning how to take care of one's individual well-being, can a person enter a relationship with another human being with full responsibility. Maintenance of the space of solitude is indispensable for the implementation of the *myself first* philosophy.

In this context, it would be worthwhile to remark on Juul's observation that people are usually raised to always prioritise the community. "Therefore, we mistakenly believe that our marriage is on shaky grounds if we dine separately or sleep in different bedrooms. One has to unlearn that. What we consider appropriate for our family is good, as long as it suits all of its members (...)" (Juul, Øien, 2012, p. 219). The implementation of the *myself first* philosophy within the space of solitude is not an act of selfishness, it is not an act against the community, but, paradoxically, it actually serves the community. An analysis of Juul's work in this respect, may prompt us to draw the following conclusion: only if a person feels good in their own company, and only once they truly know themselves (their emotions, limitations, desires, etc.) – which is possible to attain in the space of solitude – only then do they contribute to the satisfactory existence of the family community.

Thus, the employment of *myself first* strategies contributes to a satisfying *parents first*, which in turn directly affects the quality of relationships within the parental system (Juul, 2018).

Juul's views on intimate relationships are consistent with the psychological concepts of mature love (Wojciszke, 2010). Two mature people deciding to share their life with one another do not become one being – a monad. They always remain separate entities. No two people in the world are the same, there are no two people who would choose to react in the same way in a given situation, who think the same, or feel the same. Moreover, in psychological terms, it is also impossible to be so close to another person as to become one. People are always different and lonely to some extent. The idea that when in a relationship, you always remain lonely to some extent is implicit in the works of Jesper Juul. Furthermore, this is natural and beneficial. Accepting the fact that our partner is different from us, that they think, feeland react differently, that theyare a self-contained being, and recognising our own separateness, as well as the fact that there will always be non-transferable areas of "I", is indispensable for a harmonious life together (Juul, 2018, pp. 13 - 41). Empathy, which will be discussed later on in the text, is very helpful in the process of accepting the otherness of one's partner.

Therefore, solitude in a relationship with another person not only does not contradict the quality of that relationship, but it actually contributes to its strengthening and satisfactory duration. Constructive solitude in a relationship has two faces: on the one hand, it consists in getting to know oneself, i.e. being in living communion with oneself (with one's

emotions, thoughts, motives, etc.), and on the other hand, it implies accepting the fact that the partner also has their own space of solitude, which is different from ours and inaccessible to us – accepting that our partner is a separate human being. The experience and acceptance of these two faces of loneliness allows one to build a mature relationship with one's partner.

3. Solitude Conducive to the Development of a Child in the Family

Modern parenting in Western culture tends to be paedocentric. Sometimes children receive excessive attention and interest from adults. Jesper Juul argues that children need a space of solitude from their parents in order to grow. In his own words: "In my opinion, the greatest loss suffered by children over the last three decades is the fact that they have no free time from their parents. There is no longer a tree in the yard where they could be left alone" (Juul,Øien, 2012). It is tiring and stressful for children to be constantly in the centre of their parents' attention. Naturally, children need parental interest and quality time spent together, but they also need a space of solitude, in which to develop. One could venture a statement that the existence of *solitude of subsystems* is beneficial to the healthy functioning of the family. Thus, it is implied that the time when all the individual subsystems of the family focus on themselves is important and, paradoxically, it proves to be bonding in the scale of the entire family. In practice, this means that it is vital for parents to focus on their partner relationship, rather than spending all of their emotional resources only on their children. It is paramount for children to be granted a time when they may focus on matters that are important exclusively to them only, without the hovering presence of their parents. There is a need for spaces of solitude in which individual family subsystems can consolidate and strengthen themselves internally. According to the systemic understanding of the family unit, the stronger an individual is, the stronger the community that this individual creates. Strengthening individual family subsystems within their spaces of solitude serves to empower the family system as a whole (Juul, 2013, pp. 51 - 84).

Speaking in pragmatic terms, a certain dose of loneliness is required to develop self-sufficiency in a child, an adolescent and an adult. It is commonly accepted beyond a shadow of doubt that independence is a skill whose mastering should be supported in various dimensions of life and at its various stages. Perhaps the striving to achieve independence is particularly perceptible in the early childhood, when children want to perform many activities alone, without the participation of their parents or anyone else, for that matter, and according to their own idea and plan. Similarly, teenagers wish to act on their own volition, only in more momentous matters. They want to make decisions and act on their own.

Jesper Juul clearly indicates that it is beneficial for parents to allow their children to enjoy such solitude, while, at the same time, still being available for their children when they ask for help. Responsibility for one's own life, self-confidence and the belief in one's

competence and skills can only develop within the realms of independence and solitude. In this case, it can be said that the fruit of solitude is self-reliance, which in turn gives rise to responsibility. This triad: solitude – independence – responsibility – constitutes personal maturity (although, of course, they do not exhaust this term).

The entry of children into the teenage period of puberty marks a significant change in intra-family relationships. Jesper Juul observed that "we should know [as parents – ER] that our role as educators comes to an end when the child turns ten or eleven" (Juul, Øien, 2012, p. 150). This does not mean, however, that adolescent children no longer need their parents. They do. But they commence a period of their life in which being alone with oneself, and often in opposition to one's parents, is a necessary element in the development of one's own identity. Juul further notes that "a young person leads as if two separate lives: one on the social level, and the other – profoundly experienced – on the existential level" (Juul, Øien, 2012, p. 166). Adolescence is a time of a special kind of loneliness – both ofthe young person in question, as well as that of their parents. Allowing a teenager to be alone away from their parents, and granting them the freedom to be independent is, in fact, an investment in the development of their maturity. The basis for placing a teenager in the space of their loneliness is the belief in their inherent skills and their responsibility, as well as the readiness to accept the parental anxiety and concern that are associated therewith (Juul, 2014, pp. 13, 85-119).

In addition to the example of one's own life, an important way to invite a child into the space of their solitude is to stimulate their reflectiveness. This is achieved by talking about what the child likes, why this, and not something else, what they think about a topic, what their take is on the current events, and what they feel in certain situations. These types of conversations are a great opportunity for a child to go beyond the clichéd thinking and to enter the world of their own thoughts and feelings, which build the space of their solitude from within.

The modern Western world is filled with stimuli. On the one hand, they can make it difficult to enter one’s space of solitude, while, on the other hand, they may propel one straight into the abyss of isolation. Jesper Juul notes that the people of today, and especially children, need to experience more silence and boredom. Silence aids oneself in a creative experience of solitude, while when bored, a person makes more "own" choices than when being a mere recipient of impressions from the outside. Meditation is also useful, which helps one become mindful of one's thoughts and feelings (Juul, Øien, 2012, pp. 258-259).

So far, we have discussed the psychological dimension of loneliness and solitude. But it is also important for a household to contain physical spaces where the experience of psychological loneliness is rendered feasible. They do not have to be spacious, but it is vital for every household member to feel that if they need to be alone, they have their own spot

where they can go – that they have a space to call their own and where, instead of all the external hum, they can actually hear themselves.

When it comes to solitude, be it that of parents and/or that of children, it serves to build the inner integrity of a person. It is protected by personal boundaries (both physical and mental ones). Integrity leads to authenticity and responsibility for oneself and, ultimately, it allows one to create a community based on empathy, respect and mature love (Juul, 2013).

4. Destructive Loneliness, i.e. Isolation

Equally as in the case of intimate partnerships and parental relationships, loneliness and solitude bear development potential. Isolation on the other hand, is an obstacle on the path to personal growth and constitutes a negation of relationships. In Juul's pedagogy of family relationships, solitude does not break relationships, quite on the contrary – it precedes and strengthens them. Isolation, on the other hand, is a denial of being in a relationship and carries with it a serious psychological burden.

When does isolation occur in the family? Whenever being with oneself, in contact with one's own "I" entails a simultaneous inability to enter into a relationship with another person. The family ought to be a relational place by definition. Isolation in the family takes place when a person, while not entering into a relationship with another human being, is also unable to enter into a relationship with themselves at the same time. They then get stuck, as if in a vacuum. Such incapacity, or inability to enter into a relationship with one's "I" is a complex psychological issue. At this point, it will suffice to say that such situations in family life are bound to occur and, moreover, they may be caused by inappropriate reactions of parents towards their children. It is then advisable for the entire family to seek professional therapeutic help.

Isolation may appear in selected areas of family life, although it usually seems to have a global impact on the entire family unit; it may not be so initially, but it definitely becomes a global issue at some stage. The first phase of a love relationship, where the risk of isolation is particularly high, is the birth of the first child. A clear focus on the newborn child is natural and necessary; however, having a child does not stop the parents from being intimate partners for each other and their needs do not disappear from this area of life. A special bond with the child is inherent in motherhood. The father builds relations with his offspring in a different way. The bond between the father and the child depends both on the attitude displayed by the man and the woman. Different scenarios of isolationmay unfold in this new situation in families, but suffice it to say that the reason for this state of affairs may lie on the side of the woman, the man, or both of them (Juul, Øien, 2012, p. 64).

It is not beneficial for the children of a complete family unit if only one parent participates in the upbringing process, while the other shrinks from this responsibility. It so happens that this is a consequence of the parent's own isolation, experienced during this first stage of the child's life. A child needs a relationship with both the mother and the father. The word relationship is key here. The lack of a relationship with a parent, and with both parents in particular, inevitably leads children to isolation. As observed by Jesper Juul: "Overall, an insufficiently strong connection between parents and children – both in the past and today – causes some children to feel rootless, restless, and changeable in their conduct. Some of them tend to feel hopeless, and are rather quiet and introverted" (Juul, Øien, 2012, p. 68). The lack of experience of safe relationships makes it impossible for an individual to be at ease with themselves in a calm and affirmative way, and it leads to isolation, and to a lack of understanding of oneself, whereby being with oneself is associated not with peace but with pain.

In the case of intimate relationships, isolation may appear in some areas of life, e.g. in the area of parenting, when only one of the parents is responsible for this process. If such a state of affairs is not a conscious choice of the partners, this may be acceptable from the perspective of adults, but if it happens against the will of one of the caregivers, then isolation will be at play. At the same time, it should be emphasised, following Jesper Juul's optics, that it is always better for children, if both parents participate in the upbringing process (Juul, 2012).

Juul wrote that it what usually happens in families is that a child has a special, unique bond with one parent, and that this bond is more intense than the one developed with the other caregiver. In the opinion of the educator, this is a completely natural phenomenon (Juul, 2018, pp. 13 - 41). However, it may be difficult to accept for a parent whose bond with a given child does not possess this unique quality. A subjective feeling of isolation may then arise – both in the relationship with the partner and in the relationship with the child. Of crucial importance here, if we wish to avoid this mental state, is the awareness that relationships are incomparable, and that they have variable dynamics, and that a more intense relationship with one parent does not question the quality of the relationship with the other caregiver.

One of the distorted forms of solitude in the family is hiding – be it of something, or one's true self. If loneliness, as experienced by a family member, means that he or she is hiding their true self or concealing something from the rest of the household, then this is an indicator of an incorrect and unwholesome relations in the family. If a person keeps a part of themselves hidden from others, it probably means that the unveiling of this feature would be associated with a negative experience – such as rejection, criticism and mockery (although this is not always the case). Therefore, the motivation to experience solitude is crucial here: whether a person wishes to experience it or is obliged to experience it for some reason. If

they have to experience it, then solitude turns into loneliness and isolation. In other words, solitude in a family system has a developmental value when it is surrounded by safe relationships with other family members.

In his work, Jesper Juul focused on an affirmative approach to families, unveiling their resources, their potential and intrinsic values. Juul's body of work does not feature a lot of content explicitly referring to threats to family life, including isolation. One issue, however, merits special attention. Childhood isolation and loneliness can occur whenever children start bearing on their shoulders the weight of matters which should be the responsibility of their parents. In pedagogy and psychology, this phenomenon is referred to as parentification (Rostowska, Borchert, pp. 5 - 21; Schier, 2016). Juul figuratively compared the role of a parent to that of the leader of the herd (Juul, 2017). The parent is responsible for the correct functioning of the family. If a child takes over the parental responsibility, they thus enter into the space of isolation, whereby the greater the isolation, the greater the responsibility the child needs to shoulder. Oftentimes, serving as a visible symptom of this type of isolation is the child's aggression – directed inwards or outwardly towards the parents or other persons (Juul, 2013a, pp. 51-65).

It should also be clearly emphasised, following the pertinent remarks of Jesper Juul that the responsibility for the quality of family relationships lies solely with the parents, and not the children. If a child is suffering from isolation, the parents are to be held responsible for this state of affairs (Juul, Øien, 2012, p. 80).

5. The Relationship-Building Power of Solitude in the Family

"Setting boundaries and designating one's own space is an important element of being together and it also poses the greatest challenge for adults" (Juul, 2020, p. 101). There are boundaries within the family unit – the personal boundaries of family members and the boundaries of the family as a whole. Juul pays special attention to the former of the two elements. Each person has their own personal limits, both physical and mental ones. It is behind the personal boundaries of parents and children that their own, personal space extends itself – the space of solitude. That is the space where an individual sets their own laws, rules and regulations at their own discretion – a space where they do what they see fit, being the lord and master of this space where they are themselves – their true self. This is a private and personal world. This is a very positive and affirmative view of solitude. Surrounded by its boundaries, solitude is a space of one's own inner world, which can be arranged as per one's desires. According to Juul, it is an important parental task to teach children that they can have this space and that they may use it creatively. Teaching them that this is their space and that they get to set its limits. Being alone is not a punishment. It is a time and place to get to know one's own world, where we can make it true and shape it

according to our concept of to fulfil our potential. It is an art and an important mission for parents to know and respect their own boundaries, to use the solitude within these boundaries and to teach their children how to do the same (Juul, 2020, p. 46; Juul, Øien, 2012, p. 208).

The issues of boundaries and solitude are closely interwoven. Within one's own boundaries, an individual gets to experience solitude. It is a space where they can move independently and on their own, determining the shape of the boundaries from the inside. They decide on their own discretion how wide the range of their solitude will be. Juul argues that parents and other adults should respect and obey their child's arrangements. Such an attitude helps to strengthen the child's self-esteem, the importance of which cannot be overestimated in terms of building relationships with others. Only when the boundaries set by the child are respected can they develop relationships with others responsibly. In the humdrum everyday family life, this may manifest itself in such conduct as: respecting the refusal to hug someone, respecting the request not to enter the bathroom while bathing, or accepting the fact that a saddened child, after returning home from school, does not wish to talk about what he or she is currently experiencing. The optimal reactions should boil down to recognising and respecting the right to solitude of each family member to the extent that he or she chooses to delineate their boundaries.

Every child has their own integrity, their own inner world. And it is necessary for the parents to allow the child to be alone in this world by themselves, on the one hand, while, on the other hand, it is vital for the parents to be interested in the child's inner world, and to enquire about it with curiosity. This will allow them to get to know their own child – their thoughts, feelings and needs. One may not intrude on another person's solitude without being invited in first. So it is important for the child to know that he or she is the lord and master of their solitude, and that this particular space belongs to them, and to them only, but that they are not condemned to live in it, that they may choose to share it with their parents at any time - if they so wish and require (cf. Juul, Øien, 2012, p. 82).

Solitude in children is also related to experiencing certain emotions, mainly the unpleasant ones, such as anger or sadness. According to Juul, it is very wise to allow children to experience emotions in a space of solitude, e.g. when they run to their room to cry alone. However, it is a good idea to stay in the area to accompany the child when they need it. One may assure the child of one's readiness to talk with them or to hug them when the child wishes to do so. But it is advisable to give the child a chance to meet their own emotions, which is paramount for their personal growth, as well astheir mental well-being – it is good to allow them to be able to acquaint themselves with their own selves, to get to know and accept what is currently occurring in them as a human being (Juul, 2020, pp. 64 - 65).

Mark Twain wrote: "There is no loneliness worse than not feeling at ease with oneself." According to Twain, parents who fail to accept their child, or be mindful of their individuality and their resulting needs, have the power to condemn them to the worst type of loneliness. However, they also have the power to make the child discover their own inexhaustible sources of might, wisdom and happiness in their own space of solitude.

Jesper Juul saw an undeniable value in empathy. "Empathy is a state in which our being at ease with ourselves is expressed through the contact with other people" (Juul, Jensen et al., 2018, p. 7). "Only a person who feels safe in their own company and has an emotional contact with what makes up their existence somewhere innermost – only such an individual is able to create deeper connections with other people and rediscover themselves continuously in a complex world of constant change, in which it is increasingly difficult to find one's own place and role" (Juul, Jensen and in., 2018, p. 6). Empathy is a way to establish relationships with oneself and other people.

The relationship-building power of solitude lies in the fact that thanks to this alone time, an individual may get to know themselves, and find out who they actually are, what their wants are, and what they do not want, what they may accept and what they deem unacceptable, what they wish to change and what they wish to keep unchanged. A true relationship can only exist between true, real, concrete persons, between "I" and "you" as it is at the given moment (cf. Bubber, 1992).

If an individual conceals who and what they are, or plays a role behind poses and images, then no personal relationship with another person may ever occur. Juul makes an unequivocal statement that the most important thing for the wellness of family relationships is being authentic. This, in turn, is possible when we choose to enter the space of solitude, getting to know and rediscovering ourselves on an ongoing basis. Because any human being is constantly undergoing a process of change and because they are incessantly facing the shifts occurring in their world and in other people, making use of the space of solitude seems to be something natural and necessary every day.

“Personal language creates good, honest and solid relationships. The old language – i.e. the language of power – destroys relationships, only serving tocreate winners and losers"(Juul, Øien, 2012, pp. 185-186; Juul, 2012a, pp. 86-89). Juul's observation leads the reader to conclude that in terms of the relationship-building power of solitude, we may delimitate its two degrees. The first one has been already mentioned above – entering the space of one’s solitude, experiencing and meeting one’s self. The second degree consists in communicating to others what we have experienced in this space of solitude.The term "communication" is understood hereby in broad terms. It also entails a specific way of functioning, being (e.g. calm, harmonious, having patience with oneself and others), which is the result of staying in a space of solitude, and it also refers to the messages expressed explicitly (be they verbal, or non-verbal). While a way of being is not something that a

person consciously undertakes, or pursues with deliberation, verbal communication, however, may pose difficulties in this respect.

In order to take full advantage of the relationship-building power of solitude, one needs to possess the ability to communicate in one's personal language. Juul pays a lot of attention to personal language, seeing it as an important element in forging personal relationships. Personal language makes it possible for two individuals to actually meet. When using their personal language, the parent does not hide behind the façade of generally accepted rules, social norms, criteria of good and bad upbringing, but they are communicating what they want, expect, as well as what they can acceptand what they find unacceptable. A rather enigmatic message (in the eyes of the child): "Children cannot go home from school alone" could be worded in the following manner in the personal language "I don't want you to come home from school alone because I think it's dangerous."

Similarly, among romantic partners, the message expressed in the personal language "I love you and I want us to spend Saturday evenings together" can successfully replace the moralising tone of "People who love each other should spend time together". Juul argues that children have a natural competence to express themselves in their personal language. Unfortunately, for many decades, parenting strategies were based on arbitrarily imposed standards, rules, and indisputable principles, which only served to weaken this natural competence. Adults, wishing to express themselves in their personal language, must acquire this competence anew. In Juul's own words: "Unfortunately, we were taught this incorrectly from the start. We were taught that saying 'I' is egocentrism, while this is actually a very socially healthy conduct" (Juul,Øien, 2012, pp. 220-221; Juul, 2014, pp. 20-28). Personal language, the source of which is located in the space of human solitude, is the key to forging personal relationships with others (Juul, 2016, pp. 65-75).

Getting to know oneself in the space of solitude and then acquiring the ability to express oneself in one's own personal language leads to openness. When talking about oneself, a person opens up to whomever they are speaking with. This moment of opening up, revealing oneself to another person is crucial for establishing a relationship.

Therefore, it is important to have an affirmative attitude to solitude within the family unit, and to accept loneliness as a space that serves the good of individual family members, which, in turn, is the foundation of the well-being of the family as a whole. According to the systemic understanding of the family, a change in one family member causes an alteration in all other family members (Drożdżewicz, 1999, pp. 11-12). Juul also clearly states that in what we call parenting in pedagogy, the example of parents' own lives is the most important factor. This is demonstrated by the following, among others, of Juul's observations: "Children copy the behaviour of adults" (Juul, Øien, 2012, p. 202), or "The quality of individual and community life of adults is decisive here. Adult life has a greater impact on children than any conscious attempts and methods of upbringing" (Juul, 2011, cover page),

and, finally, "What parents refer to as parenting has no educational effect. Their words fall in one ear and fall out of the other. Children don't do what we tell them to do, they do what we do" (Juul, Øien, 2012, p. 266). Therefore, the example posed by the parents is vital when it comes to knowing how a meeting with oneself helps us in our everyday functioning, and how solitude can be included in building more personal and responsible relationships. Serving as an example of such use of the space of solitude can be the technique of positive break proposed within the framework of positive disciplining (cf. Nelsen, 2015, pp. 175-178).

Speaking at the highest level of generality, one may also state that modern families tend to experience loneliness, i.e. they are lonely in the surrounding world. As observed by Jesper Juul – which has been corroborated by the research conducted by many scholars (sociologists, psychologists and pedagogues) – nowadays, there is no one universally recognised or even obligatory model of family functioning in the sphere of the European culture. Each family must choose the values that it will implement in its own circle. We are being spoiled for choice in terms of the possible ways of living our lives. Juul noted, however, that it is important to make a choice, rather than relying on random trends. This kind of solitude carries with it developmental and relationship-forming potential – it allows the family to consciously choose the way of life that lies in accordance with their own belief system. Nonetheless, for this to happen, this solitude of the family as a whole should be preceded by the constructive solitude of each individual family member, especially that of the parents, with the inner recognition of what is personally important to them.

This type of solitude in choosing the path of life may be experienced as difficult, it is associated with a burden of responsibility, but it undoubtedly carries within it a relationship-creating potential. An opposing situation is presented by the issue of the isolation of the entire family, which may also occur as a result of socio-cultural shifts. Urbanization, the ubiquitous presence of the two-career marriage model, and the institutionalization of childcare, may contribute to the weakening of the family's relations with other families. Parents are less and less able to take advantage of the daily care provided by other family members, as it is increasingly less frequent for families to share households with the older generations; due to the multiplicity of roles played by modern parents, contact with other families also gets limited. All of the above, in combination with many other factors not mentioned herein, may lead to the distinct possibility of occurrence of the phenomenon of isolation of the family itself, understood here as the need to rely solely on itself, being devoid of close relationships with other people or other families. Seen in this light, the family becomes a lonely island floating on the restless sea of shifting trends and beliefs. In the circle of social sciences, more and more attention is paid to the role of the immediate family environment with regard to its well-being. This is sometimes expressed in the parents' language with the statement that *a whole village is needed to raise one person*. Nowadays, more and more families live as if in the desert land of big cities.

The isolation of a family whose member suffers from a chronic or incurable disease can be particularly dramatic. Such family is then at a high risk of directing all of its activities inward, and the immediate environment of this family (often due to ignorance of how to act, and / or a lack of sensitivity or due to embarrassment) will not seek opportunities to enter into a personal relationship with this family. Juul strongly emphasises the role of the support network as a counterbalance to isolation suffered by families burdened with a chronic disease of one of their members (Juul, 2019, pp. 80-90).

Conclusion

In summary, what constitutes the essence of family life is love. Solitude is present in families in various contexts and with varying intensities. It is important to recognise its presence and significance, and it is crucial to learn how to use solitude for the benefit of all family members and to safeguard the well-being of the family as a whole. For love and in the name of love. The question remains: How do we do it? In his book entitled "On Boundaries. Competent Relationships with a Child" (Juul, 2020, p. 71) Jesper Juul observed the following: "The lack of a method is a characteristic feature of all relationships that are based on mutual love. Certain courses of action can, of course, be outlined (...), but there is no method as such being implemented". Members of each family have the opportunity to develop their own way of experiencing solitude, based on the respect and recognition of the personal dignity and individuality of each family member.

In Jesper Juul's pedagogy of family relations, adults and children should be treated equally– that is to say: with respect. Also in the context of their need for solitude.

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Evaluation of a pedagogical e-tool for promoting students' well-being: The perspective of future prevention providers

Ewaluacja e-narzędzia pedagogicznego do wzmacniania dobrostanu uczniów: Perspektywa przyszłych realizatorów profilaktyki

Abstract: The aim of the present study was to evaluate the digitally supported pedagogical tool for promoting students' well-being, developed during Erasmus+ project. The research includes the data from 59 fourth-year students in a five-year MA degree program in psychology (50 women and 9 men) aged 22–46 (M = 26.51, SD = 5.43). We used a survey questionnaire developed for the purposes of the study to assess the attractiveness and usefulness of the e-tool, the effectiveness of the different forms of communication used in the tool, and its overall strengths and weaknesses. The mean overall satisfaction with the tool was high. Among the factors contributing to the overall satisfaction with the tool, the content of the tool and the attractiveness of its message form was rated the highest. Online videos were considered to be the most effective form of communication used in the tool. The most appreciated features of the tool were the use of multimedia and remote resources and an attractive form; the weakest side of the tool, according to the respondents, turned out to be its appropriateness for the recipients' developmental stage. Erasmus+ projects can develop valuable outcomes for school practice. They have also the potential for educating future staff working in various areas of psychological practice. Future psychologists and prevention providers should come into contact with the international nature of education, psychoeducation, and modern prophylaxis already during their studies.
Keywords: e-tool, prevention, psychoeducaion, well-being

Abstrakt: Celem podjętych badań była ocena multimedialnego narzędzia pedagogicznego do promowania dobrostanu uczniów, opracowanego w ramach projektu Erasmus +. Badaniami objęto 59 studentów IV roku pięcioletnich studiów magisterskich z psychologii (50 kobiet i 9 mężczyzn) w wieku 22–46 lat (M = 26,51, SD = 5,43). Wykorzystano kwestionariusz ankiety opracowany na potrzeby badania, w celu oceny atrakcyjności i użyteczność e-narzędzia, skuteczność różnych form komunikacji wykorzystywanych w narzędziu oraz jego ogólnych mocnych i słabych stron. Średni ogólny poziom satysfakcji z narzędzia był wysoki. Wśród czynników wpływających na ogólne zadowolenie z narzędzia najwyżej oceniono jego zawartość merytoryczną oraz atrakcyjność formy przekazu. Za najskuteczniejszą formę komunikacji używaną w narzędziu uznano filmy online. Najbardziej docenianymi cechami narzędzia było wykorzystanie multimediów i zdalnych zasobów oraz atrakcyjna forma; najsłabszą stroną narzędzia, zdaniem badanych, okazała się jego adekwatność do etapu rozwojowego odbiorców. Projekty Erasmus+ mogą rozwijać wartościowe narzędzia pedagogiczne, przydatne w praktyce szkolnej. Mają też potencjał do kształcenia przyszłych kadr pracujących w różnych obszarach praktyki psychologicznej. Przyszli psychologowie i realizatorzy profilaktyki powinny już w trakcie studiów zetknąć się z międzynarodowym charakterem edukacji, psychoedukacji i nowoczesnymi formami profilaktyki.
Słowa kluczowe: e-narzędzie, profilaktyka, psychoedukacja, dobrostan

1. Introduction

Young people in the WHO European Region enjoy better health and development than ever before, but are failing to achieve their full potential. Recent reports of the increasing prevalence of frequent health complaints and mental health problems among adolescents call for directing more attention to the determinants of adolescent health and well-being. Important results are provided by the HBSC (Health Behaviour of School-Aged Children) research, which monitors the state of health, well-being, and the social environment and preserves the health of European youth aged 11–15. However, the general subjective well-being of young people seems to be relatively high, though influenced by self-image, relationships with parents, moods and emotions, the school environment, and socioeconomic factors. Life satisfaction, determined as a score on the Cantril ladder, decreased with age in teenagers of both genders aged 11-15 (Inchley et al., 2016). Other studies confirm these results but indicate that life satisfaction levels differ across domains. For example, in studies on the psychological well-being of children and adolescents in Poland it was found that, despite a relatively high general level, satisfaction with school functioning was the lowest (Strózik et al., 2016; Kossakowska & Zadworna, 2019). This suggests the need for more precise exploration of factors related to the school environment, which may determine the satisfaction with this life domain in adolescents.

Students' well-being can be strengthened in the spirit of positive psychology, which attempts to answers to the question of what actions must be taken to promote happiness and flourishing. The ideas of positive psychology are gaining more and more popularity, especially in the field of interventions and preventive programs aimed at developing mental well-being and the underlying personal resources. Those interventions can provide young people with the necessary life skills, support, and resources to fulfil their potential and cope with adversities in preventing mental disorders (Barry et al., 2013). Schools are one of the most important community settings where the mental health of young people can be promoted (Puolakka et al., 2012). The literature suggests that mental health promotion programs in schools produce long-term benefits for young people, especially if these programs are conducted as part of school activities and adopt a wider approach, promoting generic psychosocial competence and life skills rather than focusing on specific behavioural problems (Jané-Llopis et al., 2005; Greenberg, 2010; Zadworna-Cieślak, 2018). The aim of positive education in schools is to produce well-being and at the same time to further the traditional outcomes of schooling. For this purpose, in the era of extraordinary technological development, it seems reasonable to use modern online tools (Gigantesco et al., 2019). Modern technology has transformed adolescents' experience of growing up. For the generation of contemporary young people, technology has assumed a substantial stake in

their social and educational lives (Koivusilta et al., 2007; Thompson, 2013). Teenagers all over the world are growing up in a world in which the Internet, smartphones, text messaging, television, video games, and other technologies dominate in communication and are an integral part of everyday life.

According to WHO (2019), the promotion of mental health and well-being helps adolescents build resilience so that they can cope well in difficult situations or adversities. These aims are being implemented through various European international educational projects, such as the Erasmus+ program. Erasmus+ is the EU's program to support education, training, youth, and sport in Europe. It offers opportunities for a wide range of institutions and organisations, including universities, education and training providers, think-tanks, research organisations, and private businesses. Organisations wanting to participate in Erasmus+ may engage in a number of development and networking activities, including strategic improvement of the professional skills of their staff, organisational capacity building, and creating transnational cooperative partnerships with organisations from other countries in order to produce innovative outputs and exchange best practices. In addition, organisations facilitate the learning mobility opportunities for students, education staff, trainees, apprentices, volunteers, youth workers, and young people. More detailed information about the Program is available at https://ec.europa.eu/programmes/erasmus-plus/opportunities/organisations_en.

A prominent example of an initiative undertaken to support the mental well-being of school children and teenagers is the WST[1] international Erasmus+ project, which was operated in years 2016–2019 at the University of … *[omitted for blind review]*. The aim of the project was to provide and foster the development of the skills necessary to maintain mental well-being among secondary school students through the development of a digitally supported pedagogical tool based on the good practices and expertise in the field of mental well-being exchanged among the partnership. The pedagogical tool was developed, available in five European languages, for teachers and educators to cope with complex school-based problems and mental health promotion by strengthening emotional and social skills. The good practices collected in the project research phase were adapted into multimedia resources, including interactive exercises and videos, and shaped into an online application—a user-friendly and attractive tool that can be used in the classroom as an aid for health promotion interventions or as part of school prevention programs. The online psychological training starts after choosing among the following eight topics: decision making, coping with anger and aggressiveness, conflict resolution, stress management, self-esteem and self-awareness, collaboration and team work skills, empathy, and communication skills. For each topic there is a brief theoretical introduction, intervention (most commonly: videos, questionnaires, quizzes, interactive games, or case studies), and

[1] The WST project… *[omitted for blind review]*

final questions summing up those activities. Every outcome can be resumed and saved as a pdf file. The pilot test with school-aged children and their teachers yielded satisfactory results on the acceptability and usefulness of the pedagogical tool *[omitted for blind review].*

Developing prevention and intervention strategies for enhancing the well-being of young generations using modern technologies is a current challenge in the education of future psychologists and educators (Zadworna-Cieślak & Kossakowska, 2018). Universities are often places where international educational projects are implemented. The results of such projects can be used both in school prevention and in teaching. One of the good practices is the inclusion of psychology and pedagogy students in the process of creating, implementing, and evaluating projects aimed at strengthening the mental health and well-being of various groups. Prevention and health promotion are compulsory contents of education in the field of psychology. Developing preventive interventions, recognising students' individual needs, and identifying their strengths are the tasks of the school psychologist, which are regulated in particular by the *Regulation of the Minister of National Education of 25 August 2017 on the principles of providing and organising psychological and pedagogical assistance in public kindergartens, schools, and institutions*. Psychoeducational interventions conducted by the school psychologist are part of the implementation of the school educational program, or they may be a reaction to the situation reported to the psychologist by the teacher. The psychologist may either design interventions and scenarios of psychoeducational activities or use the available prevention programs (Frąckowiak, 2016). From this point of view, it is reasonable to provide future psychologists with the latest practical results developed in the course of various international projects, which they will be able to use in their professional work. Students in their last years of psychology can be both a target group of psychoeducation and evaluators of the prevention or health promotion activities designed in the course of Erasmus+ educational projects. After all, they will be the providers of modern prevention and psychoeducation in the future.

2. Methodology

2.1. Objectives

The aim of the present study was to evaluate the digitally supported pedagogical tool (further referred to as the "tool" or "e-tool"), developed in the course of the international WST project[2].

The discussion of the tool developed in the course of the project had an educational aspect for students because of the inclusion of modern preventive interventions in the content of their education in an international framework. At the same time, the presentation of the e-tool was not only a promotional element for the results of the project, but also an

[2] The project and its outcomes were previously described by *[omitted for blind review].*

opportunity for students to use the acquired knowledge on prevention in evaluating the impacts of the implemented project.

Due to the exploratory nature of the study, we only formulated research questions, without presenting any directional hypotheses.

Question 1: How do students in their final years of psychology evaluate the various aspects of the pedagogical tool?

Question 2: Are there any gender and age difference in the evaluation of particular aspects of the tool?

Question 3: What features, in the students' opinion, are the strengths of the evaluated tool?

Question 4: In the students' opinion, is there a relationship between the attractiveness and the substantive value of the tool, both for its implementers and for the recipients?

2.2. Material and Method

The study was conducted from May to June 2019. The participants were 59 students (50 women and 9 men) aged 22–46 (M = 26.51, SD = 5.43). They were all fourth-year students in a five-year MA degree program in psychology pursuing a specialisation in psychological prevention and behaviour modification; they were full-time (n = 26, 44.1%) or part-time (n = 33, 55.9%) students. The selection of participants for the study was purposeful—students with knowledge in the field of prevention were selected.

Before the beginning of the study, the participants were informed about its purpose and procedure. Participation was voluntary; students did not receive any remuneration and they were free to withdraw from participation at any time without any consequences. All participants gave their informed consent and were told that the results of the study would be used solely for research purposes. The assumptions and the research procedure were in line with the ethical requirements set out in the Declaration of Helsinki (World Medical Association, 2013).

We used a survey questionnaire developed for the purposes of the study. The survey consisted of four parts. The first part contained six questions relating to the assessment of the attractiveness and usefulness of the e-tool both for its recipients (primary school students) and for its implementers (i.e. "To what extent, in your opinion, can the presented pedagogical tool be useful in preventive activities?"). The respondents assessed it on a 5-point scale, where 1 meant *not at all* and 5 meant *very much*. The items of the first part of the questionnaire also contributed to the overall score, called *Satisfaction with the tool*. In the second part, using the same 5-point scale, the respondents answered questions concerning their assessment of the effectiveness of the three forms of communication used in the pedagogical tool: *Online videos*, *Case studies* and *Role-play* activities. In the third part of the

questionnaire, the participants were asked to select (possible multiple choice) the strengths of the tool and to indicate the elements that they believed were missing from it. The last part consisted of two questions: about the durability of the preventive results and the respondents' willingness to recommend the evaluated tool. Information on the respondents' age, sex, and mode of study was also collected.

2.3. Data analysis

Data were analysed using the IMB SPSS Statistic 25 statistical package. Except for descriptive statistics, we used the Mann-Whitney test to determine the differences between groups in terms of sex and age and Spearman's rho correlation coefficient to assess the correlations between the variables. We applied the criterion of $p < .05$ to determine if the results were statistically significant.

3. Results

3.1. Descriptive statistics and general evaluation of the tool

In the first step, before starting the analyses, we computed descriptive statistics for the analysed variables (see Table 1). When analysing the data presented in Table 1, it is worth noting that the skewness of the distribution does not exceed the conventional absolute value of 2 for any of the variables; this means the distributions of all variables are slightly asymmetrical, which would justify statistical analyses using parametric tests (George & Mallery, 2010). However, due to the small size of the sample, we decided to carry out statistical analyses with non-parametric tests.

The students evaluated the tool in terms of several aspects. Firstly, they assessed its suitability for recipients (primary school students), its usefulness for preventive actions, the attractiveness of its form of communication both for the recipients and for the implementers of preventive programs, and the value of its substantive content—also for the recipients and for the implementers. The above-mentioned categories also contributed to the overall satisfaction with the tool. The second area was the assessment of the effectiveness of individual forms of communication used in the tool. Finally, the students assessed the durability of the achievable results and the extent to which they found the tool worthy of recommendation.

Table 1. Descriptive Statistics for the Variables Analysed in the Study (N = 59)

Variables	*R*	*M*	*SD*	*Sk*	*Kurt*
To what extent, in your opinion, is the presented pedagogical tool suitable for students aged 10–14? (SUITABILITY OF THE TOOL)	2.00 – 5.00	4.00	0.72	−0.29	−0.16
To what extent, in your opinion, can the presented pedagogical tool be useful in preventive activities? (USEFULNESS OF THE TOOL)	2.00 – 5.00	4.19	0.68	−0.59	0.66
To what extent does the form of communication seem to you to be attractive for the recipients of the program? (ATTRACTIVENESS OF THE FORM FOR THE RECIPIENTS)	2.00 – 5.00	4.25	0.86	−1.03	0.41
To what extent do you find the form of communication attractive to the program implementer? (ATTRACTIVENESS OF THE FORM FOR THE IMPLEMENTER)	2.00 – 5.00	4.17	0.69	−0.56	0.40
To what extent does the substantive content seem to you to be valuable for the program's recipients? (VALUABLE CONTENT FOR RECIPIENTS)	2.00 – 5.00	4.27	0.78	−0.97	0.70
To what extent does the substantive content seem valuable for the program implementer? (VALUABLE CONTENT FOR IMPLEMENTER)	2.00 – 5.00	4.10	0.66	−.481	0.79
SATISFACTION WITH THE TOOL	16.00 – 30.00	24.98	3.21	−0.71	0.61
How effective each of the forms of communication used in the program seems to you?					
Online videos (EFFECTIVENES – VIDEOS)	2.00 – 5.00	4.37	0.79	−1.22	1.17
Case studies (EFFECTIVENESS – CASE STUDY)	2.00 – 5.00	3.98	0.78	−0.20	−0.71
Role-play (EFFECTIVENES – ROLE-PLAY)	2.00 – 5.00	4.32	0.68	−0.85	1.01
How long do you think the results achieved by using this tool will be sustainable? (SUSTAINABILITY OF RESULTS)	2.00 – 5.00	3.71	0.69	−0.81	0.83
How strongly would you recommend this tool to people involved in prevention (RECOMMENDABILITY)	2.00 – 5.00	4.25	0.68	−0.71	0.77

Note. *R* = range, *M* = mean, *SD* = standard deviation, *Sk* = skeweness, *Kurt* = kurtosis

The mean overall satisfaction with the tool was 24.98 points (*SD* = 3.21, min. 16, max. 30)—a result which, given the possible range of scores from 0 to 30, can be considered high. Among the factors contributing to the overall satisfaction with the tool, the content of the tool (*M* = 4.27, *SD* = 0.78, min. 2, max. 5) and the attractiveness of its message form (*M* = 4.25, *SD* = 0.86, min. 2, max. 5) were rated the highest. The students assessed the tool's suitability for its recipients relatively the lowest (*M* = 4.00, *SD* = 0.72, min. 2, max. 5), but the evaluations were still high. Moreover, the students considered *Online videos* (*M* = 4.37, *SD* = 0.79, min. 2, max. 5) to be the most effective form of communication used in the tool, and the one they considered the least effective was *Role play* activities (*M* = 3.98, *SD* = 0.78, min. 2, max. 5). The degree to which they found the tool worth recommending was also high (*M* = 4.25, *SD* = 0.68, min. 2, max. 5), although they perceived the durability of the preventive results achieved thanks to the use of this tool to be slightly lower (*M* = 3.71, *SD* = 0.69, min. 2, max. 5).

3.2. Respondents's age and tool evaluation

In order to determine if age differentiated the respondents' evaluations pertaining to the selected aspects of the pedagogical tool, we distinguished two age groups: under 25 years old (*n* = 37) and 25 or older (*n* = 22). Then we performed an analysis using the non-parametric Mann–Whitney *U* test. The respondents differed only in the assessment of the effectiveness of *Role-play* activities, one of the forms of communication used in the pedagogical tool (*Z* (1, 58) = −2.000, *p* = .045, *d* = 0.556). The respondents in the older age group assessed the effectiveness higher (*M* = 4.55, *SD* = 0.59) than the younger ones (*M* = 4.19, *SD* = 0.70). However, Cohen's *d* coefficient indicates a medium effect size (*d* = 0.556). A difference at the tendency level was also found (*Z* (1, 58) = −1.919, *p* = .055) in the assessment of the sustainability of the results obtained thanks to the use of the evaluated program. Also in this case, evaluations were higher in the 25+ age group (*M* = 3.86, *SD* = 0.83) compared to younger participants (*M* = 3.62, *SD* = 0.59).

3.3. Respondents' gender and tool evaluation

Then, in order to check if gender differentiated the respondents' evaluations concerning the selected aspects of the pedagogical tool, we analysed them again using the non-parametric Mann–Whitney *U* test. Significant differences between women and men were found in the assessment of the effectiveness of two forms of communication: *Online videos* (*Z* (1, 58) = −2.308, *p* = .021, *d* = 0.824) and *Case studies* (Z (1, 58) = −2.070, *p* = .038, *d* = 0.800). Both forms were rated higher by women than by men (*M* = 4.48, *SD* = 0.71 vs. *M* = 3.78, *SD* = 0.97 for *Online videos* and *M* = 4.08, *SD* = 0.72 vs. *M* = 3.44, *SD* = 0.88 for *Case studies*). In both cases, Cohen's *d* coefficient of effect size indicates a large effect.

3.4. Strengths of the tool

The analysis of the strengths indicated by the respondents shows that the most appreciated features of the tool were the use of multimedia and remote resources (84.7% of the respondents) and an attractive form (79.7%); the weakest side of the tool, according to the respondents, turned out to be its appropriateness for the recipients' developmental stage (i.e., the age of 10 to 14; only 28.8% considered this to be a strong point of the program). The results are presented in Figure 1.

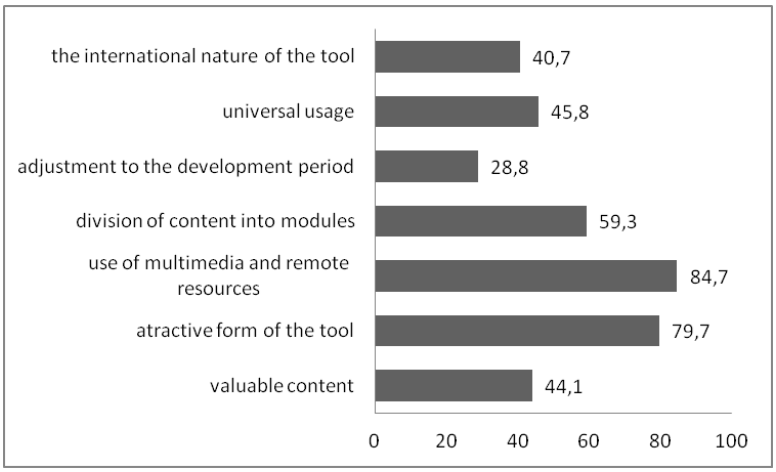

Figure 1. Percentage distribution of results concerning the strengths of the evaluated tool (N = 59)

At this point, it should be added that in the part of the survey that concerned the strengths of the e-tool, students also had the opportunity to indicate what they believed to be missing from the tool and submit their own ideas of what it would be worth supplementing the tool with. However, none of the respondents answered this question.

3.5. Attractiveness and substantive value for the implementer and the recipient

In order to determine the relationship between the attractiveness and the substantive value of the tool for both the implementer and the recipient, we performed an analysis of Spearman's *rho* correlations. The strongest relationship was found between substantive content for recipients and for implementers (rho = .626, p < .01) and between attractiveness for recipients and substantive content for implementers (rho = .455, p < .01). The attractiveness and substantive content valuable for recipients (rho = .250; p > .05) are not related to each other to a statistically significant degree.

4. Discussion

Designing school-based preventive interventions and programs to strengthen young people's well-being is a contemporary challenge. Empirical evidence demonstrates that school-based health promotion programs can be effective (Bond et al., 2007). The inclusion of modern technologies in prevention seem to be extremely important, especially in times of remote education. The online form does not exclude positive education and prevention. Enhancing the traditional school model with elements promoting well-being is also possible in the form of distance learning. For this purpose, pedagogical e-tools that use modern technologies and multimedia can be successfully used. The present study was aimed at assessing the digitally supported prevention program addressed to school youth aged 11–14. The evaluation was carried out by psychology students, who—due to the nature of their education—belong to the group of potential providers of various prevention programs and psychological interventions. Additionally, the students who acted as evaluators attended a specialisation course focused on prevention issues, and therefore had knowledge of the conditions for developing and assessing effective preventive interventions. The discussion of the pedagogical tool developed in the project had an educational aspect for students and a promotional aspect for the project results; it also allowed the students to use the knowledge on prevention acquired during their studies in the evaluation of the pedagogical tool.

Although the preliminary evaluation of the tool was carried out by primary school students and teachers, as stated in the objectives of the project, it seemed reasonable to get to know the opinions of professionally prepared future practitioners in the field of prevention, such as students in their final years of psychology. The psychologist employed in a school is the person most responsible for psychoeducational, therapeutic, and preventive effects (Frąckowiak, 2016). In order to fulfil this role effectively, a psychologist should have extensive and up-to-date knowledge in the field, supplemented on an ongoing basis with international reports. He or she should be able not only to assess the quality of external preventive programs but also to create this type of interactions according to the needs of the students, teachers, and parents.

When discussing the obtained results, it should be emphasised that the evaluated tool was rated high by the students, both in terms of overall satisfaction and in terms of individual aspects of the tool. It can be concluded that the students appreciated the content and form of the tool, noticed its strengths, and found it useful in the prevention of mental problems in school students. The results show that the remote form of the tool was particularly appreciated. This result is of particular practical importance. It seems that, in the era of technological development, the use of remote tools and activities in prevention programs is inevitable. It is worth noting that the study was conducted in the spring of 2019,

long before the COVID-19 pandemic began, so the reference to the remote nature of the tool was not burdened by the fact of teaching and learning taking place only remotely.

The analysis of the differentiation in the assessment of the prevention program in terms of the age and sex of the respondents led to three conclusions. Firstly, older students found *Role-play* (as a form of communication used in the digitally supported tool) to be a more effective form of communication in supporting well-being than younger students. Similar differences were not the case in the evaluation of the effectiveness of *Case studies* or *Online videos*, which were rated high by both age groups in terms of effectiveness. At this point, it should be remembered that people aged 25 to 46 were in the older age group. It seems that age is indeed significant in the assessment of particular aspects of the tool. It can be assumed that older students have richer experience related to both participation in and running of prevention programs, and they could experience (acting on both sides) the special effectiveness of role-playing. Yet, both the literature on the subject and the teaching experience of the authors of this paper show that students who are invited to role-play activities for the first time or who have done them a few times before are reluctant to participate in such activities. This is most often due to the fear of giving a presentation in front of a wider group of observers and to the fear of being evaluated by them (Russell & Shepherd, 2010). This kind of attitude may make it difficult for them to see the benefits of learning by doing role-plays, and in the future it may discourage them from proposing this type of activity in the preventive activities they design and implement.

Secondly, compared to younger students, older students believe that the results achieved by using the evaluated tool will be more permanent, though this difference is only at the tendency level. The younger age group includes students from 22 to 24 years of age, for whom navigating the digitised world is common and whose expectations of what various applications offer, including those for self-development and prevention, may therefore be high. This, in turn, translates into a lower assessment of the durability of the results, which could be higher, for instance if the tool had an application available for Android or IOS: this would allow using it not only from the school PC or home laptop, but also from your own smartphone.

Thirdly, while the respondents' age did not affect the effectiveness of the other two forms of communication, *Case study* and *Online video,* both were rated higher by women. When trying to explain the obtained results, it is worth recalling a short description of the above-mentioned forms used in broadly understood education. The case study method involves problem-based learning and promotes the development of analytical skills (Herreid et al., 2011). The content is presented in the form of a narrative, and the related questions and exercises serve to activate group discussion and solve more complex problems (Herreid, 1994). The greatest benefit of using case studies is that learners are actively involved in developing the principles by abstracting from examples (Dunne & Brooks, 2004). The Online

video method, on the other hand, involves the use of various video clips available on online platforms (e.g., YouTube, Vimeo), thematically adapted to the issue in question. Research has shown that the use of short video clips allows for more efficient processing and recalling of what is being learned. This is because the visual and aural nature of videos appeals to a wide audience and enables each user to process information in a natural way (Bevan, 2017).

At the same time, the respondents recognised that the weakest point of the program was its adjustment to the developmental age of the target audience. This is very useful information from the perspective of tips for improving and/or developing the tool and making such modifications that will make it actually useful. When trying to understand the results, one must bear in mind the age of the students for whom the e-tool was created. The youngest beneficiaries are 11-year-olds, while the oldest ones may be 14, and it is for them that the evaluated tool would be inadequate, despite its formal attractiveness. Because all three—*Case studies* and *Online videos* or *Role-play* activities—are successfully used in education in the development of interpersonal skills not only in children at different levels of education but also in adults (Schmidt & King, 2010), it seems that the age mismatch among the oldest group of recipients relates to the content rather than the form of the message. When constructing subsequent programs using a similar formula, therefore, their authors should pay special attention to the diversity of contents, so that they are not, for example, too infantile for older teenagers and so that they take into account the social context typical of the environment in which these teenagers function.

There is also a clear disproportion between the evaluation of the form and the evaluation of the content. While, as mentioned above, the respondents consider the remote form of communication to be one of the strongest points of the entire program, less than half of them found its contents attractive. Perhaps, in part, such a relatively poor evaluation of the substantive content stems from a mismatch with the older age group.

A question arises whether the program, the content of which has been rated relatively low compared to its formal side (i.e., the form of communication), can still be attractive and useful in work with young people. The analysis of the next examined aspect (i.e., the relationship between the attractiveness and substantive value of the program, both for its implementers and for its recipients, in the opinion of respondents) shows that it is, but not in all configurations. The more attractive the program seems to the respondents to be for the recipients (students), the more attractive they believe it should be for the people who will implement it. This is quite an important pattern in the context of practical implications: it is hard to expect that the program will be willingly and thus effectively implemented by a person to whom it does not seem interesting or attractive.

At the same time, the lack of a relationship between the value of the substantive content for the recipients and the attractiveness of the tool also for this group may again indicate that substantive shortcomings are not a determinant of the attractiveness of a given

tool, especially if the attractive remote form in which the content is presented has been appreciated.

Conclusions

The present study has some limitations. Due to the size of the sample, its unrepresentative (purposive) nature, and the use of a non-standardised measurement tool, the presented results should be treated as preliminary. However, these results may prove useful in work on tools and programs supporting the development of students' social skills and their psychological well-being. They also indicate that preventive programs should be subject to evaluation by their various beneficiaries. Certainly, their assessment should be made primarily by their direct target group, in this case primary school students. Equally important, however, is the voice of people professionally involved in prevention, who design and implement similar activities. Their knowledge and practical experience may prove to be an invaluable source of good practices and effective solutions.

Finally, it is worth formulating guidelines for good practices to apply when including the results of international educational projects in the education of future psychologists. Psychology students can be not only the target group for the implementation of project results, but also a group evaluating the contents developed in such projects. Erasmus+ projects have enormous potential for educating future staff working in various areas of psychological practice. In particular, their role seems to be invaluable for future school psychologists, who should come into contact with the international nature of education, psychoeducation, and prevention already during their studies.

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"Love is a painful feeling" - Experience of closeness in young women with personality disorder traits

„Miłość to uczucie pełne cierpienia" – doświadczenia bliskości przez młode kobiety z cechami zaburzeń osobowości

Abstract: The purpose of this study was to investigate the experience of closeness among young women and its relationship with personality disorder traits. Individuals displaying personality disorders can experience problems in their relationships and perceive love negatively. The study involved a group of 242 young women. Personality disorder traits were assessed using the Structured Clinical Interview for the Diagnostic and Statistical Manual of Mental Disorders 4th Axis II Disorders. The experience of love was described through analysis of 242 narratives about love. The results show three main types of love experience in young women: positive, active–negative, and passive–negative. Positive love experience is connected with high dependent personality traits, 'passive-negative' experience of love is linked to high personality disorder traits. Lower positive love experience is associated with high state anxiety in young women. The findings portrayed socially determined attitude of femininity that is deeply rooted in mentality of young women.
Keywords: anxiety, love, personality disorders

Abstrakt: Celem badania było opisanie doświadczenia bliskości i miłości w relacji romantycznej u młodych kobiet z cechami zaburzeń osobowości. Literatura wskazuje, iż osoby przejawiające zaburzenia osobowości doświadczają wiele problemów w ich bliskich relacjach romantycznych oraz postrzegają miłość dość negatywnie. Jednak młodych kobiety z takimi cechami dotychczas nie były przedmiotem badań. Dlatego też badaniami objęto grupę 242 młodych kobiet. Cechy zaburzeń osobowości były diagnozowane przy pomocy Ustrukturalizowanego Wywiadu SCID-II na podstawie DSM-IV do oceny na zaburzeń z osi II. Doświadczanie bliskości i miłości analizowano na podstawie badań narracji o miłości napisanych przez kobiety. Rezultaty analizy czynnikowej wskaźników narracyjnych wskazują, iż można wyodrębnić trzy główne style doświadczania bliskości i miłości u młodych kobiet: pozytywny, negatywny aktywny, negatywny pasywny. Wielozmiennowa analiza regresji ukazała, iż pozytywne doświadczanie bliskości jest powiązane wysokim nasileniem cech osobowości zależnej. Ponadto, negatywne pasywne doświadczanie bliskości jest powiązane z wysokim nasileniem wielu cech zaburzeń osobowości. Niskie pozytywne doświadczanie miłości i bliskości wiąże się także z wysokim lękiem jako cechą u młodych kobiet. Wyniki ogólnie wskazują na społecznie zdeterminowaną postawę kobiecości, która jest zakorzeniona w mentalności młodych kobiet.
Słowa kluczowe: miłość, lęk, zaburzenia osobowości

1. Introduction

Closeness is the same as love - is the principal and basic human emotions playing a key role in interpersonal relationships. The structure of love is determined by a number of different factors (Fehr, Broughton, 2001; Harvey, Wenzel, Sprecher, 2004). In the literature, it is pointed out that love is a complex state of positive valence, yet different from person to person; researchers describe various patterns, forms and components of love (Fehr, 2006; Sternberg, 1986). Love is differently experienced by people and individuals that differ in their attitudes towards love (Hendrick, Hendrick, 2006; Sternberg, Weiss, 2006). The variety of factors such as sex, culture, personality traits influencing love experience and attitudes towards it, have been thoroughly analysed (Dion, Dion, 2006; Schmitt, Youn, Bond, Brooks, Frye, Johnson, Klesman, Peplinski, Sampias, Sherrill, Stoka, 2009). One of the factors which have not been exhaustively examined includes personality disorders traits (Trzebińska, Jakubiak, Kołakowski, Struś, 2015). Personality disorder traits are of non-adaptive and inflexible nature, they significantly contribute to mental distress and impair functioning (Butcher, Hooley, Mineka, 2017; DSM-5, 2013). These patterns develop over a longer period of time and its occurrence cannot be explained by other impairments, while the observable behaviours are not caused by substances or general neurological damage (Butcher et al., 2017). Such dysfunctional patterns comprise affective functioning which can impact love experience and its perception (Gawda, 2017; Trzebińska et al., 2015).

As suggested in the literature, gender is one of the key factors that determine the experience and perception of love (Canary, Emmers-Sommer, Faulkner, 1997; Harvey et al., 2004) and principally by the stereotypical social female and male roles. Women and men display different range of interpersonal skills and might have different expectations and experiences in relationships (Shields, 2002). Research has shown that women express stronger affection than men (Floyd, 1997). Women experience emotions more often, more intensely (with the exception of anger), and also reveal greater sensitivity to the emotions of other people (Brody, 1997; Shaffer, 2000; Wytykowska, Petrides, 2007). They have been found to generally show greater understanding for the emotions of others and they better analyse emotional situations (Shaffer, 2000). Other authors suggest that men, rather than be less emotionally expressive, they tend to perceive their emotions differently (Burns, 2002). Conversely, Shimanoff (1983) demonstrated only minor differences in the ways men and women talk about emotions. Hence, the literature presents varied information on the differences between men and women in their perception of love (Gawda, 2008a). Similarly, literature points out that there are differences between men and women in personality disorder traits and personality disorders occurrence (Gawda, Czubak, 2017; Paris, 2004). Thus, the analyses of relationship between perception of love and personality disorder

should be conducted separately in male and female populations. With regard to sex differences in personality disorders, literature presents data that women more often display dependent, borderline, and histrionic personality disorder traits (Gawda, Czubak, 2017; Klonsky, Jane, Turkheimer, Oltmanns, 2002; Paris, 2004). In the DSM-V (2013) personality disorders are grouped into three clusters. Cluster A comprising odd or eccentric disorders such as schizoid, schizotypal, and paranoid is more frequently identified in men. Schizotypal personality disorder is (3.9% average) more common in men (4.2%) than in women (3.7%) (Pulay, Stinson, Dawson, Goldstein, Chou, Huang, Grant, 2009). As for dramatic or erratic disorders in Cluster B, their prevalence is also related to sex. In particular, antisocial personality disorder is more frequently shown in men. It is estimated to occur on average at a rate of 2% in the overall population, including 1%-2% rates among women in the USA (American Psychiatric Association, 2000). While some disorders, like borderline disorder, are more common in women (6.2% vs 5.95 in men; Paris, 2004), the differences are not always significant (Grant, Chou, Goldstein, Huang, Stinson, Saha, Ruan, 2008). With regard to Cluster C, i.e. anxious or fearful disorders comprising dependent, avoidant and obsessive-compulsive personality disorders, it is shown that they more often occur in women, e.g. dependent personality (Paris, 2004). Importantly, it is suggested that there are fixed sex differences in the prevalence of personality disorder traits in various countries (Gawda, Czubak, 2017). Researchers point out that gender differences related to normal personality traits may affect the personality disorder trait prevalence (Klonsky et al., 2002). Some scientists insist that the varied frequency of personality disorders in men and women may be associated with gender-related prejudices (Jane, Oltmanns, South, Turkheimer, 2007).

The relationship between personality disorder traits and love experience/ perception has been previously analysed in different samples in general terms, i.e. analysed groups were not subdivided into young men and young women groups but analysed as a whole (Gawda, 2017; Trzebińska et al., 2015). It is important to analyse love experience among young generations as they possibly experience it in a particular way. This can be due to personality traits they often reported with in the literature such as immaturity, internet-focused, virtuality, restlessness, and isolation (Twenge, 2017), and preference of digital communication forms over in-person (Venter, 2017).

Regarding relationship between love and personality disorders/personality disorder traits in women, the literature points out that women with dependent personality disorder traits present a propensity for the style of love defined as Mania (Trzebińska et al., 2015). Mania is a kind of obsessive love (Hendricks, Hendrick, 2006). Ludus type (playful love) of love seems to be characteristic in the case of antisocial personality disorders in women (Trzebińska et al., 2015). Furthermore, Pragma style (pragmatic) of love is less common in women but more frequent in men with narcissistic disorder (Rohmann, Neumann, Herner, Bierhoff, 2012). Women seem to pay less attention to their own good. In women histrionic

personality traits are associated with increased romantic fascination with the partner (Eros type (romantic, erotic) of love) (Trzebińska et al., 2015).

Data reported in the literature is mostly on a specified personality disorders/or personality disorder traits and their relationship with love, while other types of personality disorder have been not examined in terms of their associations. Thus, the aim of the current study is to test links between all personality disorder traits and experience of love. Then, considering the data on sex differences in prevalence of personality disorders and sex differences on love experience, we examine this relationship in a sample of young women aged between 18 and 23. We focused on young women because this is a group likely involved in love relationship. Love experience is of utmost importance for them; it related to young women's self-esteem, identity, relationships with others, social adaptation, and potentially with affective problems (Needham, Terrence, 2010). This is based on data indicating that women experience emotions more often, more intensively, and show greater understanding for the emotions in general (Brody, 1997; Shaffer, 2000).

Hypotheses

Based on the evidence shown above, we assume that there is relationship between personality disorder traits and love experience in young women. Particularly, we expect that the most prevalent personality disorder traits in women are associated with high negative experience of love and low love positivity. Furthermore, we hypothesize that state/trait anxiety is associated with personality disorder traits in young women and that state/trait anxiety affect experience of love in negative ways. This is due to the data reporting that women often worry, feel anxiety, and express fear (Gawda, 2008a) as well as young generations are focused on the internet, immature, restless, and isolated (Twenge, 2017; Venter, 2017).

2. Method

2.1. Participants

The study group comprised 242 adult heterosexual women. All the subjects reported the same level of education (high education, roughly ten years), they were students of similar age (mean 20.29 years; *SD* = 1.61) and had no neuropsychiatric disorders (as determined based on a screening interview). The study involved a student sample which is a non-clinical population. We assume that this population includes a significant number of subjects with high personality disorder traits. This is based on the data showing that personality disorders or traits of personality disorders occur in non-clinical population at a high rate (Gawda, Czubak, 2017; Torgersen, Kringlen, Cramer, 2001).

2.2. Procedure and Measures

The study comprised two stages. The interview carried out in Stage I contained questions related to demographic data and health problems. Subsequently, the subjects completed the STAI (The State-Trait Anxiety Inventory) and wrote stories about love; narrative analysis was selected because we aimed to explore the personal view of love, individual experience of love, and the narrative technique is thought to be a good way to such investigation (Bruner, 1991; Gawda, 2008a). During the Stage II, the screening questionnaire of the Structured Clinical Interview for DSM-IV Axis II Personality Disorders (SCID-II, First, Gibbon, Spitzer, Williams, Benjamin, Zawadzki, Praglowska, 2010) was carried out to assess personality disorder traits. All study activities were conducted by a trained psychologist.

Research techniques:

1. The Structured Clinical Interview for DSM-IV Axis II Personality Disorders (SCID-II, First et al., 2010). The interview enables assessment of twelve personality disorders. We treat the SCID-II scales dimensionally as they allow assessing personality disorder traits in terms of individual differences among women but not as categorical variables. We used a 119-item screening questionnaire corresponding to the interview questions and related to symptoms of personality disorders. Cronbach's Alpha score was calculated for each scale: dependent (.703), avoidant (.712), depressive (.745), schizoid (.732), schizotypal (.705), paranoid (.743), narcissistic (.789), histrionic (.694), borderline (.882), antisocial (.802). Descriptive statistics for personality disorder traits are shown in Table 1.

Table 1. Descriptive statistics (n = 242)

Personality disorder traits	*M*	*SD*	Min.	Max.
Avoidant	3.10	1.71	0	7
Dependent	3.31	1.89	0	8
Obssesive-compulsive	4.21	1.49	0	8
Depressive	3.36	1.88	0	8
Paranoid	3.01	1.66	0	8
Schizotypal	3.99	2.01	0	10
Schizoid	2.68	1.57	0	6
Histrionic	3.41	1.73	0	7
Narcissistic	4.90	2.43	0	15
Borderline	5.36	2.70	0	13
Antisocial	1.49	1.73	0	10
Perception of love				
Positivity	5.25	2.62	1	11
Negativity - passive	4.62	2.86	1	12
Negativity - active	2.67	1.43	1	7
Age	20.29	1.61	18	23
State anxiety	37.68	8.26	22	62
Trait anxiety	41.26	8.94	25	66

2. The State-Trait Anxiety Inventory (STAI) by Spielberger, Strelau, Tysarczyk, Wrześniewski (2011). The inventory measures the intensity of anxiety understood as state anxiety and trait anxiety (Spielberger, 1966). The questionnaire comprises 40 statements, 20 in each subscale (descriptive statistics in Table 1). The psychometric properties of the Polish STAI version are good (Spielberger et al., 2011), Cronbach's Alpha in the performed here study amounts to: trait anxiety .876, state anxiety .878.

3. Assessment of narratives about love. Each person wrote a text after hearing the following instruction: "*Try to think about what love means for you. Recall an event in your life that was or is connected with love. Write a story about it*."

The specific indicators of love experience were rated by competent judges. Every story about love was read and analysed by each judge who then identified, highlighted and counted relevant indicators of love experience. This narrative analysis technique had been used previously in examination of love stories (Gawda, 2008a, 2008b). All of indicators were numeric variables, i.e. the number of statements, words related to a particular indicator was counted for each participant. The inter-rater agreement between the competent judges assessing the stories was high: depending on the indicator, Kendall's W ranged from 0.88 to 0.99. The indicators taken into account in the analysis contained information on recognition of emotional valence, assessment of oneself and the other in the loving relationship, and acknowledgement of the meaning of the situation. The list of indicators of love experience in the narratives comprises:

positive emotions in the actor (e.g. *I am happy*),
acknowledgement of positive emotions in the partner (e.g. *He is happy*),
positive description/evaluation of the partner (e.g. *He is good*),
positive description/evaluation of the actor (e.g. *I am honest*),
actor's negative emotions (e.g. *I am sad*),
negative description of the actor (e.g. *I am stupid*),
negative emotions of the partner (e.g. *He is worried*),
negative description of the partner (e.g. *He is mean*),
activity "towards" (e.g. *I want to kiss her*),
activity "from" (e.g. *I want to avoid this situation*),
activity "against" (e.g. *I want to kill this nasty bitch*),
importance of love (e.g. *This is the most important day in my life*),
positive ending of the story (e.g. *Everything will be fine*),
negative ending of the story (e.g. *It will be a disaster*).

Ultimately, 14 indicators were checked for inter-correlation. This approach was adopted in order to avoid analysis of isolated features of narratives, and to take into account some complex patterns of narrative expression. We perform the exploratory factor analysis

and we found that the set of narrative indicators is grouped into three factors. We named them as types of love experience expressed in the narratives: positivity, passive negativity, and active negativity (Table 2).

Table 2. Exploratory factor analysis for the narrative indicators (*n*=242)
Rotated Component Matrix

	Factors		
	Positivity	Negativity - active	Negativity - passive
Actor negative emotions	-.713	.604	
Actor positive emotions	.866		
Partner negative	-.497	.527	
Partner positive	.784		
Partner emotions negative		.658	
Partner emotions positive	.820		
Actions towards	.709		
Actions from		.768	
Actions against		.556	
Important	.498		
Positive ending	.865		
Negative ending	-.855		
Rotation Method: Oblimin with Kaiser Normalization.			

2.3. Statistical analyses

The narrative indicators and personality disorder traits were checked whether they are inter-correlated. Two separate exploratory factor analyses were conducted. We found that narrative indicators form three factors and personality disorder traits form three factors too. Next, three multiple regression analyses were performed to check whether the factors including traits of personality disorders, and state/trait anxiety predict narrative factors of love experience, i.e. positivity, active negativity, and passive negativity.

3. Results

Exploratory factor analysis identified three factors which explained 71% of the variances (Kaiser-Meyer-Olkin Measure of Sampling Adequacy = .829, Bartlett's test of sphericity = 1233.505; p <.001). The first factor named 'positivity' comprises positive aspects of love experience, i.e. acknowledgement of the actor's positive emotions and the partner's positive emotions, positive evaluation of the partner, activity 'towards', perception of the importance of love as well as positive ending of love story. The second factor 'active negativity' comprises negative aspects of the experience of love, including the partner's negative emotions, the actor's negative emotions, negative description of the partner, and activity 'from away and against'. The third factor labelled 'passive negativity' comprises negative evaluation of the actor and low positive evaluation of the actor (Table 2). Examination of the narratives about love allow to find that among young women, the most

frequent is positive experience of love which is consistent with notion of love. However, a third part of examined women reported that their experience of love is negative (Fig. 1). Two types of negativity have been identified: named passive and active negativity. 'Passive negativity' relies on focus on self and negative evaluation of self. These women created the stories about love expressing low self-esteem and depreciation of self. They are not satisfied with themselves, they find love as a painful and negative experience, and particularly evaluate themselves as unworthy of love. 'Active negativity' is also perception of love in a negative way. Examined women perceived negative feelings in their partners, negative feelings in themselves, they observed activity 'from away' or even 'against' which means that they try to seek solutions to stop the relationship with their partners. 'Active negativity' means that they attempt to finish their negative relationships.

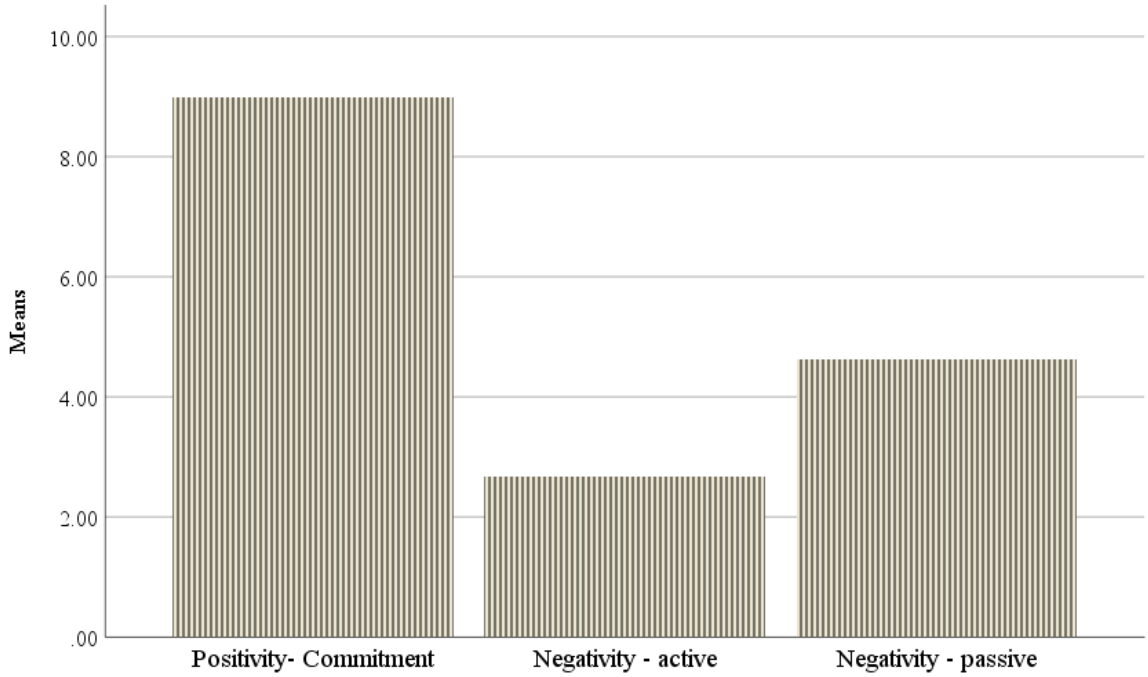

Figure 1. Types of love experience in young women (*n* =242)

Factor analysis for personality disorder traits revealed that they form three factors (Table 3 presents significant factors loadings) which explained 63% of the variances (Kaiser-Meyer-Olkin Measure of Sampling Adequacy = .774, Bartlett's test of sphericity = 576.131; *p* <.001). The first factor named "ABC" included a lot of personality disorder traits such as obsessive-compulsive, depressive, paranoid, schizotypal, narcissistic, and borderline. The second factor labelled 'Histrionic' comprised histrionic personality disorder traits and low avoidant traits. Third factor named 'Dependent' comprised dependent personality disorder traits and low level of schizoid and antisocial traits (Table 3).

Table 3. Exploratory factor analysis for personality disorder traits (*n*=242)
Rotated Component Matrix

		Factors	
	1. ABC	2. Histrionic	3. Dependent
Avoidant		-.692	
Dependent			.651
Obs-comp.	.633		
Depressive	.759		
Paranoid	.757		
Schizotypal	.505		
Schizoid			-.636
Histrionic		.843	
Narcissistic	.725		
Borderline	.777		
Antisocial			-.648

Rotation Method: Oblimin with Kaiser Normalization.

Next, the above personality disorder factors were used in regression analyses as independent variables while the narrative factors were used as dependent variables. The results of the regression analysis in the group of young women suggest that the assumed model explained a significant percentage of the variances in the findings related to their experience of love. Three disorder factors comprising personality disorder traits and state/trait anxiety accounted for 22% of the variances in the results related to the factor 'positivity' in love experience (Table 3). Higher results in the personality disorder factor 'Dependent' (β = .19; p<0,001) is associated with increased love positivity, while state anxiety is associated with a decreased tendency to experience love in a positive way (β = -.33; p<0,001). None of the factors comprising personality disorder and state/trait anxiety explained experience of love called 'active negativity'. On the contrary, 14 % of the variance in love 'passive negativity' is explained by higher results in the personality disorder traits. The factor included ABC personality disorder traits is associated with higher 'passive negativity' of love while 'Dependent" personality is linked to lower experience od love as 'passive nativity'. The remaining variables do not explain the experience of love.

Table 4a. Multiple regression analyses: factors of personality disorder traits, trait anxiety, and state anxiety as predictors of love experience

		Positivity					
Predictors	B	SE	Beta	t	*R*	R^2	*F*(5,236)
ABC PD traits	-.060	.090	-.060	-.66	.47	.22	8.40***
Histrionic PD traits	.098	.074	.098	1.32			
Dependent PD traits	.192	.076	.192	2.54**			
Trait anxiety	-.009	.014	-.084	-.69			

Table 4b. Multiple regression analyses: factors of personality disorder traits, trait anxiety, and state anxiety as predictors of love experience

		Positivity					
State anxiety	-.039	.015	-.325	-2.68**			
		Active negativity					
ABC PDs traits	-.204	.100	-.204	-2.05*	.20	.04	1.26
Histrionic PD traits	.046	.082	.046	.55			
Dependent PD traits	.002	.084	.002	.02			
Trait anxiety	.020	.015	.180	1.33			
State anxiety	.005	.016	.043	.31			
		Passive negativity					
ABC PDs traits	.244	.095	.244	2.57**	.37	.14	4.65***
Histrionic PD traits	-.013	.078	-.013	-.16			
Dependent PD traits	-.267	.080	-.267	-3.34***			
Trait anxiety	.005	.014	.047	.37			
State anxiety	-.015	.015	-.128	-1.00			

** - $p<.01$, *** - $p<.001$

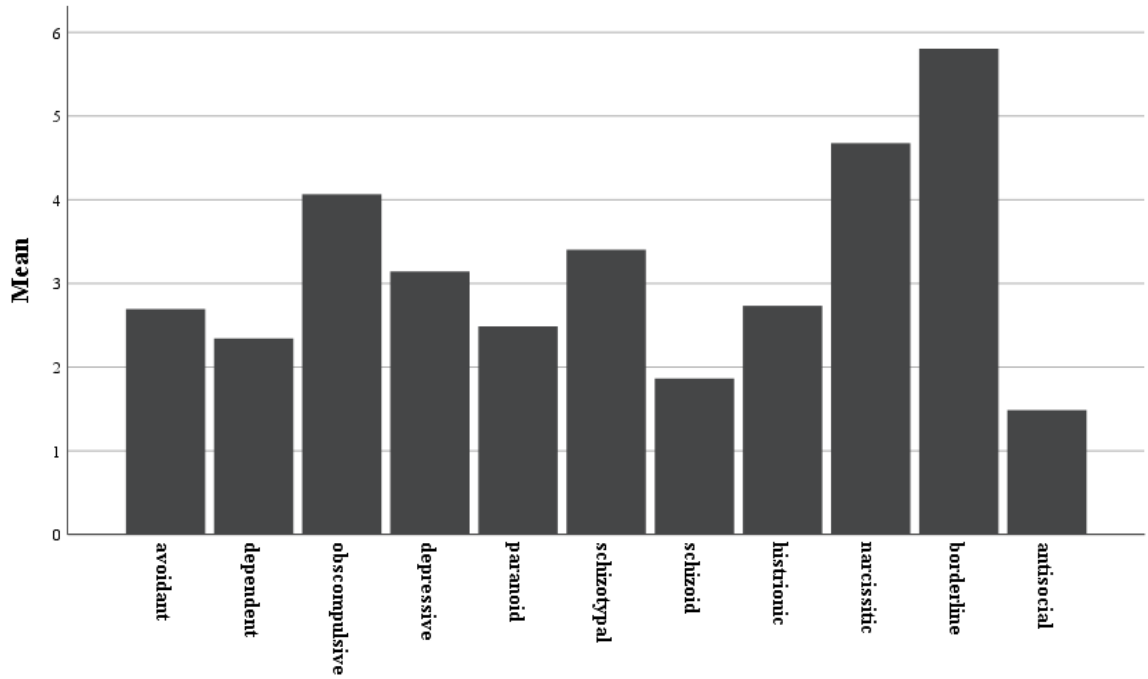

Figure 2. Mean scores of personality disorder traits in young women (n=242)

4. Discussion

As for personality disorder traits, young women more often present traits of obsessive-compulsive, borderline, and narcissistic personality (Fig. 2). These results are in line with the previous finding showing the tendencies of increased obsessive-compulsive personality traits in general populations (Gawda, Czubak, 2017) and that younger people are more likely to be screened positively for borderline personality (Moran, Rooney, Tyrer, Coid, 2016). Potentially, this can be interpreted as a reflection of the modern society. Western societies and high income countries are thought as to be individualist cultures (Triandis, 2018). High prevalence of obsessive-compulsive and narcissistic personalities are identified in such modern societies (McGilloway, Hall, Lee, Bhui, 2010; Twenge, 2017).

Another important finding is that young women have positive experiences of love and they perceive love in a positive way. This is consistent with the relevant literature, which presents love as a positive feeling and an emotion of positive valence (Sternberg, Weis, 2006). This also corresponds to the data on more intense female expressiveness; women express greater intensity of positive emotions as love, sympathy, joy and satisfaction than men, which may be associated with the differences in the affective schema (Floyd, 1997). On the other hand, we found that lower positivity of love is associated with high state anxiety in young women. This finding can be interpreted in line with typical influence state anxiety on human's behaviour. Anxiety mechanism plays an important role in females who more frequently present fearful-anxious personality traits (Paris, 2004). Research has shown that excessive anxiety in women's experience contributes to a peculiar way of experiencing the emotion of love; relationships with others are experienced in a more stormy and confrontational way (Hatfield, Rapson, 1996). The current findings confirm that higher anxiety corresponds to less positive perception and experience of love. Highly-anxious women are less satisfied with themselves, they experience negative emotions, perceive negative emotions in partners, and use strategies of self-blame and self-deprecation (Öhman, Flykt, Lundqvist, 2000). State anxiety can be associated with emotional dysregulation, which affects experience of emotions, social relationship, and behaviours (Crawford, Livesley, Jang, Shaver, Cohen, Ganiban, 2007). Anxiety also disrupts the processes of attention and perception, as well as information processing, communication with the environment and physiological reactions (Boals, Klein, 2005). Furthermore, anxiety contributes to a dysfunctional perception of situations as more threatening; those affected attribute negative emotional valence to stimuli or focus on negative stimuli (Öhman et al., 2000). Higher level of anxiety reported in women is potentially related to two aspects. The first one is linked with a greater number of dangers subjectively experienced by women, and the other one with burdens resulting from traditional women's roles (Canary et al., 1997; Klonsky et al.,

2002). Some researchers evidenced that women have more care-related traits, while men present more qualities related to dominance (Fehr, Broughton, 2001). Anxious responses are socially accepted, particularly in women, which allow them to obtain attention and support from those around (Gove, 1984). Furthermore, young generations are thought as to be restless and isolated because of the preferred virtual communication forms (Twenge, 2017; Venter, 2017). This is why their experience of love can be partly affected by these fearful emotional states.

Another important finding corresponds with result indicating that increased 'passive negativity' in love is associated with low level of dependent personality traits and high level of ABC personality traits in young women. Passive and negative love experiencing includes negative perception and evaluation of the self and low-self-esteem. We found that about a third of examined women experience love in this way. Among two types of negativity identified in this research, one type named 'active negativity' has been found as not connected to personality disorder traits. This potentially means that women who are not satisfied with the relationships tend to finish their relationship. Conversely, 'passive negativity' is found as associated with personality disorder traits. This means that young women displaying obsessive-compulsive, paranoid, schizotypal, narcissistic, and borderline personality traits experience love as negative, they evaluate themselves negatively, and they have low self-esteem. Their relationships can be explained in term of emotional problems among persons with personality disorders (Campbell, Baumeister, 2001). Personality disorder traits are associated with not appropriate emotional regulation, thus, individuals may experience conflicts, interpersonal problems, and problems with identity (Trzebińska et al., 2015). We may explain the negative associations between the ABC personality disorder traits and low positivity of love referring to the characteristics of behaviours of persons with personality disorders. These persons are thought as, in general, experiencing love as negative, unclear or ambivalent which is due to their emotional impairments (Campbell, Baumeister, 2001; Gawda, 2017). For instance, individuals with borderline personality disorder experience highly intense interpersonal relations oscillating from extreme idealisation to devaluation, between love and hate or animosity (Daley, Burge, Hammen, 2000; Selby, Braithwaite, Joiner, Fincham, 2008). Women with borderline personality disorder display a tendency for self-harm, high level of aggression, difficulties in communication and low understanding of other people's emotions (Clifton, Pilkonis, McCarty, 2007; Whipple, Fowler, 2011). Furthermore, borderline personality disorder in women is associated with high level of impulsivity, anxiety, sensitivity, and depression (Corbitt, Widiger, 1995). These personality traits may cause in particular impulsivity in love relationship (Sophia, Tavares, Berti, Pereira, Lorena, Mello, Gorenstein, Zilberman, 2009). On the other hand, narcissistic individuals manipulate and cheat their partners, and are not committed to the relationships in any way (Rohmann et al., 2012). Due to their imagined

sense of self-esteem, they are completely disinterested in their partners' needs (Campbell et al., 2002; Hogan, Sinclair, 1997). They enter relationships with others only to gain respect and authority, and to satisfy their sexual needs (Campbell, Baumeister, 2001). Therefore, they prefer short-term, highly intense relationships, experience passion, and do not increase their commitment (Scollon, Diener, 2006). Similarly, women with obsessive-compulsive personality may experience problems in love relationships. Although they understand the importance of close relations with others, they tend to value reserve over spontaneity, and finally their sense of duty prevails (Dobbert, 2010). Hence, individuals with obsessive-compulsive personality traits experience frigidness in their relations, which increases with high level of anxiety (Gawda, Bernacka, Gawda, 2016).

The correlation of low 'passive negativity' of love and high positivity of love with dependent personality traits seems to be in opposite to modern society characteristics and not at all typical for young generations (Triandis, 2018; Venter, 2017). Dependent attitude towards love represent traditional definition of marital relationships. Individualistic and modern society define women as independent and self-sufficient (Nielsen, Rudberg, 2000; Triandis, 2017). Young female generations identify with independence and control in love, for instance, this generation's ideal of love is the notion of 'controlled devotion' (Nielsen, Rudberg, 2000). On the contrary, our results suggest that traditional female roles are deeply incorporated in women's mentality. Although young women live in individualistic society (Polish society was described as individualistic by e.g. Boski, 2010; Tychmanowicz, Filipiak, Sprynska, 2019), they identify positivity of love with the traditional female role which means dependence on the partner. This type of attitude towards love improves their self-esteem and ensures their appropriateness. Dependent attitude towards love can be associated with femininity. This is incorporated in socio-cultural gender which includes cognitive structures and can determine emotional functioning, the way the information is processed as well as a specific behaviour of an individual (Markus, Crane, Bernstein, Siladi, 1982). Another explanation of this finding can refer to characteristics of young Polish generation, i.e. students. Researchers found higher scores on Agreeableness in this population. This can be interpreted as they manifest a higher tendency for compassion, empathy, and cooperation (Laursen, Pulkkinen, Adams, 2002). Agreeableness is an important personality trait that plays a crucial role for psychological well-being, satisfactory relationships with others, and having a positive affect (Laursen et al., 2002). This personality trait can be partly linked to the dependent attitude and results in a positive love experience among women. Despite social mobility and cultural changes in modern individualistic society, young women perceive love in terms of traditional roles. This is in line with findings related to Norwegian girls who associate love with compromise (Nielsen, 2016; Nielsen, Rudberg, 2000).

Conclusion

The results of the study show that there is a relationship between personality disorder traits and experience of love in young women. A third of young women experience love negatively which is associated with dominant personality disorder traits such as obsessive-compulsive, borderline, and narcissistic. Three styles of love experience in this group have been identified: positive, active negative and passive negative. Low positivity of love is associated with high state anxiety and high level of dependent personality disorder traits. Active negativity is not associated with personality, while passive negativity is linked to high ABC personality disorder traits and low dependent personality traits. 'Passive negative' experience of love resulted in low self-esteem and negative perception of self. It has been interpreted in terms of deeply rooted traditional schema/notion of femininity in the minds of young women. Such a schema consists of a traditional i.e. dependent position of woman in close relationships. Femininity is socially and culturally determined. Although the modern societies are thought to be individualistic and tent to change the position of women, young women present strongly incorporated in their mentality traditional schema of female role in love, and this is experienced by them as positive.

Limitations. The current findings may be affected by certain limitations, for example the sample size. However, it is important to note that narrative techniques are labour-intensive methods and examination of a large amount of narratives is demanding. Moreover, the method of assessment of state/trait anxiety used here is a self-measure.

Future directions. In further studies, personality disorder traits should be assessed using the DSM-5 tool, and study groups of women different in terms of age and education should be included in the research.

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Assessment of selected suicide risk factors and the level of spirituals transcendence and religio sity
Ocena wybranych czynników ryzyka samobójstwa a poziom transcendencji duchowej i religijności

Abstract: Suicide is a global phenomenon and one of the leading causes of death worldwide. The analysis covers suicidal risk factors (depression, psychological pain, fascination with death) and protective factors (spirituality, religiosity) in the population of healthy people in the SARS-CoV-2 pandemic and the relationship between recent stressful events and suicide risk factors. In the period from October 2020 to March 2021, 260 people aged 18-63 were surveyed electronically, using the own questionnaire and Polish adaptations of research tools to assess: depression, mental pain, anxiety and fascination with death, spirituality and religiosity and the AUDIT screening test. 38.8% of the respondents achieved the result indicating the presence of symptoms of depression and the need for specialist consultation. Women achieved higher results compared to men ($Z = -2.424$; $p = 0.015$). In the measurement of religiosity and spiritual transcendence, the lowest score was noted on the following scales: religious commitment, religious crisis and fulfillment in prayer, while the highest score in the sense of attachment scale. Among the maximum results, the lowest was recorded in the measurement of transcendence and the highest in religious commitment. In the subscale of religious commitment, the respondents achieved the lowest average intensity, and slightly higher in the measurement of the religious crisis. However, the feeling of fulfillment in prayer and universality were the most intense. Statistical significance was demonstrated between depression and fascination with death ($\rho = 0.399$; $p < 0.001$) and depression and psychological pain ($\rho = 0.677$; $p < 0.001$). As the religious crisis intensified, the following also intensified: depression ($\rho = 0.290$; $p < 0.001$), psychological pain ($\rho = 0.279$; $p < 0.001$) and fascination with death ($\rho = 0.224$; $p < 0.001$). A positive correlation was found between the number of stressful events and depression ($\rho = 0.259$; $p < 0.001$) and psychological pain ($\rho = 0.295$; $p < 0.001$). Statistical significance was demonstrated in the analysis of the impact of recent stressors on suicide risk factors. Psychological pain is the strongest predictor of the "S" sample, and the religious crisis is associated with a greater severity of suicide risk factors. Depressiveness correlates with the intensity of mental pain and fascination with death in people with a high level of spiritual transcendence and religiosity. Increased depression and psychological pain are more common in women and in people experiencing recent stressful situations in life.
Keywords: psychological pain, fascination with death, religiosity, suicide, spiritual transcendence

Abstrakt: Samobójstwo uznane jest za jedną z głównych przyczyn śmierci. Analizie poddano czynniki ryzyka suicydalnego (depresję, ból psychiczny, fascynację śmiercią) i czynniki protekcyjne (duchowość, religijność) w populacji osób zdrowych w warunkach pandemii SARS-CoV-2 oraz związek niedawnych wydarzeń stresogennych z czynnikami ryzyka samobójczego. Drogą elektroniczną, w okresie od X.2020 roku do III.2021 roku, przebadano 260 osób w wieku 18-63 lat,

stosując ankietę własną oraz polskie adaptacje narzędzi badawczych do oceny: depresyjności, bólu psychicznego, lęku i fascynacji śmiercią, duchowości i religijności oraz testu przesiewowego AUDIT. 38.8% osób badanych osiągnęło wynik wskazujący na obecność objawów depresji i konieczność konsultacji specjalistycznej. Kobiet osiągnęły wyższe wyniki w porównaniu do mężczyzn (Z= -2.424; p=0.015). W pomiarze religijności oraz transcendencji duchowej najniższy wynik odnotowano w skalach: zaangażowania religijnego, kryzysu religijnego oraz spełnienia w modlitwie, natomiast w skali poczucia więzi wynik najwyższy. Wśród wyników maksymalnych, najniższy odnotowano w pomiarze transcendencji, a najwyższy w zaangażowaniu religijnym. W podskali zaangażowania religijnego badani osiągnęli najniższe średnie nasilenie, a nieco wyższe w pomiarze kryzysu religijnego. Natomiast najwyżej nasilone było poczucie spełnienia w modlitwie i uniwersalność. Wykazano istotność statystyczną między depresyjnością a fascynacją śmiercią (ρ=0.399; p < 0.001) i depresyjnością a bólem psychicznym (ρ=0.677; p < 0.001). Wraz z nasilaniem się kryzysu religijnego nasilały się również: depresyjność (ρ=0.290; p < 0.001), ból psychiczny (ρ=0,279; p < 0.001) oraz fascynacja śmiercią (ρ=0.224; p < 0.001). Wykazano dodatnią korelację pomiędzy liczbą zdarzeń stresogennych a depresyjnością (ρ=0.259; p < 0.001) i bólem psychicznym (ρ=0.295; p < 0.001). Wykazano istotności statystyczne w analizie wpływu niedawnych zdarzeń stresogennych na czynniki ryzyka samobójstwa. Ból psychiczny jest najsilniejszym predyktorem próby „S", a kryzys religijny wiąże się z większym nasileniem czynników ryzyka samobójstwa. Depresyjność koreluje z nasileniem bólu psychicznego i fascynacji śmiercią u osób o wysokim poziomie transcendencji duchowej i religijności. Nasilona depresyjność i ból psychiczny częściej występują u kobiet i u osób doświadczających niedawnych, życiowych sytuacji stresogennych.
Słowa kluczowe: ból psychiczny, fascynacja śmiercią, religijność, samobójstwo, transcendencja duchowa

Introduction

"S" suicide is a significant global public health problem. Suicide is the third cause of death among people aged 15-19 years (WHO, 2019). Annually, approximately 800,000 people (one person every 40 seconds) take their own lives. In 2016, 52.1% of people who died before the age of 45 committed suicide. Suicide data is difficult to estimate due to the lack of central registration. In 2016, the Suicide and Depression Prevention Working Group of the Public Health Council of the Ministry of Health began work on a National Registry of Suicide and Suicide Attempts, which would help to accurately collect information from police and medical services (Gmitrowicz, 2020). The worldwide increase in the number of suicide attempts ("S") is alarming. In 2016, the suicide rate was 10.5globally; in Europe – 12.9 while in Poland – 13.4 (3.4 for women and 23.9 for men). The rate is highest in high-income countries, although 79% of suicides are recorded in low- and middle-income countries. The suicide rate among men is 1.8 -3 times higher compared to women (historical, cultural, and religious influences) (Grzywa, A. Kucmin, & T. Kucmin, 2009). Women are more likely to make "S" attempts (Miranda-Mendizabal et al., 2019), but men are more likely to do so when stress is low (Wasserman et al., 2020) and make more successful "S" attempts (Pawlak et al., 2018).

Suicide is of interest to many scientific disciplines, including sociology, psychology, psychiatry, philosophy or theology (Raniszewska-Wyrwa, 2010), resulting in a multitude of definitions of the term (Holyst, 2018). Durkheim provided the first definition of suicide (2006, p 51), which says that "suicide is any death resulting directly or indirectly from a

positive or negative action of the victim who knew that it would produce such a result". According to the World Health Organization (2019), "suicide is an act deliberately initiated and prepared by a person with full knowledge and anticipation of its outcome." Awareness, intention, and purposefulness are indispensable components of suicide. According to some scholars, suicide is a revenge response through which the victim the burden of guilt and remorse on society (Malczewska-Błaszczyk, 2017, p. 24). Revenge is the most common motive for suicide attempt by 14–18-year-olds (Makara-Studzińska, 2013). A common feature of most definitions is awareness at the time of the act. Individuals with heightened "S" tendencies often consume alcohol just prior to committing suicide, which may deprive them of full awareness.

Risk factors for attempting “S” include: male sex, old age, social isolation, lack of support, highly stressful life situations, substance abuse, chronic somatic and mental illnesses, too few protective factors (Młodożeniec, 2008; Grzywa et al., 2009) along with psychological pain or fascination with death.

Psychological pain is one of the most important risk factors for suicide. The concept of psychological pain as injury, anguish, or pain overpowering the mind was popularized by Shneidman (1998). Psychological pain is the pain of excessively felt shame, guilt, fear, anxiety, loneliness, apprehension, fear of aging or agonising death (Shneidman, 1996). Pent-up life needs under severe stress can release psychological pain and lead to perceptual narrowing known as presuicidal syndrome (Ringel, 1987).

Death fascination has been described as an interest in the topic of death and dying, thoughts about one's own death, and as a (declared) readiness to engage in suicidal behaviour (Żemojtel-Piotrowska, Piotrowski, 2009). The fascination with death may stem from cognitive curiosity (Lee et al., 2013) and may have different consequences among individuals who exhibit suicidal behaviour. The fascination occurs when a person is placed in a difficult life situation that is perceived as unsolvable. Suicidal fantasies include imagining that one does not exist; contemplating a suicidal act; and thinking of a specific way to take one's own life (Malczewska-Błaszczyk, 2017).

Spiritual transcendence and religiosity appear to be protective factors against suicidal behaviour. Spirituality is an inseparable part of human life and behaviour (Kapala, 2017), and the topic of spirituality is increasingly being addressed by researchers in various scientific fields (Różycka & Skrzypińska, 2011). Psychology deals with both the way of understanding and experiencing spirituality (Trzebinska, 2008), ideas about the existence of some higher power along with its influence on human life (Różycka & Skrzypińska, 2011). Spirituality was initially associated with religious life, but nowadays it is perceived more broadly: an inner, spontaneous, informal and universal experience; freedom of individual expression and a search for the ultimate meaning and purpose of life (Skrzypińska, 2012, p. 82). Spirituality is the construction of the meaning of life, happiness and the search for the

ultimate things, using one's own cognitive, emotional and behavioural resources, accompanied by the experience of happiness at the moment of feeling unity with the world. Spirituality is perceived in many dimensions. It is an experience of oneness with the cosmos, an activity aimed at overcoming the limits of one's own existence (Socha, 2014, p. 13); a search for holiness (Hill et al., 2000); the presence of a relationship with a higher power that affects the way an individual functions (Zinnbauer & Pargament, 2005, p. 23) or a person's relationship with God, revealed through beliefs, feelings and human behaviour (Golan, 2006). The literature also portrays spirituality as existential well-being, enjoyment of life, peace, and well-being (Koenig, 2009); a personal or group search for holiness, developed in a traditional, sacred context (Zinnbauer & Pargament, 2005, p. 35). Spiritual transcendence is a personality trait; a source of intrinsic motivation; the ability to transcend an immediate sense of time and place and to see life from a broader, more objective perspective (Piedmont, 1999, p. 988). Spiritual transcendence has three components: a sense of social connection (a sense of being part of humanity), universality (a belief in the unifying nature of life), and fulfilment in prayer (Piedmont, Werdel, & Fernando, 2009). Spiritual transcendence is a broader concept than religiosity. Religiosity is comprised of specific practices, worldview, and openness to spiritual reality (Van Praag, 2021).

2. Materials and methods

The project is novel in that it analyses for the first time (to the authors' current knowledge) the variable of spiritual transcendence in a population of healthy adults in conjunction with a number of rarely studied variables such as psychological pain and fascination with death.

The aim of this study was an in-depth analysis, supported by evidence in the research literature, of suicidal risk factors such as depression, psychological pain, fascination with death, and selected protective factors such as spirituality and religiosity in a healthy population during the pandemic. This study also aimed at examining the relationship between suicide risk factors and protective factors against engaging in suicidal behaviour. The study also dealt with testing the correlation between recent stressful events and suicide risk factors.

The survey was disseminated via social media and conducted electronically. Data were collected from October 2020 to March 2021. The study included individuals aged 18-65, of Polish origin, with an intellectual level within normal limits, with at least basic education. Exclusion criteria included the presence of serious somatic diseases and diagnosed mental disorders (based on data from a questionnaire filled in by the subject), neurodevelopmental disorders, neurological dysfunctions, addiction to psychoactive substances in the last 12

months, based on ICD-10 criteria and Alcohol Use Disorder Identification Test (AUDIT). The study was approved by the Ethics and Bioethics Committee of Cardinal Stefan Wyszyński University in Warsaw (KEiB - 21/2020).

Respondents were asked to fill in a questionnaire (15 questions) including sociodemographic data: sex, age, race, religious affiliation, education, occupational status, marital status, place of residence and questions about having children, the presence of mental illness or chronic somatic diseases, and stressful/traumatic events in the last three months. The following Polish adaptations of the following research tools were used to measure the variables:

1. The Centre for Epidemiologic Studies Depression Rating Scale – Revised (CESD-R) (Koziara, 2016).

2. The Scale of Psychache, which assesses the experience of psychological pain, difficulty in coping with it and its impact on general functioning. The scale consists of 13 items (choosing one of five answers). The higher the score, the more severe the psychological pain (Chodkiewicz & Miniszewska, 2016).

3. The Death Anxiety and Fascination Scale, which consists of two subscales: the scale of fear of death (9 items; measurement of general fear of death, mainly in relation to oneself) and the scale of fascination with death (14 items; cognitive fascination with death and dying, the possibility and declared willingness to take one's own life). Rating on a 4-point scale (from 1 - "strongly disagree" to 4 - "strongly agree") (Piotrowski et al., 2021).

4. The Assessment of Spirituality and Religious Sentiments (ASPIRES), which consists of two subscales: scale of religious sentiments (5-7-graded scale of 12 questions assessing religious commitment i.e. frequency of religious practices, religious beliefs, experiences related to God, and a religious crisis i.e. experiences related to conflict with God, religious group, and faith dogmas) and the Spiritual Transcendence scale (5-graded scale of 23 questions regarding fulfilment in prayer, universality, and sense of social connection) (Piotrowski et al, 2021).

5. Alcohol Use Disorder Identification Test (10 questions) to assess the presence of an alcohol problem (exclusion criteria).

The results collected in the study were statistically analysed using IBM SPSS Statistics v. 25. The analysis involved statistical description techniques, Shapiro-Wilk normality of distribution test, Spearman correlation method and Mann-Whitney U test. The non-parametric methods of analysis were chosen due to differences in empirical distributions and unequal sizes of the assessed groups. The statistical significance was defined as $p < 0.05$.

3. The results

A total of 294 subjects participated in the study. After the final verification (inclusion and exclusion criteria), 260 subjects aged 18-63, an equinumerous group of men and women, were included in the study. 99.2% of the subjects (n = 258) were Caucasian, while one subject each in each group was either Black or Hispanic (0.8%). The mean age of the study group was 33.33 (SD=10.24). 240 individuals (92.3%) reported adherence to the Catholic religion, 11 individuals (4.2%) reported atheism and agnosticism; 4 individuals (1.5%) indicated adherence to another Christian religion; 3 individuals (1.2%) to another religious tradition, and 1 individual each (0.8%) to Protestantism and Mormonism.

In the surveyed population, 173 persons (66.5%) had a university or college, 82 persons (31.5%) had secondary, and 5 persons (2%) had primary level of education. 157 persons (60.4%) were economically active, while out of 81 (31%) students, 41 were economically active and 40 were not working; the remaining 22 persons (8.6%) were economically inactive (living on pensions).

As far as the place of residence: 82 people (31.5%) lived in villages, while the remaining lived in bigger – 77 (29.6%), medium – 59 (22.7%) and small – 42 (16.2%) towns.

195 people (75%) lived with their family, 50 people (19.2%) lived with a roommate, and 15 people (5.8%) lived alone. 122 persons (46.9%) were married, 100 persons (38.4%) were single, 27 persons (10.4%) lived in an informal relationship, 7 persons (2.7%) were divorced, and 2 persons (1.6%) each were widowed or separated. 110 people (42.3%) had offspring.

Among the stressful situations that have occurred in the last three months, 27 respondents (10.4%) pointed to difficult work situation, 22 (8.5%) – illness of a close person, 17 (6.5%) – own illness, 15 (5.8%) – financial problems, 12 (4.6%) – relationship breakdown, 8 (3.1%) – death of a loved one, 5 (1.9%) – conflicts, while 4 (1.5%) – COVID-19 pandemic; work or university stress, life threatening factors and difficulties of loved ones – 3 people (1.2%) each; an ongoing court case – 2 people (0.8%) while childbirth and wedding - 1 person (0.4%) each.

The analysis of the severity of depression, psychological pain and fascination with death in the study group (Table 1) showed in the CESD-R scale that 101 people (38.8%) achieved a score indicating the presence of depressive symptoms and the need for specialist consultation. Women achieved higher scores compared to men ($Z = -2.424$; $p = 0.015$). There were no statistically significant differences in the intensity of the fascination with death between the group of women and men ($Z = -0.955$; $p = 0.340$). The distribution of scores for all indicators (depression, psychological pain, and anxiety and fascination with death) differed significantly from a normal distribution.

Table 1. Analysis of the intensity of suicide risk factors in the study group

Risk factors for suicide	Test group	min.	max.	mean	SD	skewness	kurtosis	Shapiro-Wilk test
depression rating scale	all	0	76	15,75	14.87	1.38	0.142	<0.001
	women	0	76	18,01	16.02	1.267	1.451	<0.001
	men	0	64	13.49	13.3	1.462	2.115	<0.001
psychological pain scale	all	13	58	22.68	7.79	1.439	3.426	<0.001
	women	13	58	23.80	7.72	1.214	2.913	<0.001
	men	13	58	21.57	7.74	1.773	4.748	<0.001
scale of fear and fascination with death	all	14	50	22.31	6.73	1.195	1.518	<0.001
	women	14	50	22.08	6.97	1.32	1.83	<0.001
	men	14	48	22.54	6.50	1.07	1.28	0.001

In the measure of religiosity and spiritual transcendence (Table 2), the lowest score was recorded in the scales of religious commitment, religious crisis and fulfilment in prayer, while the highest score was recorded in the scale of sense of social connection. Among the maximum scores, the lowest was recorded in the measure of transcendence, and the highest in religious commitment. The respondents achieved the lowest mean intensity in the subscale of religious involvement, and slightly higher in the measure of a religious crisis. In contrast, feeling fulfilled in prayer and the sense of universality were the highest intensities. The distributions for all subscales of spirituality and religiosity assessment differed significantly from the normal distribution.

Table No. 2 Analysis of the results of the scale for the study of spirituality and religiosity in the study group.

Subscales of the scale for the study of spirituality and religiosity	min.	max.	mean	SD	skewness	kurtosis	Shapiro-Wilk test
religious commitment	1,0	6,13	1,05	1,23	-0,468	-0,573	<0,001
religious crisis	1,0	5,00	1,88	0,75	0,875	1,028	<0,001
transcendence	1,39	4,57	3,50	0,61	-0,566	-0,201	<0,001
fulfilment in prayer	1,0	5,00	3,67	1,00	-0,901	0,142	<0,001
universality	1,14	5,00	3,63	0,74	-0,576	0,040	<0,001
sense of social connection	1,67	4,67	3,39	0,68	-0,208	-0,540	0,001

Correlation analysis between risk factors and suicide predictors (Table 3) showed statistical significance: the weakest between depression and fascination with death (ρ=0.399; p < 0.001) and the strongest between depression and psychological pain (ρ=0.677; p < 0.001). The greater the psychological pain the more frequent the occurrence of depressive symptoms and vice versa. Individuals with more psychological pain showed more interest in death, while individuals less fascinated by death experienced less psychological pain. Moreover, depressive symptoms (ρ=0.290; p < 0.001), psychological pain (ρ=0.279; p < 0.001), and fascination with death (ρ =0.224; p < 0.001) also increased with increasing a religious crisis. There was no correlation between the other indicators of spiritual transcendence and religiosity and suicidal risk factors.

Table No. 3 Correlation analysis between risk factors and suicide prevention in the study group

Factors for attempting S:		depression	fascination with death	psychological pain
risks	depression	-	0,399***	0,677***
	fascination with death	0,399***	-	0,435***
	psychological pain	0,677***	0,435***	-
prevention	religious commitment	-0,107	0,047	-0,049
	religious crisis	0,290***	0,224***	0,279***
	spiritual transcendence	-0,059	-0,064	-0,011
	fulfilment in prayer	-0,065	-0,046	-0,025
	universality	-0,12	-0,085	-0,093
	sense of social connection	0,071	0,003	0,09

***p < 0.001

Analysis of the relationship between recent stressful events, i.e., those that have occurred in the last three months, and suicide risk factors (Table 4) showed a positive correlation between the number of stressful events and depression (ρ=0.259; p < 0.001) and psychological pain (ρ=0.295; p < 0.001).

Table No. 4 Correlation analysis between the number of stressful events and suicide risk factors in the study group

Number of stressful events	correlation coefficient	depression	fascination with death	psychological pain
	ρ	0.259	0.023	0.295
	p	<0.001	0.708	<0.001
	N	260	260	260

Analysis of the effects of recent stressful events on risk factors for suicidal activity (Table 5) revealed statistical significance for relationship breakdown vs. depression and psychological pain severity; own illness vs. psychological pain severity; financial problems vs. all analysed suicide risk factors; occupational difficulties and experiencing conflicts vs. depression and psychological pain severity; situation related to the SARS-CoV-2 coronavirus pandemic (own illness, illness in family; employment at high risk of contagion) vs. fascination with death.

Table 5a. Analysis of the impact of selected stressful situations on risk factors of suicidal activity in the study group

Stressful situations			depressiveness mean score / SD	fascination with death mean score / SD	psychological pain mean score / SD
pandemic Covid-19	No (n = 256)		15.74 / 14.94	22.40 / 6.74	22.70 / 7.84
	yes (n = 4)		16.25 / 11.09	16.25 / 1.26	21.50 / 3.0
	Mann- U test Whitney	Z	-0.443	-2.252	-0.013
		p	0.658	0.024	0.989
life-threatening factors	no (n = 257)		15.65 / 14.81	22.24 / 6.67	22.62 / 7.81
	yes (n = 3)		24.33 / 21.78	28.33 / 11.02	28.00 / 4.36
	Mann- U test Whitney	Z	-0.634	-1.133	-1.624
		p	0.526	0.257	0.104
stress related with work/university	no (n = 257)		15.67 / 14.81	22.32 / 6.75	22.66 / 7.76
	yes (n = 3)		22.67 / 22.01	21.67 / 5.13	25.00 / 12.29
	Mann–Whitney U test	Z	-0.587	-0.066	-0.155
		p	0.557	0.948	0.877
conflicts	no (n = 255)		15.39 / 14.59	22.21 / 6.65	22.53 / 7.69
	yes (n = 5)		34.20 / 18.97	27.40 / 9.53	30.80 / 9.68
	Mann–Whitney U test	Z	-2.101	-1.320	-2.039
		p	0.036	0.187	0.041
life difficulties of loved ones	no (n = 257)		15.65 / 14.91	22.32 / 6.76	22.67 / 7.83
	yes (n = 3)		24.33 / 6.35	21.00 / 3.46	23.67 / 4.04
	Mann–Whitney U test	Z	-1.619	-0.031	-0.630
		p	0.105	0.975	0.528
ongoing court case	no (n = 258)		15.79 / 14.92	22.35 / 6.47	22.67 / 7.81
	yes (n = 2)		10.00 / 2.83	17.50 / 2.12	24.00 / 8.48
	Mann–Whitney U test	Z	-0.255	-1.116	-0.407
		p	0.799	0.265	0.684

Table 5b. Analysis of the impact of selected stressful situations on risk factors of suicidal activity in the study group

occupational problems	no (n = 233)		14.83 / 14.25	22.18 / 6.71	22.27 / 7.54
	yes (n = 27)		23.67 / 17.82	23.44 / 6.91	26.26 / 9.07
	Mann–Whitney U test	Z	-2.906	-1.036	-2.358
		p	0.004	0.300	0.018
financial problems	no (n = 245)		14.76 / 14.22	22.06 / 6.63)	22.36 / 7.82
	yes (n = 15)		32.00 / 16.29	26.33 / 7.37	28.00 / 4.99
	Mann–Whitney U test	Z	-4.047	-2.418	-3.536
		p	< 0.001	0.016	< 0.001
death of a close person	no (n = 252)		15.72 / 14.66	22.35 / 6.74	22.72 / 7.87
	yes (n = 8)		16.63 / 21.69	20.88 / 6.71	21.38 / 5.13
	Mann–Whitney U test	Z	-0.535	-0.706	-0.158
		p	0.592	0.480	0.875
illness of a close person	no (n = 238)		15.83 / 15.16	22.30 / 6.65	22.55 / 7.97
	yes (n = 22)		14.86 / 11.45	22.41 / 6.65	24.18 / 5.5
	Mann–Whitney U test	Z	-0.417	-0.352	-1.8
		p	0.677	0.725	0.072
own illness	no (n = 243)		15.42 / 14.66	22.22 / 6.64	22.51 / 7.78
	yes (n = 17)		20.47 / 17.33	23.59 / 8.01	25.24 / 6.29
	Mann–Whitney U test	Z	-1.247	-0.525	-2.041
		p	0.212	0.600	0.041
relationship breakdown	no (n = 248)		15.06 / 14.1	22.24 / 6.57	22.38 / 7.46
	yes (n = 12)		30.00 / 22.55	23.67 / 9.79	29.08 / 11.52
	Mann–Whitney U test	Z	-2.317	-0.252	-2.372
		p	0.020	0.801	0.018

4. Discussion of the results

Suicidal behaviour is influenced by many individual, social (Jarema, 2018), and cultural factors (Wassermen et al., 2020), but the ability to take one's own life is also essential (Holyst, 2018). Although a suicidal act triggers a specific stimulus, it is important to consider the causes of suicide holistically. All risk factors for suicide are related to each other. In the research literature, many authors indicate a correlation between suicidal activity and depressive disorder, reduced appetite, disruption of the sleep-wake rhythm, feelings of fatigue, decreased libido, and in the course of severe depression, low levels of low-density

lipoprotein and total cholesterol. In addition, patients with "S" intentions compared to those without them suffer from illnesses longer and have more psychotic symptoms (Ma et al., 2019). Other factors that increase suicide risk include feelings of hopelessness, worthlessness, "S" thoughts, and greater awareness of illness. The rate of suicidal behaviour in severe depression is: for "S" thoughts – 53.1%; "S" tendencies – 17.5% and for "S" attempts – 23.7% (Dong et al., 2018; Dong et al., 2019). Individuals with major depression make up 15% of successful "S" attempts (Grzywa et al., 2009). Analysis of risk factors for completed and attempted suicide among individuals with unipolar and bipolar affective disorder indicates that "S" behaviours occur most frequently during an episode of a major depression or during a mixed episode (20-40 times more often than in the euthymic state). Moreover, the risk of "S" behaviour is increased by simultaneous use of psychoactive substances, type B personality disorder (antisocial, borderline, histrionic or narcissistic), sense of hopelessness, tendency to aggressive behaviour, difficult childhood experiences and stressful life events. Disease factors predispose but do not trigger suicidal activity (Isometsä, 2014).

In our study, the distribution of measurement of suicide risk factors significantly deviated from the normal, which is favourable information from a psychological point of view. 61.2% of the subjects did not show significant depression, but more than 1/3 of the participants may be affected by depression, which is a significant problem during the SARS-CoV-2 pandemic. The higher prevalence of depression in the female population is consistent with the results of work by other authors (Ferrari et al., 2013; Salk, Hyde, & Abramson, 2017). In addition, our results indicated a co-occurrence of depressivity with more severe psychological pain and a moderately higher fascination with death. Tripp et al. (2020) also indicated a stronger relationship between depression and psychological pain compared to the correlation between depressivity and lack of a sense of belonging (Tripp et al., 2020). Other researchers have shown a correlation between depression and psychological pain and feelings of hopelessness (Troister & Holdena, 2010).

In our project, women were characterized by more severe psychological pain compared to men although the overall result in both groups indicates at most a medium severity of this factor. Psychological pain was more frequently indicated in the study population than depression. This may indicate that psychological pain is the strongest predictor of suicidal behaviour, which was also confirmed by Reist (2017). The connection between high levels of psychological pain with the severity of "S" thoughts and acts indicated higher levels of psychological pain in subjects with past and current "S" attempts compared to subjects without attempted suicide (Ducasse et al., 2018). Additionally, significantly higher psychological pain severity was also observed in depressed patients compared to controls (Reist et al., 2017; Berardelli et al., 2020). Shelef (2015) in a group of soldiers of the Israel Defence Forces showed that individuals with a low capacity for

emotional regulation of psychological pain manifested a higher intensity of psychological pain and had more "S" thoughts.

The literature does not report studies on the construct of fascination with death in the context of "S" behaviour, although it is undoubtedly a suicide risk factor. In our study, the surveyed subjects, regardless of sex, were characterized by its low intensity. It can be assumed that there was a low risk of suicidal intent among the subjects, which is significant in the context of the whole study. The study also revealed that the participants were characterized by a high level of spirituality and religiosity, and at the same time they had a low level of religious crisis. The results indicate that the subjects felt fulfilment in prayer, joy in communing with transcendent reality, believed in the unity of all life, had a sense of connection with others, and were engaged in religious life and did not feel any conflict with God, the truths of faith or the religious group to which they belonged. Religiosity may serve an important function in stress coping strategies (Pargament, 1997) and, along with spiritual transcendence, is protects against suicidal behaviour. Most studies on spirituality and religiosity confirm a negative association with suicidal activity. Our study did not confirm the protective function of spirituality and religiosity, despite their high levels among respondents. Both religious commitment and spiritual transcendence, fulfilment in prayer, universality and sense of social connection were not significantly connected with depression, psychological pain or fascination with death. Similar results were obtained by Lawrence et al. (2016). They showed that among patients with major depression, those who declared a religious affiliation were more likely to attempt "S" (Lawrence et al., 2016). Perhaps among healthy individuals there are stronger protective factors against suicide such as social support and sense of coherence. Hence, there is a need for further exploration of the research area.

Surprisingly, only the factor indicative of a religious crisis, co-occurred with higher levels of suicide risk factors. That is, experiencing a crisis of faith raises suicide risk by co-occurring with slightly higher levels of depression, psychological pain, and fascination with death. Rodziński, Rutkowski, and Ostachowska (2017) believe that rejection of cultural and religious norms and recent values and goals along with the lack of perceived support (religious crisis), may cause the suicidal process to deepen (from the moment of first “S” thought to the realization of suicide). A higher risk of" S" is associated with a developmental crisis (Makara-Studzińska, 2013). According to Pargament's (1998) theory of religiosity, negative coping with stress is connected with anxiety and depressive symptoms (Francis et al., 2019). A positive correlation between negative religious ways (having an insecure relationship with God, sinister worldview, religious struggle in search of meaning in life) and more intense "S" thoughts was also found in advanced cancer (Trevino et al., 2014). There are many studies on religiosity and suicidal behaviour, but most works are limited to analyses of specific groups (patients with mental disorders, veterans or adolescents).

Nevertheless, research indicates that religious and existential well-being negatively correlate with "S" thoughts (Ibrahim et al., 2019). Furthermore, religious involvement along with family support may counteract the emergence of "S" thoughts among adolescents. Most studies on spirituality and religiosity confirm a negative association with suicidal behaviour (Wu, Wang, & Jia, 2015; Tae & Chae, 2021), implying that they may be preventive factors of suicidal activity.

An additional value of the manuscript is the analysis of the relationship between stressful life events and suicide risk factors. Clearly, one's life situation is important for engaging in "S" activity. Individuals scoring higher on depression and psychological pain scores also experienced more recent (within the past three months) stressful situations. Thus, the severity of symptoms of depression and psychological pain may be related to the occurrence of difficult life events. A review of studies confirmed that negative life situations are related to "S" thoughts and behaviours (Liu & Miller, 2014). In the study group, increased rates of depression and psychological pain were co-occurring with events such as relationship breakdown, career difficulties, conflict, and financial problems, and greater psychological pain was also associated with experiencing one's own illness. Fascination with death was higher among those experiencing financial problems and the effects of the COVID-19 pandemic. In the study, experiences such as life threatening, stress at work or university, ongoing court cases, life difficulties of loved ones or their death or illness can undoubtedly be a source of stress, but did not translate into an increased risk of suicide in the sample group. Due to the small sample size, the results should be interpreted with caution.

Considering the novelty of the project, it is reasonable to set directions for future research. First of all, it would be worth checking the level of identification with religion, the motivations for participation in religious and spiritual life, and the image of God among the respondents. It seems that other protective factors, such as a sense of belonging or social support, should also be addressed in the future.

Conclusions

1) Of the analysed risk factors for suicidal activity (depression, psychological pain, and fascination with death), psychological pain is the strongest predictor of the "S" sample.
2) Religious crisis is associated with higher levels of suicide risk factors.
3) Depressiveness correlates with increased psychological pain and fascination with death in individuals with high levels of spiritual transcendence and religiosity.

4) Increased symptoms of depression and psychological pain are more common in people who have recently experienced stressful situations and in the female population.

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Promoting the principle of alcohol abstinence in sport

Promowanie zasady abstynencji alkoholowej w sporcie

Abstract: A hundred years ago, the principle of alcohol abstinence was almost obvious in sport. These days, it is still observed, but its importance has weakened. At the same time, we have knowledge about the role of this principle in maintaining the training effects of athletes and in the general education of sport adepts. Certainly, this principle should be promoted, which may not be easy given the prevailing opinions on this issue. In professional sport, we note various deviations from this rule, even leading to a breakdown in the careers of individual athletes. In addition, it turns out that the fairly widespread belief in the preventive role of sports activities is not always based on research results. Sometimes, training, especially team games, aggravates the level of alcoholism in young people. This is why it is interesting to examine the opinion on the role of abstinence in the preparation of athletes in various research groups. In this case it was a group of voluntary, consistent abstainers. In general, they strongly confirm the role of abstinence in sport, but not all aspects of this acceptance are knowledge-based. Some have an ideological character. Based on these results, we are able to develop and recommend an optimal way of communicating the principle of abstinence in sport, by means of which the stereotypes in this area can be avoided.
Keywords: sport pedagogy, abstinence, training, alcohol, Olympism

Abstrakt: Przed stu laty zasada abstynencji alkoholowej była w sporcie niemal oczywista. Obecnie nadal bywa przestrzegana, ale jej znaczenie osłabło. Jednocześnie dysponujemy wiedzą o roli tej zasady w utrzymaniu efektów treningu sportowców i w ogólnym wychowaniu adeptów sportu. Z pewnością należy promować tę zasadę, co może nie być łatwe z uwagi na panujące opinie dotyczące tej kwestii. W sporcie zawodowym notujemy rozmaite odstępstwa od tej zasady prowadzące nawet do załamania karier poszczególnych sportowców. Ponadto okazuje się, że dość powszechne przekonanie o profilaktycznej roli zajęć sportowych nie zawsze jest oparte na wynikach badań. Bywa, że trenowanie, zwłaszcza gier zespołowych pogarsza poziom zachowań alkoholowych młodzieży. Dlatego interesujące jest zbadanie opinii na temat roli abstynencji w przygotowaniu sportowców w różnych grupach badawczych. W tym wypadku jest to grupa dobrowolnych, konsekwentnych abstynentów. Generalnie potwierdzają oni stanowczo rolę zasady abstynencji w sporcie, ale nie wszystkie aspekty tej akceptacji są oparte na wiedzy. Część ma charakter ideologiczny. Na podstawie tych wyników można opracować i zalecać optymalny sposób komunikowania zasady abstynencji w sporcie, przy pomocy którego ominie się panujące w tym zakresie stereotypy.
Słowa kluczowe: pedagogika sportu, abstynencja, trening, alkohol, Olimpizm

1. Introduction

Sport is an important aspect of modern activity, especially in connection with the Olympic idea. Professional sport plays an important economic, political, and media role (Coakley, 2017; Westberg, 2018; Chambers, Sassi, 2019). Amateur sport is an element of health promotion and contributes to citizens' quality of life. In a variety of ways, sport, both

professional and amateur, is present in the lives of many people since childhood. Playing sports involves at least minimal training and physical activity. It is therefore worth asking how this activity relates to the issue of risky behavior of children, adolescents, and adults, especially in the field of alcoholic behavior. It is assumed that the use of ethyl alcohol (mainly in the form of alcoholic beverages – beer, wine, vodka) is a very serious risk factor for premature loss of health and life. According to experts, ethanol is the most dangerous drug with negative social effects (Nutt, King, Philips, 2010; Bonomo et al., 2019, Lubman et al., 2020). Therefore, the relationship between sports activity and the use of this psychoactive substance is important. It may be that sports activity improves the level of risky behavior (reduction), but it may also be that it sometimes raises this level (O, Brien, Lyons, 2000; Bobrowski, 2003; Bobrowski, 2007; Grelot, Peretti – Wastel, 2009; Wałach – Bista, 2012, s. 87; Wierzbiński, 2016, s. 16; Baker, Safai, 2016; Yusko, 2008, Steinback, 1997; Berdzik, 2016; Westeborg, 2018; King et al.., 2020; Exner at all., 2021). Furthermore, the negative impact of ethanol use on training effects and sports results may also be visible (Kamińska, 2012, s. 78-80; Świderska, 2012, s. 143-149; Yusko, Brickman, White, 2008, s.281-90; Exner, 2021, s. 3-4).

When the Olympic idea emerged, a hundred years ago, the attitude towards the use of ethanol by athletes was definitely negative and critical (Chatziefstathiou, 2005/2019; Chaztiefstathiou, Garcia, Segiun (red.), 2021). It was thought that the athlete should be a total abstainer (and thus a health specimen) (Gorodyński, 1913; Szulc, 1937; Pawluczuk, 2010). Currently, this principle is treated differently. It is cultivated in some environments (Braun, 2021), which is reflected in the content of contracts concluded with players by sports clubs, while in others it is considered archaic and redundant (Stewart, Smith, 2008; Burke, Maughan, 2000, p. 405 - 413; Stewart, Smith, 2015). In this study, we were interested in how these issues are perceived in the environment of radical, voluntary abstainers. We will also make intergroup comparisons in further studies. This study can be the basis for selecting the optimal ways to promote the principle of abstinence in sport. Promoting this principle again seems to be something very necessary, but it can be difficult in terms of communication due to the prevailing stereotypes and misconceptions. Struggling with them will cause cognitive dissonance and hinder communication on this important issue.

2. Material and methods

The study group consisted of pilgrimage participants of the Catholic abstinence movement known as the Crusade of Human Liberation[1]. It is a movement of tens of thousands of people adopting the principle of voluntary abstinence of members extended by the principle of not drinking alcohol and not acquiring it (Kulbacki, Kulbacki, 2013).

[1]Pilgrimage of CHL to Jasna Gora, over 1200 participants, September 28-29, 2019.

From this point of view, this is the most radical movement, referring to the attitudes of the early twentieth century (e.g. in W. Lutoslawski's "Eleusis" movement or in the scout movement). The motive for joining this movement is social love and transforming the social environment into a favorable one for the free use of alcohol (a kind of solidarity with people abstaining due to health reasons, e.g. as part of alcohol addiction syndrome therapy). Accession decisions are usually mature and thoughtful, based on a broad foundation of responsibility and reflection. Rooting this movement in attitudes characteristic of the early twentieth century especially favors comparisons of opinions about the role of abstinence in sport, because the principle of sports abstinence at that time spread in a socially natural way (Danielewicz, 1983; Grodyński, 1913). A certain "archaism" of this attitude, as well as its radicalism suited the researcher.

In contrast, the reference group (rather not a control group) was a group of 51 people from one of the uniformed services. It was a group among which there were no alcohol abstainers[2], and their results in the AUDIT screening test were higher than average[3]. Therefore, it was something like a second social pole in relation to the study group. Thanks to such features of the reference group, it was possible to compare the results and observe to what extent the views of the test group are original and related to their abstinence. Due to the smaller size and purposeful way of selecting the group, I called it a "reference group" and not a control group in the strict sense of the term.

The average age in the study group was 52.4 years (standard deviation 12.9), and in the reference group the average age was 37.6 years (standard deviation 4.9). In the study group 45.5% were men and 54.5 % women, while in the reference group 70% were men and 30% women. This distribution further shows the differences between the two groups. In addition, the study group represented a wider spectrum of professions than the reference group, which was very uniform.

As you can see the groups were different and the reference group cannot be considered a classic control group. Nevertheless, its presence allows a better visibility of the specificity of the group of abstainers as there were no such subjects in the reference group. In the continuation of the study, we anticipate more accurate inter-group comparisons, referring to the tendencies shown in this study.

It can only be added that the reference group presented a picture closer to the average attitudes represented by adult Poles in terms of alcohol use. It is true that the number of abstainers among adult Poles is significant, but they do not prevail, while relatively many people have a similar alcohol behavior profile to the reference group (Global Status Report on Alcohol and Health WHO, 2018, p. 281).

[2]Such a result was revealed during the Author's work with this group. None of the participants were alcohol abstainers.

[3]The result also obtained during the mentioned workshops. Over 50% of the participants obtained a higher number of points in the AUDIT test than the risky drinking threshold.

Questionnaires of the auditorium survey (diagnostic survey) in the study group were collected from all participants of the pilgrimage who arrived at the meeting room half an hour before its official start and had time to fill it in freely. 130 questionnaires were collected, of which 125 as fully completed were qualified for further development. Thus, the selection of the research group was a targeted choice, but also random, due to the fact that the collected questionnaires constituted only 15% in relation to the whole group (over 1000 people). Most of the respondents filled in the sheet independently, which took 3 to 8 minutes.

Questionnaires in the reference group were collected during a training workshop. In this group there were fewer deficiencies in the completed questionnaires, which indicates good conditions for collecting information.

Since the main research issue was the views of the abstinence group, we will now focus on this one, but very interesting group. Interesting due to its "congruence" with the concept of abstinence in sport and rooting in an ideology dating back to the end of the 19th century (a European abstinence movement motivated by religion or health)[4].

The questionnaire consisted of 10 questions (most closed) with little characteristics of the respondents (interest in sport, practicing it, gender, age, occupation). It can be found in the Annex. Women slightly dominated in the study group (54.5%), the average age was quite significant (52.4), which, paradoxically, contributed to the research purpose, because the respondents shared a smaller distance to the times when alcohol abstinence was considered a necessary attribute of practicing sport. Some respondents reported their professions. From this point of view, the study group was dominated by people whose daily activities did not require high physical activity (so-called white-collar workers). In contrast, the reference group was dominated by professions requiring considerable physical fitness.

3. Results

Most of the respondents declared a general interest in sport ("supporters"), some even intense, especially among the surveyed men. A significant proportion declared that they had practiced some kind of sport in the past or are practicing it now.

The first strictly substantive question concerned the identification of behaviors that interfere with sports activities. The question was: *Do you think any of the following behaviors are not conducive to achieving outstanding results in amateur or competitive sports: a) abuse of alcoholic beverages, b) use of drugs, c) smoking.*

[4]Founder of CHL Venerable Servant of God priest prof. F. Blachnicki followed the work of Silesian priest Kapica from the beginning of the 20th century and on the ideological achievements of scouts from the interwar period.

Table 1. Attitude to sport: Are you interested in sport, are you a supporter? N=125

	Yes	Yes, but not too much	No	Difficult to assess	No data
Study group N 125	48	46	7	22	2
%	38.4 %	36.8%	5.6%	17.6%	1.6%
Reference group n=51	18	23	8	2	-
%	35.3 %	45.1 %	15.7 %	3.9 %	-

Table 2. Playing sports (indicating the discipline).

	Played sports	Did not play sports
Study group	34	91
%	30.4 %	72.8 %
Reference group	24	27
%	47.1 %	52.1 %

As you can see, this was not yet a question about alcohol abstinence but only about the abuse of alcoholic beverages. The respondents collectively chose answers indicating a collision of all three behaviors given with sports activities. They were as a group almost uniformly convinced that each of the three behaviors interferes with outstanding sports results. The result shows the mentioned radicalism of the studied group's attitudes.

Table 3. Assessment of the harmfulness of risky behaviors for outstanding sports results

	Ethanol abuse	Drug use	Smoking tobacco
Study group	117	104	101
%	93.6 %	83.2 %	80.8 %
Reference group	45	45	40
%	88.2 %	88.2 %	78.4 %

The next question already contained the issue of the principle of abstinence in sport, although given backward. The respondents were to indicate which behavior is harmful to good, outstanding sports results: abstinence, use of any amount of alcohol, alcohol abuse.

This question was technically difficult, as it was easy to be structurally mistaken and choose abstinence as harmful. It could also happen that the respondents indicated abstinence

on purpose, if they thought that it was also "harmful" to sports results (according to a saying: "What kind of man doesn't drink?"). Here are the results.

Table 4. Assessment of the harmfulness of selected attitudes towards ethanol from the point of view of outstanding sports results

	Abstinence	Using any amount of alcohol	Alcohol abuse
Study group	4	80	99
%	3.2 %	64.0 %	79.2 %
Reference group	-	14	42
%	-	27.5%	82.4%

An interesting distribution of responses was obtained, among which the predominant statement was that both the use of any amount of alcohol and overt abuse of it were harmful. In other words, the respondents in this question declared clear support for the timeliness of abstinence in sport. At the same time, the results differed slightly: more people pointed to the harmful effects of "abuse" than "using any amount of alcohol". This may mean some degree of consent for low, moderate consumption of ethanol by athletes. Indications for "abstinence" may be rather an artifact, but it may have been individuals who, despite the fact that they themselves are abstinent, considered abstinence as detrimental to athletes. There would only be 3.2% of such people. For the record, we also note this result, although we consider it as the effect of the respondents' mistake.

The next question (in questionnaire No. 5) concerned the possible knowledge of the respondents about the destructive role of alcohol use in relation to fitness (especially to the effects of training and the effect of alcohol on striated muscles). We currently have the results of research that illustrate this negative effect ()Danielewicz, 1883, s. 67-68; Fernandez – Sola et al., 1995; Slavin et al., 1983; Parr et al., 2014, Steiner et al., 2015; Zinowiewa et al., 2016; Shenkman et al.., 2018; Shenkman et al, 2019; Crowell, Laufenberg, Lang, 2019), but there is little social awareness of this. And yet it would be an excellent foundation for the general principle of abstinence in sports. If it is true that drinking damages the effects of training and weakens the muscles of the trainee, then this effect alone would be enough for the motive of abstinence. It was interesting to what extent the subjects were aware of this kind of relationship.

Do you know that physiological studies have shown that the use of alcoholic beverages destroys the effects of training by damaging the actin-myosin connections in the athlete's muscles?

□ *YES, I have heard about it* □ *NO, I haven't heard about it*

It turns out that a significant proportion of the respondents have heard of this effect, although not everyone.

Table 5. Knowledge about the negative effects of alcohol on trainees' muscles

	Heard about it	Haven't heard about it	No response
Study group	82	41	2
%	65.6 %	32.8 %	1.6 %
Reference group	31	20	-
%	60.8 %	39.2 %	-

The result suggests the possibility, or even the need to refer to this type of research in pro-health education, also due to the fact that, for example, young people are very concerned about their muscles. It is therefore a great "preventive argument". A relatively large part of the group was aware of such an effect (65.6%), which is surprising to the extent that this knowledge has not been and is not somehow specifically exposed in media. It is usually known only by specialists. Perhaps the respondents decided that "it is good to know about it". The case would require a separate, more thorough checking in the next study.

At the same time, 32.8% of the respondents have not heard of this effect. And yet it is a fundamental matter in the issue being studied. This result shows the need for educational dissemination of knowledge on this subject.

Perhaps the result indicates a somewhat idealistic nature of support for abstinence in sport ("because abstinence is good as such, it is also good in sport"). Let us repeat: it seems that as part of a possible restitution of the principle of abstinence in sport, the promotion of similar research results describing the negative physiological effects of ethanol use would play a significant role.

In the next question (No. 5), the respondents were to respond to the principle of abstinence in sport in the light of the original assumptions of the sports movement dating back to the turn of the 20th century (Grodyński, 1913; Szulc, 1937), when it was alive and almost obvious (*"A hundred years ago, when the Olympic movement emerged, it was recognized that athletes must radically avoid drugs (do not smoke, drink or use drugs)." This tendency was: a) correct, proper; b) exaggerated, too radical; c) difficult to assess*).

Table 6. Assessment of the principle of full abstinence propagated during the renewal of the Olympic movement

	Correct	Exaggerated	Difficult to assess	No response
Study group	116	1	7	1
%	92.8 %	0.8 %	5.6 %	0.8 %
Reference group	40	6	5	-
%	78.4 %	11.8 %	9.8 %	-

The vast majority of the respondents (92.8%) chose the option A) – correct and proper. Therefore, in this particular environment, this principle retains its attractiveness, as it did 100 years ago. The members of this movement (CHL) could be an important support in the "recovery" of this principle, if we had a sense of the necessity of such restitution.

The next question delved deeper into the justification of this idea. According to numerous published memories and interviews with outstanding athletes, some of them fell into addiction to alcohol or gambling, and getting drunk is typical of people who intensively practice sport to a greater extent than in the general population (!) (Anderson et al., 1991; Nelson, Wechsler; 2001; Brenner, Swanik, 2007; Ford, 2007; Martens, 2007; Yusko et al., 2008; Barry et al., 2015; Weaver al., 2013; Wierzbiński, 2016; Tavolacci et al., 2016). The question concerned the assessment of environmental standards among modern athletes: do they support sobriety or rather favor addiction. The distribution of answers is interesting.

Recently, there have been many recollections of outstanding athletes who have become addicted (e.g. alcohol addiction, gambling).

Do you think that their troubles could have any connection with playing sports, e.g. environmental habits?

□ *yes, they could have a connection* □ *no, they did not have a connection* □ *difficult to assess*

A very significant proportion of the respondents indicated the answer A) "they could have a connection" (63.2%). In other words, in this group there is suspicion, hypothesis or some kind of conviction etc. that the environmental norms prevailing among athletes are not abstinent, but on the contrary – they are conducive to becoming addicted. This is a very interesting intuition. It corresponds to some of the ratings found in the media. From time to time such an accusation is made against the sports environment, especially the professional one.

Table 7. Assessment of environmental rules prevailing among athletes from the point of view of the impact of breaking abstinence on the breakdowns of individual players' careers

	Yes, could have connection	No, no connection	Difficult to assess	No response
Study group	79	19	25	2
%	63.2 %	15.2 %	20.0 %	1.6 %
Reference group	30	4	7	-
%	58.8 %	7.8 %	13.7 %	-

Another question concerned the impact of strict abstinence on the results of important sports competitions. It read as follows:

Do you think that strict compliance with the abstinence rule before important competitions would help to achieve the success of Polish national teams and clubs, e.g. in team sports (football, volleyball, hockey, basketball)?

□ yes, it would help □ no, it has no connection □ it is difficult to assess

In the case of this question, we have a very strong belief of the respondents that maintaining abstinence before important competitions would be conducive to achieving outstanding results. Up to 93.6% indicated this value of abstinence.

Table 8. Impact of abstinence before important competitions on their positive result in team sports

	Yes	No	Difficult to assess	No response
Study group	117	1	7	-
%	93.6 %	0.8 %	5.6 %	-
Reference group	38	1	12	-
%	74.5 %	2 %	23.5%	-

The next question asked about knowledge of a specific athlete who had lost his/her career as a result of alcohol problems.

Do you know any outstanding athlete whose career has collapsed due to alcohol abuse? Enter his/her name below (or several names if you know them):

It turned out that 23.2% (n = 29) of the respondents in the study group knew of such a story (probably from the media), and were able to identify such a person "by name". It's quite a high ratio. It can be a sign of high dissemination of this type of messages. As we know, the media looks for sensation. On the other hand, this may raise legitimate concerns about environmental standards in sport, especially in professional sport.

In the reference group, this ratio was even significantly higher. Twenty-four people named such a specific person (47.1%). This shows a greater knowledge of the sports environment or greater "erudition" in the sports press.

The next question examined the respondents' attitude to possible training by their own children, from the point of view of possible preventive benefits.

If your children were to train a team sport in a club, would you expect that it would be beneficial to their behavior from the point of view of preventive purposes? E.g. that they will not use alcohol or smoke?

□ yes, it would be beneficial □ no □ difficult to assess

It turns out that the majority of respondents are very positive about possible training. Therefore, they duplicate some common belief about preventive benefits of practicing sport, despite the fact that research shows the ambivalence of sport as a preventive measure (Bobrowski, 2003; Bobrowski, 2007; Torres, 2004, s. 255; Steptoe et all. 1997; Woitas – Ślubowska, 2009, s. 124). In some ways, this is also contrary to the negative assessment of environmental standards in sport that has appeared in previous questions. Here are the results:

Table 9. Positive preventive expectations for practicing sport (training) by own children

	Yes, it would be beneficial	No	Difficult to assess	No response
Study group	108	4	11	2
%	84.6 %	3.2 %	8.8 %	1.6 %
Reference group	43	2	6	-
%	86 %	3.9 %	11.8 %	-

As you can see, positive expectations for sport as a preventive value dominate. This is puzzling because previous statements would require greater caution in this matter. Could the respondents rely on the fairly widespread stereotype that attributes sport with a permanent preventive value? This is probably the case, unless we allow the interpretation that the respondents used a hidden, "magic" assumption like "it will not happen to me, it does not apply to me – benefits yes, losses no". This interpretation cannot be ruled out. It seems that the respondents know almost nothing (3.2% know) about the so-called preventive ambivalence of sport among young people. This is an extremely important moment from the point of view of the location of preventive sport. Society should probably be educated on this matter, showing in what conditions sport is a protective factor and in which situations it is a risk factor.

The next question concerned the same matter, but more precisely. An additional element has been introduced in the form of differentiation of coaches' attitudes. The question was:

It is believed that practicing sport is one of the best preventive measures. Do you agree with this opinion?

□ *yes* □ *no* □ *it depends who coaches* □ *difficult to assess*

More nuanced statements were obtained, showing that the respondents are aware of the relationship between the preventive action of sport and the attitudes of coaches.

Table 10. Sport as a preventive measure

	Yes	No	It depends who coaches	Difficult to assess	No response
Study group	83	4	25	10	3
%	66.4 %	3.2 %	20.0 %	8.0 %	2.4 %
Reference group	31	8	4	8	-
%	60.8 %	15.7 %	7.8 %	15.7 %	-

As it can be seen here, the respondents showed more moderation in glorifying sport as a preventive measure. As many as 42% had doubts. It turns out that with closer inquiry we obtain a slightly more realistic picture, where the attitudes of coaches determine the preventive value of training. However, most still support the autonomous value of sport in prevention, which is not consistent with objective knowledge, as already mentioned (Thorlindsson et al., 1990, Bobrowski, 2007).

The next question concerned the possible relationship between famous sport failures and sobriety of competitors before the competition. It read as follows:

After losing an important football match, a sports journalists expressed the opinion that it happened because of the players' "party" on the eve of the competition. Was this a probable opinion? □ yes □ no □ difficult to assess

Table 11. The relationship between possible drunkenness and a lost match

	Yes	No	Difficult to assess	No response
Study group	92	-	29	4
%	73.6 %	-	23.2 %	3.2 %
Reference group	36	3	12	-
%	70.6 %	5.9 %	23.5 %	-

The respondents again revealed the intuition that accompanied them – abstinence can be broken in professional sports and this has a negative impact on performance.

In a way, the summarizing element was the following question:

Should PE coaches and teachers undergo preventive training?

□ yes □ no □ it is difficult to assess

The vast majority of respondents deemed necessary the preventive training of sports coaches. It was as high as 82.4%. Attention is drawn to the almost complete absence of the answer "no" (one person) with a small percentage of abstentions! It is a view referring to the views of the early twentieth century, when Gustaw Szulc (Szulc, 1937) wrote: "*A physical educator, unaware of the need to fight alcoholism by the means at his disposal, does not properly fulfill his role.*"

Table 12. The need for preventive training of sports coaches

	Yes	No	Difficult to assess	No response
Study group	103	1	16	5
%	82.4 %	0.8 %	12.8 %	4.0 %
Reference group	44	2	5	-
%	86.3 %	3.9 %	9.8 %	

This result seems to be a call for the restoration of rules in sport, especially in professional sport (Lecoutre, Schultz, 2009; Sethi et al., 2016).

4. Discussion

The study assumed that there would be many such respondents in the study group who support the principle of full abstinence in sport, both amateur and professional. The data reinforce this hypothesis, especially when compared to the reference (control) group. In almost all categories, the results of the study group are high (and higher than the reference group's). Therefore, personal choice of abstinence may affect some radicalism of attitudes and expectations towards the sports environment.

At the same time, there are several aspects of the responses in which the results of the study group and reference group do not differ much. This may mean that in these aspects the position taken is either very universal (shared by the so-called general public) or the abstinent respondents are basing their judgments on a certain type of ideology, to a lesser extent referring to the internal consequence of life choices and assessments.

Let's try to synthesize the obtained results. Thus, most of both groups have interest in sports (74.8% in the study group, and 80.4% in the reference group) and part of them even practiced a discipline (respectively, 30.4% and 47.1%) . This shows the importance of sport for modern people. It is very significant, as is everything that is associated with sport. Both good and dubious aspects of sport certainly resonate in the daily lives of many people. In this respect, both groups are "typical", which justifies further exploration of their views.

In both groups we have a clear recognition of the harmful effects of alcohol abuse, drug use, and smoking in sport (in the study group a slightly higher percentage - 93.6% for alcohol, and lower - 83.2% for drugs, while in the reference group it is 88.2% for alcohol, and 88.2% for drugs). You can see that choosing an abstinent lifestyle slightly increases the

expectation of moderation among athletes. There is relatively less recognition for non-smoking as an attribute of sport, worth explaining in further studies. It is known that smoking has adverse physiological effects (hypoxia). However, since the question was not asked whether respondents smoke, it is worth exploring in further research. Perhaps this is the effect of cognitive dissonance in smoker respondents.

The next question was much more important from the point of view of the research goal. It was asked whether any amount of alcohol is harmful to athletes in terms of sporting results. It is believed so by up to 64% of voluntary abstainers and 27.5% of the reference group. Thus, support for the principle of athletes' full abstinence is shared by two-thirds of the study group. You can recognize this result also in such a way that the possible restitution of this principle in modern sport requires its observance by those who would promote it. For example, if a coach or sports activist is not an abstainer himself, he probably will not support the old rule now.

Of course, there was a lot of support for moderation in both groups – in the abstainers' group 79.2%, and in the reference group up to 82.4%. In an attempt to understand this result, we can ascertain that while full abstinence is supported rather by abstainers (which is understandable in its own way), moderation in sport is a requirement in both groups. Four-fifths of the respondents believe that ethanol abuse is at odds with sporting results (in addition to objective knowledge on the subject).

The declaration in both groups that respondents are aware of the harmful effects of ethanol on muscle function is puzzling. Up to 65.6% in the study group and 60.8% in the reference group. This is an optimistic result, which would please someone promoting the sobriety of athletes, but it seems that this may be an artifact, because it is difficult to see a sufficiently wide coverage of this issue in the media. To acquire this knowledge, one must actively seek it and at a scientific level. Thus, it seems that the answers were rather dictated by the respondents' suppositions. It is probably worth considering to provide broader and more source information about current research results, indicating the destructive role of using ethanol for muscle fitness and training effectiveness. After all, such aspects decided about the spread of the principle of abstinence in sport several decades ago. What is worth noting is a slightly higher frequency of declarations in the group of abstainers (by 4.8% more) than in the reference group.

The next question directly concerned the acceptance of the principle of abstinence, recognized a hundred years ago, when the Olympic movement emerged. And here we have a very high percentage of acceptance of this principle in the study group, and less, although also high (!) in the reference group. In the group of abstainers it is 92.8%, and in the reference group 78.4%. There is a slightly lower acceptance among people who are not abstainers, but let us emphasize – in both groups it is a very high indicator. As many as 9 out of 10 abstainers considered this cardinal principle as still valid.

In the next question, the perception of the relationship between the norms in the sports environment and individual athletes getting into trouble appeared. The results indicate that the respondents can see such a relationship. It is 63.2% in the study group and 58.8 % in the reference group. It can be assumed that they are closely watching the sports arena and are convinced that in the current sports environment, someone with an individual risk of alcohol-related problems (e.g. more susceptible to addiction due to biological reasons – sex, age, origin) may be affected by the effects of environmental lack of moderation. This is an important result because it shows that the current perception of the sports environment is not based on perceiving it as being moderate. So how about the positive preventive effect? An environment perceived as being risky cannot have a positive impact on young people, for example. This partly explains the observations that negate the preventive effect of sports training on youth behavior.

What's more, up to 93.6% in the study group recognizes that maintaining abstinence would help to achieve outstanding sports results. In the reference group this percentage is lower – 74.5%. Still, these are high percentages, indicating some common intuition that there is a positive correlation between abstinence and high sports performance.

Very many respondents were able to indicate "by name" athletes who literally "drank away their career". In the study group it was 23.2%, while in the reference group 47.1%. These are high percentages. If there were no such unpleasant cases in the sports environment (and in the media), then respondents would probably have more difficulty in identifying such people. Meanwhile, they were able to do it. This can be considered as some indirect measure of the scale of problems of this kind (when a significant proportion of respondents in both groups see and know the cases of athletes who literally "drank away their careers"). This indicator alone would prompt reflection on the fate of the principle of abstinence in sport, which to some extent we have lost, and yet obviously protected against such a turn of events. Noteworthy is also a much higher percentage of knowledge of the environment among the respondents in the reference group. As you can see, we have a paradox here: knowledge of someone's alcohol problems does not translate into a possible change in behavior in the reference group, at least at this particular moment.

The above answers in both groups indicate, on the one hand, demanding a return to the noble principle of abstinence or moderation in sport, and on the other, reveal doubts about the realism of such a return. In both groups there is a large presumption that in today's sport this rule does not work or works to a small extent. So how do the respondents, especially in the study group, relate to the possible preventive role of sport?

It turns out that, in both groups, they still recognize the preventive value of training a discipline. Was it a kind of idealization of sport or wishful thinking? Here as many as 84.6% of respondents from the study group and 86% from the reference group think that sports training would benefit their children! In the previously cited works a different picture

appears: we often detect the negative impact of sport on the level of risky behavior or the ambivalence of sport from this point of view. It is worth quoting another study clearly indicating that it is sports activity that increases the level of ethanol use in many indicators (Bosco, Allen, Tomborou, 2012; Poortinga, et al. 2007; Brenner, Swanik, 2007; Ford, 2007; Zhou, Heim, 2014). Despite the previously expressed doubts about the state of affairs in adult sport, the respondents from both groups consistently point to the preventive value of youth sport – contrary to the research results and their own doubts expressed in previous answers. What are we dealing with here? With a strong, well-established stereotype? This is a very fascinating issue, the more so that the next questions bring an analogous picture, with some significant difference.

Now, still more than 60% of the respondents connect sport with prevention (66.4% in study group and 60.8% in the reference group). In this question there was the opportunity to indicate the conditions for such a positive impact – the attitude of coaches. Twenty percent of the study group (and 7.8% in the reference group) considered that the preventive effect depends on the attitude of a specific coach. This is an interesting lead, because it also concerns the last question.

Before we deal with it, let us look at the penultimate question, in which we asked again about the impact of violating abstinence before important competitions. Amazingly subjects in both groups concluded in unison (73.6% and 70.6%) that there could be a correlation or causal relationship between breaking abstinence and losing a game. It can be seen that this criticism of the behavior of modern athletes has reappeared.

Perhaps the most important question was the last one: should sports coaches be trained preventively? Are they supposed to be educators? Up to 82.4% in the study group and 86.3% in the reference group of the respondents believe that sports coaches should be trained preventively. Interesting in this case is the unanimity in both groups and very high support for such an idea. Six out of seven respondents consider this necessary. If we consider how often in practice reference is made to the preventive value of sport, the issue becomes clear: without adequate preparation, coaches will not support abstinence restitution rules in sport. In addition, according to the respondents, mainly from the abstinence group but also a significant part of the reference group, it would be advisable and even necessary from the point of view of the effectiveness of sports training (Anonymous, 2019).

During a famous social experiment in Iceland, during which the phenomenon of teenagers getting drunk was significantly reduced (Kristjansson et al., 2016; Wojcieszek, 2017), heavy investments in sports activities were made. Iceland currently has one of the most active sports population of young people and a very large group of educated coaches. At the same time, it was tended to to ensure that these coaches understand why the focus was on them and what the community expects from them. They were not only coaches but also prevention teachers. As a result of this factor, mass sports activities served as a

preventive tool of influence. If this coaching attitude is missing, then we probably have the phenomenon of increased alcohol consumption by athletes (Martens et al.,, 2005, Martens et al., 2007, p. 859-879).

5. Conclusions

The surveyed abstainers (and often also people from the reference group) notice the negative phenomena associated with resigning from the principle of alcohol abstinence in sport, especially professional. They negatively assess the lack of moderation of athletes, associating it with smaller sports achievements, and even with a career breakdown. At the same time, they do not lose confidence in sport as a preventive activity, but especially in the group of abstainers it is associated with expecting the right attitude from coaches. One can risk the thesis that if the coach is not an abstainer personally (just like the people from the study group), they find it difficult to refer to the principle of abstinence in sport and has a good chance of ignoring it in their coaching work. Therefore, a possible restitution of this rule would require intervention and training for the coaches themselves. This is theoretically possible and there are precedents, but this seems more like a postulate than reality.

Recommendations for communicating the principle of abstinence in sport

The research presented in the article showed the entire difficulty of promoting the principle of abstinence in sport again, in the face of numerous cognitive distortions and stereotypes of the respondents. Apart from declarative support for this principle, there are contradictions in the responses. It seems that a greater number of messages should be prepared to convey reliable knowledge about alcohol-related harm in sport (e.g. the matter of physiological damage, the matter of broken careers). It is worth constantly revising the stereotype about the automatic relationship between training and abstinence. It also seems that the first groups that could reach these messages should be coaches, physical education teachers, and perhaps also sports journalists. Moreover, it seems that there is an urgent need to expand society's knowledge of these topics, especially in view of the tendency to replace qualified preventive measures with sports training.

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Annex

Dear Sir or Madam! Please complete the short survey questionnaire which will be used for scientific research in the field of health education and physical culture. I assure you of complete anonymity and use only in the form of generalized research results. **Thank you very much for your cooperation.** Research author: Krzysztof A. Wojcieszek, PhD hab., professor at the Criminology and Penitentiary University in Warsaw.

1. Are you interested in sport, supporting it?

□ yes

□ yes, but not too much

□ no

□ difficult to assess

2. Have you practiced (trained) any sport?

□ yes

□ no

Enter what kind…….……..…….....

3. Do you think any of the following behaviors are **not conducive to** achieving outstanding results in amateur or competitive sports?

□ abuse of alcoholic beverages

□ drug use

□ smoking

4. Are the following harmful to good, outstanding sports results:

□ abstinence

□ use of any amount of alcohol

□ alcohol abuse

5. Do you know that physiological studies have shown that the use of alcoholic beverages destroys the effect of training by damaging the action-myosin connections in the athlete's muscles?

□ YES, I have heard about it

□ NO, I haven't heard about it

6. One hundred years ago, when the Olympic movement emerged, it was recognized that athletes must radically avoid drugs (do not smoke, do not drink, do not take drugs). Was this tendency:

□ correct, proper

□ exaggerated, too radical

□ difficult to assess

7. Recently, there have been many recollections of outstanding athletes who have become addicted (e.g. alcohol addiction, gambling). Do you think that their troubles could have any connection with playing sports, e.g. environmental habits?

□ yes, they could have a connection

□ no, they had no connection

□ difficult to assess

8. Do you think that strict compliance with the rule of abstinence before important competitions would help to achieve the success of Polish national teams and clubs, e.g. in team sports (football, volleyball, hockey, basketball)?

□ yes, it would help

□ no, it is not connected

□ difficult to assess

9. Do you know any outstanding athlete whose career has collapsed due to alcohol abuse? Enter his/her name below (or several names if you know them):

……

10. If your child were to train a team sport in a club, would you expect that it would be beneficial to their behavior from the point of view of preventive purposes? E.g. that they will not use alcohol or smoke?

□ yes, it would be beneficial

□ no

□ difficult to assess

11. It is believed that practicing sport is one of the best preventive measures. Do you agree with this opinion?

□ yes

□ no

□ it depends who coaches

□ difficult to assess

12. After losing an important football match, a sports journalists expressed the opinion that it happened because of the players' "party" on the eve of the competition. Was this a probable opinion?

□ yes

□ no

□ difficult to assess

13. Should PE coaches and teachers undergo preventive training?

□ yes

□ no

□ difficult to assess

Your gender: F / M Your age …… Your profession ……

Thank you very much for completing the survey!

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Cognitive coping strategies and aggression in adolescents

Poznawcze strategie radzenia sobie ze stresem a agresja u adolescentów

Abstract: The analysis of psychological factors associated with aggressive behavior of adolescents is an important area of research. The aim of this study is to identify the relationships between cognitive emotion regulation strategies and physical aggression, anger and hostility in Polish and Ukrainian adolescents. The study involved 70 Polish and 63 Ukrainian teenagers aged 11 to 15. The research tools used in the study included the Cognitive Emotion Regulation Questionnaire and the Buss–Perry Aggression Questionnaire. It has been found that primarily maladaptive strategies are strongly associated with hostility and to a somewhat lesser extent with anger. Boys and girls hardly differ in the results of the studied variables within their cultures, which may indicate that gender does not differentiate the level of aggression and the frequency of using cognitive coping strategies. On the basis of the obtained results, it may be concluded that the main focus of preventive measures should be the development of effective coping skills. They should aim primarily at reducing the use of maladaptive cognitive emotion regulation strategies such as self-blame, catastrophizing, rumination and blaming others.
Keywords: adolescence, aggression, hostility, anger, cognitive coping strategies, emotion regulation, risk factor.

Abstrakt: Analiza czynników psychologicznych związanych z zachowaniami agresywnymi adolescentów stanowi ważny obszar badań. Celem badań było określenie związków między poznawczymi strategiami regulacji emocji a agresją fizyczną, gniewem i wrogością u polskich i ukraińskich adolescentów. W badaniu wzięło udział 70 adolescentów z Polski oraz 63 z Ukrainy w wieku od 11 do 15 lat. Wykorzystane narzędzia badawcze to Kwestionariusz Poznawczej Regulacji Emocji oraz Kwestionariusz Agresji Bussa–Perry' ego. Wykazano, że przede wszystkim strategie nieadaptacyjne były silnie związane z wrogością i w nieco mniejszym stopniu z gniewem. Chłopcy i dziewczynki wewnątrz swoich grup narodowościowych prawie nie różnili się pod względem wyników badanych zmiennych, co może świadczyć o tym, że płeć nie różnicuje poziomu agresji i częstotliwości wykorzystania poznawczych strategii radzenia sobie. Na podstawie uzyskanych wyników można stwierdzić, że głównym celem działań profilaktycznych powinien być rozwój umiejętności skutecznego radzenia sobie skierowany przede wszystkim na redukcję stosowania nieadaptacyjnych strategii regulacji emocji, takich jak obwinianie siebie, katastrofizowanie, ruminowanie i obwinianie innych.
Słowa kluczowe: adolescencja, agresja, wrogość, gniew, poznawcze strategie radzenia sobie ze stresem, regulacja emocji, czynniki ryzyka.

Introduction

Modern civilization increasingly manifests the features of a violent civilization. Aggression among children and adults has become a global social problem (Pikuła, 2012). Aggressive behavior among teenagers is most often expressed through peer violence, bullying and cyberbullying. The Programme for International Student Assessment PISA 2018 found out that on average 26% of Polish teenagers aged 15 experienced bullying (OECD, 2019). Although the level of bullying in Poland is mediocre compared to other European countries, according to a report by the World Health Organization (WHO), Poland holds one of the dominant positions in the ranking of the cyberbullying prevalence among adolescents aged 11–15 (Inchley et al., 2020).

In response to the escalation of dysfunctional behavior of students, including aggressive behavior, the following documents were released: Regulation of the Minister of National Education, amending the regulation on the principles of providing and organizing psychological and pedagogical assistance in public kindergartens, schools and other institutions, issued on 28 August 2017 (Dz. U. of 31 August 2017, item 1643) and the Regulation of the Minister of National Education and Sport, concerning safety and hygiene in public and non-public schools and institutions, issued on 31 October 2018 (Dz. U. of 2018, item 2140, as amended). They impose, among others, the obligation to include appropriate entries concerning preventive measures in the documents (e.g. School Statute, Upbringing-Prophylactic Programme).

Analyzing the causes of adolescent aggressive behavior is an important area of both scientific and practical research. WHO (2014) proposes to make efforts in order to prevent violence and aggression. At the intrapsychic level, WHO (2009) recommends the development of life skills that will enable individuals to cope effectively with the demands and challenges of their daily lives. With increasing prevalence of aggressive behavior among adolescents, the identification of appropriate aggression prevention methods is of great importance (Porzak, 2019).

1. Aggression and its definitions

Many definitions and theories of aggression have been presented, describing its nature and forms, as well as its formation mechanisms (Archer, 2009; Benjamin, 2016). A multidimensional definition of aggression was presented by Polish psychologist Gaś as "a set of experiences, attitudes and behaviors whose purpose or effect is to cause harm (directly or indirectly) to another person or to oneself. The syndrome of aggression includes both aggressive tendencies and unconscious inclinations, manifested externally or directed at

oneself" (Gaś, 1980, p. 143). Aggression can be targeted both directly against other living organisms or inanimate objects and against oneself (self-aggression). There is a distinction between direct aggression (it is expressed in aggressive behavior of the aggressor towards the victim during direct contact) and indirect aggression (no direct contact). Direct aggression manifests itself, for example, in hitting the victim, while indirect aggression manifests itself in spreading rumors about someone (Jhangiani & Tarry, 2014).

It is important to emphasize the necessity of distinguishing between the two types of aggression, which are based on different psychological mechanisms: impulsive (emotional or reactive) and instrumental (cognitive or proactive) aggression. Impulsive aggression has little to do with a conscious intention to pursue aggressive behavior and it is manifested in an impulsive response to an aggression-inducing factor (e.g., a response to a provocation). Instrumental aggression is conscious and intentional and it is associated with gaining benefit (Jhangiani & Tarry, 2014).

Buss and Perry (1993) distinguished four forms of aggression: (1) physical and (2) verbal aggression, which are the behavioral components of aggression, (3) anger (emotional component), and (4) hostility (cognitive component). The above-mentioned classification of aggression forms is very useful within the framework of applied research, as it allows to assess varied tendencies to respond aggressively. This classification has been recognized by researchers worldwide, and the Aggression Questionnaire developed by Buss and Perry to measure these four forms of aggression has become the gold standard in research on aggression in various age groups (Aranowska & Rytel, 2012).

2. Factors associated with adolescent aggression

Numerous studies have shown that certain biological factors (e.g. specific set of temperament traits, the so-called difficult temperament), psychological (ineffective stress coping) and social (specific atmosphere in the family and school, characterized by excessive rigor and restrictions, organizational chaos) are related to aggressive behavior (Borzucka-Sitkiewicz, 2010; Damięcka, 2003; Kowalczuk, Jankowiak, Krajewska-Kułak, Rolka, & Sierakowska, 2011; Przybysz-Zaremba, 2015). Valois et al. (2002) noted that prevention activities should be based on a theory that takes into account the presence of various risk factors associated with the formation and manifestation of aggression in adolescents. Thus, important directions of scientific research are to be explored by the representatives of psychological science: (1) the study of personality factors predisposing to aggression, (2) the search for psychosocial factors provoking the formation of aggressive reactions, (3) the development of effective methods of psychological assistance to adolescents prone to aggressive behavior, and (4) the implementation of programmes to prevent aggression among children and adolescents (Larionov & Grechukha, 2020).

Berkowitz's (1993) work – a reformulated frustration-aggression theory – can serve as a theoretical basis for the above-mentioned goals. According to this theory, aggression is a natural reaction that can occur in situations of deprivation or perceived inability to satisfy current needs. It should be emphasized that stressors that cause psycho-emotional tension, increase the probability of aggression, but do not necessarily lead to the appearance of aggressive behavior (Borzucka-Sitkiewicz, 2010). There is plenty of evidence indicating the presence of a relationship between inadequate emotion regulation or coping with difficult situations and aggression (Roberton, Daffern, & Bucks, 2012). In this regard, we can cite the definition of "aggressive behavior" presented by Sołtys and Grzankowska. According to them, aggressive behavior is "an abnormal form of coping with negative emotional arousal due to difficulties in emotion regulation and cognitive control" (Sołtys & Grzankowska, p. 204).

3. Emotion regulation and stress management in relation to aggression

During puberty, adolescents are often characterized by high emotional lability, they experience discomfort due to hormonal changes, and are in a state of psychological developmental crisis (Becelewska, 2006). Difficulties in emotion regulation and coping with unpleasant situations are a significant problem for the well-being of adolescents (Modecki, Zimmer-Gembeck, & Guerra, 2017). A significant correlation has been observed between dysfunctional emotion regulation and aggression among adults (Contardi, Imperatori, Penzo, Del Gatto, & Farina, 2016; Donahue, Goranson, McClure, & Van Male, 2014). Research has shown that the use of adaptive emotion regulation strategies (e.g., problem solving, distraction) was associated with a lower probability of aggressive behavior among adolescents (Calvete & Orue, 2012). It was also reported that appropriate emotion regulation in difficult situations moderates the relationship between anger and reactive aggression among adolescents. From a psychological perspective, these findings reflect the following pattern: an adolescent characterized by effective stress coping will demonstrate a weaker tendency to react aggressively while experiencing anger (Calvete & Orue, 2012). Cognitive coping strategies such as self-blame and rumination are significant predictors of physical-verbal aggression in boys (Rey & Extremera, 2012). McLaughlin, Hatzenbuehler, Mennin, and Nolen-Hoeksema (2011) noted that emotional dysregulation (expressed in poor understanding of emotions, violation of sadness and anger expression and rumination) is a significant predictor of the development of psychopathology and aggressive behavior among adolescents. It has been shown that adolescents with internalizing problems are more characterized by the use of maladaptive cognitive coping strategies such as self-blame and rumination compared to adolescents without these problems (Garnefski, Kraaij, & van Etten, 2005). Based on these studies, it can be

concluded that dysfunctional emotion regulation and maladaptive coping are risk factors for aggressive behavior among adolescents.

4. Aims and Hypotheses of the Research

Based on the above-described studies showing that emotion regulation is related to the occurrence of aggression among adolescents, this study is aimed at determining which emotion regulation strategies are related to aggression and its forms among Polish adolescents. In addition, it has been planned to examine the occurrence of similar correlation in a sample of Ukrainian adolescents in order to test the universal nature of these relationships in two samples.

The research is based on the concept of emotion regulation by Garnefski, Kraaij, and Spinhoven (2001), according to which, there are two types of emotion regulation strategies that a person uses when experiencing difficult situations: *cognitive strategies* (what do I think?) and *behavioral strategies* (what do I do?) (Garnefski, Kraaij, & Spinhoven, 2002; Marszał-Wiśniewska & Fajkowska, 2010). Such a distinction is based on the assumption that cognitive activity, firstly, differs from behavioral activity, which is expressed in an individual's coping actions. Secondly, cognitive coping precedes behavioral coping (although it does not necessarily lead to its realization) (Marszał-Wiśniewska & Fajkowska, 2010). Garnefski et al. (2001) developed the Cognitive Emotion Regulation Questionnaire to assess the frequency of nine cognitive emotion regulation strategies used when experiencing negative or unpleasant events. In this regard, the theory by Garnefski et al. equates emotion regulation strategies with stress coping strategies. There are five adaptive strategies (acceptance, refocusing on planning, positive refocusing, positive reappraisal, and putting into perspective) and four maladaptive strategies (self-blame, blaming others, rumination, and catastrophizing). Conducting research within the theoretical framework by Garnefski et al. (2001) allows for the identification of a broad type of cognitive coping strategies that are described in detail.

Considering that cognitive coping strategies precede behavioural strategies, conducting research to develop psychological assistance programmes for adolescents experiencing aggression is becoming necessary. Thus, the study of cognitive emotion regulation strategies becomes important for prevention efforts, as well as psychological intervention aimed at developing coping skills (Jurczyk, 2018; Sukhodolsky, Smith, McCauley, Ibrahim, & Piasecka, 2016).

The aim of the study is to determine the relationship between cognitive emotion regulation strategies and physical aggression, anger, and hostility in Polish and Ukrainian adolescents.

5. Method

5.1. Study samples and procedure

The sample of Polish adolescents consisted of 70 individuals aged 11 to 14 (M=12.49, SD=0.98), including 51.43% boys and 44.29% girls. The remaining students did not indicate their gender. The number of seventh grade students amounted to 47.14% of the sample, the number of sixth grade students was 38.57%, and eighth grade students made up 14.29%. The sample of Ukrainian students consisted of 63 individuals aged 12 to 15 (M=14.54, SD=0.88), among whom there were 68.25% girls and 31.75% boys. The survey of Polish adolescents was conducted during project hours in one of elementary schools in Wielkopolska Voivodeship. To complete the questionnaires, the time given was approximately 15 minutes. The results of the Ukrainian sample come from studies previously conducted as part of research projects describing the role of alexithymia and emotion dysregulation in the development of aggression among adolescents (Larionov & Grechukha, 2020).

5.2. Research tools

The Cognitive Emotion Regulation Questionnaire (CERQ) by Garnefski et al. (2001) in its Polish adaptation by Marszał-Wiśniewska and Fajkowska was used (2010). The CERQ assesses the frequency of nine cognitive coping strategies that a person uses when experiencing negative or unpleasant events. The CERQ consists of nine subscales, each containing four items (the CERQ has 36 items). The nine subscales reflect individual cognitive coping strategies, five of which are adaptive strategies (acceptance, refocusing on planning, positive refocusing, positive reappraisal, and putting into perspective), whereas four are maladaptive strategies (self-blame, blaming others, rumination, and catastrophizing). There is a five-point scale for response ranging from 1 *(almost) never* to 5 *(almost) always*. Scores can be calculated for each strategy separately, as well as an average score for all adaptive and maladaptive strategies. A high score indicates more frequent use of stress coping strategies (Marszal-Wiśniewska & Fajkowska, 2010). In the study of the Ukrainian sample, the validated Russian version of CERQ was used (Rasskazova, Leonova, & Pluzhnikov, 2011).

The Buss–Perry Aggression Questionnaire (BPAQ) by Buss and Perry (1993) in the Polish adaptation by Aranowska, Rytel and Szymańska was also used (2015). The BPAQ allows to assess the severity of four indicators of aggression: Physical Aggression, Verbal Aggression, Anger and Hostility, and overall aggression score. The BPAQ questionnaire contains 29 items, among which five items belong to the verbal aggression scale, nine to Physical Aggression, seven to Anger, and eight to Hostility. There is a five-point scale for response ranging from 1 (*extremely uncharacteristic*) to 5 (*extremely characteristic*). Two items use reverse scaling. The study of the Ukrainian sample used the Russian version of the BPAQ adapted

by Enikolopov and Tsibul'ski (2007). The Russian version of the questionnaire consists of 24 items and does not include the Verbal Aggression scale, which was dropped during the validation study.

6. Results

Table 1 presents means, standard deviations and Cronbach's alpha coefficients (α) of examined variables in the samples of Polish and Ukrainian adolescents. The reliability of most of the tested variables was satisfactory (α above 0.6). In the Polish sample, two variables had low reliability: self-blame (α=0.48) and putting into perspective (α=0.51). In the Ukrainian sample, two variables also had low reliability: blaming others (α=0.37) and refocusing on planning (α=0.54). Considering the fact that the present study is a non-clinical one involving adolescents, and that each of these variables contains four statements in the CERQ questionnaire, the relatively low reliability of these variables can be considered sufficient for the purpose of this study.

Table 1. Means, standard deviations and Cronbach's alpha (α) coefficients of the examined variables in the samples of Polish (n=70) and Ukrainian adolescents (n=63)

Variables	Poland			Ukraine		
	α	*M*	*SD*	α	*M*	*SD*
Self-blame	0.48	9.96	2.79	0.76	10.89	3.47
Rumination	0.78	11.00	3.77	0.77	11.75	3.77
Catastrophizing	0.72	10.26	3.59	0.60	7.59	2.57
Blaming others	0.71	9.11	3.47	0.37	8.24	2.05
Maladaptive strategies	0.85	40.33	10.55	0.77	38.46	8.01
Acceptance	0.72	12.01	3.57	0.66	11.54	3.33
Positive refocusing	0.84	12.06	4.07	0.60	11.02	3.04
Refocusing on planning	0.66	11.91	3.42	0.54	12.67	2.97
Positive reappraisal	0.68	11.40	3.58	0.73	12.95	3.31
Putting into perspective	0.51	11.90	3.16	0.61	10.98	3.14
Adaptive strategies	0.86	59.29	13.03	0.83	59.16	11.05
Physical aggression	0.74	23.20	6.59	0.80	18.59	6.18
Anger	0.69	18.10	5.34	0.74	21.17	5.39
Hostility	0.78	23.91	6.82	0.72	21.54	5.93

It was examined whether boys and girls differed in the results of the studied variables, separately for the Polish and Ukrainian population samples. The analysis showed

that in the group of Polish adolescents, boys had significantly higher physical aggression scores (boys: M=25.65, SD=5.86, girls: M=21.33, SD=6.78; t=2.76 p=0.007). However, in the group of Ukrainian adolescents, girls scored significantly higher than boys in one of the emotion regulation strategies — rumination (girls: M=12.40, SD=3.53, boys: M=10.35, SD=1.26; t=2.06, p=0.044).

Table 2. Analysis of correlations (r-Pearson) between emotion regulation strategies and aggression subscales in the samples of Polish (n=70) and Ukrainian adolescents (n=63)

Variables	Poland			Ukraine		
	PA	Anger	Hostility	PA	Anger	Hostility
Self-blame	0.31**	0.39***	0.60***	-0.15	0.20	0.25*
Rumination	0.14	0.37**	0.58***	-0.10	0.35**	0.44***
Catastrophizing	0.10	0.36**	0.50***	0.20	0.44***	0.45***
Blaming others	0.19	0.38***	0.36**	0.12	0.17	0.02
Maladaptive strategies	0.23	0.48***	0.66***	-0.01	0.43***	0.47***
Acceptance	0.10	0.34**	0.41***	0.13	0.21	0.10
Positive refocusing	-0.20	0.10	0.08	-0.04	0.28*	0.10
Refocusing on planning	-0.19	-0.16	0.02	-0.01	0.18	-0.06
Positive reappraisal	-0.24*	-0.13	-0.13	-0.14	0.02	-0.28*
Putting into perspective	-0.12	0.04	0.10	0.20	0.13	-0.03
Adaptive strategies	-0.18	0.06	0.14	0.04	0.23	-0.05

Annotation. * $p<0,05$; ** $p<0,01$; $p<0,001$. PA —Physical aggression.

Subsequently, the focus was put on the direction and strength of the correlation between emotion regulation strategies and subscales of aggression, separately in samples of Polish and Ukrainian adolescents.

A sample of Polish adolescents showed a statistically significant positive relationship between self-blame, rumination, catastrophizing, as well as the total score of maladaptive strategies, and hostility. Blaming others was positively related to hostility. There was also a positive correlation between self-blame and physical aggression. Self-blame, rumination, catastrophizing, blaming others, and the total score of maladaptive strategies were positively related to anger. Adaptive strategy "acceptance" was positively related to hostility and anger. Positive reappraisal was negatively related to physical aggression. The detailed results are presented in Table 2.

Results indicated that in the Polish sample, all maladaptive emotion regulation strategies were positively related to anger and hostility, whereas adaptive strategies were

not significantly related to these dimensions of aggression (except acceptance). Physical aggression was not significantly related to emotion regulation strategies, except for its positive correlation with self-blame and a negative one with positive reappraisal. Overall, the most significant positive correlations were found between maladaptive emotion regulation strategies and hostility, as well as anger.

Conversely, in the sample of Ukrainian adolescents, positive correlations were shown between rumination, catastrophizing, total score of maladaptive strategies and anger, as well as hostility. A weak positive relationship was noted between self-blame and hostility. Among adaptive strategies, positive refocusing was weakly positively correlated to anger, whereas positive reappraisal was weakly negatively correlated to hostility. In the sample of Ukrainian adolescents, no relationship between emotion regulation strategies and physical aggression was shown.

7. Discussion

The primary aim of the study was to determine the relationship between cognitive coping strategies and forms of aggression in the samples of Polish and Ukrainian adolescents. The analysis showed the presence of significant regularities observed in the two samples, which are important both from the theoretical and practical points of view. It was shown that most maladaptive strategies were strongly related to hostility and, to a somewhat lesser extent, to anger. In contrast, most adaptive strategies were not related to any dimensions of aggression. Only two adaptive emotion regulation strategies, positive reappraisal and positive refocusing, showed negative and weak positive correlations with physical aggression and anger, respectively, across samples. Physical aggression showed almost no correlation with emotion regulation strategies.

It is important to emphasize the unique role of hostility, which is a stable individual difference (Woodall & Matthews, 1993), in the structure of aggressive behavior. Society condemns the expression of anger or prohibits the expression of physical and verbal aggression with the sanction of punishment. In contrast, there is no disapproval of hostility, which, being a cognitive form of aggression, does not always reveal itself in an explicit form (Larionov, 2020) compared to physical or verbal aggression and anger, which can be easily observed. Thus, the diagnosis of hostility requires special attention. The presence of strong correlation between hostility as a cognitive component of aggression and maladaptive cognitive coping strategies in the conducted study indicates that the hostile person will more often use such strategies as catastrophizing, rumination, self-blame and blaming others, which leads to negative affect (Marszal-Wiśniewska & Fajkowska, 2010). Larionov's (2020) study in a sample of young adults demonstrated the mediating role of these coping strategies in the relationship between hostility and distress. In this regard, reducing the use

of maladaptive strategies may decrease the negative effects of hostility in the development of distress.

Analyzing the functional significance of particular maladaptive strategies (self-blame, blaming others, rumination, and catastrophizing) and adaptive strategies (acceptance, refocusing on planning, positive refocusing, positive reappraisal, and putting into perspective), it can be noted that maladaptive strategies intensify negative emotions and weaken positive emotions. In contrast, adaptive strategies facilitate positive emotions and weaken negative emotions (Marszał-Wiśniewska & Fajkowska, 2010). It is worth noting that the use of adaptive emotion regulation strategies requires adequate effort from the individual, for example: time for some reflection (acceptance), the ability to identify and plan the steps to be taken to cope (refocusing on planning). Using adaptive emotion regulation strategies assumes that the individual already has a high capacity for volitional control and can postpone the adverse reaction. In this regard, one can cite the results of the study by Marszał-Wiśniewska and Fajkowska (2010), which showed that adaptive strategies were related to action orientation in failure and decision-making situations. In contrast, the use of maladaptive strategies was associated with state orientation in these situations. By defining aggressive behavior as "an abnormal form of coping with negative emotional arousal due to difficulties in emotion regulation and cognitive control" (Sołtys & Grzankowska, 2015, p. 204) it should be noted that the strong relationships between maladaptive coping strategies and the dimensions of aggression are fully valid from a theoretical perspective.

These results lead to important conclusions about the specificity of carrying out psychological interventions aimed at reducing the levels of aggression among adolescents. Since only maladaptive cognitive coping strategies were strongly positively correlated with hostility and anger, while adaptive strategies showed almost no correlation with forms of aggression, several aspects deserve special attention. First, the risk group for aggressive behavior would consist of adolescents prone to self-blame, catastrophizing, rumination, and blaming others. In this sense, the psychological characteristics of such adolescents are a tendency to assign blame to themselves and others for what happened, to think constantly about a negative, unpleasant event and the feelings associated with it, and to emphasize the horror of the event. Secondly, the main goal of prevention activities should be the development of effective coping skills aimed primarily at reducing the use of the maladaptive emotion regulation strategies described above. Thirdly, analyzing the frequency of using particular maladaptive coping strategies both in the sample of Polish and Ukrainian adolescents, it can be noted that adolescents most often use the strategy of ruminating, which is expressed in constant thinking about the negative situation. Garnefski, Legerstee, Kraaij, van den Kommer and Teerds (2002) showed that the strategies of rumination and self-blame were strong predictors of anxiety and depression symptoms among adolescents. Assessing maladaptive cognitive coping strategies may be helpful in identifying adolescents who have

the increased risk of developing such symptoms as depression and anxiety (Garnefski & Kraaij, 2014). In this context, a reduction in the use of maladaptive strategies (especially rumination) may contribute to both lower levels of aggression and improved mental health in adolescents.

In a group of adolescents from Ukraine, girls had a significantly higher score in rumination than boys. It is worth noting that although a difference was shown, its level of significance was close to 0.05 ($p=0.044$), so the right to draw the conclusion about the particular importance of rumination for girls is limited. Moreover, no such regularity was observed in the Polish sample. However, such pattern of higher tendency to ruminate, which was observed for girls, was also noted in other studies (Chamizo-Nieto, Rey & Sánchez-Álvarez, 2020; Rey & Extremera, 2012). It is needed to specify this tendency in a larger sample. In conclusion, within their national groups, boys and girls hardly differed concerning the results of the examined variables, which may indicate that gender does not influence the level of aggression and the frequency of using coping strategies in difficult situations. Therefore, psychological assistance programmes based on the development of skills for effective coping can probably be universal for boys and girls.

It is important to emphasize that according to the results of the longitudinal study by Blain-Arcaro and Vaillancourt (2017), aggressive behavior determines the occurrence of depressive symptomatology and not the other way around. The study found that elevated levels of stress, depressive and anxiety symptoms, and increased use of maladaptive coping strategies were more typical for victims of bullying compared to students who were not bullied (Maji, Bhattacharya, & Ghosh, 2016). According to these data, prevention of aggression in children and adolescents has become increasingly important to protect the mental health of young people.

8. Limitations of the study

The study was cross-sectional in nature. In this regard, identification of cause-and-effect relationships is not possible. The study was conducted in a relatively small sample. Therefore, generalization of the results obtained is not fully justified. The questionnaires used were of a self-report type, which is associated with inaccuracy in measurement and a tendency to present oneself in a favorable light, especially when examining aggression (Vigil-Colet, Ruiz-Pamies, Anguiano-Carrasco, & Lorenzo-Seva, 2012). However, the results of this study are promising because empirically, some common regularities were found in the two cultures, which are consistent with previous theoretical reports and which make an important contribution to understanding the role of cognitive coping in the structure of adolescent aggressive behavior.

9. Future directions

Relying on the empirical results obtained, it seems promising to expand the research. Further studies should be based on the results of a larger research sample. It is also worth focusing on other factors, such as impulsivity and emotional reactivity, which are likely to be moderators of the relationship between emotion regulation strategies and aggression, in order to understand the process of aggressive behavior formation better. And in order to create appropriate psychological assistance programmes for adolescents experiencing aggression, it is not enough to focus solely on the strategies associated with the occurrence of aggression and its diminishment. In this regard, it is also important to examine the factors of the adolescents' external and internal worlds and to what extent they provoke the emergence of aggressive reactions as well as what coping strategies mediate these relationships.

Conclusion

The results of the study have shown that there is a strong correlation between the frequency of using maladaptive coping strategies (self-blame, blaming others, rumination and catastrophizing) and hostility, as well as anger, among adolescents. It has been confirmed in a sample of Polish and Ukrainian adolescents. This demonstrates the universal nature of this correlation, which is probably independent of cultural characteristics. In the process of aggressive behavior prevention, special attention should be paid to adolescents who are prone to catastrophizing, constantly thinking about an unpleasant event, self-blaming and blaming others. It is very likely that these characteristics predispose to aggressive behavior among young people and to prolonged experiencing stress. In this regard, it is important to pay timely attention to adolescents characterized by the use of maladaptive coping strategies. This will prevent aggressive behavior and improve the mental health of the young generation.

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Development of biophilic character as a factor in effective resocialization

Kształtowanie się charakteru biofilitycznego jako czynnik efektywnej resocjalizacji

Abstract: The problems of resocialization measures are not easy and complex. After all, the recipients of these interventions are the perpetrators of crime, including minor and juvenile offenders. In order for resocialization to be effective, it must follow the right principles. The basic principle is the principle of support. Support should have many aspects: material, social, pedagogical, psychological, and medical. The support provided to inmates or juveniles from youth detention centers should include two elements. Those working in resocialization institutions must be willing to provide support despite the fact that the recipients are offenders. There must also be a willingness on the part of the recipients to accept the support. Offenders are reluctant to open up to social support as it requires acknowledging their weakness and even admitting to their actions. They prefer to show their strong-mindedness because it gives them a sense of security. When providing the support, the individual characteristics of its recipients should be taken into account, including personality traits, life experiences, psychological trauma, interpersonal conflicts, illnesses, and family and vocational situation. The perpetrators of criminal acts are often characterized by social maladjustment, antisocial personality, and even criminal lifestyles, which causes their reluctance towards resocialization measures and change in the broad sense. Specific offences are those against health and life. The introduction of a psychological construct called biophilic character into the resocialization measures seems to be desirable and useful. Character in general is an important element in the structure of personality. According to E. Fromm, biophilia is the love of life, respect for one's own life and the life of others, and respect for the world of animals and plants. As the biophilic character develops, the level of aggressiveness should decrease and the frequency of aggressive behaviour should decline. As a method in psychological research, observation allows for noting pro-life, or biophilic, responses in inmates and juveniles from youth detention centres. The greater the number of such responses, the greater the chance of the development of biophilic tendencies and even biophilic character, which will translate into the effectiveness of resocialization.
Keywords: biophilia, character, observation, personality, resocialization

Abstrakt: Zagadnienie odziaływań resocjalizacyjnych jest niełatwe i złożone. Odbiorcami tych oddziaływań są przecież sprawcy przestępstw, w tym osoby nieletnie i młodociane. Resocjalizacja, aby była skuteczna, przestrzegać musi odpowiednich zasad. Podstawową zasadą jest zasada pomocy. Pomoc powinna posiadać wiele aspektów – materialny, społeczny, pedagogiczny, psychologiczny, medyczny. Pomoc udzielana więźniom czy wychowankom zakładów poprawczych winna zawierać dwa elementy. Po stronie pracujących w instytucjach resocjalizacyjnych musi występować chęć udzielania pomocy, pomimo tego, że jej odbiorcami są sprawcy przestępstw. Po stronie odbiorców pomocy musi wystąpić wola jej przyjęcia. Sprawcy przestępstw niechętnie otwierają się na wsparcie społeczne, gdyż to wymaga uznania swojej słabości, a nawet przyznania się do popełnionych czynów.

Wolą więc okazywać swoją nieugiętość, gdyż to daje im poczucie bezpieczeństwa. Udzielając pomocy należy uwzględnić cechy indywidualne jej odbiorców, w tym cechy osobowości, doświadczenia życiowe, urazy psychiczne, konflikty interpersonalne, przeżyte choroby, sytuację rodzinną czy zawodową. Sprawcy czynów karalnych charakteryzują się często niedostosowaniem społecznym, osobowością antyspołeczną, a nawet przestępczym stylem życia, w czym tkwi źródło ich niechęci wobec odziaływań resocjalizacyjnych i wobec zmiany szeroko ujętej. Przestępstwami szczególnymi są te przeciwko zdrowiu i życiu. Wprowadzenie do oddziaływań resocjalizacyjnych konstruktu psychologicznego o nazwie – charakter biofilityczny, zdaje się być pożądane i użyteczne. Charakter w ogóle jest ważnym elementem w strukturze osobowości. W ujęciu E. Fromma biofilia, to zamiłowanie do życia, to szacunek dla życia własnego oraz innych ludzi, a także szacunek dla świata zwierząt i roślin. Wraz z kształtowaniem się charakteru biofilitycznego, winien obniżać się poziom agresywności i winna spadać częstotliwość zachowań agresywnych. Obserwacja, jako metoda w badaniach psychologicznych, pozwala na zauważenie u więźniów i wychowanków zakładów poprawczych reakcji za życiem, czyli biofilitycznych. Im większa będzie liczba takich reakcji, tym większa będzie szansa na kształtowanie się tendencji biofilitycznych, a nawet charakteru biofilitycznego, co będzie przekładać się na efektywność resocjalizacji.
Słowa kluczowe: biofilia, charakter, obserwacja, osobowość, resocjalizacja

Introduction

Isolation during imprisonment is a specific situation that a person experiences. Prison is a total institution, and therefore it takes away a person's individuality by surrounding them and offering ready-made patterns of behavior. The feature of a prison as a total institution, although not only that, may contribute to the failure of resocialization to prove effective. Resocialization is the activity assigned to penitentiary isolation but it is not always associated with the improvement of the imprisoned person, nor does it always lead to the realization of the idea of restorative justice. The process of penitentiary resocialization is complex, and at the same time it is subject to legal regulations, and therefore has a "schematic" form, which should be considered a certain limitation. However, the resocialization interventions carried out in penitentiary units in Poland, cross barriers and are based on various concepts. Resocialization often fails for various reasons, and, for this reason, it is important that it enters a phase of self-socialization, because then the prisoners themselves will strive to change, and the pressure in this respect will no longer be necessary. Psychocorrection is an important part of broadly understood resocialization interventions, and it can contribute to the formation of biophilic character in a given person incarcerated in a penitentiary (resocialization) unit.

In the case of the phenomenon of crime, knowledge of forensic psychology or forensic psychiatry is important (cf. Majchrzyk, 2018; cf. Majchrzyk, 2020), serving primarily the diagnosis, but much more important are already the interventions concerning offenders in the penitentiary (prison) environment. For example, it is important to prevent self-destructive behavior (cf. Wawrzyniak, 2020) or impaired communication (cf. Woźniak, 2019) among inmates, but more important is the formation of desirable psychological traits, including biophilic tendencies.

1. Basic assumptions of resocialization

In strict terms, resocialization activities are carried out in institutions with isolated nature, and in Poland, such institutions include penal institutions and juvenile correctional facilities, while the former can also be referred to as penitentiary institutions. Resocialization in Poland should be considered a pedagogical subdiscipline but of an interdisciplinary nature, as it is based on the use of law, psychology, sociology, and medicine (including psychiatry). If broadly defined, psychological measures can accelerate progress in resocialization, but they can also impede its progress in the desired direction. Personality traits, such as aggressiveness and psychopathy, for example, can trigger antisocial acts, including criminal acts.

Two main streams can be distinguished in resocialization: behavioral and psychodynamic (cf. Jaworska, 2016, pp. 121–129).

Behavioral interventions are expected to influence the behavior of a resocialized person to inhibit and delay antisocial behavior, or even to preclude them but also to give the behavior a desired and social direction. Rewards and punishments have the nature of behavioral measures, and the greatest reward seems to be early release from prison; however, furloughs cannot be overlooked in this regard. In juvenile correctional facilities, the "points economy" that rewards and reinforces positive behavior is used. Contact with people outside the prison has a positive effect on the prisoner's behavior. These may be volunteers (visiting prisoners e.g. as part of religious groups), free people who become models of the desired behavior (e.g. sportsmen and women), but also family members who, by visiting their loved ones in prison and talking to them, may facilitate the development and implementation of the resolutions for improvement. At the core of resocialization is the change that takes a positive direction (cf. Jaworska, 2016, pp. 124–129).

Interventions of a psychodynamic nature are those which, even in the conditions of penitentiary isolation, directly influence the prisoner's personality or in general the given elements of the internal structure of mental life. In Poland, these include, for example, psychotherapy in its broadest sense, especially within the therapeutic system of serving prison sentences, and psychological resocialization programs carried out in penitentiary units, for example, training in replacing aggression. Conversations with psychologists working in the penitentiary units or with correction officers can also have a psychodynamic direction, when they will calm the emotions, stimulate motivation, and influence, at least to a small extent, the hope, the sense of meaning in life, etc. (cf. Jaworska, 2016, pp. 121–124).

The term "penitentiary resocialization", is related to, among others, three systems of serving prison sentences in Polish penitentiary institutions: ordinary, programmed (individual), and therapeutic. Within the ordinary system, typical penitentiary

resocialization is implemented into the standard system, requiring first and foremost submission to the prison's rules and regulations. The process of resocialization is facilitated by the other two systems. The therapeutic system largely implements psychological principles (Executive Penal Code, 2009, Art. 95–98).

There are three types of prisons in Poland: closed, semi-open, and open. Relevant provisions specify in detail the functioning of these types of institutions (Executive Penal Code, 2009, Art. 90–92). Such a division can be regarded as a progressive penitentiary system, i.e. one that takes into account the progress in resocialization and at the same time makes it possible to serve the sentence in an increasingly lenient form (cf. Gruźlewska, 2016, pp. 92–93).

In Poland, juvenile correctional facilities for boys have been divided into types, which makes it easier to adapt resocialization measures to the types of socially maladjusted young people. These institutions are divided into resocialization facilities, resocialization-revalidating facilities, and resocialization-therapeutic facilities. Resocialization establishments can be divided into open (called youth social rehabilitation centers), semi-open, closed, and those for the highly depraved. Juvenile correctional facilities for girls are not divided into subgroups, mainly due to their small number, which, however, makes programming of resocialization measures difficult, as they accommodate all representatives of particular types of female juvenile offenders who have been socially maladjusted, with particular focus on criminal maladjustment, and yet different measures should be taken e.g. for girls with low maladjustment and those with high maladjustment (Woźniak, Ptak, 2005).

The divisions of penitentiary or correctional facilities should be assessed positively, as they serve the purpose of the application of resocialization and correctional activities, adapted to a given group of people, having their specificity and distinguishing features.

People working in penitentiary units or resocialization centers need to be aware of the people they are working with and the changes they can expect to see in them. Those working in such establishments should follow the principles of resocialization so that their work is effective to a specific degree. The basic principle is the principle of assistance. The assistance should be tailored to the person, their experiences, personal qualities, and psychological resources. The person responsible for resocialization must be willing to help, but it is equally important that the resocialized person wants to take full advantage of the assistance offered. Two principles, in particular, are directly linked to the principle of assistance: the principle of acceptance and the principle of individualization. If one wants to help a person in the broadest sense of the word, they should accept that person, regardless of what acts he or she has committed or what life path he or she has followed, because this will encourage them to be open to the assistance. The principle of individualization implies, among other things, that the assistance is to be tailored to the person, so that his or her personality traits, injuries, medical conditions, etc., must not be disregarded (cf. Zabłocki,

Woźniak, 2017, pp. 126–131; cf. Marzec, Sarzała, Woźniak, 2018, pp. 97–102; cf. Woźniak, 2020, pp. 51–58).

In resocialization, i.e. in the strict sense, in the process taking place in the institution isolating given individuals from the society as a whole, personality traits should be shaped (including character traits) to determine that the process of social readaptation, taking place after leaving a penitentiary or correctional facilities, will proceed in a harmonious manner.

2. Towards understanding of biophilic character

Character is a component in the structure of personality. In broad terms, personality can be thought of as what makes a person, here and now, who they are. *The Dictionary of Psychological Terms* (Krzemionka, 2017, pp. 152–153) presents the following definition of personality: "The general concept of personality refers to the mechanisms that ensure the integration of our functioning, the coherence, and constancy of our responses, and at the same time, individuality and uniqueness. It is difficult to give a single definition of personality because different currents existing in psychology describe and examine differently the mechanisms that make up personality. It is understood differently in the psychodynamic approach, the humanistic approach, and the cognitive or cognitive-social approach.

Personality is mostly associated with a person-specific configuration of traits that determine the consistency of a person's behavior and identity. They are shaped by the interaction of genetic and environmental factors. People vary in the severity and configuration of these traits. This is how personality is described by trait theories, such as the Big Five".

S. Siek (1986, p. 29) proposes to approach the personality structure as "(....) a cohesive organization, encompassing the whole of the mental life of an individual in which the elements are different in qualitative terms (e.g. temperament, character, mental needs, will, attitudes, emotions, ego systems, directions, psychophysical systems, talents), complex, internally coherent, relatively stable, defined as response patterns, features, dimensions, and types that may remain in a dynamic, correlative, and «causal» relationship".

Modern psychology increasingly rarely uses the notion of *character*, which can be shown in contrast to temperament. Consequently, the latter is linked to innate factors and is manifested, for example, in reaction speed. Character, on the other hand, is related to environmental influences and thus can be shaped over a person's lifetime. In earlier depictions, character had a primarily positive connotation. Even today, colloquial speech used the expressions such as "this is a man of character". However, character can have both positive and negative faces. In extreme cases, one can speak of the formation of an antisocial character, or even a criminal character, when environmental influences have blurred the

individual the distinction between right and wrong, and crime becomes, among other things, a rational choice. S. K. Ciccarelli and J. N. White (2015, p. 494) state that character is made visible in judgments that value moral (ethical) reasons for behavior.

E. Fromm moved the term "necrophilia" to the characterological domain and spoke of necrophilic character, which he contrasted with biophilia (biophilic character). Fromm (1999, p. 372) wrote that "in the characterological sense can be described as the passionate attraction to all that is dead, decayed, putrid, sickly; it is the passion to transform that which is alive into something unalive; to destroy for the sake of destruction; the exclusive interest in all that is purely mechanical. It is the passion to tear apart living structures".

Characterological necrophilia is directly linked to aggression. Based on Fromm's study "The Anatomy of Human Destructiveness", characterological necrophilia should be regarded as the apogee of aggression, and the development of aggression should be shown on a continuum: aggression (in general) – sadism – cruelty – necrophilic character (Fromm, 1999). Biophilic character is the opposite of necrophilic character.

Fromm (1999, p. 408) puts the biophilic character as follows: "Biophilia is the passionate love of life and of all that is alive; it is the wish to further growth, whether in a person, a plant, an idea, or a social group. The biophilous person prefers to construct rather than to retain. He wants to be more rather than to have more. He is capable of wondering, and he prefers to see something new rather than to find confirmation of the old. He loves the adventure of living more than he does certainty. He sees the whole rather than only the parts, structures rather than summations. He wants to mold and to influence by love, reason, and example; not by force, by cutting things apart, by the bureaucratic manner of administering people as if they were things. Because he enjoys life and all its manifestations he is not a passionate consumer of newly packaged «excitement». Biophilic ethics have their own principle of good and evil. Good is all that serves life; evil is all that serves death. Good is reverence for life, all that enhances life, growth, unfolding. Evil is everything that stifles life, limits it, tears it to pieces".

It should be assumed that in their "pure form" both characterological necrophilia (according to Fromm, its clinical case is Hitler) and characterological biophilia appear extremely rarely. Man's task is to stand up for life: his or her own life, the life of other people, but also for the world of animals and plants, for development, for conflict resolution, for forgiveness, because then the biophilic tendencies become more and more visible until finally there is a chance for a continuous formation of the biophilic character (even to the end of the person's life).

It can be concluded that any form of aggression and violence is a factor that directly obstructs the development of biophilia. Aggressive behavior (which can, after all, be only incidental) cannot, therefore, be allowed to lead to the development of aggressiveness, which is already a relatively permanent trait in the personality structure. However, the

consequences of aggression depend on its type, so that, for example, the consequences of defensive aggression (which can only be an aggressive act rather than aggression in the full psychological sense) will be different from those of destructive aggression (cf. Farnicka, Liberska, Niewiedział, 2016).

3. Observation as a source of information on biophilic responses and tendencies in prisoners and wards of juvenile correctional facilities

The concept of biophilic character seems not to be adequately widespread in psychology, and, in the case of resocialization, it is still an unexplored concept. The process of resocialization involves prisoners or wards of juvenile correctional facilities, i.e. people who, through their actions and behavior, have often undermined the value that life represents.

Biophilic character means assigning a high value to one's own life and the lives of others. It is a significant psychological construct for human existence. However, there are no research tools to measure it. Biophilic character can be studied indirectly by examining other traits that may lead simultaneously to blocking the development of biophilic tendencies.

When an individual scores high on aggression, the researcher indirectly acquires information about processes that inhibit, block, or even preclude the development of biophilia. It is therefore worth using available aggression questionnaires for research in isolated communities.

Personality disorders will also at least inhibit the formation and development of biophilia. In research among prisoners, the R. Hare's Psychopathy Checklist can also be used, which makes it possible to examine emotional coldness and antisociality taken together (cf. Pospiszyl, 2000, pp. 172–176).

K. Pospiszyl (2000, p. 170) considered observation as one of the most serious methods of getting to know another person, although it is not an easy method and requires a lot of experience, responsibility, sensitivity, and delicacy.

Declaring higher-order and social values may indicate moving beyond individuality and valuing other people. People repeatedly indicate "life" in general (rather than only "health") as one of the most important values (or even the most important value). There may be a discrepancy between the declared values and the realized values. Nevertheless, when examining the systems of values of inmates in prisons or wards of juvenile correctional facilities, one can often see tendencies towards life (biophilic tendencies) in the choice of values.

The author of the present paper has been involved in voluntary and professional work with the environment of prisoners, and with the environment of wards of shelters for minors and juvenile correctional facilities since 1997, which allows him to conduct

observations in such communities. A specific type of observation is *participatory observation*, meaning the common activity of the researcher with the observed (researched) people, e.g. sport or tourist activity, or activity of religious character (such as pilgrimage activity). The author of the present paper views *participant observation* as a kind of *field experiment*. Observation in general, and participant observation in particular, provides an opportunity to gather empirical material that cannot be obtained using psychological tests or sociological and pedagogical questionnaires. Observation, especially participant observation, is characterized by noting spontaneous behavior, which is of great research value. The participant observation can be conducted simultaneously with the spontaneous interview. Such an interview can also provide cognitively interesting empirical material that differs significantly from that obtained in a structured interview.

The present study will present, in a general way, the information that the author of this article obtained through observation, including the participant observation, conducted for many years in the environments of socially isolated people, i.e. among the prisoners and the wards of juvenile correctional facilities, which is related to the problem of biophilia. Many offenders, not only adults but also juveniles and adolescents, are characterized by a lower (to varying degrees) instinct of self-preservation, which translates into a failure to consider their own lives, and the lives of others, to be of high value. The phenomenon of prison subculture, i.e. the phenomenon of "the other life", is still observed in penitentiaries, although to a lesser extent than e.g. 15 years ago. This subculture is also referred to as the aggression and violence subculture. It promotes power-based behavior and the exclusion of those who do not belong to it. This subculture is hostile to prisoners at the bottom of the informal hierarchy in prison, and are described by the prison service as disadvantaged. The prison subculture principally precludes the development of biophilia in its participants. In juvenile correctional facilities, such a subculture does not formally exist, but the wards, having contact with inmates or former inmates, may adopt and behave based on at least some of the principles of this subculture.

However, in many prisoners, and even more so in those brought up in correctional facilities, certain biophilic reactions can be noted, which can be spontaneously expressed by prisoners in verbal communication, for example, in the form of the phrase: *and I wanted to be a good person*. Many behaviors in people from these communities can be surprising, such as expressing sympathy for the crime victims. These people, even if they are sentenced for the most serious acts against life, are able to care for animals or grow plants. Biophilic reactions can also be induced through religious activity, such as praying for victims of crime or visiting the graves of those who died as a consequence of crime.

The author of the present paper has observed biophilic reactions even in homicide perpetrators (cf. Woźniak, 2015). These reactions appear in people undergoing social rehabilitation mostly in unplanned situations, without any coercion, i.e. spontaneously and

voluntarily, and may in many cases be an impulse for change or, in the case of reactions of a religious nature, an impulse for conversion.

Conclusions

The E. Fromm's concept, showing the biophilic character, should be used in resocialization measures, directed both to prisoners and wards of juvenile correctional facilities. Every crime is against another human being, but the most serious category is crimes against life. In Fromm's view, biophilia is evident in the character of the person, who cares for the development of his or her own life and the lives of others, and even values animal and plant life greatly. Observation, especially participant observation, seems to be the best method to notice biophilic reactions or tendencies in the communities of people living in social isolation. The communities of inmates in prisons but also, to a certain extent, of those in juvenile correctional facilities, are marked by aggression and violence, but in spite of this, certain pro-life reactions, i.e. biophilic reactions, can also be observed. These reactions, at times, are so strong that they begin to form biophilic tendencies in individuals. If they persist for a considerable time, these tendencies may initiate the formation of a biophilic character, which may already become a relatively permanent element in the personality structure. In such a case, the individual's personality increasingly acquires a prosocial orientation whereas the antisocial factor is weakened. In the communities of prisoners, but also of the wards of juvenile correctional facilities, biophilic reactions may be noticed most frequently, but biophilic tendencies are less prevalent. However, such tendencies, even in conditions of social isolation, can initiate the development of biophilic character, although actually only in few cases. Nevertheless, it is only biophilic reactions that can give a chance to initiate change.

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Therapeutic Facility for Individuals with Autism Spectrum Disorder

Ośrodek terapeutyczny dla osób ze spektrum autyzmu

Abstract: The number of individuals diagnosed with Autism Spectrum Disorder (ASD) is currently growing, and despite this, their needs are rarely accounted for in construction codes and design guidelines. People with ASD are particularly sensitive to the environment, mainly due to the specificity of sensory functioning: either a hyper- or hypo-reactivity to stimuli and non-standard interests in the sensory aspects of their surroundings. The objective of this paper is to present the design of a therapeutic facility for individuals with ASD which incorporates psychological research findings, proposed general guidelines concerning design for this user group, existing buildings and original design solutions.
Keywords: Autism Spectrum Disorder, therapeutic facility, architectural design, site-specific conditions

Abstrakt: Współcześnie wzrasta liczba osób z diagnozą zaburzeń ze spektrum autyzmu (ASD), a mimo to ich potrzeby rzadko są uwzględniane w przepisach budowlanych i wytycznych projektowych. Osoby z ASD są szczególnie wrażliwe na otaczające środowisko, głównie z powodu specyfiki funkcjonowania sensorycznego: hiper-lub hipo-reaktywności na bodźce oraz niestandardowych zainteresowań sensorycznymi aspektami otoczenia, a także wrażliwości na dystraktory i deficyty uwagi przestrzennej. Celem artykułu jest przedstawienie projektu ośrodka terapeutycznego dla osób z ASD, z uwzględnieniem wiedzy psychologicznej, postulowanych ogólnych wytycznych dotyczących projektowania dla tej grupy użytkowników, istniejących już obiektów oraz własnych rozwiązań.
Słowa kluczowe: spektrum autyzmu, ośrodek terapeutyczny, projektowanie architektoniczne, warunki środowiskowe

Introduction

Autism Spectrum Disorder (ASD) is a type of neurodevelopmental disorder. The main symptoms of ASD include social communication deficits, limited and repetitive behaviour, interest or activity patterns and a non-standard reception of sensory stimuli (APA, 2013). The aetiology of ASD is not fully understood, although the most probable

causes include interactions between genetic and environmental factors (Beversdorf, Stevens & Jones, 2018; Bölte, Girdler & Marschik 2019).

At present, there is an observable increase in the number of diagnosed cases of ASD (Sheldrick & Carter, 2018). Social awareness concerning the specificity of how people with ASD function is increasing, but the group itself is often ignored in the process of architectural design. The needs of individuals with ASD are rarely, if ever, considered in building codes and design guidelines. This is a serious problem, as such people are more sensitive to their physical surroundings than neurotypical individuals (Whitehurst, 2006). When individuals with ASD cannot understand or adapt to their surroundings, they typically experience strong discomfort, which can lead to problem behaviours (Dellapiazza et al., 2020). Although the surrounding environment has such a strong impact on individuals with ASD, there are relatively few publications on designing spaces that would be friendly to them (McAllister & Maguire, 2012; Zulkanain & Mydin, 2019).

People with ASD are particularly sensitive to the environment around them, which is primarily caused by sensory processing disorder. The clinical presentation of ASD is diverse and highly individualised, and can include hyper- or hypo-reactivity to sensory stimuli (e.g. a visible obliviousness to pain, heat and cold, or the opposite - a negative reaction to specific sounds or surfaces) or unusual interest in the sensory aspects of the environment (obsessive smelling or touching of items, fascination with blinking lights or rotating objects) (APA, 2013, 2015; Takahashi et al., 2018; Seungwon Chung & Jung-Woo Son 2020). People with ASD were also observed to have deficits in spatial cognition (Ronconi et al., 2018) which are responsible for focusing on a single specific area of space, which significantly hinders effective behaviour control. Distractions can also adversely affect the capacity to learn or engage in therapy (McAllister & Maguire, 2012), which is why factors that can affect the sense of hearing and sight (distractors) should be minimised (Khalifa et al., 2020). On the other hand, it was observed that individuals with ASD display a tendency to focus on details in their local environment. They navigate based on orientation points - landmarks (Blanchette et al., 2019).

M. Mostafa (2014; 2015) proposed seven criteria for designing for people with ASD, known as ASPECTSS™: /1/ Acoustics, /2/ Spatial sequencing, /3/ Escape space, /4/ Compartmentalisation, /5/ Transitions, /6/ Sensory zoning, and /7/ Safety.

/1/ Acoustics. This criterion is intended to minimise background noise, echo and reverberation. The level of acoustic control should differ depending on attention focus intensity that is required within a given space and the intensity of autism symptoms of the persons inside the space. For instance, activities that require greater focus should be performed under conditions with a higher degree of acoustic control and be a part of low-stimulus zones. One should also provide different levels of acoustic control, so that individuals with ASD could gradually move from one level to another. /2/ Spatial

sequencing is based on taking advantage of the propensity of persons with ASD for routine and predictability. It requires areas to be ordered and logically sequenced, based on planned use of space. Spaces should be as fluid as possible, moving from one activity to another, via one-way circulation, with minimum disruption and distraction, and with the application of intermediate zones. /3/ The purpose of Escape space is to provide individuals with ASD with respite from excessive stimulation in the surroundings. It can comprise a small area sectioned by partition walls or an isolated space in a quiet part of the room (or building). /4/ The philosophy behind Compartmentalisation is based on defining and limiting the sensory environment of every activity, organising classrooms or even entire buildings into compartments. Every compartment should have a single, clearly specified function and a resultant sensory quality. The border between these compartments does not need to be crisp, but it can be demarcated via furniture placement, flooring material or even differences in lighting. The sensory characteristics of every space need to be used to determine this function and separate it from nearby spaces. Combined with consistency in action, sensory cues can be delivered as to what is expected of people in every space while maintaining minimum ambiguity. /5/ The presence of Transitions aids individuals with ASD in recalibrating their senses while moving from one stimulus level to another. Such zones can take on different forms - from a separate node which signalises change, to a full sensory room which allows sensory recalibration prior to moving from an area with high stimulus intensity to a low-intensity area. /6/ Sensory zoning is a proposal to organise spaces according to their sensory quality and not their typical functional division when designing for persons with ASD. This requires grouping spaces depending on their permissible stimulus level into 'high-stimulus' and 'low-stimulus' areas with transition zones in-between. /7/ Safety should be a priority when individuals with ASD are concerned, for instance with the application of safety appliances that regulate hot water temperature and avoidance of sharp edges or corners.

The objective of this paper is to present the design of a therapeutic facility for individuals with Autism Spectrum Disorder that accounts for the specificity of their functioning. We intended to design a building that, through a simple internal space layout, legible massing and the inclusion of spaces for individual forms of therapy, would create a friendly environment for people with ASD. In the design, apart from rooms associated with the building's operation, sanitary facilities and rooms adapted to animal assisted therapy, we also designed spaces intended to support the intellectual and physical development of individuals with ASD. These are, among others, sensory spaces and Snoezelen sensory rooms. We also designed a sensory garden equipped with appropriate plant types.

1. Design inspirations

Prior to engaging in design work on the facility for individuals with ASD presented in this paper, we researched buildings that had a similar function, focusing not only on the aesthetic properties of such buildings, but also on their functio-spatial programme. Each of the buildings presented below had some degree of impact on our work. The designs presented are cases of excellent, world-class architecture in the field of buildings for users with mental disorders. Innovative uses and properly designed spaces in these buildings aid specialists in offering therapy to individuals with ASD and other disorders, but most importantly exert a positive influence on them.

1.1. Healthcare Centre in Vic, Spain

From among the buildings analysed, the design inspiration chosen first was the Healthcare Centre located in the Spanish city of Vic in northern Catalonia. The building was designed by Comas–Pint arquitectos, a local design firm. The entire complex is based on several repetitions of a module that is 6 m wide. The site plan features a series of well-blended structures around a central pavilion. These structures are separated from each other by gardens cultivated by the centre's patients. Due to these procedures, the building appears to blend well with the surrounding nature, creating a place that is positively received by persons with psychological problems. On an area of 1657 m^2, a series of spaces was designed for various types of individual and group therapy. The building has an economic, modular, high-performance energy system, which allows adapting energy demand to the interior of a space and the external climate[1].

1.2. New Struan, A Centre For Autism

The second building that was analysed in the preparation of our conceptual design proposal was A Centre for Autism – New Struan, which is located in Alloa, Scotland. The building was designed by Aitken Turnbull Architects with architect Andrew Lester at the helm, who is privately a father to a girl diagnosed with ASD. The building, apart from operating as an autism centre, fulfils various other functions, such as a research and diagnosis centre, offers training courses and counselling. It also includes an independent school operated by the Scottish Society for Autism—the New Struan School. The building's functional programme is distributed across its ground floor, which has the shape of the letter *T*. the building has seven classrooms for group learning, an excellently equipped multi-sensory room, a library, a staff room, a foyer, an early learning centre and spaces for therapists. During the design of New Struan, its architects clearly stressed providing a large

[1] https://www.archdaily.com/870911/psychopedagogical-medical-center-comas-pont-arquitectos

amount of sunlight into each of its spaces. It is also for this reason that the atrium, which runs along the entire length of the building, is covered by a glazed gable roof with a relatively high pitch, which admits daylight into the entire space of the building[2].

1.3. Child Psychiatry Hospitalisation Building of 12 beds

The final chosen inspiration was the Child Psychiatry Hospitalisation Building of 12 beds, designed by the a + samueldelmas architectural firm. The building, which has a floor area of 1428 m², was sited in the French locality of Bures-sur-Yvette. The building's individual spaces are placed around its centrally located courtyard. Despite the building's uncomplicated massing and the application of traditional finishing materials, it produces an impression of being a modern building by, among others, large, irregularly placed glazed surfaces on its facade. On its ground floor there is a large courtyard covered in short and tall greenery. The space inside and outside the building is clearly divided into different zones depending on patient needs. The courtyard opens up towards a patio and a dining room which act as integration spaces. There are also several rooms here that form an intimate zone for individual therapy. This level is used more for everyday living than therapy due to the rooms located here (dining room, living room, individual living quarters). The second storey includes spaces whose equipment is used in exercise therapy. The courtyard, which can be reached from the building's first floor, is partially covered by varying types of low-lying greenery. These procedures make the building more eco-friendly and allow it to better blend with the environment, which is mostly natural.

2. The building under design and its site

We sited the building in Rzeszów, a city lcoated in south-eastern Poland, at Forsycji Street. Rzeszów's Old Town Market Square is located 3.3 km from the site, as measured in a straight line. The area near Forsycji Street is located in the south-eastern part of the city (Fig. 1).

Figure 1. The site chosen for the design – aerial view of the city and the development surrounding the site (source: http://mapy.geoportal.gov.pl/) (access: 21.05.2020).

[2] https://www.aitken-turnbull.co.uk/project/centre-autism-new-struan

The site is located in the northern part of a complex of single-family houses in the district of Zalesie. Despite the plot being located in relatively close proximity to the city centre, the area is quiet and peaceful. The immediate area features detached and terraced single-family housing and several low-rise multi-family buildings. The site fulfils the functions necessary due to its planned use and the facility's functional programme as individuals for whom the building was designed are not isolated from the rest of society and can come into contact with the local community. This can also positively influence residents, who could begin to gradually better understand the facility's patients. Another of the site's strengths is the circulation layout, as it is very safe due to low traffic intensity. We have presented the facility's site plan in Figure 2.

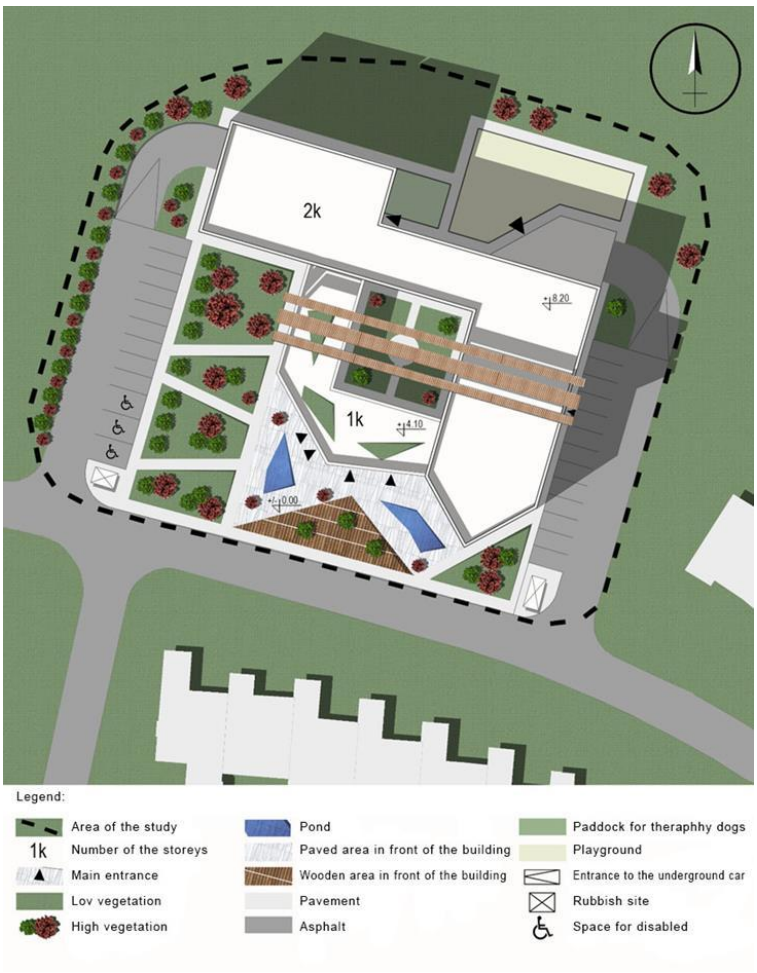

Figure 2. Site plan, design

The site development was designed so that the facility could blend in with its immediate surroundings. The main entrances to the building were placed from the south-west. In front of the building's entrance, the site was arranged to feature a small formal square. Outside of the paved surfaces, it also features two ponds, a triangular square covered with wooden flooring with openings for small trees, and pavements that cross through areas covered with landscaped low-lying and tall greenery.

Two entrances to an underground car park have been marked on the plan. Outside, 25 parking spaces were designed, including three adapted to the needs of persons with disabilities. To the north-east of the building, we placed a dog park for therapy dogs and a

playground, whose direct exit leads to a sports hall designed on the building's ground floor. The building's massing has been presented in figure 3 and the underground car park's floor plan - in Figure 4.

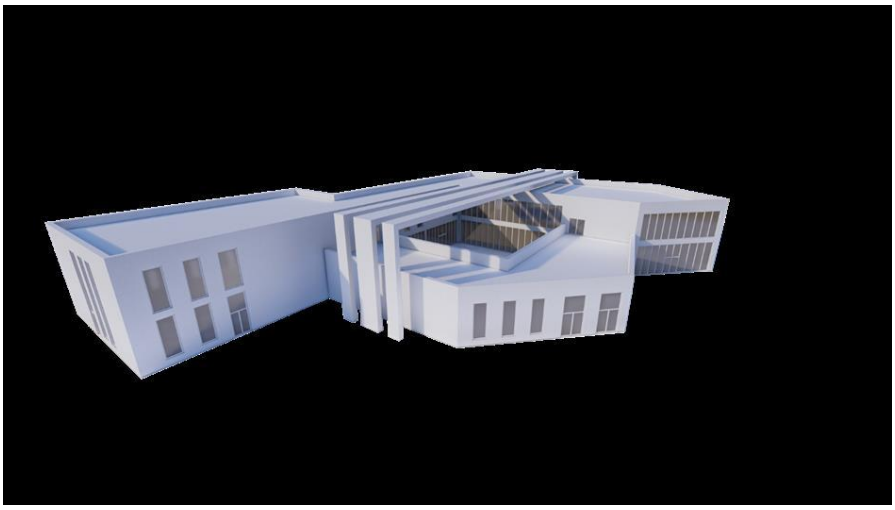

Figure 3. The building's massing, design

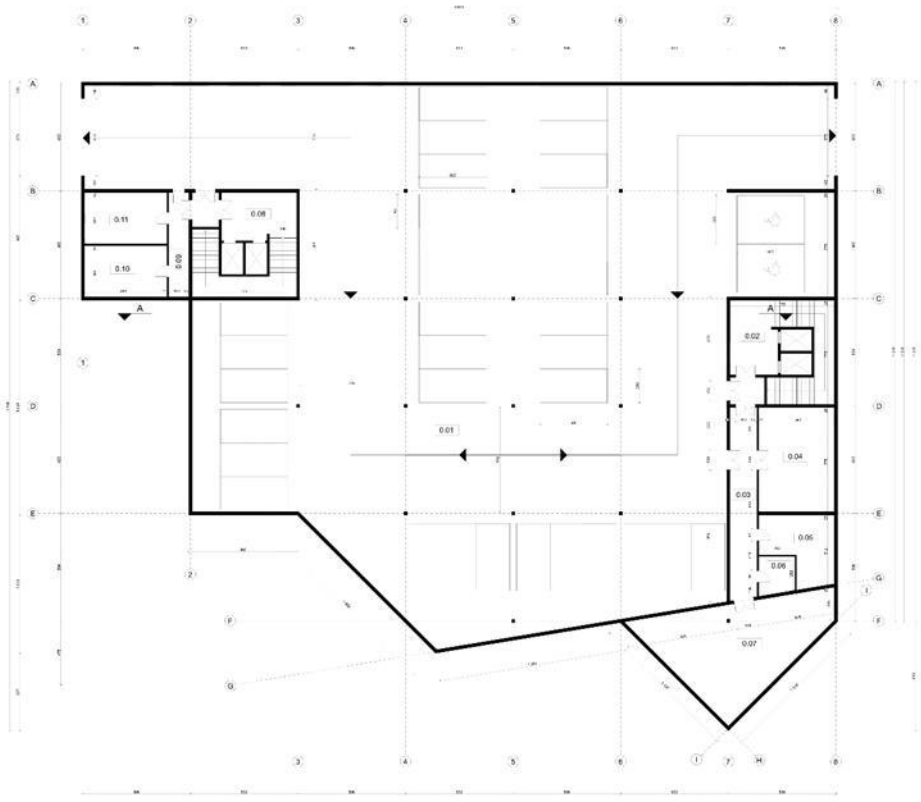

Figure 4. Underground car park floor plan, design

We designed the building to be equipped with an underground car park, inside which, apart from parking spaces for automobiles, there are also several spaces associated with the essential operation and alimentation of the building (server room, power distribution station, water connection room, central heating unit room, ventilation and air-conditioning unit space, and storage area; there are 35 parking spaces, two of which are dedicated to individuals with disabilities and parking space dimensions comply with applicable standards)[3] .The ground floor plan has been presented in figure 5.

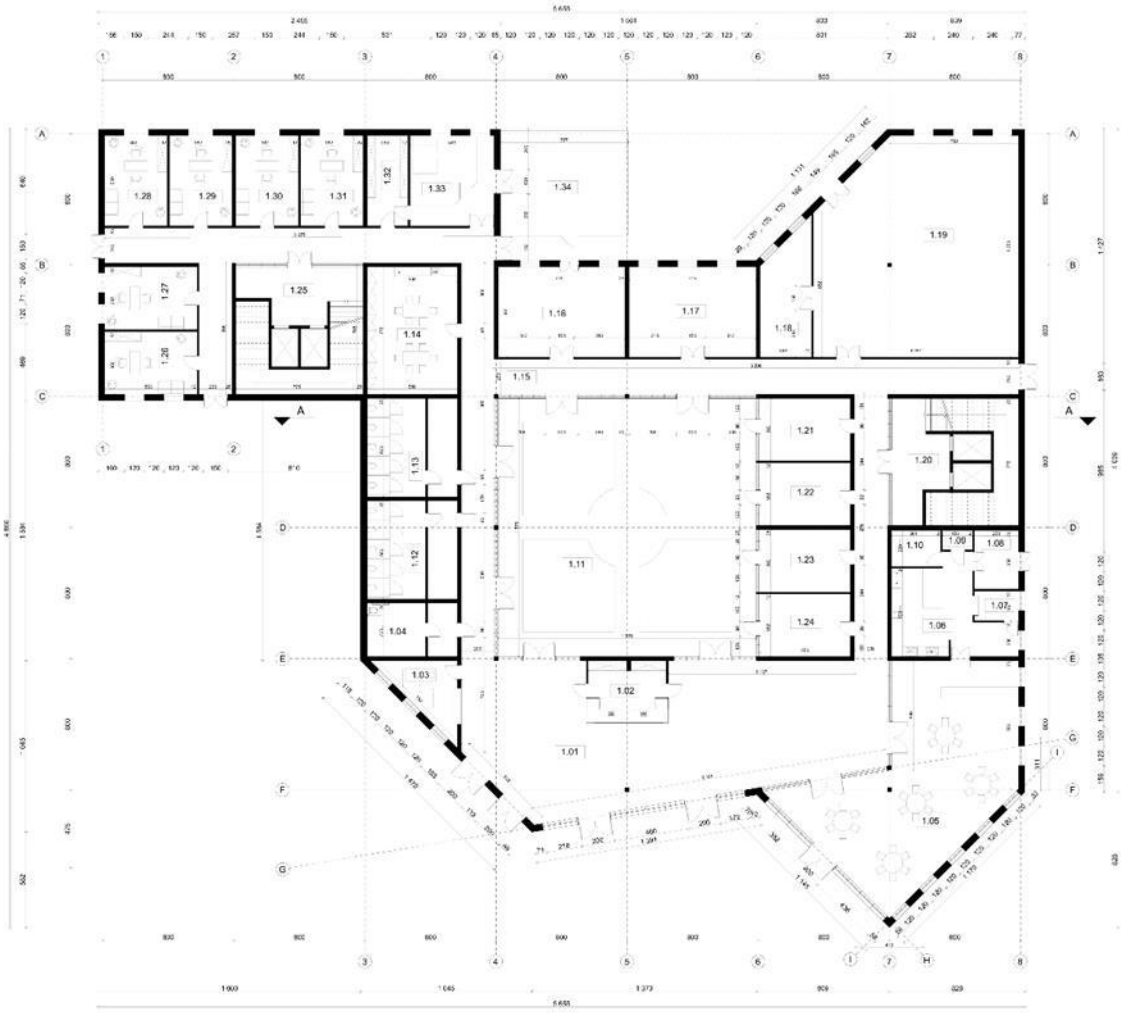

Figure 5. Ground floor plan

[3] Ordinance of the Minister of Infrastructure and Construction of 14 November 2017 (Dz. U. 2017, item 2285).

Table 1. Room floor area schedule for the underground car park

Room no.	Room name	Floor area (m^2)
0.01	Car park	1556.3
0.02	Stairwell	60.1
0.03	Circulation	28.5
0.04	Storage	43.6
0.05	Central heating unit	23.4
0.06	Water supply connection room	7.4
0.07	Ventilation and air-conditioning unit space	80.1
0.08	Stairwell	60.1
0.09	Circulation	11.6
0.10	Server room	23.4
0.11	Power distribution station	23.4
Total floor area		1917.9

We designed the facility to include sensory rooms, Snoezelen sensory rooms, rooms that support intellectual and physical development and a room adapted to animal assisted therapy, a sensory garden with appropriate plants, ancillary spaces and sanitary facilities. To improve the functioning of the central nervous system, we programmed specialist classes in the sensory integration room. We planned the interior to be equipped with specialist training and play equipment.

The large open courtyard featured in the design was placed in the central part of the building, where it will serve not only to facilitate interpersonal interaction in the centre, but also provide access to daylight to corridors in the building and its modern individual therapy rooms which are open in the direction of the central interior. The entrance to the building does not lead to a hall, but instead directly to the foyer. Because of this, we designed air curtains at each of the main entrances. The foyer was designed to include a reception space as a place to direct obtain information. Individual therapy rooms, along with the sports hall, stairwell and coffee shop with necessary ancillary spaces were placed in the eastern part of the building.

Table 2. Room floor area schedule for the ground floor

Room no.	Room name	Floor area (m^2)
1.01	Foyer	195.9
1.02	Reception space	18.9
1.03	Cloakroom	14.3
1.04	Accessible toilet	18.0
1.05	Coffee shop room	127.4
1.06	Kitchen	34.3
1.07	Dishwashing room	4.8
1.08	Storage area	9.6
1.09	Waste area	2.2
1.10	Cold room	6.6
1.11	Courtyard	248.6
1.12	Women's toilet	33.1
1.13	Men's toilet	33.1
1.14	Staff room	42.7
1.15	Circulation	217.7
1.16	Dog assisted therapy room	43.0
1.17	Education room	43.0
1.18	Storage area	22.3
1.19	Sports hall	158.0
1.20	Stairwell	60.1
1.21	Individual therapy room	21.1
1.22	Individual therapy room	21.1
1.23	Individual therapy room	21.1
1.24	Individual therapy room	21.1
1.25	Stairwell	60.1
1.26	Office	21.5
1.27	Office	21.5
1.28	Office	21.5
1.29	Office	21.5
1.30	Office	21.5
1.31	Office	21.5
1.32	Storage area	13.8
1.33	Room for dogs	28.6
1.34	Dog enclosure	49.3
Total floor area		1677.3

The western part of the building was designed to include toilets and a staff room. The northern section houses an animal-assisted therapy room and a common education room. The north-western part of the building primarily includes office rooms for specialists, in addition to another stairwell and spaces suitable for therapy dogs along with a storage area for feed and other accessories for the animals. The plan of the first floor has been presented in figure 6.

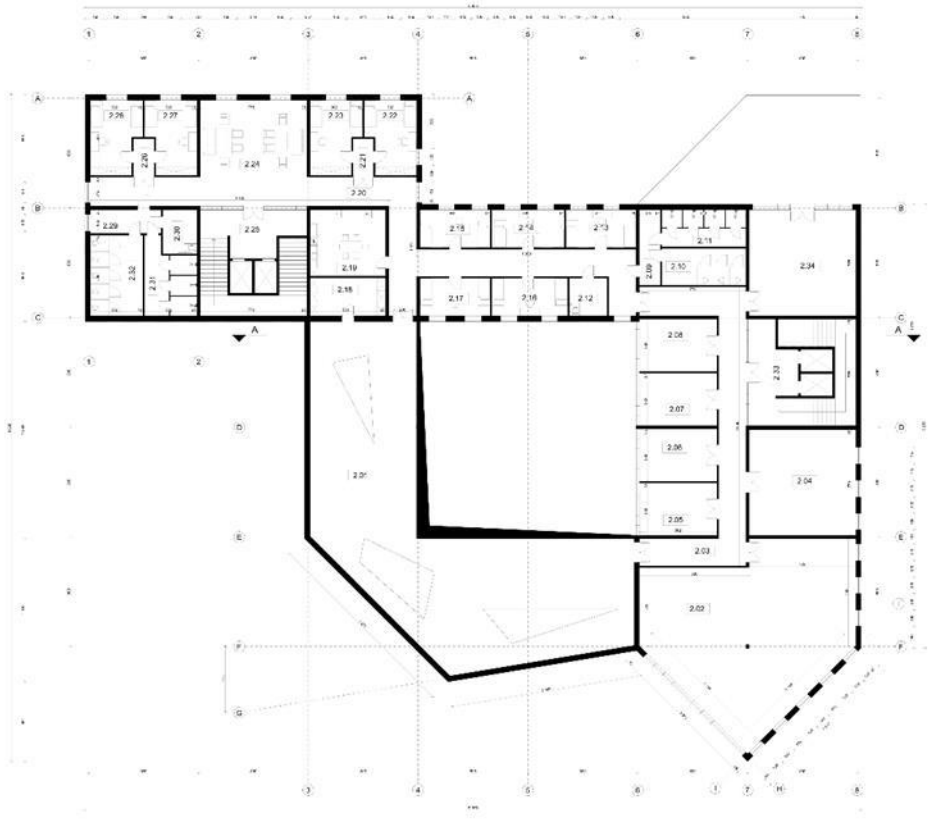

Figure 6. First floor plan

Table 3. Room floor area schedule for the first floor

Room no.	Room name	Floor area (m^2)
2.01	Green terrace	293.1
2.02	Group integration room	168.3
2.03	Circulation	65.3
2.04	Snoezelen sensory room	59.7
2.05	Sensory integration room	21.5
2.06	Sensory integration room	21.5
2.07	Sensory integration room	21.5
2.08	Sensory integration room	21.5
2.09	Vestibule	8.3
2.10	Toilet	16.5
2.11	Shower	16.5
2.12	Accessible toilet	7.6
2.13	Room	14.1
2.14	Room	14.1
2.15	Room	14.1
2.16	Room	14.1
2.17	Room	14.1

2.18	Storage space	15.3
2.19	Kitchen	26.8
2.20	Circulation	105.1
2.21	Circulation	4.2
2.22	Room	18.7
2.23	Room	18.7
2.24	Living room	43.6
2.25	Stairwell	60.1
2.26	Circulation	4.2
2.27	Room	18.7
2.28	Room	18.7
2.29	Vestibule	9.0
2.30	Accessible toilet	8.0
2.31	Shower	18.6
2.32	Toilet	22.5
2.33	Stairwell	60.1
2.34	Snoezelen sensory room	60.1
Total floor area		1304.2

On the first floor of the building, we designed nine rooms for persons who need to stay in the building for periods exceeding the scheduled therapy hours. A living room was also designed for these persons, which is to facilitate integration between class participants. In this part of the building, apart from sanitary facilities, we designed a kitchen which can be used to prepare meals by both the facility's staff and individuals with ASD. The largest space on this level is the group integration room.

We designed four sensory integration room near each other and equipped them with glazed surfaces from the side of the courtyard. Directly near the stairwell, on both of its sides, we designed Snoezelen sensory rooms. In the design, we assumed that planning windows or doors on several walls can be distracting, and instead found it to be a good idea to place several glazing modules near each other on a single wall, through which we also provided a good source of daylight. A part of the roof above the ground floor was designed as a green terrace, which could allow patients to plant and cultivate plants under the supervision of therapists. Figure 7 shows the building's elevations.

Figure 7. Elevations, design

As a form of accounting for site-specific conditions in the design of the architectural form of the building, we opted for a proposal of contrasting the massing of the facility with its contextual development. However, we decided to use traditional technologies on the building's facades so as to reference regional practices. Most external walls, covered with white cement and lime plaster with decorative dark-graphite brick elements, was to reference the colour compositions used throughout the region. The glazings in the building, with identical modules, are intended not to cause anxiety and distract the facility's particularly sensitive users. Figure 8 shows the building's cross-section.

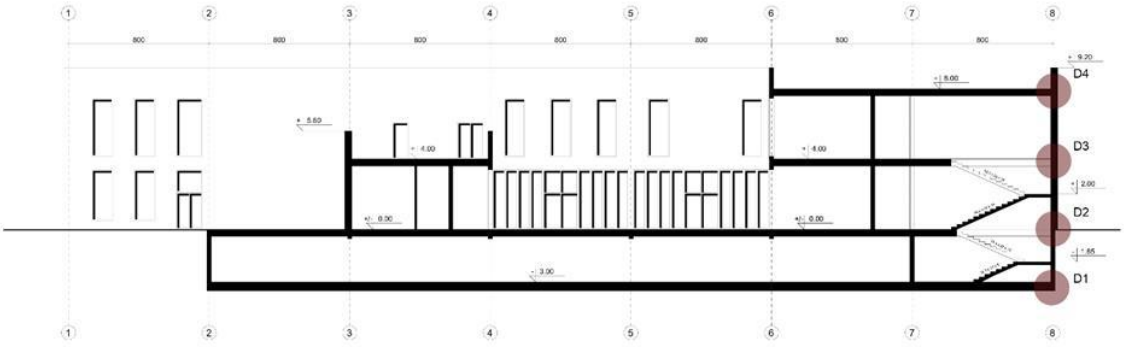

Figure 8. Cross-section A–A, design

On the building's cross-section, which cuts through its stairwell, we can see the significant dimensions of the building in relevant places, as shown on elevation markers. The drawing includes structural axes and the dimensions of the distances between them. On the drawing to the right, we used the colour red to mark places for which design details were drawn (not included in the paper).

3. Structural and material solutions

The building rests on a reinforced concrete slab footing which is 40 cm thick. The surface layer of the footing slab is covered in grated concrete grout with a thickness of 12 cm, which is to act as a car park floor and allow the movement and parking of automobiles inside. We used traditional materials in the design as they have beneficial health-related characteristics.

The internal and external load-bearing walls were designed from Wienerberger Porotherm P+W ceramic masonry units with a thickness of 25 cm. The external walls were designed as insulated with 15 cm styrofoam panels covered with cement and lime plaster and decorative brick in selected places. For partition walls, we proposed Wienerberger Porotherm P+W ceramic masonry units with a thickness of 11.5 cm. Due to structural reasons, we introduced columns with a cross-sectional dimension of 25 x 25 cm, made out of reinforced C25/30 class concrete. The columns were placed axially throughout the building, spaced every 800 cm. The deck, with a thickness of 22 cm, was designed as a cross-reinforced slab due to the spans between columns, beams and load-bearing walls (reinforced concrete walls are to be cast in place on-site).

Concerning individuals with disabilities, which would form the majority of the facility's users, we designed a simple and well-legible circulation layout with a base width of 2 m. We chose wood as the material windows frames and doors, which are to have the

colour of mahogany. The glued, single-hollow, safety glass windows, with a low-emission film and thermal frame filled with a noble gas, e.g. argon, 4/16/4, with a U_{max} = 1.00 W/m²K. We assumed a thermal transmittance of U = or < 1.1 W/m²K.

We planned comfortable two-run stairs with a riser height of 14.3 cm and tread width of 32 cm, a run width of 200 cm and a landing width of 150 cm. The reinforced-concrete stairs are to be cast in place on-site out of C25/30 class concrete. In each of the two stairwells there are to be two lifts adapted to the needs of persons with disabilities.

We designed three decorative structural elements in the shape of the letter *C*. These elements are visible outside of the building and run parallel to the main entrances of the building. They are to be composed of metal hollow sections with a wall width of 4 cm and horizontally covered with ornamental laths, which shall magnify the effect of the visual composition.

The attic walls at the top of the building were designed as built from ceramic masonry units with a width of 20 cm, insulated from outside with styrofoam panels with a thickness of 15 cm from the outside and with 8 cm panels from the inside. We also designed the flat roof so as to be based on traditional technology.

4. Visualisations of the building

Figure 9. Visualisation no. 1.

Figure 10. Visualisation no. 2

Conclusions

Cooperation between architects and psychologists brings results in design solutions that are conducive to safety, good health and development (Coburn, Vartanian and Chatterjee, 2017). In the paper, based on studies about the needs of people with ASD, followed by the analysis of design guidelines oriented towards this group and existing buildings, we prepared a design of a facility for individuals with ASD.

Due to the fact that an increasing number of children is being diagnosed with Autism Spectrum Disorders, the design of buildings adapted strictly to their needs is gaining in significance. It also leads to the need to pursue modern solutions in contemporary therapeutic architecture. The facility we designed meets not only the requirements of a building in which individuals with ASD have a chance to improve their social and everyday functioning through therapy, but also allows them to live safely. The proposed form and detailed solutions of the building can potentially have beneficial effects on the psyche of its residents and their social ties. Architects, by cooperating with psychologists, have stepped up to the challenge of designing space and the pursuit of architectural solutions for persons

who receive environmental stimuli in a non-standard way. At present, designers also face the new experience of creating spaces not only for neurotypical persons, but also those with various disorders and dysfunctions. In architecture, evolution strives to design new functions for living spaces. Such an attempt was presented it in this paper.

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Martial burnout in mothers of children with autism spectrum disorder: the role of marital communication and sociodemographic factors

Wypalenie w małżeństwie u matek dzieci ze spektrum autyzmu: rola komunikacji i czynników socjodemograficznych

Abstract: Raising a child with special needs poses a challenge for their parents, not only as caregivers but also as spouses. The aim of the present study was to analyze the relationships between communication behaviors, both mothers' own and their partners', and the level of marital burnout in mothers of children with autism spectrum disorder (ASD). The moderating role of selected sociodemographic factors, such as duration of marriage, number of children, age of a child with the disorder, professional activity of mothers, and perceived parents' contribution to caring for a child with autism spectrum disorder was also tested. The Marital Communication Questionnaire, the Marital Burnout scale and a sociodemographic survey were used in the study. The sample was composed of 100 women, married mothers of a child with ASD. The results showed an inverse relationship between own and partner's supportive and engaged communication behaviors, and the feeling of marital burnout. At the same time, there was a positive relationship between depreciation in their own and partner's communication and female burnout. These relationships were not moderated by any of the sociodemographic variables.
Keywords: ASD, child with autism spectrum disorder, communication, marital burnout, marriage

Abstrakt: Wychowywanie dziecka ze specjalnymi potrzebami stanowi wyzwanie dla jego rodziców nie tylko jako opiekunów, ale i małżonków. Celem prezentowanych badań była analiza związków między zachowaniami komunikacyjnymi własnymi i partnera, a poczuciem wypalenia w małżeństwie u matek dzieci ze spektrum autyzmu (ASD). Testowano również moderacyjną rolę wybranych zmiennych socjodemograficznych, takich jak staż małżeński, liczba dzieci, wiek dziecka z zaburzeniami, aktywność zawodową matki, a dodatkowo ocenę udziału obojga rodziców w opiece nad dzieckiem ze spektrum autyzmu. W badaniach wykorzystano Kwestionariusz Komunikacji Małżeńskiej, skalę Wypalenia Małżeńskiego oraz ankietę socjodemograficzną. Badania objęły 100 kobiet, matek dziecka z ASD, będących w związku małżeńskim. Wyniki wskazują na odwrotną zależność między komunikacją wspierającą i zaangażowaną, zarówno własną, jak i postrzeganą partnera, a poczuciem wypalenia w związku badanych kobiet. Jednocześnie ujawniono pozytywny związek między deprecjacją w komunikacji własnej i partnera a wypaleniem. Związki te nie były moderowane przez żadną ze zmiennych socjodemograficznych.
Słowa kluczowe: ASD, dziecko z zaburzeniami ze spektrum autyzmu, komunikacja małżeńska, małżeństwo, wypalenie w małżeństwie

1. Introduction

Giving birth to a chronically ill child, a child with a disability or with a developmental disorder and then caring for it, is a difficult experience that brings consequences for the entire family system (Cyranka, Rutkowski, Król, Krok, 2012; Greszta, Ryś, Trębicka, Hoffer-Buczkowska, 2020; Klajmon-Lech, 2018; Pągowska, 2013). First, it is a burden for caregivers engaged in the process of diagnosis, treatment, rehabilitation or therapy, which is a source of stress, and - in the long term - contributes to emergence of the burnout syndrome (Klajmon-Lech, 2018; Pągowska, 2013). Second, the child's disease affects other subsystems in the family (Fisman, Wolf, 1991), especially the parents' marriage (Chan, Lam, Law, Cheung, 2018; Cyranka et al., 2012). Care for a child with special needs diminishes spouses' physical strengths, as well as intellectual and emotional resources otherwise required to nurture the relationship with the partner (Hoogsteen, Woodgate, 2013). Moreover, negative experiences brought about by everyday child-related difficulties are transferred to the marital dyad and change it unfavorably - this phenomenon is referred to *stressspillover* (Brock, Lawrence, 2008; Neff, Karney, 2004).

Such chronic stress affects marital quality and satisfaction through various processes: less time spent together, poor communication, increased risk of psychological and physical symptoms, or increased likelihood of problematic personality traits revealing between partners (Bodenmann, Ledermann, Bradbury, 2007; Chan et al., 2018). Therefore, the risk of deterioration of the relationship between parents of a disabled child is real. It is especially felt by women, as mothers are usually primary caregivers and experience a greater impact of the child's deficits (Gau, Chou, Chiang, Lee, Wong, Chou, Wu, 2012; Koydemir, Tosun, 2009; Rodrigue, Morgan, Geffken, 1990). While stress, depression and burnout in mothers or both parents of an ill child have been often investigated (Greszta et al., 2020; Klajmon-Lech, 2018; Kütük et al., 2021; Pągowska, 2013), little attention has been paid to the phenomenon of marital burnout, its predictors and methods of prevention. The aim of the present study is to fill in this gap by examining the relationship between marital communication and burnout in mothers of children with autism spectrum disorder (ASD).

1.1. Marital burnout

Although burnout has been most often analyzed in the context of professional (Maslach, Leiter, 2017) or parental roles (Mikołajczak, Gross, Roskam, 2019), it might also be applied to spouses. Their high engagement in the relationship, dedication or enthusiasm may lead to a gradual loss of energy, discouragement, dissatisfaction, exhaustion, frustration and, consequently, burnout in a marriage (Rozen, 2020).

In the literature, the concept of burnout related to the marital relationship is described in three dimensions as physical, mental and emotional exhaustion and their effects. The first dimension of burnout is related to the effects of overpowering stress, which can be manifested through numerous physical symptoms, as well as chronic and mental diseases. Symptoms include fatigue, chronic headaches, abdominal pain, eating disorders, lethargy and many more. The emotional exhaustion includes feelings of emptiness, hopelessness, sadness, depression, unwillingness to solve problems. The mental dimension concerns reduced self-esteem, negative opinion about the spouse, frustration or disappointment with the partner (Koolaee, Adibrad, Sedgh Poor, 2010; Ferri, Guerra, Marcheselli, Cunico, Di Lorenzo, 2015).

Marital burnout is a process that develops gradually (Abhar Zanjani et al., 2015). It is affected by various factors which reduce intimacy and love between partners, that in turn may lead to termination of marriage (Pines, 2002). The factors include, among others, discrepancy between expectations of an individual and the reality of the relationship or the spouse. From Beck's point of view (Beck et al., 2010), when love begins to fade away, a single disappointing event is enough for the spouses to attach negative labels to each other. In the case of lack of understanding from their husbands, women perceive them as unemotional. On the other hand, if a wife does not meet her husband's expectations, she is perceived by him as unkind (Beck et al., 2010).

Another problem likely to be faced by couples is burnout caused by stress overload (Sirin, Deniz, 2016). The escalation of various stressors leads to greater burnout which entails increased conflict and aggressive behavior, decreased romantic bond between partners, and ultimately significantly reduces marital quality (Huston, 2009). One of such stressors is childrearing. It has been revealed that the higher the number of children, the lower the overall marital quality and the sense of happiness in marriage, and the greater conflict as well as emotional and mental exhaustion in parents (Glenn, McLanahan, 1982; Akbolat, Isik, 2008; Sendil, Korkut, 2012; Allendorf, Ghimire, 2013). Turkish couples having five or more children reported significantly higher marital burnout levels than couples without offspring (Pamuk, Durmus, 2015). Additionally, results of couples suffering from marital burnout showed a greater sense of burnout in women when compared to men (Pines, Neal, Hammer, Icekson, 2011; Capri, Gökcakan, 2013; Pamuk et al., 2015). The reason for this is greater stress due to multiple responsibilities of a wife and mother when compared to men who play roles of a husband and father (Erickson, 1993), as well as greater women's expectations about marriage and how it should look like.

Unrealistic expectations about marriage have also resulted in reduced marital satisfaction, disappointment, unhappiness, and burnout in the relationship (Babari Gharmkhani, Madani, Lavasani, 2014; Brandbury, Fincham, Beach, 2000; Güven, Sevim, 2007; Ohue, Moriyama, Nakaya, 2011). It has been shown for example, that infertile couples

characterized by stronger irrational beliefs about the relationship (e.g. "your partner should read your mind", "you need to be a perfect sexual partner", "refusal is destructive for the relationship") experienced higher levels of marital burnout in both the physical and mental dimension (Abhar Zanjani et al., 2015).

Another factor contributing to marital burnout is ineffective communication. The use of counter productive communication patterns (Babari Gharmkhani et al., 2014) and the strategy of dominance in conflict (Kulik, Walfisch, & Liberman, 2016) correlated positively with burnout. In addition, when a couple does not talk about their problems or does not seek a solution to a given situation, the pace of the marriage burnout process accelerates. This is due to anxiety, disappointment and anger resulting from the lack of communication between partners (Stackert, Bursik, 2003) and decreased trust and support from the partner (Pamuk et al., 2015). On the otherhand, couple communication training programs reduced the intensity and risk of marital burnout (Amini & Heydari, 2016; Nejatian Alami, Momeniyan, Noghabi, Jafari, 2021; Sirin et al., 2016). Communication is the dimension of a spouses' relationship that can predict marital burnout. It is reciprocal and can be effectively changed through education, training and therapy, which makes marital communication research especially valuable.

1.2. Communication between spouses

Interpersonal communication began to be investigated by psychologists in the early 1960s. At that time, it was noticed that there was a link between communicating with others and satisfying important to everyone needs of closeness, belonging, or security (Stewart, 2000). Communication is considered as an important social skill that should be developed over one's lifespan and experience. Communication might be understood as a relationship in which there is a flow of information between at least two people. In this process, a sender's task is to convey the content through the selected information channel to the receiver. As a rule, via a specific content the sender wishes to influence the recipient's behavior or opinion (Baczyński, 2004). One-way dissemination of information takes place when the sender does not expect confirmation of the information he sent. On the other hand, two-way communication arises when the receiver acknowledges the receipt, e.g. by paraphrasing or asking questions on a given topic (Jankowska, 2016). Effective communication occurs when the receiver understands the message and interprets itin line with the intention of the sender (Dobek-Ostrowska, 1999). It is impossible for people not to communicate, because all human behavior is a form of communication by exchanging symbols, signs and words between people (Plopa, 2006). Symbols helpful in interpreting the content are all kinds of body movements, facial expressions, eye contact, gestures, voice tone, pace or volume, i.e. everything that is used freely during the conversation. Such nonverbal communication

makes the message more understandable, helps to understand the relationships between the interlocutors, and affects verbal communication (Nęcki, 1996).

Communication understood in this way is of particular importance in close relationships, such as marriage, and its functions extend far beyond the exchange of information. It is a way of defining a relationship and mutual interactions, expressing emotions and expectations, coping with difficulties, etc. Marital communication is an element of developing a deeper marital bond, as important as sexual intimacy (Ryś, 1999). According to Rostowski (1987), love alone is not enough to maintain a relationship. There is no guarantee of the stability between spouses without effective and adequate communication between them. Good communication between partners favors their engagement and satisfaction (Hou, Jiang, Wang, 2019; Lavner, Karney, Bradbury, 2016), increases the spouses' sense of intimacy, self-realization and similarity (Jankowska, 2016).

According to Plopa (2006), there are three distinctforms of marital communication. All of them may emerge simultaneously and their intensity may vary. The quality of communication and bond between spouses depends on these three forms. They change across time, situations and partners' moods and skills. First, supportive communication consists in recognizing the partner for his or her very existence, awareness of how important this person is for the relationship, an expression of respect and interest in him in various spheres of life. Using supportive communication, partners make attempts to solve problems together. Second, engaged communication is about partners' ability to create a warm atmosphere, intimacy and closeness that makes the other person feel important and special. It is important to be able to prevent conflicts by recognizing partner's expectations or feelings. For intimacy and enrichment of a relationship, it is important to get to know the other person. The third form is depreciating communication. It negatively affects the relationship and makes distance between partners. Depreciation includes aggressive behavior towards a partner or disregarding his or her dignity, e.g. insults or arrogant behavior, a desire to dominate the other party, which may increase the conflict.

The studies (Brisini, Solomon, 2019, 2020) showed that marital communication in parents of a child with autism spectrum disorders changes depending on important life events or transitions concerning their child, which in turn affects the quality of the relationship and may affect burnout in marriage.

1.3. Moderators

Previous studies have shown that the level of marital burnout depends on such sociodemographic variables as age of the spouses', duration of marriage, number of children, professional activity, and education level (Nejatian et al., 2021). Consistently, burnout increased along with the length of marriage(Alsawalqa, 2019; Ahrari, Miri, Ramazani, Dastjerdi, Hamidi Tabas, 2018; Erickson, 1993), with the larger number of offspring (Nejatian

et al., 2021; Pamuk et al., 2015) and more professional activities of the spouses (Alsawalqa, 2019; Nejatian et al., 2021). Taking into account the results of prior research, the present study proposes sociodemographic variables, such as length of marriage, the number of children, and a woman's professional activity, as moderators of the relationship between marital communication and burnout. Research showed that the older a child with ASD symptoms is, the more distance the parents keep in their marital relationship (Doron, Sharabany, 2013), hence the age of the child was proposed as another moderating variable. As an additional moderator, the perceived parents' contribution to caring for a child with ASD was taken into account. It has been shown that a greater husbands' caring for children was associated with less wives' burnout (Erickson, 1993).

2. Aim of the study

The aim of the present study was to analyze the relationships between mother's own and partner's communication and marital burnout in mothers of children with autism spectrum disorders (ASD), including sociodemographic moderators. Although there is no research on communication and burnout in this sample, it was assumed - taking into account the results from other samples - that spouses' communication would be significantly associated with marital burnout among mothers of a child with ASD. It was hypothesized that there would be a negative relationship between own and partner's support and engagement in communication and female burnout in marriage, and a positive relationship between spouses' depreciation and burnout in married women (H1). The moderation hypotheses were also formulated: the association between communication and burnout would be weaker in women married for a longer period of time (H2), having more children (H3), rearing an olderASD child (H4), working professionally (H5) and reporting less fathers' contribution to caring for the child (H6).

3. Method

3.1. Procedure

The study was conducted online from March to June 2020. The respondents were asked to answer the questions via the Google Forms platform. Purposive sampling was used, as the sample consisted of married mothers of a child with autism spectrum disorder. The invitation to the study was made available to close ddiscussion groups associating people interested in ASD issues. The participants were informed about the purpose of the study, instructed how to respond to the questionnaires, and guaranteed anonymity. Participation in the study was voluntary and no monetary compensation was offered to the respondents.

3.2. Participants

One hundred and thirty four women took part in the study. Data of one hundred respondents who answered all the questions under the applied measurements were used for the analysis. Inclusion criteria included being a woman, having a child with an ASD diagnosis, being married, or - exceptionally - having a long-term romantic relationship.

The data collected in the sociodemographic survey revealed that the age of the females ranged from 24 to 53 years (*M*=35.31, *SD*=5.59). 41% of the respondents lived in cities, 33% in towns, and 26% in the countryside. 73% of respondents had high ereducation, 21% secondary, 3% vocational, and individual answers included in 1%: primary education (1 person), doctorate (1 person) and higher technical education (1 person). 57% of the surveyed women were professionally employed and 55% assessed their financial situation as good. As for marital status, 87% of women declared being married, the rest reported long-term relationships. The shortest relationship lasted six months, the longest - 25 years, with the mean *M*=11.19 (*SD*=5.06). The reported number of children ranged from 1 to 9, with the mean *M*=1.98 (*SD*=1.07). The majority of the families had one child with autisms pectrum disorder, but eight women raised two children, and one respondent - three children with ASD. The children were aged2 to 28 years (*M*=6.92, *SD*=3.90) and 87% of them attended school or care facilities. Other questions pertained to the husbands of the surveyed women. The age of the partners ranged from 25 to 65 years (*M*=31, *SD*=6.88). 49% of men had higher education, 30% secondary, 20% vocational and as much as 95% worked professionally. The females were also asked to rate the contribution of both parents to caring for a child with ASD on a 5-point scale from 1 ("definitely me") to 5 ("definitely husband/partner"). Women assessed the participation of both spouses in caring for a child with disorder as balanced (*M*=2.15, *SD*=.87).

3.3. Measures

3.3.1. Marital Communication Questionnaire

The Marital Communication Questionnaire (KKM) by Kaźmierczak and Plopa (2008) was used to assess communication between spouses. In its assumptions, the tool allows to measure communication behaviors in marriage. There are two versions of the questionnaire: the self-behavior report and the description of partner's behaviors. Each version consists of 30 items that allow to evaluate marital communication in three dimensions: support, engagement, depreciation. The particular subscales contain from 9 to 11 items. The respondents estimate the frequency of the described behaviors on a 5-point scale from 1 ("never") to 5 ("always"). Sample items include: "I give my husband mental, emotional and spiritual support"; "I humiliate my husband." The higher the score, the more the specific communication behaviors. In the current study, the reliability of the scales (Cronbach's α)

was for mother's own behaviors: support .93, engagement .88, depreciation .91, and for partner communication, respectively: .97, .92, 95.

3.3.2. Marital Burnout

To assess the level of marital burnout, the Marital Burnout scale (Erickson, 1993) in the Polish translation provided by B. Lachowska from the Catholic University of Lublin was used. The scale contains 12 items. Respondents indicate on a 7-point scale from 0 ("never") to 6 ("always") how often they experienced certain states regarding their marital relationship, such as emotional exhaustion, disappointment, burnout, insensitivity etc. Sample items include: "My relationship makes me feel emotionally drained", "I feel like I treat my partner as if he were an inanimate object". The overall score might be calculated by adding up the answers to all the items including reverse scoring in questions 3 and 10. The possible score ranges from 0 to 84 points. The higher the score, the more severe the marital burnout symptoms. In the present study, Cronbach's α was .94.

4. Results

To explore the relationships between marital communication, burnout and sociodemographic factors, correlational analyses were performed. Table 1 shows intercorrelations (Pearson's r) between analyzed variables.

Table 1. Pearson's correlations between analyzed variables

	1	2	3	4	5	6	7	8	9	10	11
1. respondents' support	-										
2. respondents' engagement	.85**	-									
3. respondents' depreciation	-.46**	-.46**	-								
4. partner's support	.73**	.67**	-.45**	-							
5. partner's engagement	.65**	.61**	-.38**	.89**	-						
6. partner's depreciation	-.52**	-.46**	.49**	-.71**	-.62**	-					
7. female marital burnout	-.59**	-.60**	.51**	-.81**	-.76**	.77**	-				

8. relationship duration	.02	.02	-.08	.07	-.02	-.14	-.04	-			
9. number of children	.07	-.01	.05	.02	-.03	.03	.02	.19	-		
10. age of a child with ASD	.11	.16	-.12	.14	.08	-.09	-.08	.45**	.12	-	
11. assesment of care of an ASD child	.36**	.31**	-.11	.61**	.53**	-.37**	-.56**	.19	.03	.14	-

*p<.05; **p<.01; **p<.001

As shown, women's own communication was significantly linked to perceived partner's communication. The declared own support and engagement showed a positive correlation with the assessment of husband's support and engagement, and negative with the husband's depreciation. Respondents' depreciation was negatively related to the partner's support and engagement, and positively linked to depreciation from him. The results also showed an inverse relationship between own and partner's support and engagement, and female marital burnout. Both spouses' depreciation turned out to be positively correlated with wives' burnout. The correlation coefficients, however, were clearly higher for the partner's communication behaviors and women's sense of burnout than for female communication behaviors and burnout. It was also observed that greater partner's contribution to caring for a child with ASD was associated with more both partners' support and engagement, and less depreciation from husbands. None of the examined demographic variables, i.e. length of the relationship, number of children, age of a child with disorders, and professional work of women, correlated significantly either with spouses communication, or with wives' marital burnout.

To examine whether sociodemographic factors moderated the relationships between marital communication and burnout, we conducted moderation analyses using the Process macro for SPSS (Model 1, version 3.5, Hayes, 2018). Moderation models have been proposed with dimensions of spouses' communication as predictors, marital burnout as an outcome variable, and marriage duration, number of children, age of a child with ASD, professional work of women, and contribution to caring for an ASD child as moderators. Tables 2 and 3 present the indirect effects of perceived support, engagement and depreciation from respondents and then from their partners on female marital burnout.

Table2. Marital duration as a moderator in the relationship between dimensions of female communication and marital burnout

Marital burnout		*B*	SE	t	*p*	LLCI	ULCI
model 1	constant	68.17	19.72	3.46	.001	29.00	107.34
R2=.35 *F*(3,90) = 16.54 *p*<.001	support (S)	-1.13	.47	- 2.42	.018	-2.06	-.20
	duration (D)	1.16	1.64	.71	.48	-2.09	4.41
	S x D	-.03	.04	-.78	.44	-.11	.05
model 2	constant	55.18	13.66	4.04	.000	28.05	82.31
R2=.41 *F*(3,90) = 20.60 *p*<.001	engagement (E)	-1.11	.42	-2.66	.009	-1.94	-.28
	duration (D)	1.18	1.15	1.03	.31	-1.10	3.47
	E x D	-.04	.04	-1.16	.25	-.11	.03
model 3	constant	0.48	12.59	.04	.97	-24.47	25.42
R2=.24 *F*(3,90) = 12.56 *p*<.001	depreciation (De)	.080	.50	1.67	.10	-.16	1.81
	duration (D)	-.66	1.12	-.58	.56	-2.86	1.57
	De x D	.03	.05	.58	.56	-.06	.12

Table 3a. Marital duration as a moderator in the realtionship between dimensions of perceived husbands' communication and wives' marital burnout

Marital burnout		*B*	SE	t	*P*	LLCI	ULCI
model 1	constant	60.28	9.49	6.35	.000	41.43	79.12
R2=.64 *F*(3,90) = 52.34 *p*<.001	support (S)	-1.13	25	- 4.59	.000	-1.62	-.64
	duration (D)	.70	.79	.88	.38	-.88	2.28
	S x D	-.02	.02	-.85	.40	-.06	.02

Table 3b. Marital duration as a moderator in the realtionship between dimensions of perceived husbands' communication and wives' marital burnout

Marital burnout		*B*	SE	t	*p*	LLCI	ULCI
model 2	constant	55.26	10.98	5.03	.000	33.44	77.07
R2=.57 *F*(3,90) = 39.70 *p*<.001	engagement (E)	-1.15	.37	-3.16	.002	-1.88	-.43
	duration (D)	.75	.94	.79	.43	-1.12	2.61
	E x D	-.03	.03	-1.05	.30	-.10	.03
model 3	constant	-9.39	7.43	-1.26	.21	-24.14	5.37
R2=.56 *F*(3,90) = 37.69 *p*<.001	depreciation (De)	1.15	.29	3.97	.000	.58	1.73
	duration (D)	-.15	.59	-.25	.80	-1.33	1.03
	De x D	.02	.02	.66	.51	-.03	.06

As presented in Tables 2 and 3, the analysis revealed no interaction effect of dimensions of spouses' communication and marriage duration in relation to female marital burnout. The length of the relationship did not moderate the association between marital communication and burnout. Similar models were tested for further variables as moderators, with similar results.

The number of children was the next tested moderator. The interaction between the respondents' support and the number of children was insignificant for female burnout (*B*=-.34, *SE*=.22, *t*=-1.52, CI95%=(-.78, .10)), as was the interaction between their engagement and the number of children (*B*=.06, *SE*=.29, *t*=.20, CI95%=(-.51, .63), and depreciation and thenumber of offspring (*B*=.10, *SE*=.22, *t*=.46, CI95%=(-.34, .55)). The interaction between husband's support and the number of children also turned out to be insignificant (*B*=-.10, *SE*=.10, *t*=-.98, CI95%=(.33, .11)), as was the interaction between husband's engagement and the number of offspring (*B*=.05, *SE*=.16, *t*=.31, CI95% = (-.27, .36)), and depreciation and the number of children (*B*=.06, *SE*=.15, *t*=.43, CI95% = (-.23, .36)) were not significant for wives' burnout.

Then, the moderating role of the age of an ASD child was examined. The interaction between female supportive communication and the age of a child turned out to be insignificant (*B*=-.002, *SE*=.07, *t*=-.04, CI95%=(-.14, .13)) for marital burnout of the respondents, as well as the interaction of engagement and child's age (*B*=-.03, *SE*=.07, *t*=-.41,

CI95% = (-.18, .12)), and depreciation and age (*B*=.12, *SE*=.08, *t*=1.46, CI95%=(-.04.27)). Interactions between perceived husband's support and age of a child with ASD (*B*=-.006, *SE*=.04, *t*=-.16, CI95%=(-.08, .07)), husband's engagement and child age (*B*=.03, *SE*=.05, *t*=.57, CI95%=(-.07, .13)), and depreciation and child's age (*B*=.04, *SE*=.05, *t*=.82, CI95%=(-.05, .13)) were not significant for wives' feeling of burnout.

The professional activity of the responding mothers was another tested moderator. The interaction between their supportive communication and professional work turned out to be insignificant for marital burnout (*B*=.44, *SE*=.41, *t*=1.05, CI95%=(-.39, 1.26)), as well as the interactions between engagement and work (*B*=.46, *SE*=.39, *t*=1.17, CI95%=(-.31, 1.23), and depreciation and work (*B*=-.41, *SE*=.39, *t*=-1.04, CI95%=(-1.18, 37)). Interactions between husband's support and wife's work (*B*=-.01, *SE*=.21, *t*=-.05, CI95%=(-.42, .40)), husband's engagement and the wife's work (*B*=-.05, *SE*=.27, *t*=-.19,CI95%=(-.60, .49)), and his depreciation and work (*B*=.14, *SE*=.23, *t*=.58, CI95%=(-. 33, .60)) were found to be insignificant in the moderation analysis.

The perception of parents' contribution to caring for children with ASD was the last proposed moderator. The interaction between female support and the assessment of partners' participation in caring for the child turned out to be insignificant (*B*=.08, *SE*=.23, *t*=-.35, CI95%=(-.54, .37)), just as the relationship between engagement of assessment of care (*B*=.07, *SE*=.21, *t*=.33, CI95%=(-.35, .50)) and depreciation and care (*B*=-.19, *SE*=.18, *t*=-1.07, CI95%=(- 55, .16)) for marital burnout in women. The interaction of the husband's supportive communication and the assessment of child care also turned out to be not significant (*B*=-.05, *SE*=.15, *t*=-.35, CI95%=(-.34, .24)), as well as between husband's engagement and the assessment of care (*B*=.28, *SE*=.17, *t*=1.61, CI95%=(-.07, .62)), and his depreciation and care (*B*=.02, *SE*=.13, *t*=1.18, CI95%=(.85, -.23)).

Thus, the relationships between the dimensions of perceived own and partner communication and marital burnout in mothers of ASD children were not moderated by any of the considered sociodemographic variables.

5. Discussion

The aim of the present study was to analyze the relationship between marital communication and burnout in mothers of children with autism spectrum disorder. In the face of highly demanding child-rearing, spouses usually experience negative changes in their relationship, which is a consequence of increased stress, physical and time limitations, or poor communication (Bodenmann et al., 2007; Brobst, Clopton, Hendrick, 2009; Chan et al., 2018; Cyranka et al., 2012; Doron et al., 2013; Hoogsteen et al., 2013). As a result, they are at risk for marital deterioration and burnout (Doron et al., 2013; Rodrigue et al., 1990). Identification of factors predicting feelings of burnout is therefore not only significant in

theoretical but also practical terms. Preventive and training programs might be developed on the basis of such research and carried out in support groups for parents of children with ASD. Preventing marital burnout is important not only for the spouses, but also for all family members (Kaleta, 2011; Morgan, 1988).

In the current research conducted among mothers of children with ASD, the effect of perceived own and partner's communication behaviors and sociodemographic factors on marital burnout was analyzed. The first hypothesis was supported - the more support and engagement, and the less depreciation the spouses communicate to each other, the lower the wife's burnout. The findings are consistent with previous studies in different populations linking communication and marital burnout. They revealed an inverse association between communication skills and spouse burnout (Arfa-ee, Far, Fallahi, 2015). Women referred to outpatient clinics due to increased symptoms of burnout in their marriage and participating in communication skills training, reported lower levels of burnout (Nejatian et al., 2021). Wives' earlier participation in communication skills training was also negatively related to their burnout in marriage (Nejatian et al., 2021). Taking part in such training by married women reduced stress in the marital dyad, increased their satisfaction in marriage and reduced burnout (Amini et al., 2016; Sirin et al., 2016). During communication programs, participants develop skills such as empathy, conversation, conflict resolution, which has been significantly associated with greater marital satisfaction (Askari, Mohd Noah, Aishah Bt Hassan, Bt Baba, 2013; Haris, Kumar, 2018) leading to less burnout (Nejatian et al., 2021). After experiencing marital infidelity, women who participated for three months in weekly sessions developing couple communication, along with the change of the communication model, reported a lower feeling of burnout (Aqgabozorgi, Keshavarz Mohammadi, & Shariat, 2020). Even in a divorce situation, women engaging in more constructive forms of communication experienced a lower level of marital burnout (Babari Gharmkhani et al., 2014). The results obtained in the present study showed the positive role of constructive communication behaviors, such as support and engagement, in reducing marital burnout also in a sample of mothers raising children with ASD. When both spouses communicate in a supportive and engaged way, they perceive their relationship as a source of support, closeness and happiness (Jankowska, 2016). This may be of particular importance for a couple with a child with disorders. Due to the fact that an autistic child occupies a central place in a family, care for the balance of the roles is necessary for the spouses in the adaptation process (Hoogsteen et al., 2013). Good communication is also helpful in coping with the challenges faced by parents while bringing upa child with ASD, such as resolving guilt, expressing difficult emotions, organizing time, sharing responsibilities, caring for the stability of the marriage. Better marital communication can also strengthen the alliance between those parents who feel that a disabled child makes them more committed to each other, and that experiencing fears, difficulties and suffering together makes them closer to

each other (Walsh & O'Leary, 2013). Depreciation, in turn, can exacerbate all the phenomena that pose a threat to a couple with an ASD child - blame, anger, frustration, stress, fatigue, and crisis leading to burnout (Doron et al., 2013).

The significance of the relationship between communication behaviors and the sense of marital burnout in mothers of children with ASD may be indirectly confirmed by the fact that the next hypotheses were not supported - the revealed associations were not moderated by any of the sociodemographic variables, i.e. duration of the relationship, number of children, an ASD child's age, a woman's professional work, or partners' degree of participation in caring for a child. Previously published results showed that the longer marital duration, the higher number of children and the more wives' professional work, the greater burnout in marriage (Ahrari et al., 2018; Alsawalqa, 2019; Erickson, 1993; Nejatian et al., 2021). These studies, however, did not include couples raising children with special needs. Their results cannot be generalized to the discussed population, for which sociodemographic factors might be of less importance. The age of an ASD child also turned out to be insignificant, despite the fact that a positive relationship between the child's age and the distance within a marriage had previously been demonstrated (Doron et al., 2013). The same was found in the case of perceived spouses' contribution to caring for a child, although research by Erickson (1993) revealed a negative relationship between the husband's involvement in caring for the children and the wife's marital burnout. In mothers of children with ASD who participated in our study, a negative relationship between support and engagement in communication and marital burnout, and a positive relationship between depreciating behaviors during communication and burnout turned out to be independent of external circumstances.

Study limitations

Although the present study revealed interesting associations, it is not free from limitations. First, we used self-report measures, which entails the risk of creating an image of participants' marriage in accordance with their or the researchers' expectations. In addition, they require responding to questions formulated in a specific way, at the expense of spontaneous statements or assessments (Schwarz, 1999). It is difficult to determine what is the relationship of such a description with actual behavior. Future research should rely more on behavioral data directly accessed through experiment or observation, or more free self-description using qualitative research. Another weakness of the study is a cross-sectional design and relying on correlationan alyses. Testing of moderation models, despite the setting of the independent variable, dependent variable and moderator, does not allow for cause-and-effect inference. In the future, experimental or longitudinal studies would need to identify causal relationships and the impact of particular variables. Moreover, the examined

moderation models did not include the variables significant for families with children with ASD, i.e. social support and the severity of autistic behavior. Previous studies have shown that greater social support was associated with more intimacy in marriage (Doron et al., 2013) and less marital burnout (Ardic, 2020). Marital satisfaction was also related to the degree and type of child's autistic symptoms (Hartley, Barker, Baker, Seltzer, Greenberg, 2012). Finally, the study did not include a control group (such as in the case of Gau et al., 2012), which does not allow to draw conclusions about the specificity of the results.

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Burnout syndrome and empathy and altruism level among nurses - the preliminary study
Wypalenie zawodowe a poziom empatii i altruizmu u personelu pielęgniarskiego – pilotaż

Abstract: The aim of the study was to verify the level of burnout severity in nursing staff working in various health care sectors that were not dedicated to providing health services to people with COVID-19 infection. The relationship between the level of empathy, altruism and depression and the intensity of individual burnout indicators was also analyzed. professional among the respondents.
The study covered a total of 178 people - staff employed in psychiatric care (64 people) and in other health care sectors (114 people). The study participants completed five questionnaires: a sociodemographic and four clinical tests: Christina Maslach's Burnout Questionnaire, Beck Depression Scale, Balanced Emotional Empathy Scale, and Altruistic Attitudes Questionnaire. Using clinical tests, the following were assessed: the general index of occupational burnout and its three dimensions (emotional exhaustion, depersonalization and job satisfaction), the level of depression, altruism and emotional empathy. Nursing staff employed in psychiatric care was characterized by lower levels of emotional exhaustion and depersonalization, as well as professional satisfaction and altruism compared to the average medical staff employed in health care sectors other than psychiatric. Moreover, a positive correlation was found between the severity of depression and the level of

emotional exhaustion, depersonalization and general occupational burnout index in both study groups (psychiatric versus non-psychiatric nursing staff). Nursing staff representatives working in psychiatric health care units are characterized by a lower level of occupational burnout, altruism and job satisfaction than in the case of people employed in other medical sectors. A higher level of occupational burnout is associated with a greater intensity of depressive symptoms. Differences in the levels of individual dimensions of occupational burnout and altruism may result from the specificity of work in various medical sectors. It should be emphasized that the chronicity, recurrence of mental illnesses, the higher rate of rehospitalisation of patients with mental disorders or the delayed effect of the therapeutic process.
Keywords: mental health, nurses, professionals burnout syndrome

Abstrakt: Celem badania była weryfikacja poziomu nasilenia wypalenia zawodowego u personelu pielęgniarskiego pracującego w różnych sektorach ochrony zdrowia, które nie były dedykowane do udzielania świadczeń zdrowotnych osobom z infekcją COVID-19. Analizie poddano również związek pomiędzy poziomem empatii, altruizmu oraz depresji a natężeniem poszczególnych wskaźników wypalenia zawodowego wśród respondentów. Badaniem objęto łącznie 178 osób - personel zatrudniony w opiece psychiatrycznej (64 osoby) i w innych sektorach ochrony zdrowia (114 osób). Uczestnicy badania wypełnili pięć kwestionariuszy: socjodemograficzny oraz cztery testy kliniczne: Kwestionariusz Wypalenia Zawodowego Christiny Maslach, Skalę Depresji Becka, Skalę Zrównoważonej Emocjonalnej Empatii i Kwestionariusz Postaw Altruistycznych. Przy użyciu testów klinicznych oceniono: ogólny wskaźnik wypalenia zawodowego oraz jego trzy wymiary (wyczerpanie emocjonalne, depersonalizację i satysfakcję zawodową), poziom depresji, altruizmu i emocjonalnej empatii. Personel pielęgniarski zatrudniony w opiece psychiatrycznej charakteryzował się niższym poziomem wyczerpania emocjonalnego i depersonalizacji oraz satysfakcji zawodowej i altruizmu w porównaniu do średniego personelu medycznego zatrudnionego w sektorach ochrony zdrowia innych niż psychiatryczny. Ponadto wykazano dodatnią korelację pomiędzy nasileniem depresji a poziomem wyczerpania emocjonalnego, depersonalizacji i ogólnego wskaźnika wypalenia zawodowego w obydwu badanych grupach (psychiatryczny versus niepsychiatryczny personel pielęgniarski). Przedstawiciele personelu pielęgniarskiego pracujący w psychiatrycznych jednostkach ochrony zdrowia odznaczają się niższym poziomem wypalenia zawodowego, altruizmu oraz satysfakcji z wykonywanej pracy niż ma to miejsce w przypadku osób zatrudnionych w pozostałych sektorach medycznych. Wyższy poziom wypalenia zawodowego współwystępuje z większym nasileniem objawów depresyjnych. Różnice w poziomach poszczególnych dymensji wypalenia zawodowego oraz altruizmu mogą wynikać ze specyfiki pracy w różnych sektorach medycznych. Należy podkreślić na przewlekłość, nawrotowość chorób psychicznych, wyższy współczynnik rehospitalizacji pacjentów z zaburzeniami psychicznymi czy odroczony w czasie efekt procesu terapeutycznego.
Słowa klucze: opieka psychiatryczna, personel pielęgniarski, wypalenie zawodowe

1. Introduction

In the contemporary world, with its continuously rising life standards and growing pace, the professional burnout is becoming an increasingly frequent issue. The specialists such as Christina Maslach (social psychologist) and Herbert Freudenberger (psychiatrist) describe burnout syndrome as a multidimensional phenomenon, that is characterized by emotional exhaustion, depersonalization and reduced satisfaction from performed job (Maslach, Jackson, Leiter, 1996). The first of these indicators is associated with an excessive sense of fatigue, both physical and mental knowing as lack of energy to act, reduced feeling of positive emotions, irritability, and an attitude of resignation. Emotional exhaustion translates into interpersonal relationships, deteriorating their quality. This is related to the

second dimension of the model called depersonalization. Depersonalization is described as negative, often objective, and cynical approach to other people and distancing oneself from them, which is a certain form of defence against greater involvement of the individual. The reduced level of satisfaction with the profession is due to the feeling of incompetence, the inability to continue the current professional duties, and further professional development. The combination of burnout symptoms tends to affect the self-esteem of the sufferer and may lead to resignation thoughts.

There are many causes of burnout. Individual factors play a significant role: personality and temperamental traits, susceptibility to react with fear or other negative emotions (Zimmerman, Swider, Eun Woo, Allen, 2016), the strategy of dealing with stress (McCarthy, Gastmans, 2015), personal match with the performed job and the competence level (Bakker, Costa, 2014). These factors have a major impact on the individual reactions to external conditions such as workload, work requirements, adequacy of remuneration or conflicts in the workspace. Moreover, previous life experiences and the availability of social support network remain crucial (Hakanen, Bakker, 2017).

In response to the growing scale of the burnout phenomenon several analyses have been conducted to identify the most susceptible professional groups. Numerous sources indicate that the predominantly affected groups are those professionals whose work involves providing social support and help such as the medical professionals (doctors and nursing staff), social workers, teachers, and policemen (Maslach, Schaufeli, Leiter, 2001). These professions require well-developed communication skills such as empathetic listening, patience, exhibiting high interest, providing support, and having effective intervention strategies. There are several environmental factors that influence the individual performance and thus affect perceived effectiveness at work. These include the amount of service recipients and the difficulty of problems they present, as well as the capacity to effectively solve them with the available resources (Maslach, 2003).

In the healthcare sector burnout can yield significant negative consequences that affect the professionals themselves but also their families and their work environment (Huynh, Bowles, Yen, Phillips, Waller, Hall, Tu, 2018). It is one of the most prevalent reasons for early career termination and as a result directly contributes to the work force deficiencies in most of the European Union member states (Dimou, Eckelbarger, Riall, 2016). Professional burnout has an immense impact on mood, health, and the quality of performed job. A significant relationship between the burnout level of medical personnel and the amount of commited mistakes has been demonstrated (Trockel, Sinsky, West, Dyrbye, Tutty, Carlasare, Wang, Shanafelt, 2021). In the healthcare sector any form of negligance or mistake may have serious and irreversible consequences, hence it is of the uttermost importance to commence educational and preventive actions directed at medical professionals (Wei, Roberts, Strickler, Corbett, 2019). White, Aiken and McHugh (2019) conducted a meta-analysis in the

population of 61 168 medical professionals across 12 different countries. They demonstrated that professional burnout affects in total more than 25% of the participants with the highest burnout rates observed in Greece where it reached 78%. It has been also indicated that the place of employment and the field of specialization are crucial factors affecting the rate of professional burnout. A meta-analysis of 38 studies published up to 2018 (63% of researchers used MBI to assess burnout) found that 31% of nurses experienced emotional exhaustion, 24% had high level of depersonalization, and 38% had low level of personal achievement. The factors related to occupational burnout included work experience, psychological issues, and marital status (Molina-Praena, Ramirez-Baena, Gómez-Urquiza, Cañadas, De la Fuente, Cañadas-De la Fuente, 2018). Undoubtedly, the state of the COVID-19 pandemic has a negative impact on the occupational burnout of medical staff. A survey of over 12500 people, 52.3% of whom worked in designated hospitals for patients with COVID-19 infection, showed the presence of moderate emotional exhaustion in 39.3% of people, emotional exhaustion was greater in women working in departments of intensive care, in hospitals and wards designated to care provision to patients with COVID-19 (Chen, Sun, Chen, Jen, Kang, Kao, Chou, 2021).

To date, the total number of reports on professional burnout among individuals working in various healthcare sectors such as mental health care remains relatively limited. Therefore, this paper aimed to explore the differences in professional burnout rates of the mid-level medical staff working in mental health units as compared to the employees of other medical sectors. Furthermore, the levels of empathy, altruism, and depression among mid-level practitioners were assessed and investigated in relation to the burnout indicators.

2. Material and Methods

The participants of this study were nursing staff employees from the chosen health care units in the area of the Lubelskie voivodeship in Poland, who agreed to participate through a written consent. These health care units were not dedicated to providing health services to people with COVID-19 infection. In total, 199 anonymous questionnaires were collected from the mid-level medical practitioners hired in the following health care such us: university hospitals, specialized voivodeships hospitals, district hospitals (providing hospital healthcare services) and long-term healthcare units. The request to participate in the research was denied by the outpatient specialized unit.

The responses of participants who declared simultaneous employment in more than one facility (16 persons), or who handed in incomplete questionnaires (5 persons) were excluded from the analyses. In total the participants group consisted of 178 persons: 170 women (95.5% of the sample) and 8 men (4.5% of the sample) aged 23 to 64, working in the following wards: psychiatric (59 persons), internal diseases (35 persons), surgery (17

persons), cardiology (14 persons), intensive care unit (13 persons), gynaecology and obstetrics (8 persons), pulmonology (7 persons), palliative care (2 persons) and in a general care unit (8 persons) and psychiatric health care centre (5 persons).

The participants were asked to fill out 5 self-report measures such as the sociodemographic questionnaire and four clinical measures as follows Maslach Burnout Inventory (MBI), Beck Depression Inventory (BDI), The Balanced Emotional Empathy Scale (BEES), and The Self-Report Altruism Scale (SRAS).

The authors' questionnaire consisted of closed questions regarding sociodemographic data including gender, age, marital status, education, employment, residence locations, seniority rate in the healthcare sector and in the mental health sector, and number of working hours per week. The Polish adaptation of the MBI by Pasikowski (2009) was used to assess occupational burnout. Due to its psychometric properties, it is the most frequently used questionnaire. Cronbach's alpha reliability coefficients (0.55 - 0.7925) are comparable to those obtained in the original studies by Maslach (1996). The first part of the MBI is used to assess occupational burnout, in which the participants provided "yes" or "no" answers to 22 statements across 3 scales: emotional exhaustion (9 items), depersonalization (5 items), and reduced satisfaction from professional achievements (8 items). Following the data collection, the raw results were standardized, and three indicators of the professional burnout were obtained: Indicator 1 regarding emotional exhaustion, Indicator 2 regarding depersonalization, and Indicator 3 regarding professional satisfaction level. Moreover, a general professional burnout rate was obtained which is an arithmetic mean of the three indicators of the professional burnout. The described data interpretation enabled to investigate both sub-scales (emotional exhaustion, depersonalization, feeling of professional failure) as well as a general professional burnout rate (Fengler, 2000).

The Beck Depression Inventory (1961) was used to assess the depression rate among the participants. It is a popular, standardized clinical measure that assesses the occurrence of 21 depressive symptoms within 30 days preceding the research.

The research also accounted for emotional empathy, understood as an indirect experience of the feelings of others and characterized as an indicator of an appropriately matured personality and reflecting positive interpersonal skills. It was measured with the BEES questionnaire, which has been demonstrated to be a scientifically useful and reliable measure. It enables to assess the magnitude of other people's feelings across 30 statements with a 9-grade scale indicating answers ranging from very strong disagreement to very strong agreement. The BEES questionnaire is a balanced measure of an indirect experience of other people's feelings and of the positive interpersonal skills (Mehrabian, 1997).

To assess the altruism level among the participants the SRA scale was applied. It is a self-assessment measure of the frequency of altruistic behaviours on a following scale: never,

one time, more than one time, frequently or very frequently. Depending on the selected method every answer is graded from 0 to 4 points (Rushton, Chrisjohn, Fekken, 1981).

3. Statistics

The statistical analyses were done using IBM SPSS Statistics 24 software. For the measurable attributes, the normality was evaluated with the Shapiro-Wilk test. The data with the distribution like normal were analysed with Student's t-test in the independent groups. For the data that violated the normality assumption the U-Mann Whitney test was applied. The analyses of the correlation were conducted using r-Pearson and rho-Spearman correlation coefficients. The significance level of $p<0,05$ was applied.

4. Results

In the statistical analyses the participants were divided into two groups: The nursing staff employed in psychiatric healthcare sector were regarded as the experimental group (n=64) [62 women (96.9%) and 2 men (3.1%)], and the nursing staff working in other medical sectors was regarded as the control group (n=114) [108 women (94.7%) and 6 men (5.3%)].

16 participants declared higher education (Master's degree) [2 persons in the experimental group (3.1%) and 14 persons in the control group (12.3%)], 78 participants (43.8%) hold bachelor's degree in the nursing field [29 persons in the experimental group (45.3%) and 49 persons in the control group (43%)], and 84 participants (47.2%) graduated from the secondary school [33 in the experimental group (51.6%) and 51 persons in the control group (44.7%)].

146 participants (82%) were married [52 persons in the experimental group (81.3%) and 94 participants in the control group (82.5%)], 23 were single (13%) [5 persons in the experimental group (7.8%) and 18 persons in the control group (15.8%)], and 9 participants (5%) were widowed [7 persons in the experimental group (10.9%) and 2 persons in the control group (1.8%)].

112 participants taking part in the research (62.9%) lived in a city [40 persons in the experimental group (62.5%) and 72 persons in the control group (63.2%)], and 66 participants lived in a village (37.1%) [24 persons in the experimental group (37.5%) and 42 persons in the control group (36.8%)]. Most of the participants [177 persons (99.4%)] worked in a city.

The statistical analyses indicated that the participants in the control group worked more hours per week compared to the experimental group ($Z = -7.388$; $p < 0.001$) (Table 1).

Table 1. Characteristics of variables concerning employment in the examined groups.

Analyzed variables / Group	Age	Seniority in the health care	Seniority in mental health care	No. of work hours a week
	Xm ± SD			
Examined	46.2±9.5	21.3±10.2	16.1±6.9	39.0±1.4
Control	48.0±9.2	23.0±10.0		40.9±2.6
Significance level	p = 0.481	p = 0.357		p < 0.001

The nursing staff working in the psychiatric healthcare sector was characterized by lower altruism level compared to the nursing staff working in other medical sectors (Z = -4.509; p < 0.001) (Table 2).

Table 2. Results of clinical tests (BDI, BEES, SRAS) in examined groups.

Analyzed variables / Group	BDI	BEES	SRAS
	Xm ± SD		
Examined	6.6±9.4	29.0±25.3	42.0±13.3
Control	6±5.4	45.3±24.0	43.4±10.7
Significance level	p = 0.107	p = 0.076	p < 0.001

BDI – Beck Depression Inventory
BEES – The Balanced Emotional Empathy Scale
SRAS – The Self-Report Altruism Scale

The nursing staff working in mental healthcare sector was characterized by a lower level of emotional exhaustion (Z=-2.545; p<0.05) and depersonalization (Z=-2.065; p<0.05) rate and a higher rate of professional satisfaction compared to the control group (Z=-3.371; p<0.001) (Table 3).

Table 3. Results of a general professional burnout rate and its particular sub-scales in examined groups.

Analyzed variables / Group	WWZ1	WWZ2	WWZ3	OWWZ
	Xmr ± SD			
Examined	0.096±0.062	0.020±0.042	0.138±0.052	0.085±0.038
Control	0.104±0.068	0.024±0.044	0.120±0.050	0.083±0.035
Significance level	p = 0.011	p = 0.039	p < 0.001	p = 0.741

WWZ1 – emotional exhaustion
WWZ2 – depersonalization
WWZ3 – professional satisfaction
OWWZ – general professional burnout rate

In the control group there was observed a positive correlation between the depression rate and the emotional exhaustion rate (Pearson correlation coefficient r=0.722; p<0.001), depersonalization (Pearson correlation coefficient r=0.626; p<0.001), and the general professional burnout rate (Spearman's rank correlation coefficient r=0.598; p<0.001) (Table 4).

Table 4. Correlations between social and demographic data and results of clinic tests in the control group.

	Age	Seniority in the health care	No. of work hours a week	BDI	BEES	SRAS
Age	1	.826**	.179	.012	-.005	-.009
Seniority in the health care industry	.826**	1	.204*	.096	.124	.020
No. of work hours a week	.179	.204*	1	.106	.071	-.063
BDI	.012	.096	.106	1	-.212*	.062
BEES	-.005	.124	.071	-.212*	1	-.050
SRAS	-.009	.020	-.063	.062	-.050	1
WWZ1	-.061	.006	.323**	.722**	-.256*	.023
WWZ2	-.127	-.032	.186*	.626**	-.297*	.032
WWZ3	-.022	-.029	.153	.372	-.008	-.142
OWWZ	-.116	-.051	.107	.598**	-.261*	-.021

*p<0.05; **p<0.001

BDI – Beck Depression Inventory
BEES – The Balanced Emotional Empathy Scale
SRAS – The Self-Report Altruism Scale
WWZ1 – emotional exhaustion
WWZ2 – depersonalization
WWZ3 – professional satisfaction
OWWZ – general professional burnout rate

Moreover, in the experimental group a positive correlation was observed between the depression rate and the emotional exhaustion rate (Spearman's rank correlation coefficient r=0.846; p<0.001), depersonalization level (Spearman's rank correlation coefficient r=0.558; p<0.001), and the general professional burnout rate (Spearman's rank correlation coefficient r=0.477; p<0.001) (Table 5).

Table 5. Correlations between social and demographic data and results of variables rated in the examined group

	Age	Seniority in the health care industry	No. of work hours a week	Seniority in the mental health (psychiatry) sector	BDI	BEES	SRAS
Age	1	.679**	-.036	.503**	.066	.018	.342**
Seniority in the health care industry	.679**	1	-.032	.734**	.068	-.104	.255*
No. of work hours a week	-.036	-.032	1	-.263	-.135	.022	.147
Seniority in mental health sector	.503**	.734**	-.263	1	.165	-.030	.316*
BDI	.066	.068	-.135	.165	1	-.088	.257*
BEES	.018	-.104	. 022	-.030	-.088	1	-.253*
SRAS	.342**	.255*	.147	.316*	.257*	-.253*	1
WWZ1	.149	.205	-.033	.225	.846**	-.135	.347**
WWZ2	.211	.317*	.020	.238	.558**	-.009	.113
WWZ3	-.016	.073	.064	-.011	.032	.156	.141
OWWZ	.147	.283*	.049	.165	.477**	.096	.228

*p<0.05; **p<0.001

BDI – Beck Depression Inventory
BEES – The Balanced Emotional Empathy Scale
SRAS – The Self-Report Altruism Scale
WWZ1 – emotional exhaustion
WWZ2 – depersonalization
WWZ3 – professional satisfaction
OWWZ – general professional burnout rate

Furthermore, a statistically significant positive relation between the emotional exhaustion rate and the number of working hours per week was observed in the control group (Pearson correlation coefficient r=0.323; p<0.001). In the experimental group a significant positive correlation between the altruism rate and the emotional exhaustion rate was observed (Spearman's rank correlation coefficient r=0.347; p<0.001), as well as the correlation between the altruism rate and the seniority in the mental healthcare sector (Spearman's rank correlation coefficient r=0.316; p<0.05).

Discussion

In the current research an innovative approach to professional burnout investigation was applied, which improved the assessment by exploring the empathy rates and the altruistic approach among the healthcare mid-level professionals. It was observed that the emotional exhaustion rate and depersonalization among the nursing staff employed in the mental healthcare sector were lower compared to the nursing staff working in other healthcare sectors. This finding may be explained by the employment specificity in other healthcare sectors than the psychiatric healthcare units. The working environment is characterized by the frequent deficiency of the staff, numerous and complicated procedures, need for immediate interventions (working under the time pressure), frequent encounters of life-threatening situations, and high disease comorbidity. All these factors contribute to increased stress levels and additionally when the resources are lacking, they can result in feelings of resignation, which in consequence leads to emotional exhaustion. Moreover, brief hospitalization periods and frequent rotation of patients in the non-psychiatric wards do not promote bond creation, familiarization and establishing therapeutic relations. In consequence, this can result in less attentive and non-individualistic approach to the patient (Szach, 2014). The higher rates of the professional burnout rates among the nursing staff working in non-psychiatric healthcare units may also arise from the declared higher number of working hours per week. The overload caused by the professional responsibilities is both a defining characteristic and a risk factor for the professional burnout (Yu, Raphael, Mackay, Smith, King, 2019).

In a group of persons employed in non-psychiatric units, a statistical trend was observed indicating the possibility of higher altruism and emotional empathy rates among those individuals. However, these results should be interpreted with carefulness and a further investigation of the observed trend, including the SARS-CoV-2 coronavirus pandemic, is required.

The current research indicated that the mid-level healthcare professionals working with persons suffering from mental disorders display a lower work satisfaction rate compared to other fields of the medicine. It has been hypothesized by the authors that this observation may result from the specificity of work with the patients suffering from mental disorders. Factors such as higher recurrence of the disorder, deferred interventions or lower effectiveness of the available therapeutic interventions compared to more immediate interventions like surgeries may affect perception of efficiency (C. I. Verret, Nguyen, C. Verret, Albert, Fufa, 2021), which is one of the most crucial predictors of work satisfaction (Arora, Diwan, Harris, 2013).

Furthermore, positive correlations were observed between the age and the seniority, and the altruism rate, as well as between the depression rate and the emotional exhaustion, depersonalization, and general professional burnout rates among the mid-level medical staff working at the mental healthcare units. The results acquired by the team of researchers are in line with the literature on the subject-matter (Naczenski, de Vries, van Hooff, Kompier, 2017). The depressive disorder frequently co-exists with alexithymia (i.e. disability to recognize, understand, and express emotions) (Hemming, Haddock, Shaw, Pratt, 2019).

In consequence, this can lead to a non-individualistic and impersonal approach to another human being, which is a component of the depersonalization that is one of the professional burnout indicators according to Maslach (1996). The higher focus on one's own somatic experiences and the attention focused inwards are related to the lower level of empathy. The meta-analysis by Wilkinson (2017) confirmed a negative correlation between the empathy rate and depersonalization and a general professional burnout factor among the medical staff.

Strengths and weaknesses are a recommendation for further research. Unquestionably, one of the strengths of this paper is the general relevance of the burnout issue. Moreover, this study provides an innovative contribution to the current state of knowledge about the mental healthcare sector, as well as the other healthcare sectors mid-level professionals by means of standardized and validated tools. However, its weakness is a relatively low number of the participants in the analysed groups. For the further research, it is recommended by the authors to conduct the analysis of burnout among mid-level healthcare professionals using the following group divisions: persons working in non-invasive treatment wards versus invasive treatment wards, and the staff from the non-invasive treatment wards should be further divided into persons working in the mental health wards versus other healthcare units. It is important to further notice, that in the context of the continuously increasing life expectancy, the issue of the medical care for the ageing society becomes increasingly relevant. The need for the long-term healthcare services is becoming increasingly more urgent. In consequence, it is directly related to professional burnout issue among the staff working in healthcare centres, residential care facilities or palliative care units. The authors encourage more research with the larger populations. It would provide a greater accuracy and would be a starting point for the development of precautionary measures aimed at the prevention of professional burnout among the medical staff and would increase the work satisfaction in this group.

Conclusions

The representatives of nursing staff working in the psychiatric healthcare sector are characterized by the lower rates of professional burnout, lower altruism level and

diminished satisfaction from performed job compared to the professionals working in other, non-psychiatric healthcare sectors. A higher level of professional burnout correlates with higher depression rates.

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PART III.
LIFE IN COVID-19 PANDEMIA

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The threat of coronavirus perceived by the mother and her experiences related to the pandemic versus her relationship with the child

Postrzegane przez matkę zagrożenie koronawirusem oraz jej doświadczenia związane z pandemią a relacja z dzieckiem

Abstract: *Introduction:* The COVID-19 pandemic caused by the SARS-CoV-2 coronavirus, has significantly changed people's everyday lives, threatening the quality and even durability of intra-family relationships. The relationship between mother and child is particularly vulnerable to the disruptive impact of the pandemic. The article examines the relationship between mothers' perceived threat of coronavirus and their pandemic experiences, and their relationships with their children. The analyses took into account the mediating role of parental stress and the following indicators of the mother-child relationship: mother's perceived closeness with her child and mother-reported increase in the use of harsh parenting related to the pandemic. *Method:* The perceived threat of coronavirus and the pandemic experiences were assessed using scales based on the Coronavirus Experiences and Impacts Questionnaire (Conway, Woodard, & Zubrod, 2020). Parental stress was tested using the Polish version of The Parental Stress Scale (Berry & Jones, 1995), while the mother's relationship with the child was measured using the Polish version of the scales developed by Chung, Lanier, and Wong (2020). The study involved 155 mothers who are in a relationship and have at least one child up to 12 years of age. Statistical analyses were performed using SEM structural equation modeling. *Results:* It was found that during the pandemic, mothers' negative experiences related to the pandemic had a significant effect on mother-child relationships, which was associated with a greater increase in the use of harsh parenting as reported by mothers and a decrease in their perceived closeness with their children. This effect was mediated by parental stress. There was no significant correlation between the perceived threat of coronavirus and mother-child relations. *Conclusions:* The pandemic and the related difficult situations constitute a significant risk factor for child abuse and neglect in the group of mothers. This indicates the need to support mothers.
Keywords: COVID-19 pandemic; parental stress; harsh parenting; emotional closeness

Abstrakt: *Wrowadzenie:* Pandemia koronawirusa SARS-CoV-2, wywołującego chorobę COVID-19, zmieniła istotnie życie codzienne ludzi, zagrażając jakości a nawet trwałości, relacji wewnątrzrodzinnych. Na zaburzający wpływ pandemii szczególnie narażona jest relacja między matką a dzieckiem. W artykule zbadano związek między postrzeganym przez matki zagrożeniem koronawirusem oraz ich doświadczeniami związanymi z pandemią a funkcjonowaniem w relacji z dzieckiem. W analizach uwzględniono mediującą rolę stresu rodzicielskiego oraz następujące wskaźniki relacji matki z dzieckiem: postrzegana przez matki bliskość emocjonalna z dzieckiem i

związany z pandemią wzrost intensywności podawanych przez matki zachowań raniących dziecko. *Metoda:* Postrzegane zagrożenie koronawirusem oraz doświadczenia związane z pandemią oceniono za pomocą skal opracowanych w oparciu o *Coronavirus Experiences and Impacts Questionnaire* (Conway, Woodard, Zubrod, 2020). Stres rodzicielski zbadano za pomocą polskojęzycznej wersji skali *The Parental Stress Scale* (Berry, Jones, 1995), pomiaru relacji matki z dzieckiem w percepcji matki dokonano za pomocą polskojęzycznej wersji skal opracowanych przez Chung, Lanier i Wong (2020). W badaniu wzięło udział 155 matek pozostających w związku i posiadających na wychowaniu co najmniej jedno dziecko w wieku od 7 do 12 lat. Analizy statystyczne przeprowadzone za pomocą modelowania równań strukturalnych SEM. *Wyniki:* Stwierdzono, iż w czasie pandemii negatywne doświadczenia matki związane z pandemią wywierają istotny efekt na relacji matki z dzieckiem, z czym wiąże się większy wzrost stosowania raportowanych przez matkę raniących zachowań rodzicielskich oraz zmniejszenie postrzeganej przez matki bliskości z ich dzieckiem. Efekt ten jest mediowany przez stres rodzicielski. Nie stwierdzono istotnego związku między postrzeganym przez matki zagrożeniem koronawirusem a relacją matki z dzieckiem. *Wnioski:* Pandemia i związane z nią sytuacje trudne stanowią w grupie matek istotny czynnik ryzyka nadużyć i zaniedbań wobec dziecka. Wskazuje to na konieczność udzielania wsparcia matkom.
Słowa kluczowe: Pandemia COVID-19; stres rodzicielski; raniące rodzicielstwo; bliskość emocjonalna

Introduction

On 11 March 2020, the World Health Organization (WHO) declared a pandemic of the coronavirus disease 2019 (COVID-19) caused by SARS-Cov-2. The pandemic took people by surprise; it was a new and unprecedented experience with terrifying and unpredictable consequences. Many countries, including Poland, implemented measures to limit the spread of the virus. Some of these measures were particularly drastic; for example, the lockdown of society, which meant that people were only allowed to leave their homes for essential purposes. Moreover, many shops, restaurants, businesses, schools, universities, as well as cultural and sports institutions were closed, constraints on mobility were introduced, and people were required to maintain the so-called social distancing, and to wear face masks and disposable protective gloves (Auleytner & Grewiński, 2020). The coronavirus pandemic posed enormous and unexpected challenges for modern families, disturbing the ways in which they had functioned so far, and forcing them to develop new forms of functioning. As a result, the image of the Polish family during the pandemic has changed completely (Młyński, 2020).

Many researchers considered that it was crucial to study how people coped in such a demanding situation and hence a number of studies have been carried out in this area. These focused, among others, on the impact of COVID-19 pandemic on mental health (Heitzman, 2020), the role of age in the early psychological responses to the pandemic (Justo-Alonso, García-Dantas, González-Vázquez, Sánchez-Martín, & del Río -Casanova, 2020), the importance of communication for experiencing loneliness and satisfaction with life during the pandemic (Kosowski & Mróz, 2020), the importance of support (Olender-Jermacz, 2020) and of individual characteristics (Smith, Twohy, & Smith, 2020) for the well-being of an individual during social isolation, the experiencing of grief during the pandemic (Wallace, Wladkowski, Gibson, & White, 2020), or the impact of pandemic on the families of front-line

rescue workers (Feng, Xu, Cheng, Zhang, Li, & Li, 2020). Intra-family relationships, including those between spouses and between parents and children, constitute a key area of interpersonal relationships that are particularly vulnerable to the impact of the COVID-19 pandemic. Previous studies of couples' relationships during the pandemic have shown that having a good romantic relationship had a positive effect on the individual's well-being (Pieh, O´Rourke, Budimir, & Probst, 2020) and that the pandemic had a detrimental effect on the quality of couples' relationships (Pietromonaco & Overall, 2020). Research findings have also confirmed that the coronavirus pandemic has significantly affected parent-child relationships (e.g. Bérubé, Clément, Lafantaisie, LeBlanc, Baron, Picher, Turgeon, Ruiz-Casares, & Lacharité, 2020; Brown, Doom, Lechuga-Peña, Watamura, & Koppels, 2020; Chung, Lanier, & Ju Wong, 2020; Lawson, Piel, & Simon, 2020; Ben-Yaakov & Ben-Ari, 2021; Cluver, Lachman, Sherr, Wessels, Krug, Rakotomalala, Blight, Hillis, Bachman, Green, Butchart, Tomlinson, Ward, Doubt, & McDonald, 2020). The aim of this study was to examine how selected psychological aspects of the pandemic influenced the relationship between mother and child. The study analyzed the effect of mother's perceived threat of coronavirus and of her experiences related to the COVID-19 pandemic on her relationship with the child: mother-reported increase in the use of harsh parenting behaviors and mother's perceived closeness with her child. The analyses considered the mediating role of parental stress. The study was conducted in Poland. It provides a better understanding of how external stressors (related to the pandemic) increase the risk of undesirable behaviors of mothers towards their children.

1. Theoretical background

The COVID-19 pandemic has transformed daily lives of individuals, presenting them with multiple new challenges, also those concerning interpersonal relations, especially relations between family members. As a result of the pandemic, a number of individuals have become financially worse off and found it more difficult to access many resources. Pandemic-related challenges constitute one of possible external stressors that may threaten the quality of intra-family relationships. Previous studies confirm that external stressors (such as financial difficulties, demanding work, or natural disasters) can adversely affect the quality and even durability of a couple's relationship (Pietromonaco & Overall, 2020) and the quality of parent-child relationship (Chung et al., 2020).

Experiencing parental stress is common among parents of children of any age and in any culture (Louie, Cromer, & Berry, 2017). Parental stress is amplified in families experiencing stressors (Nielsen, Pontoppidan, & Rayce, 2020), including external stressors; for example, a pandemic. It is defined as a psychological reaction (distress) that occurs when parents are unable to meet the demands placed on them in relation to their parental role

because they do not have sufficient resources, such as energy, time, or skills. (Holly, Fenley, Kritikos, Merson, Abidin, & Langer, 2019). Parental stress may result both from demands and from the cognitive appraisal of those demands. Being exposed to stressors may lead to cognitive, emotional and physical fatigue, which in turn may overwhelm parent-child relationships (Deater-Deckard, 2014), increasing the risk of harsh parenting (Beckerman, van Berkel, Mesman, & Alink, 2017). The quality of parent-child relationships is best explained by considering not just one stressor, but the accumulation of stressors (McGoron, Riley, & Scaramella, 2020; Lamela & Figueiredo, 2018). The negative consequences of a stressor – which in this case is the coronavirus pandemic – also depend on how it is perceived; for example, whether it is perceived as a threat (Lazarus & Folkman, 1984).

The Parenting Stress Model (Abidin, 1992) assumes that parental stress is a key factor that explains the behavior of a parent towards their child - especially undesirable behavior (Berry & Jones, 1995) and the use of harsh parenting (Beckerman, van Berkel, Mesman, & Alink, 2017; Chung et al. 2020) - and increases the risk of abusive and neglecting behavior (Brown, Doom, Lechuga-Peña, Watamura, & Koppels, 2020).

2. Conceptual model and research hypotheses

Based on the theoretical concept of parental stress and research results, we developed a conceptual model of relations between variables (Fig. 1). The model assumes that the COVID-19 pandemic has been a source of many external stressors, and that individuals make the cognitive appraisal of risks associated with the pandemic. Moreover, it assumes that two psychological aspects of the pandemic, i.e., external stressors unrelated to the relationship with the child and caused by the COVID-19 pandemic (e.g., economic losses, being isolated, hospitalization, death and hospitalization of relatives, etc.), as well as the perceived threat of coronavirus, may affect the quality of relationship with the child. It is assumed that these two psychological aspects of the pandemic are highly likely to affect the relationship between mother and child, threatening its quality and leading to an increase in the use of harsh parenting as reported by the mother and a decrease in the mother's perceived closeness with her child.

Furthermore, it is assumed that the effect of coronavirus pandemic on the mother's behavior is mediated by parental stress. It is therefore expected that:

H1. Mothers who experience more coronavirus-related stressors will experience more parental stress;

H2. Mothers who perceive threat posed by the coronavirus as higher will experience more parental stress;

H3a. Higher parental stress will be associated with a greater increase in the use of harsh parenting during the pandemic as reported by mothers ;

H3b. Higher parental stress will be associated with a decrease in the mother's perceived closeness with her child;

H4. Parental stress will mediate the relationship between greater impact of the pandemic and the negative effects in mother-child relationship.

3. Method

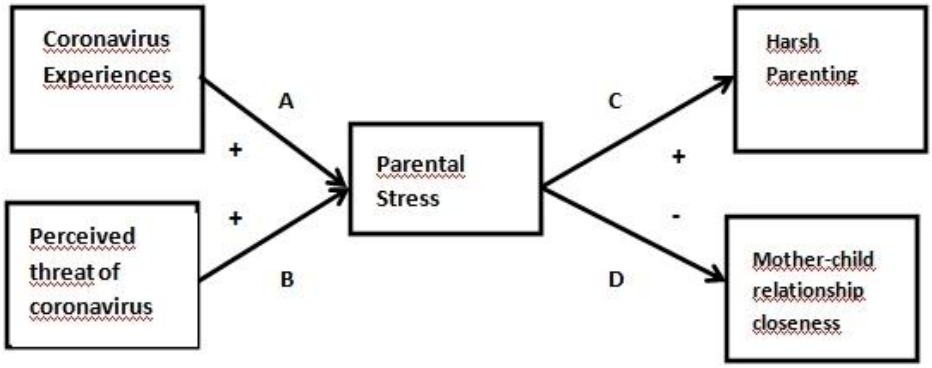


Fig. 1. Theoretical model of dependencies between variables

The study analyzed the results obtained from 155 women who were selected from a larger group of female participants in a survey on the impact of the pandemic on family functioning. The selection criteria for the study group included: being in a relationship (either formal or informal) and raising at least one child aged 7 to 12. The analysis focused on families with schoolchildren, as at the time when the survey had been conducted schools were closed due to the pandemic restrictions and many parents had to work from home, which had a significant impact on families, especially on mothers. The survey was carried out online with the LimeSurvey tool in the period between February 19, 2021 and April 2, 2021.

4. Measurement of variables

The study used questionnaires to measure two psychological aspects of the COVID-19 pandemic: perceived coronavirus threat and pandemic-related experiences. These variables were measured using the Polish-language versions of questionnaires developed by Conway, Woodard, and Zubrod (2020). The Perceived Coronavirus Threat Questionnaire (Conway et al., 2020) was used to assess how threatened or worried mothers felt about the coronavirus epidemic. The questionnaire consisted of six items (e.g., "Thinking about the

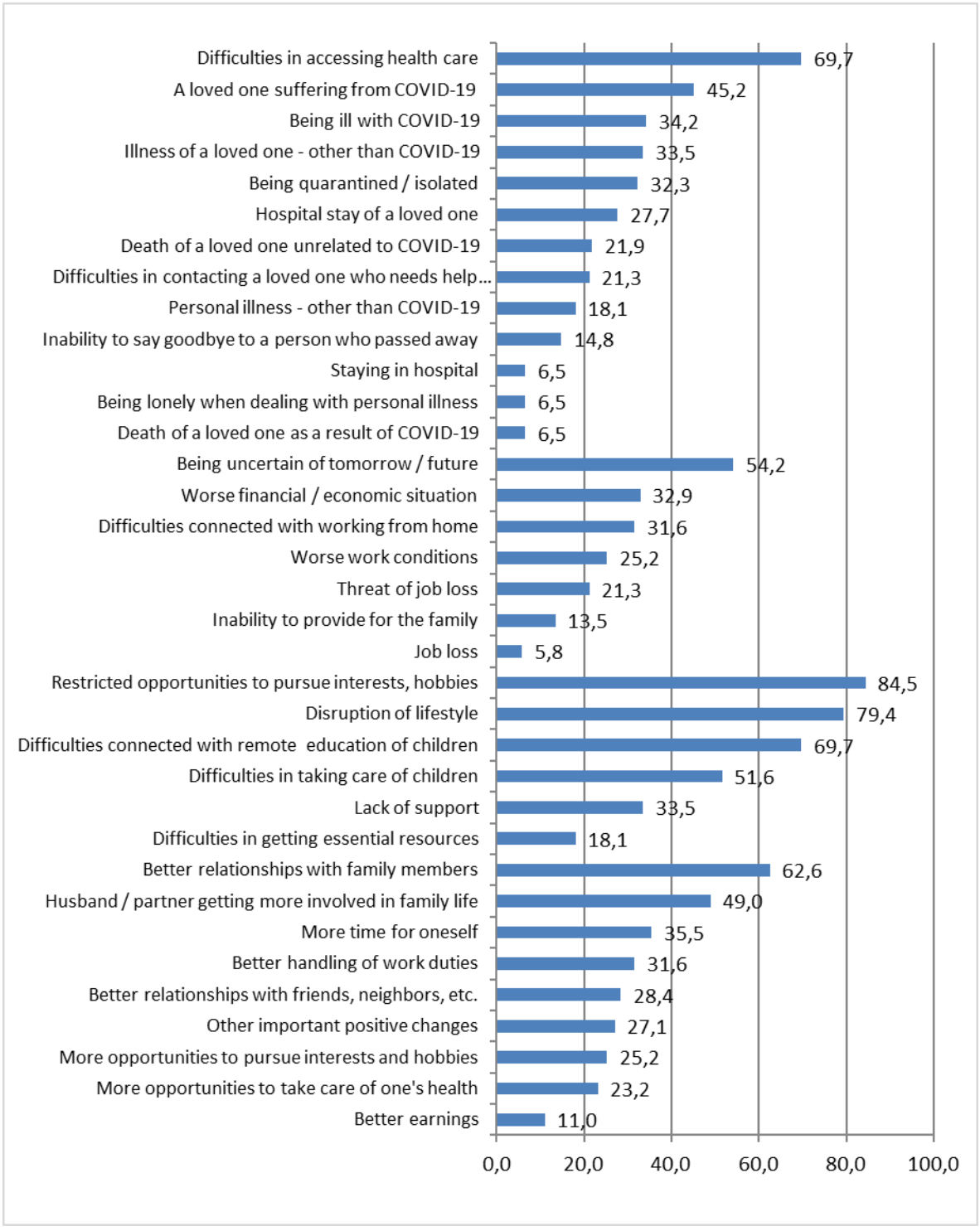
coronavirus (COVID-19) makes me feel threatened", "I am worried that I or people I love will get sick from the coronavirus (COVID-19)"). For each of the statements, respondents marked their answers on a seven-point scale, where 1 means "not true of me at all" and 7 means "very true of me." The original questionnaire was translated into Polish in accordance with the applicable rules and the psychometric validity of the Polish scale was confirmed. One item ("I am not worried about the coronavirus (COVID-19)" was removed from the scale, as it would require reverse-scoring. As a result, Cronbach's reliability coefficient α was improved (before the item was removed: α = 0.88; and after it was removed: α = 0.93). The Polish version of the scale shows very high internal reliability and its validity was also confirmed. Confirmatory factor analysis (CFA) showed good psychometric properties of the Polish version of the scale [χ^2 (4) = 4.19; p = 0.38; CMIN / df = 1.05; GFI = 0.989; AGFI = 0.960 and RMSEA = 0.02 (90% LO <0.001; HI = 0.12; PCLOSE = 0.56); SRMR = 0.02; CFI = 1.00; TLI = 0.999] (Xia & Yang, 2019). Its validity was also confirmed by examining correlations between the results obtained from the Polish version and those from the original Perceived Coronavirus Threat Scale (Krok & Zarzycka, 2020). The pandemic-related experiences and the perceived impact of the pandemic on life were assessed with the scale developed on the basis of the Coronavirus Experiences and Impacts Questionnaire (Conway et al., 2020). Following the recommendation of its authors that researchers use the items as they had been formulated in the original questionnaire or adapt them as they see fit, the list of items concerning experiences related to the pandemic was expanded. Based on the literature review and the pilot study results, we added items regarding experiences connected with the pandemic and the impact of pandemic on life. These added items concerned both negative phenomena (stressors) and positive ones. For each statement, respondents were to mark whether they had experienced a given situation during the pandemic or not. The answer "yes" was coded as the occurrence of a given experience (negative or positive) and was assigned 1 point. All responses were then summed up to develop an index of stressors and of positive experiences related to the COVID-19 pandemic. A higher score indicates a greater number of experiences of a given type. Table 1 provides a full list of experiences.

Parental stress was measured with the Polish version of The Parental Stress Scale (Berry & Jones, 1995), which is widely used to assess the levels of stress associated with being a parent (Nielsen, Pontoppidan, & Rayce, 2020). Higher scores on this scale are associated with lower levels of parental sensitivity to the child, poorer child behavior, and a lower quality of parent-child relationship (Berry & Jones, 1995). The original version consists of 18 items, with respondents indicating how much they agree or disagree with each item on a five-point scale (1 - strongly disagree; 5 - strongly agree). However, following the analyses that employed the results of the Polish version of the Parental Stress Scale, we removed three items and thus the Polish version ultimately consisted of 15 statements. Confirmatory factor analysis supported the factor validity of the scale [χ^2 (69) = 128.14; p <0.001; CMIN / df =

1.86; GFI = 0.905; AGFI = 0.834; RMSEA = 0.075 (90% LO = 0.054; HI = 0.095; PCLOSE = 0.026); SRMR = 0.07; CFI = 0.944; TLI = 0.915]. The validity of the scale was also confirmed by analyzing correlations between its results and the results obtained from the scale that measured intensification of difficult situations in relationships with children and the spouse before the pandemic (Pearson's r = 0.21, p = 0.008), and the scale measuring parental cooperation (Pearson's r = -0.36, p <0.001). The Polish version of the scale shows satisfactory reliability measured by Cronbach's coefficient (α = 0.896).

The study considered two indicators of mother-child relationship during the pandemic: mother-reported increase in the use of harsh parenting, and the mother's perceived closeness with her child. These variables were measured with Polish versions of two scales developed originally by Chung, Lanier, and Wong (2020) for the purposes of research during the COVID-19 pandemic. The scale for measuring an increase in harsh parenting during the pandemic consists of three statements: "I yelled /screamed at child(ren) more often," "I used harsh words on child(ren) more often," and "I spanked or caned child(ren) more often." Respondents marked how true each statement was about their behavior during the pandemic on a four-point scale (where 1 = Not true of me at all, and 4 = Very true of me). We summed the scores across the three items to create a measure of harsh parenting. Higher scores indicated a greater increase in the use of harsh parenting during the pandemic. The psychometric validity of the Polish version of the scale was confirmed. The validity of the scale was verified by confirmatory factor analysis and by analyzing the correlation between its results and the results obtained from the scales that measured the mother's assessment of parental cooperation (Pearson's r = -0.31, p <0.001) and the mother's aggressive behaviors in conflict situations with her child (Pearson's r = 0.46, p < 0.001). The Polish version of the scale shows a satisfactory internal reliability measured with Cronbach's α (α = 0.79). The scale used to assess the mother's perceived closeness with her child during the pandemic consisted of three statements: "How close do you feel to your child(ren) during the pandemic," "How often have you praised or complimented your child(ren) during the pandemic?," and "How often have you and child(ren) shown love and affection to each other during the pandemic?" Respondents marked their answers on a five-point scale / (1 - never; 5 - always). We summed the scores across the three items to create a measure of closeness. Higher scores indicated a closer relationship during the pandemic. The psychometric validity of the Polish version was confirmed. The validity of the scale was tested by confirmatory factor analysis and by analyzing the correlation of the scale results with the results obtained from the scales measuring the mother's assessment of parental cooperation (Pearson's r = 0.35, p <0.001) and the mother's aggressive behavior in conflict situations with her child (Pearson's r = -0.34, p <0.001). The Polish version of the scale shows a satisfactory internal reliability measured with Cronbach's α (α = 0.91).

Table 1. Negative and positive experiences related to the coronavirus pandemic (percentage of mothers reporting a given experience)



5. Statistical analyses

We used a structural equation modeling (SEM) framework as suggested in AMOS 27 (Arbuckle, 2019) in the SPSS package. Structural equation modeling enables to determine whether the *a priori* model is supported by empirical data (Konarski, 2009). It is used to test hypothetical causal relations between variables and indirect effects (Staniec, 2018). In the analyses, we tested the model developed based on theoretical knowledge (Fig. 1). The model was tested separately for each of the two indicators of mother-child relationship: mother-reported increase in the use of harsh parenting and the mother's perceived closeness with her child. Since latent variables in the model were measured with scales consisting of several items, the aggregate measurement was treated as a manifest variable. We verified whether an important condition of item aggregation had been met, namely whether items in each scale represented one dimension; i.e., whether they measured one construct (Little, Cunnigham, & Shahar, 2002). The values of Cronbach's reliability coefficient α (ranging from 0.79 to 0.93) and results of confirmatory factor analyses allowed us to assume that this condition had been met. Therefore, it can be assumed that the questions in questionnaires that we used measure the analyzed phenomenon consistently. To evaluate model fit, we used indices based on the chi-square fit statistics (CMIN, CMIN / DF) and measures of model fit: SRMR (Standardized Root Mean Square Residual), CFI (Comparative Fit Index) and RMSEA (Root Mean Square Error of Approximation), which are recommended in the literature (Hu & Bentler, 1998). Based on the literature (Bedyńska & Książek, 2012), it was assumed that the following values indicated good fit between the theoretical model and empirical data: RMSEA ≤ 0.06; SRMR ≤ 0.08; CFI> 0.90, RMSEA ≤ 0.06. The maximum likelihood (ML) method was used. In our analyses, we employed the bootstrap method, generating 1600 bootstrap samples to produce bootstrap confidence intervals.

6. Results

6.1. Demographic characteristics of respondents

The mean age of the women who met the eligibility criteria and were included in the study group was 38.21 (SD = 5.85) and the mean length of their relationship (in years) stood at 14.49 (SD = 5.83). Almost all of them were married (90.3% being in a civil and/or church marriage while 9.7% living in an informal relationship – partnership/cohabitation). The vast majority were professionally active (89.7%) and completed at least secondary education (91.6%; including 23.9% that completed secondary or post-secondary education and 67.7% - higher education); the remaining ones (8.4%) had basic vocational education. Most respondents (60.6%) lived in small-towns or rural areas, while 39.4% in mid-size and large

cities. The study was conducted during the period when the Covid-19- related restrictions were in place (including remote education for children and many parents working from home). In the group of professionally active mothers, the majority (54.0%) worked only on-site, while the remaining ones combined remote and on-site work (38.8%) or worked only remotely (7.2%). The number of children in their families varied from one to six. Most families had two children (57.4%), families with one child and three children constituted a much smaller percentage (14.2% and 9.4%, respectively), and families with four and six children were the smallest group (7.1% and 1.9%, respectively). Children in these families were of different ages, ranging from 2 to 19 years old. The mean age of children was 2.27 (SD = 0.93), with at least one child aged 7 to 12 in each family. In most families (65.5%) children learned both remotely and in class, in about one third of families (27.7%) – only remotely, and in the remaining families (4.5%) – only in class.

6.2. Results of two-variable correlation analyses

Table 2. presents the descriptive statistics of the distribution of variables included in the analyses. Table 3 shows the values of Pearson r correlation coefficients between these variables.

Table 2. Descriptive Statistics of Study Variables

Variable	Min	Max	*M*	*SD*	Skewness	Kurtosis
Perceived threat of coronavirus	5	35	18,26	9,01	0,329	-0,891
Coronavirus Experiences	0	26	8,61	5,07	0,691	0,769
Parental Stress	14	47	23,68	8,38	0,966	0,129
Mother-child relationship closeness	6	15	13,19	1,97	-0,838	0,069
Harsh Parenting	3	12	5,82	2,11	0,818	0,551

Bivariate correlations indicate that higher parental stress is significantly associated with higher levels of mothers' harsh parenting behaviors and poorer emotional closeness with their children, and it is positively associated with the perceived threat of coronavirus and with pandemic-related experiences. No significant correlation, however, has been found between the perceived threat of coronavirus and pandemic-related experiences.

Table 3. Correlation Table for Study Variables (r –Pearson)

Variable	1	2	3	4	5
1. Perceived threat of coronavirus	-				
2. Coronavirus Experiences	0,05	-			
3.Parental Stress	0,16*	0,36***	-		
4.Mother-child relationship closeness	-0,13	-0,28***	-0,43***	-	
5.Harsh Parenting	0,17*	0,10	0,35***	-0,26***	-

Note:* $p \leq 0,05$; ** $p \leq 0,01$; *** $p \leq 0,001$

6.3. Results of analyses with structural equation modeling

The obtained fit indices allow us to conclude that both the model with the outcome variable: mother-reported increase in harsh parenting [χ^2 (2) = 2.354; p = 0.308; CMIN/ df = 1.177; GFI = 0.992; AGFI = 0.962 and RMSEA = 0.034 (LO <0.001; HI = 0.167; PCLOSE = 0.437; SRMR = 0,0359) and also NFI = 0.950; CFI = 0.991; RFI = 0.850], and the model with the outcome variable: mother's perceived closeness with the child [χ^2 (2) = 4.645; p = 0.098; CMIN / df = 2.322; GFI = 0.985; AGFI = 0.927 and RMSEA = 0.09 (LO <0.001; HI = 0.206; PCLOSE = 0.188; SRMR = 0.0465) and NFI = 0.923; CFI = 0.951; RFI = 0.768] fit well the variance and co-variance matrix, which means that they are a useful representation of reality. Table 4 shows standardized and unstandardized path coefficients and the bootstrap confidence intervals at the 95% level.

Research findings (Tab. 4) indicate that the impact of negative COVID-19-related experiences indirectly influenced mother-child relationship through its effect on parental stress. Mothers who have had more negative COVID-19-related experiences suffer from greater parental stress (unstandardized direct effect= 0.574; p ≤ 0.01), and mothers who experience greater parental stress report an increase in harsh parenting behaviors during the pandemic (unstandardized direct effect = 0.088; p ≤ 0.01) and a decrease in their perceived closeness with the child (unstandardized direct effect = -0.10; p ≤ 0.01). Negative experiences related to the coronavirus affect maternal behaviors in relation to the child only indirectly, through parental stress. They were not found to have a direct effect on the mother's behavior – independent of their effect on parental stress. The unstandardized indirect effect equaled 0.05 (p ≤ 0.001) for mother-reported harsh parenting behaviors, and -0.057 (p ≤ 0.001) for mother's perceived closeness with the child. It was found that there was no significant effect

(either direct or indirect) of the perceived threat of coronavirus on mother-child relationship and on parental stress.

Table 4. Total, Direct, and Indirect Effects

	Outcome: Harsh Parenting			
	Standardized β	Unstandardized β	Left-Bound 95% Confidence Interval	Right-Bound 95% Confidence Interval
Total Indirect Effects:				
Perceived threat of coronavirus → Outcome	0,05	0,012	-0,002	0,034
Coronavirus Experiences → Outcome	0,12	0,05***	0,024	0,088
Direct Effect:				
Parental Stress → Outcome	0,35	0,088**	0,044	0,12
	Outcome: Mother-child relationship closeness			
Total Indirect Effects::				
Perceived threat of coronavirus → Outcome	-0,062	-0,013	-0,037	0,002
Coronavirus Experiences → Outcome	-0,15	-0,057***	-0,096	-0,026
Parental stress → Outcome	-0,43	-0,10**	-0,141	-0,056
	Outcome: Parental Stress			
Perceived threat of coronavirus → Outcome	0,15	0,14	-0,035	0,303
Coronavirus Experiences → Outcome	0,35	0,574**	0,288	0,781

Note: * $p \leq 0,05$; ** $p \leq 0,01$; *** $p \leq 0,001$

The perceived threat of coronavirus and negative experiences related to the coronavirus taken together account for 15% of the variability in parental stress, while all the three variables taken together account for 12% of the variability in mother-reported increase harsh parenting behaviors, and 18% of the variability in mother's perceived closeness with the child.

Discussion

The aim of the study was to determine the impact of the coronavirus pandemic on the relationship between mother and child. Two psychological aspects of the pandemic were considered: mothers' perceived threat of coronavirus and their negative pandemic-related experiences. As expected, mothers' negative experiences related to the pandemic significantly affect mother-child relationships: mothers who have experienced more stressful situations report a greater increase in harsh parenting behaviors and they indicate that they are less emotionally close to their children. As hypothesized, this relationship is mediated by parental stress. However, we found no direct effect of negative experiences related to the pandemic on the mother-child relationship. Contrary to expectations, we did not find any significant effect of mothers' perceived threat of coronavirus on their relationship with their children.

The research findings show that the pandemic has a negative impact on mother-child relationships and this impact is fully mediated by parental stress. Thus, it is necessary to take measures to mitigate the negative effects of the pandemic. This is important for the well-being of children and their mothers.

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The influence of stress during pregnancy on the central nervous system of mother and her child

Wpływ stresu w okresie ciąży na ośrodkowy układ nerwowy matki i jej dziecka

Abstract: Pregnant women may experience high levels of stress, including those associated with finding oneself in a new reality. In addition, the new reality is the COVID-19 pandemic, which has contributed to the deterioration of the mental state of many people. Chronic stress can lead to the neuroanatomical changes in the mother's brain, but also in her baby. It leads to atrophy of neurons in the hippocampus and prefrontal cortex, and to the growth and enlargement of the amygdala, i.e. those structures that are responsible for emotions. The mother's emotions also shape the synapses in the fetus, and the neurotransmitters secreted by the mother modify the development of the baby's brain. Research is ongoing in many countries on the consequences of anxiety and depression in pregnant women during the COVID-19 pandemic. For this reason, it is important to take care of psychological well-being, for example by using the techniques of cognitive behavioral therapy. Support from relatives during pregnancy and childbirth is also an extremely important element in the proper development of the central nervous system of the unborn child.
Key words: COVID-19, pregnancy, neurodevelopment, stress

Abstrakt: Kobiety w ciąży mogą doświadczać dużego poziomu stresu, między innymi związanego z odnalezieniem się w nowej rzeczywistości. Ponadto tą nową rzeczywistość stanowi także pandemia COVID-19, która przyczyniła się do pogorszenia stanu psychicznego wielu osób. Przewlekły stres może doprowadzić do wystąpienia zmian neuroanatomicznych w mózgowiu matki, ale także u jej dziecka. Dochodzi do atrofii, czyli zaniku, neuronów w hipokampie i korze przedczołowej oraz do rozrostu i powiększania się jąder migdałowatych, czyli tych struktur, które odpowiedzialne są za emocje. Emocje matki kształtują także synapsy u płodu, a wydzielane przez matkę neuroprzekaźniki modyfikują rozwój mózgowia dziecka. W wielu krajach toczą się badania nad konsekwencjami lęku i depresji u kobiet w ciąży w czasie pandemii COVID-19. Z tego względu ważne jest odpowiednie zadbanie o swój (i dziecka) dobrostan psychiczny, np. poprzez stosowanie technik z terapii poznawczo- behawioralnej. Wsparcie ze strony bliskich osób w trakcie ciąży oraz porodu jest także niezwykle ważnym elementem w prawidłowym rozwoju ośrodkowego układu nerwowego matki i jej dziecka.
Słowa kluczowe: COVID-19, ciąża, rozwój układu nerwowego, stres

Introduction

Many factors influence the child's psyche and health. One of them is the mental state of the mother during pregnancy (Traylor, 2020). The stress a mother experiences (as a result

of many different strong experiences) primarily changes the functioning of her brain and affects the development of her baby's brain. Traumatic experiences (death of a spouse or close family member, physical or psychological harassment, mobbing, etc.) evoke many negative feelings and emotions, such as insecurity, fear, feeling of emptiness, anger, aggression, hostility, guilt, longing, regret, helplessness, internal chaos, anxiety attacks, confusion, absent-mindedness, a sense of shame, and may cause the use of defense mechanisms (e.g. suppression, repression). The Polish study of pregnant women by Lachowska and Szteliga showed that the worst worries concern miscarriage, childbirth, going to the hospital as well as the health and life of the child. The difficult economic situation (financial problems, housing conditions, difficulties with work) intensified worries about health as well as about the relationship with her husband or partner (Lachowska, Szteliga; 2019). In the face of such experiences, the secretion of, for example, glucocorticosteroids (cortisol) changes. The concentration of some hormones increases (e.g. cortisol), while others decrease (e.g. sex hormones). The concentration of cortisol in chronic stress increases up to 10 times, which has a destructive effect on neurons in the central nervous system (CNS). It leads to atrophy of neurons in the hippocampus and prefrontal cortex, and to the growth and enlargement of the amygdala, i.e. those structures that are responsible for emotions. Mother's emotions also shape synapses in the fetus, and neurotransmitters secreted by the mother modify the development of the child's brain (Carrion 2007; Rajkowska, 2007; Abbasi, 2020). Repeated severe stress or chronic stress can damage the hippocampus, which no longer inhibits the stress response. Then, increasing stress stops neurogenesis, i.e. the formation of new neurons, and causes neuron atrophy. This is always the case in the face of stress and negative emotions, regardless of age, in the fetus and adulthood. In many studies, during the use of positron emission tomography (PET), disturbances in cerebral flow and glucose metabolism in the structures of the limbic system, cingulate gyrus, and prefrontal cortex, which proves the reduction of the functions of these brain structures in chronic stress (Noriuchi, M., Kikuchi, Y., Mori, K., Kamio, Y., 2019). In addition, neuroimaging studies of the brain using functional magnetic resonance imaging (fMRI) showed in the hippocampus atrophy of dendrites of pyramidal cells in the CA3 region and the dentate gyrus cells, i.e. in centers responsible for recognizing emotions and managing them (Hotsenpiller, 2007; Pawluski, 2012). Increased concentrations of glucocorticosteroids also inhibit the secretion of the brain-derived neurotrophic factor (BDNF), which corresponds, among others, to the formation and plasticity of neurons. Impaired neurogenesis causes the hippocampus to shrink and the appearance of numerous symptoms, including depression (Masi, 2011). Changed by chronic stress can also cause antisocial behavior, hyperactivity, and other personality disorders (Teicher, Andersen, Polcari, Anderson, & Navalta, 2002; O'Donnell, 2017). Lupien (2011) confirms that the stronger the mother's stress, the greater the volume of the baby's amygdala. He explains that

this phenomenon has its biological justification, because an enlarged amygdala may have a protective role, increasing adaptation to unfavorable and stressful living conditions in the future, when probably, due to the mother's illness and insufficient care, the child will depend mainly on himself. When a mother experiences trauma or depression while pregnant, her mental state has a fundamental impact on the mental and physical health of her child (Sandman, 2015). The increase in pregnancy anxiety changes the concentration of cortisol in the amniotic fluid. This can cause cognitive and language impairment in her child later in life (Glover, 2009; Laplante, 2008; Buss, 2011; Whitehouse, 2012; Lindsay, 2019; Ars, 2019). Newborns with mothers suffering from depression also have decreased activity in the left hemisphere of the brain, mainly in the left frontal lobe. It has been proven that the stronger the mother's negative emotions influence the occurrence of the child's brain wave disorder (Bruder, 2005). In addition, the effects of chronic maternal stress on the function of the hypothalamic-pituitary-adrenal (HPA) axis have been demonstrated (Emack, 2011).

1. The impact of stress related to the COVID-19 pandemic on pregnant women

A similarly difficult situation for women is the time of isolation during the COVID-19 pandemic. When the media around the world reported the growing number of new cases and deaths from COVID-19, it has had a significant psychological effect on people around the world. A representative study of the Polish population showed that the severity of depressive symptoms during the COVID-19 pandemic increased from 16.2% to 36.6% in the group of people aged 18 to 34 (Gambin et al., 2020). Research on the consequences of anxiety and depression in pregnant women during a pandemic is ongoing in many countries (Kajdy et al., 2020). An Irish study from April 2020 showed that after a month of forced isolation and the resulting lack of contact with relatives, 44% of pregnant women had a depressed mood and 14% of the deteriorated financial situation due to lack of work, 4% worsened relationships with a partner and 11 % reported tensions with family members staying in the same household (Milne et al., 2020). An American study found that in the studied sample, 21% of pregnant women showed a moderate level of anxiety. The protective factor was the higher age of women and pro-health behavior during pregnancy (Preis et al., 2020). Another Irish study found that before the COVID-19 pandemic, 83% of pregnant women surveyed were not worried about their health, and since the pandemic, as many as 50.7% of them were worried about it all the time; 35% of them isolate themselves out of fear of contracting the virus, and for the same reason 32% of them have since worked from home, 46.5% questioned the safety of the means of transport used so far, and 66.2% started buying food online (Corbett et al., 2020). The results of the cited studies are interesting because, in fact, studies on the influence of the coronavirus on the course of pregnancy conducted since the beginning of the COVID-19 pandemic show no serious threat to pregnant women. Women

who were diagnosed with the SARS-CoV-2 virus had no breathing difficulties and did not require intensive hospital care. There were also no complications in the born babies. CNS changes were not observed. Newborns tested negative for the virus. The presence of the Sars-CoV-2 virus was also not detected in the milk of nursing mothers (Caparros-Gonzalez, 2020). Adding to the typical challenges of the perinatal period, the COVID-19 pandemic has been interfering with peripartum women's emotional well-being. In April–May 2020, scientists from Canada, have identified a significant increase in mental health symptomatology, particularly in anxiety and depressive outcomes. Results showed that 15% (pre-pandemic), and 40.7% (current) women significantly indicated depression. Additionally, 29% (pre-pandemic), and 72% (current) women presented moderate to high anxiety (Pacheco, 2021).

2. Stress during pregnancy and the impact of mental resources on the development of the nervous system of the mother, and her child

However, it is worth emphasizing that positive emotions and the support of loved ones are also very crucial. In the most difficult cases, great love can work wonders. The saying 'love builds' can be understood literally, because the feeling of love can even lead to an increase in neurogenesis, i.e. the formation of new neurons in the CNS. The intensity of positive feelings is associated, among others, with an increase in the expression of nerve growth factor (NGF), which is responsible for neurogenesis (Emanuele, 2011). This phenomenon was discovered by Rita Levi-Montalcini, winner of the Nobel Prize in Medicine in 1986 (Kucharz, 2013). If the mother, still pregnant or after giving birth to her child, can establish an emotional bond with him and truly love him, then positive emotions, the most important of which is love, will become the driving force not only in the process of minimizing the negative effects of previous events, but also, for example, in parts, repair of child damage. Many studies have shown that mental resources can allow the CNS to develop properly. In addition, even during the COVID-19 pandemic, psychological support has been shown to have an impact on pregnant women (Shahid, 2020). However, it should be emphasized that scientific studies have shown that the COVID-19 pandemic had a psychological impact on pregnant women (Ramiro, 2021), therefore they should be provided with psychological care, especially when their family situation is another factor causing chronic stress. It is also noted that mindfulness and cognitive behavioral therapy have a positive effect on pregnant women who experience chronic stress (Tomforhr, 2016; Romero-Gonzalez, 2020). In addition, not only are mental resources significant, spiritual resources can play a significant role in reducing stress in pregnant women. Many studies show that religion can have a significant impact on mental health (Vaillant, 2013; Weber, 2014; Jaksz-Recmanik, 2014). It should be emphasized that already at the turn of the 19th and 20th

centuries, starting from various research traditions (both theological, philosophical, psychological, and biomedical traditions), the necessity to implement a holistic model of patient care taking into account psychological and even spiritual aspects was noticed in medical practice.

Another important aspect is the changes that occur in the CNS during childbirth. During this time, the mother experiences profound behavioral changes with extensive remodeling of neural circuits. These changes include neurochemical, morphological, and functional plasticity. The continuous generation of new neurons in the hippocampus and the olfactory system is an additional form of neuroplasticity that contributes to motherhood (Levy, 2011). On the other hand, many studies indicate, for example, a relationship between postpartum depression and stressful delivery and negative birth experiences, including a negative assessment of the behavior of medical personnel assisting during the birth of a child and the absence of a loved one during childbirth (Beck et al., 2013; Garthus-Niegel, 2018).

Summary

As studies have shown, chronic stress affects the CNS of the fetus, primarily reduces the volume of the hippocampus and the amygdala, which in turn translates into a reduction in cognitive functioning and increase possibly emotional difficulties (including a predisposition to psychiatric diseases later in life). However, the use of mindfulness, cognitive-behavioral therapy, and resources, including in the form of a supportive family, can translate into improved functioning of both the mother and the child. In addition, it has been shown that religion can be one of the stress-reducing factors during pregnancy. This is especially important in times of the COVID-19 pandemic, which is one of the factors influencing the occurrence of stress during pregnancy.

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Marital communication and coping with stress among parents of children with ASD during the SARS CoV 2 pandemic

Komunikacja małżeńska a radzenie sobie ze stresem rodziców dziecka z ASD w okresie pandemii SARS CoV 2

Abstract: The article presents the correlation between marital communication and the coping styles of parents of a child with ASD during the SARS CoV-2 pandemic. The study involved 46 married mothers and 34 married fathers raising children with autism spectrum disorders. The following tools were used: The Marital Communication Questionnaire (KKM) by M. Plopa and M. Kazmierczak and the Polish version of the CISS Coping Questionnaire by Endler and Park. The results of the research showed that respondents more often prefer constructive coping with stress using the task focused style (SSZ) if a spouse assesses both themselves and their spouse as more supportive and engaged in communication and less depreciation. The respondents more often prefer non-constructive coping with stress using and the emotion-focused style (SSE) or the avoidance-focused style (SSU), if the spouse assesses both themselves and their spouse as depressed. The greater the difference between their own assessment and the assessment of their spouse in supportive communication, the more often the respondents prefer the style focused on emotions (SSE) and the style focused on avoidance (SSU). Moreover, the greater the difference between self-assessment and that of the spouse in depreciation communication, the less often the task-focused style (SSZ) was preferred. The results are statistically significant.
Keywords: communication, marriage, stress management, autism spectrum disorders, SARS-CoV-2 pandemic

Abstrakt: Przedmiotem badań prezentowanych w artykule będą związki między komunikacją małżeńską a stylami radzenia sobie ze stresem rodziców dziecka z ASD w okresie pandemii SARS CoV-2. W badaniu wzięło udział 46 matek i 34 ojców wychowujących dziecko z zaburzeniami spektrum autyzmu, pozostających w związkach małżeńskich. W badaniach wykorzystano następujące narzędzia: Kwestionariusz Komunikacji Małżeńskiej (KKM) autorstwa M. Plopy i M. Kaźmierczaka i polską wersję Kwestionariusza Radzenia Sobie w Sytuacjach Stresowych CISS autorstwa Endlera i Parkera.Wyniki badań wskazują, że badani częściej preferują konstruktywne radzenie sobie ze stresem: styl skoncentrowanym na zadaniu (SSZ), jeśli małżonek ocenia zarówno siebie jak i swojego współmałżonka jako bardziej wspierającego i zaangażowanego w komunikację a mniej deprecjonującego. Badani częściej preferują niekonstruktywne radzenie sobie ze stresem: styl skoncentrowany na emocjach (SSE) i styl skoncentrowany na unikaniu (SSU), jeśli małżonek ocenia zarówno siebie jak i współmałżonka jako deprecjonującego. Im większa jest różnica pomiędzy własną oceną i oceną współmałżonka w komunikacji wspierającej tym częściej badani preferują styl skoncentrowany na emocjach (SSE) i styl skoncentrowany na unikaniu (SSU) . Ponadto im większa jest różnica pomiędzy oceną własną i oceną współmałżonka w komunikacji deprecjonującej tym rzadziej preferowany był styl skoncentrowanym na zadaniu (SSZ). Wyniki są istotne statystycznie.
Słowa klucze: komunikacja, małżeństwo, radzenie sobie ze stresem, spektrum zaburzeń autystycznych, pandemia SARS-CoV-2

1. Introduction

In late December 2019, a new strain of the SARS-CoV-2 coronavirus was detected in the city of Wuhan, Hubei Province, in the People's Republic of China. On January 30, 2020, the World Health Organization (WHO) declared the outbreak a public health emergency of international concern, and on February 11, 2020, the International Committee on Taxonomy of Viruses (ICTV) decided to name the 2nd severe acute failure syndrome coronavirus (SARS-CoV-2), and the WHO finally decided to name the disease caused by this virus as COVID-19 (a coronavirus disease identified in 2019). Following large epidemics of this disease in many countries, in which thousands of people died, on March 11, 2020, the WHO declared a pandemic (International Pharmaceutical Federation, 2020).

The detected virus started a period of many social changes related to restrictions and limitations in the spheres of daily life and the economy. During a pandemic, a much larger part of society spends more time in isolation, and therefore communication problems in the family may arise due to stress related to the possibility of falling ill and limited social contacts, as well as the feeling of being burdened with work duties and the completion of educational obligations by children at home, often in a small space. Research results show that in parents of children under the age of 18, the epidemic and its personal, social and economic consequences may lead to an increase in stress that is beyond the individual's ability to adapt and cope, leading to the development of depression and anxiety symptoms with significant clinical severity. During the epidemic, many of such parents struggled to reconcile work, home and parental responsibilities. The feeling of being threatened with the negative consequences of COVID-19 on the health and life of oneself and loved ones may have a greater impact on the severity of depression and anxiety symptoms in parents, as they may fear that they will not be able to care for their child or children if they fall ill. In addition, parents who are more concerned about the consequences of COVID-19 may isolate themselves more from social contacts with others (friends, family) and, as a result, feel the effects of the epidemic more acutely (Gambin et al., 2020).

The pandemic may particularly affect relationships in families raising a child with autism spectrum disorder (ASD). Their economic, social and psychological situation was already difficult even before the outbreak of the pandemic, and as a result of the situation may worsen further (Gagat-Matuła, 2021, a, Manning et al., 2021). Moreover, families with children on the spectrum reported greater behavioral problems during the lockdown and more parental distress (Lavante et al., 2021). The pandemic has for many families with children with ASD increased the difficulties in managing daily activities, especially leisure and organized activities, and has exacerbated behavioral problems (Colizzi et al., 2020). Research shows that during the pandemic, both parents of children with ASD and children with ASD had a significantly higher level of anxiety than parents of healthy children and

healthy children (Amorim et al., 2020). Moreover, parents of children with ASD were more likely to suffer from depression in the lockdown period than parents of healthy children (Wang et al, 2021).

Gagat-Matuła's (2021 a) research shows that children with ASD cannot cope with emotions during the SARS CoV-2 pandemic, and that their families need support. This is also influenced by the uncertain economic situation of the family. The analysis of data on the experienced emotions and mood of children with ASD from families with low and medium financial status during the SARS-CoV-2 pandemic showed statistically significant differences in the groups on the scales of fear, sadness and negative mood. The results indicate that children with ASD from families with low financial status experience higher levels of fear and sadness than children with ASD from families with average financial status. Moreover, children with ASD from poor families have a more negative mood than children with ASD from families with an average financial status. Other studies also show that mothers of children with ASD cannot cope with stress and need social support (Gagat-Matuła, 2021, b).

Research before the outbreak of the pandemic by Dąbrowska and Pisula (2010), Bitsika, Sharpley and Bell (2013), Sekułowicz (2013), Shobana and Saravanan, (2014), Bonis, (2016), Hartley et al., (2016), Padden and James (2017), Pisula and Porębowicz-Dörsmann (2017) shows that parents with a child with autism spectrum disorders are in a particularly difficult situation. The level of parental stress experienced is higher in mothers than in fathers, and, importantly, is more acute not only in comparison with parents of children with normal development, but also in comparison with parents of children with other developmental disorders. Research by Greszt et al., (2020) shows that the strong stress experienced by parents of children with ASD can lead to serious consequences in the form of parents experiencing energy burnout.

In the literature on the subject, there are few studies that directly consider marital relationships and marital communication among parents of children with autism spectrum disorders, and the results of any such studies are inconclusive. The experiences related to the diagnosis and rehabilitation of a child affect mutual relations. Additionally, a relationship crisis can aggravate fatigue and physical exhaustion for the woman, who is usually over-involved in caring for the child (Randall, Parker, 2010). This is also confirmed by the research of Gerstein et al. (2009), as well as that of Zdanowicz and Zasępa (2017), which indicates that the quality of the marital relationship and relationship satisfaction among these parents is lower compared to the parents of children with other types of developmental disorders or the parents of normal children (Hartley et al., 2010; Gosztyła, 2015). Research also shows that parenting a child with autism spectrum disorder (ASD) is associated with increased marital conflicts and reduced marital love (Chan, Leung, 2020).

Other studies, including by Altiere and Von Kluge (2009), Myers et al. (2009) and Hock et al., (2012) contradict the previous research and indicate that the high quality of the

marital relationship of parents of children with autism spectrum disorders does not differ from that of parents who have a healthy child.

A pandemic may be a stress factor as it brings with it certain consequences, such as fear for life and health, isolation, risk of losing income, and problems with access to health care, including rehabilitation. All this forces parents to develop new coping strategies and seek external family support.

In clinical psychology, the role of stress is emphasized as a factor that worsens the efficiency and effectiveness of functioning in various spheres of human life. Stress is reduced by effective coping, while its accumulation is the result of coping considered ineffective. According to R. Lazarus and S. Folkman (1984), stress is defined as "... a specific reaction between a person and the environment, which is assessed by this individual as burdening their resources and jeopardizing their well-being" (p. 19). The process of coping with stress covers the entirety of an individual's efforts to deal with a given situation. Hence, many authors consider "coping" in terms of a general disposition, or coping style. This is how it is presented by Endler and Parker, who proposed three styles. Two of these correspond to the coping functions mentioned by R. Lazarus and S. Folkman, i.e. task-focused and emotional-focused. The third style is avoidance coping, which aims to reduce the effects of the stressor.

The task-focused style involves taking action to solve a problem or change an existing stressful situation by using cognitive processes.

The style focused on emotions is characteristic of people who prefer wishful thinking and fantasizing at the expense of effective and rational action aimed at removing or minimizing the stress stimulus.

Avoidance-focused style consists of rejecting thoughts about the fundamental problem, and not allowing people to relieve it or become involved in solving the stressful situation; a person "escapes" from the problem by performing substitute activities (e.g. shopping) (Strelau et al., 2005).

In the process of coping with stress, the support offered by those closest to you, including in particular that offered by the spouse, is of great importance and is the most effective form of social support (Argyle, 1991; Ekas et al., 2015). Research shows that high quality of conjugal relationship between parents of children with autism belongs to key resources enabling smoothing out the impact of stress and lowering the number of depression indicators (Benson, Kersh, 2011; Broberg, 2013; Kersh et al, 2006; Norlin, Goetz et al., 2016 Solomon, Chung, 2012). Moreover, the results of the research show that a strong bond between spouses may provide a buffer against the influence of stressful factors related to caring for a child with autism. The research shows that cooperation may become the most important factor in the marriage bond, reducing the sources of stress and reducing its level (Greszta et al., 2020). Marital satisfaction, especially in the case of fathers, reduces the perceived effects of parental stress (Brown, 2019).

Proper communication in marriage is a prerequisite for the development of the marriage bond, and this is essential to the quality of the marriage relationship. Proper communication leads to the deepening of the sense of belonging in the marriage M. Ryś (1999). According to M. Plopa, communication in marriage consists of the following elements: providing support to the spouse, the degree of involvement in the communication process and any aggressive action directed against the spouse affecting the functioning of the married couple (Kaźmierczak, Plopa, 2008).

These dimensions are named accordingly:

- support is understood as showing respect to the partner by appreciating their efforts, showing interest in the partner's needs and problems, as well as active participation in the process of jointly solving these problems. Therefore, care for the partner is manifested not only in difficult moments, but also in various everyday situations

- commitment refers to the ability to create an atmosphere of mutual understanding and closeness in a relationship by showing feelings for each other, emphasizing the uniqueness and importance of a partner for us, diversifying the routine of everyday life and preventing conflicts in the relationship

- depreciation is defined as showing aggression towards the partner, the desire to dominate the partner and control their actions, and the lack of respect for the dignity of the partner (Kaźmierczak, Plopa, 2008). The family is a dynamic network of mutual relations based on one's own values and a system of communication. All this determines behavior within a family and transformations resulting from the reaction to difficult situations, such as the current SARS Co-V 2 pandemic. The studies confirm the thesis that the bond between spouses in every family is essential as this element integrates the family, but that in families with a sick child this is especially important (Greszta et al, 2020).

As the family system reacts to the emergence of a disability, family members are accompanied by permanent fear, uncertainty and anger, but also hope, love and mutual support, which are a predictor of coping with difficult situations. Communication in marriage and a high level of support and commitment make it possible to constructively solve difficult problems and resolve differences of opinion in the family.

2. Assumptions of own research

The aim of the research was an attempt to determine the correlation between marital communication and the styles of coping with stress among parents of a child with ASD during the SARS CoV-2 pandemic.

It was decided to verify if and how the types of communication between spouses, that is supportive, committed or depreciation communication by the spouses, influence their styles of coping with stress during the SARS CoV-2 pandemic in the following dimensions:

task-focused style (SSZ), emotion-focused style (SSE) and avoidance-focused style (SSU), which can take two forms: engaging in substitute activities (ACZ) or seeking social contacts (PKT).

The following research hypotheses were formulated: H1 There is a relationship between high scores for self-support and committed communication and the task-focused style (SSZ) in difficult situations.

H2 There is a relationship between high scores for self- depreciation communication and the Emotion-Focused Style (SSE) and the Avoidance-Focused Style (SSU), which can take two forms: engaging in substitute activities (ACZ) or seeking social contacts (PKT).

H3 There is a correlation between the perception of a spouse as supportive and involved in communication and the task-focused style (SSZ) in difficult situations.

H4 There is a correlation between the perception of a spouse as depreciation and the emotion-focused style (SSE) and avoidance-focused style (SSU), which can take two forms: engaging in substitute activities (ACZ) or seeking social contacts (PKT).

H5 The greater the difference between the assessment of oneself and of one's spouse as either supportive, committed or depreciation, the more often the respondents prefer the style focused on emotions (SSE) and the style focused on avoidance (SSU), which can take two forms: engaging in substitute activities (ACZ) or searching for social contacts (PKT).

3. Test method and sample characteristics

The diagnostic survey method was employed in the research study and the following tools were used: The Marital Communication Questionnaire (KKM) by M. Plopa and M. Kaźmierczak, and the Polish version of the CISS Coping Questionnaire by Endler and Parker.

The Marriage Communication Questionnaire (KKM) by M. Kaźmierczak and M. Plopa. This questionnaire comes in two versions and is designed to study communication behavior in married couples. In the first version, each of the married partners assesses their own communication behavior, and in the second that of their partner. Each version consists of 30 items examining the three main dimensions of communication in marriage: support (10 items), commitment (9 items) and depreciation (11 items). These dimensions are described in the theoretical introduction on communication behavior. The reliability scores of the individual dimensions of the Marriage Communication Questionnaire are, respectively: Cronbach's $\alpha = 0.91$ for the support dimension in the assessment of one's own behavior and $\alpha = 0.93$ in the assessment of the partner's behavior; Cronbach's $\alpha = 0.85$ for the commitment dimension in the assessment of one's own behavior and $\alpha = 0.77$ in the assessment of the partner's behavior; and Cronbach's $\alpha = 0.87$ for the depreciation dimension in the assessment

of one's own behavior and α = 0.91 in the assessment of the partner's behavior (Kaźmierczak, Plopa, 2008).

The CISS Coping Questionnaire for Stressful Situations by Endler and Parker. The questionnaire consists of 48 simple statements about the different behaviors people undertake in stressful situations. Respondents are required to respond to each statement by circling a number (from 1 to 5) that best defines the frequency of the activity undertaken. The authors created three scales that define the styles of coping with stress: the task-focused style (SSZ), the emotion-focused style (SSE) and the avoidance-focused style (SSU), which can take two forms: engaging in substitute activities (ACZ).) or searching for social contacts (PKT). As the main scales consist of 16 items, respondents can score between 16 and 80 points in each. However, on the ACZ subscale, consisting of 8 items, respondents can obtain between 8 and 40 points, and on the PKT subscale (5 items) between 5 and 25 points. After calculating the raw results, these should be referred to the sten norms, which were developed separately for different age groups: 16–24 years, 25–54 years and 55–79 years. The psychometric properties of the scales in the Polish version of the questionnaire were shown to be satisfactory for both stability and reliability indicators (Strelau et al., 2005). The research was conducted in 2021 at the Specialist Outpatient Clinic for People with Autism for Children in Leżajsk. Deliberate random sampling was used. The study involved 46 married mothers and 34 married fathers raising children with autism spectrum disorders.

4. Results

Appropriate statistical procedures were used to verify the research hypotheses. In order to verify hypothesis 1 and hypothesis 2, analyses of the r-Pearson correlation (regarding the interval level of the variables, the variables had distributions close to the normal distribution) were carried out between the assessment of marital communication and the coping styles of parents of a child with ASD during the pandemic SARS CoV-2. The obtained correlation coefficients from the conducted analyses are presented in Table 1.

Table 1. Pearson's r correlation coefficients between self-assessment of communication dimensions in a marriage relationship and styles of coping with stress.

KKM / CISS	Supportive communication	Committed communication	Depreciation Communication
Task-oriented coping (SSZ)	0,60*	0,53*	-0,55*
Emotion-oriented coping (SSE)	- 0,55*	-0,44*	0,61*
Avoidance-oriented coping (SSU)	-0,49*	-0,47*	0,59*
Engaging in substitute activities (ACZ)	-0,46*	-0,38*	0,53*
Seeking social contacts (PKT)	-0,44*	-0,39*	0,55*

* $p < .05$

Source: own study.

The analysis of the r-Pearson correlation between the assessment of communication in marriage and the styles of coping with stress in difficult situations confirmed hypothesis 1 that there is a correlation between high scores for self-supporting and engaged communication and the preferred task-focused style (SSZ) in difficult situations, as well as hypothesis 2 that there is a relationship between high scores for self- depreciation communication and the emotion-focused style (SSE) and the avoidance-focused style (SSU), which may take two forms: engaging in substitute activities (ACZ) or seeking social contacts (PKT). The results of the research indicate that there is a statistically significant correlation between the dimensions of communication and the styles of coping with stress in difficult situations. Statistical analyses showed that:

- The higher the respondents assessed themselves as more supportive and involved in marital communication, the more often in difficult situations they chose stress-coping strategies that are constructively focused on the task (SSZ). Positive significant correlations with moderate relationship strength were observed.

- The higher the respondents assessed themselves as more supportive and involved in marital communication, the less often they chose non-constructive coping with difficult situations, preferring the style focused on emotions (SSE) and the style focused on avoidance (SSU), which can take two forms: engaging in substitute activities (ACZ) or searching for social contacts (PKT). Negative significant correlations with low or moderate relationship strength were observed.

- The more respondents perceived themselves as depreciation people in communication, the more often they chose non-constructive coping with difficult situations, preferring the style focused on emotions (SSE) and the style focused on avoidance (SSU), which can take two forms: engaging in substitute activities (ACZ) or searching for social contacts (PKT). Positive significant correlations with moderate relationship strength were observed.

- The more respondents perceived themselves as depreciation people in communication, the less often they chose in difficult situations they chose stress-coping strategies that are constructively focused on the task (SSZ). Negative significant correlations with moderate relationship strength were observed.

The research also assumed that there is a relationship between high assessment of respondents' spouses in the communication process as supportive and engaged, and the task-focused style (SSZ) preferred by the respondents in difficult situations, and that there is a relationship between high results for depreciation communication using the spouse's style focused on emotions (SSE) and the style focused on avoidance (SSU), which may take two forms: engaging in alternative activities (ACZ) or seeking social contacts (PKT), which was the content of hypotheses 3 and 4.

Following this, in order to verify hypotheses 3 and 4, analyses of the r – Pearson correlation (regarding the interval level of the variables, the variables had distributions close to the normal distribution) were performed between the assessment of the spouse's communication in marriage and the styles of coping with stress. The correlation coefficients obtained from the conducted analyses are presented in Table 2.

Table 2. Pearson's r correlation coefficients between the spouse's assessment of the dimensions of communication in a marriage relationship and the styles of coping with stress.

KKM / CISS	Supportive communication	Committed communication	Depreciation communication
Task-oriented coping (SSZ)	0,63*	0,56*	-0,49*
Emotion-oriented coping (SSE)	- 0,58*	-0,46*	0,51*
Avoidance-oriented coping (SSU)	-0,41*	-0,44*	0,50*
Engaging in substitute activities (ACZ)	-0,39*	-0,37*	0,49*
Seeking social contacts (PKT)	-0,38*	-0,38*	0,34*

* $p < .05$

Source: own study.

The analysis of the r-Pearson correlation between the assessment of the spouse's communication and the preferred styles of coping with difficult situations, confirmed hypothesis 3 that there is a correlation between high scores of a spouse in supportive and engaged communication and the task-focused style (SSZ) preferred by the respondents, as well as hypothesis 4, that there is a relationship between high results in depreciation spouse communication and respondents preference for the emotion-focused style (SSE) and avoidance-focused style (SSU), which can take two forms: engaging in alternative activities (ACZ) or seeking social contacts (PKT). The results of the research indicate that there is a statistically significant correlation between the spouse's assessments in particular dimensions of communication and the preferred styles of coping with difficult situations.

Statistical analyses showed that:

- The higher the respondents assessed their spouses as supportive and involved in communication, the more often they preferred constructive coping with difficult situations: the task-focused style (SSZ). Positive significant correlations with moderate relationship strength were observed.

- The higher the respondents assessed their spouses as supportive and involved in marital communication, the less often they chose non-constructive coping with difficult situations, preferring the style focused on emotions (SSE) and the style focused on avoidance (SSU), which can take two forms: engaging in substitute activities (ACZ) or searching for

social contacts (PKT). Negative significant correlations with low or moderate relationship strength were observed.

- The more respondents perceived their spouse as a person depreciation in communication, the more often they adopted in difficult situations an emotional-focused style (SSE) and an avoidance-focused style (SSU), which can take two forms: engaging in alternative activities (ACZ) or seeking social contacts (PKT). Positive significant correlations with low or moderate relationship strength were observed.

- The more respondents perceived their spouse as a person depreciation in communication, the less often they chose in difficult situations they chose stress-coping strategies that are constructively focused on the task (SSZ). Negative significant correlations with moderate relationship strength were observed.

It was assumed in the research that there is a correlation between the differences in the assessment of one's own communication with a spouse and the spouse's communication as supportive, committed and depreciation, and the styles of coping with difficult situations preferred by the respondents, which was consistent with the content of hypothesis 5.

Subsequently, in order to verify hypothesis 5, analyses of the r-Pearson correlation (regarding the interval level of the variables, the variables had distributions close to the normal distribution) were carried out between the significant difference in assessing oneself and a spouse as supportive, committed and deprecating, and the preferred non-constructive coping styles: the emotion-focused style (SSE) and the avoidance-focused style (SSU), which can take two forms: engaging in substitute activities (ACZ) or seeking social contacts (PKT).

The obtained correlation coefficients from the conducted analyses are presented in Table 3.

Table 3. Pearson's r correlation coefficients between own and spouse's assessment of the dimensions of relationship communication and the styles of coping with difficult situations preferred by the respondents.

KKM / CISS	Supportive communication	Committed communication	Depreciation communication
Task-oriented coping (SSZ)	- 0,29	- 0,27	- 0,41*
Emotion-oriented coping (SSE)	0,39*	0,23	0,26
Avoidance-oriented coping (SSU)	0,34*	0,29	0,23
Engaging in substitute activities (ACZ)	0,31*	0,23	0,19
Seeking social contacts (PKT)	0,32*	0,19	0,21

* $p < .05$

Source: own study.

The results of the research confirm hypothesis 5, indicating that the greater the difference between self-assessment and the assessment of a spouse in supportive communication, the more often the respondents prefer the style focused on emotions (SSE) and the style focused on avoidance (SSU), which can take two forms: engaging in alternative activities (ACZ) or seeking social contacts (PKT), and also that the greater the difference between self-assessment and the assessment of a spouse in depreciation communication, the less often the task-focused style (SSZ) was preferred. However, the relationship between the difference in the assessment of oneself and a spouse as committed and the task-focused style (SSZ) turned out not to be statistically significant.

Summary

The aim of the research was an attempt to determine the correlation between marital communication and the styles of coping with stress among parents of a child with ASD during the SARS CoV-2 pandemic.

The results of the research showed that respondents more often prefer constructive coping with stress using the task focused style (SSZ) if a spouse assesses both themselves and their spouse as more supportive and engaged in communication and less depreciation. Thus, if a spouse finds both themselves and their spouse less supportive and committed and more depreciation, respondents more often prefer non-constructive coping with stress using the emotion-focused style (SSE) and the avoidance-focused style (SSU), which can take two forms: engaging in alternative activities (ACZ) or seeking social contacts (PKT),. The research has shown that the greater the difference between self-assessment and the assessment of the spouse in supportive communication, the more often the respondents prefer the emotion-focused style (SSE) and the avoidance-focused style (SSU), which can take two forms: engaging in substitute activities (ACZ) or looking for social contacts (PKT), and also that the greater the difference between self-assessment and the assessment of the spouse in depreciation communication, the less often the task-focused style (SSZ) was preferred. However, the relationship between the difference in the assessment of oneself and one's spouse as committed and the task-focused style (SSZ) was shown not to be statistically significant.

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Mental resilience of adolescents at the threshold of adulthood during the pandemic

Prężność psychiczna młodzieży wchodzącej w dorosłość w dobie pandemii

Abstract: Mental resilience is a relatively fixed personality trait which enables the initiation of adaptation processes through the activation of personal resources. It helps people maintain good functioning despite adversity and the struggles of everyday life. The emergence of resilience is influenced by personal factors and other elements related to the characteristics of the family environment and non-family social landscape. The degree of resilience influences the course of one's development in adolescence, while its formation is a function of developmental processes.
The aim of the research presented here was to determine levels of resilience among first-year undergraduate students, who experienced negative effects of the COVID-19 pandemic in 2020, and to compare this with the results of measurements carried out on adolescents at the same stage of development in 2014 and 2016. The analyses were based on the results of the researcher's own studies, conducted in 2016 and 2020, and on the existing data published in 2014. The Resilience Assessment Scale (SPP-25) (Nina Ogińska-Bulik, Zygfryd Juczyński) was used in each measurement. In the statistical analyses the Student's t-test for one sample and the Student's t-test for independent samples were used.
The results demonstrate a statistically significant drop in the strength of resilience and its dimensions among the respondents surveyed in 2020, compared to the scores of their peers in 2014 and 2016. With regard to the results of standardization studies, the average overall resilience score among students, who lived through the negative effects of the pandemic, was in the low range. The most significant drop in the level of resilience occurred in two dimensions: *optimistic attitude to life and the ability to summon resources in difficult situations* and *personal coping skills and tolerance of negative emotions*. The decrease of resilience in all its dimensions in the youth surveyed in 2020 can hardly be explained only by their recent negative experiences; its causes should also be sought in the family conditions and non-family influences during the process of the formation of resilience in childhood and adolescence.
Keywords: youth, mental resilience, pandemic, resilient person

Abstrakt: Traktowanie prężności psychicznej jako cechy wiąże się z ujmowaniem jej jako względnie trwałej właściwości osobowości, która poprzez aktywowanie podmiotowych zasobów umożliwia człowiekowi uruchamianie procesów adaptacyjnych służących utrzymaniu dobrego funkcjonowania pomimo przeciwności losu, w sytuacjach trudnych oraz wobec uciążliwościami codziennego życia. Jej kształtowanie się podlega oddziaływaniu czynników indywidualnych oraz czynników związanych z cechami środowiska rodzinnego i pozarodzinnego środowiska społecznego. Poziom prężności ma wpływ na przebieg rozwoju w okresie adolescencji, a jej kształtowanie stanowi funkcję procesów rozwojowych.
Celem zaprezentowanych badań było określenie poziomu prężności studentów I roku studiów, którzy w 2020 roku doświadczali negatywnych skutków pandemii zakażeń wirusem Sars-Cov-2 oraz porównanie uzyskanych wyników do wyników pomiarów przeprowadzonych na grupach młodzieży

będącej na tym samym etapie rozwoju w roku 2014 i 2016. Analizy oparto na wynikach badań własnych przeprowadzonych w roku 2016 i 2020 oraz na danych zastanych opublikowanych w roku 2014. W każdym pomiarze została wykorzystana Skala Pomiaru Prężności (SPP-25) autorstwa N. Ogińskiej-Bulik i Z. Juczyńskiego. W analizach statystycznych zastosowano test t-Studenta dla jednej próby oraz test t-Studenta dla prób niezależnych. Uzyskane wyniki wskazują na statystycznie istotny spadek nasilenia prężności i jej wymiarów wśród respondentów badanych w roku 2020 w stosunku do wyników uzyskanych u ich rówieśników z roku 2014 i 2016. W odniesieniu do wyników badań normalizacyjnych średni wynik ogólny prężności wśród studentów, którzy mierzyli się z negatywnymi skutkami pandemii mieścił się w przedziale wartości niskich. Najbardziej znaczący spadek odnotowano w wymiarach „optymistyczne nastawienie do życia i zdolność mobilizowania się w trudnych sytuacjach" oraz „kompetencje osobiste do radzenia sobie i tolerancja negatywnych emocji". Spadek poziomu prężności we wszystkich jej wymiarach u młodzieży badanej w roku 2020 trudno wytłumaczyć jedynie negatywnymi skutkami doświadczanej pandemii. Przyczyn zjawiska należy poszukiwać w rodzinnych i pozarodzinnych uwarunkowaniach procesu jej kształtowania się w okresie dzieciństwa i młodości.
Słowa kluczowe: młodzież, osoba prężna, pandemia, prężność psychiczna

1. Introduction

The term *psychological resilience* is used in the Polish literature alongside other, interchangeably used words such as *resilience*, *springiness*, *flexibility*, *ego resilience*, *personal resilience* and *positive adaptation* to define the construct referred to by the English term 'resilience,' which derives from the Latin words *salire* and *resilire* and is translated as to 'leap/jump', to 'bounce back', to return to the previous state (Smulczyk, 2017; Turkiewicz-Maligranda, 2014).

The concept of *resilience* appeared in the psychological literature in the 1950s, its first uses being associated with the application of the *ego-resiliency* and *ego-control* constructs as proposed by Jeanne Humphrey Block and Jack Block in a two-dimensional model of personality types. The authors related the concept of ego-resiliency to the dynamic ability to flexibly modify the level of control (*ego-control*), that is to adjust the level of impulsivity or emotional expression to the demands of a situation, and to restore the balance of the system to the level it was at prior to the occurrence of the disturbance (Ogińska-Bulik & Juczyński, 2010). In this approach, ego-resiliency was treated as a relatively fixed, structural aspect of personality and, at the same time, as a function of a specific situational context. More recently, the term *resiliency* began to be used broadly in a less formal, descriptive sense, without the preceding 'ego' prefix (Block & Kremen, 1996).

An increased interest in the concept of resilience can be observed with the emergence and dissemination of Aaron Antonovsky's theory of salutogenesis in health psychology, with which it corresponds at certain points, and also the development of research on stress. Moreover, a significant increase in the number of theoretical studies and empirical research in this area is associated mostly with positive psychology and its concept of positive development. With the progress of research and the formation of different ways of conceptualizing the phenomenon of resilience, the psychological perspective is

complemented by approaches emerging in medicine, health sciences and other social science disciplines, including pedagogy (Windle, 2011). The implementation of the concept of resilience in the areas of interest to pedagogy is discernible especially in the issues related to the formation and development of resilience in the process of child-rearing and education, social prophylactics and resocialization/social rehabilitation (Kwiatkowski, 2016).

Three basic approaches to understanding the concept of resilience can be found in the literature: it is treated as a trait, a process or as a result of the process. Treating resilience as a trait is connected with interpreting it as a relatively fixed personality disposition, which - through activating processes of effective struggle with adversities - ensures that a person maintains good functioning and, in the case of its collapse, bounces back relatively quickly to the state experienced prior to the disorganization. Resilience seen in terms of a process, on the other hand, refers to the phenomenon of activating the process of dynamic adaptation in response to emerging pressures, which at the same time helps an individual maintain good overall performance. The adversities that trigger the processes of flexible adaptation can be traumatic events associated with direct threats to life and health, highly stressful events and situations, unfavorable developmental conditions, life circumstances associated with a difficult family situation, as well as other problems and difficulties of everyday life. The processes of positive adaptation understood this way require the summoning of personal resources in the form of specific personality traits, and also environmental resources adequate to the experienced tension or adversities. The essence of resilience is illustrated quite clearly in its definition, according to which it is the process of using personal resources to maintain well-being (Panter-Brick & Leckman, 2013). In the English-speaking psychological literature the terms *resiliency* and *resilience* are used in order to distinguish resilience as a trait from resilience as a process (Luthar et al., 2000; Ogińska-Bulik & Juczyński, 2011).

Treating resilience as a personality trait directs research towards looking for the characteristics of resilient people. Based on the literature reviews in this area, it can be argued that resilience is a subjective personal resource with a special regulatory power which, by revealing itself through adaptation processes, activates a number of resources that are important for their effective course, including sense of control, emotional stability, optimism, self-efficacy, self-esteem, or a sense of meaningfulness as part of a sense of coherence. For example, it is suggested that a resilient person is characterized by persistence in action, a high degree of optimism and inner peace, openness to new experiences, agreeability, high self-esteem and self-efficacy, an inner sense of control, approaching stressful events as challenges, effective coping with stress, giving positive meaning to everyday life events, a tendency to interpret the surroundings as generally favorable, and treating difficulty as an opportunity to gain new experiences for self-development (Levine et

al., 2009; Ogińska-Bulik & Juczyński, 2010; Ogińska-Bulik & Zadworna-Cieślak, 2014; Turkiewicz-Maligranda, 2014).

This view can be completed by referring to the four resilience patterns and the resilient person's traits, as ascribed to them on the basis of the meta-analysis of the research on the attributes of resilient people (Polk, 1997). The dispositional pattern is expressed through a set of traits including positive characteristics of temperament, personality traits, and cognitive competence, as well as a sense of well-being and good physical health. Other sets of characteristics are included in the relational domain (e.g. close and trusting relationships, adequate communication skills, broad social networks) as well as situational (e.g. task-focused coping style, goal setting, adaptability), and philosophical patterns (e.g. belief in the value of life, finding positive meaning in experienced events) (Polk, 1997).

Some approaches propose that resilience can be seen as a continuum, on which its level can take on different values in different areas of an individual's life (Pietrzak & Southwick, 2011). Thus, it could be expected that psychological resilience will be revealed with differing degrees of strength across the life course, depending on situational context.

Identifying the importance of resilience for effective functioning the aftermath of traumatic events, in the face of adversity, or in everyday stressful situations has long inspired researchers to investigate the causes and determinants of this phenomenon. In the consecutive stages of targeted research on resilience, it has been shown that the development of psychological resilience as a trait capable of activating protective and adaptive mechanisms, is subject to the influence of individual and environmental factors, related to the characteristics of family circumstances and the social environment beyond the family. Individual factors include positive temperament, cognitive competence, reflexivity, positive self-esteem, problem-solving ability, self-acceptance, and commitment to a religion. Among the features of family environment that favor the formation of resilience are, mostly, support, warm family relationships, and being cared for by at least one parent but also getting support from other family members, and an upbringing style that promotes the development of autonomy, responsibility, and self-esteem. On the other hand, the factors of non-family social environment include emotional support from other adults, having at least one friend and peers ready to help in a crisis, supportive and competent teachers, good social atmosphere at school, involvement in extracurricular activities, socioeconomic conditions, and a local environment conducive to having one's needs met, e.g. for feeling safe, getting a rest etc. (Borge et al., 2016; Garmezy, 1993; Luthar et al., 2015; Masten, 2004; Rutter, 2013; Ryś & Trzęsowska-Greszta, 2018; Werner, 1994; Zolkoski, Bullock, 2012).

The turn towards integrative approaches to resilience observed in recent years allows for the treatment of it as a personality trait developed throughout life, under the influence of various experiences, as well as the process which helps us effectively cope with the difficulties and adversities of life (Turkiewicz-Maligranda, 2014). Considered from a

developmental perspective (Cutuli & Herbers, 2018), the degree of resilience that individuals have at their disposal undoubtedly affects the course of their development, while on the other hand the acquisition of psychological resilience can be treated as a function of developmental processes (Masten, 2004; Masten, 2014). Focusing on the developmental aspects of resilience encourages us to search for an answer to questions about the role of subjective and environmental factors in its formation, especially when it comes to protective factors and the ways in which they actually work. Attention should be drawn at this point to the potential instability of an individual's level of resilience as a trait and its variability over time, resulting from the coupling of developmental processes and interactions with factors inherent in the person's life environment (Bonanno & Diminich, 2013; Kim-Cohen & Turkewitz, 2012), among which the importance of cultural factors, related to the immediate social environment and the availability of resources with which to cope with difficult situations, is stressed (Sherrieb et al., 2010).

2. Research objectives

The literature review allows us to assume that the level of resilience as a trait is one of the most significant factors that affect coping effectiveness, psychosocial functioning and the feeling of well-being when confronted with difficulty and adversity. In 2020, the SARS-CoV-2 pandemic confronted people in all parts of the world. In addition to the consequences of the unprecedented spread of the virus, reflected through the increase in the number of infections, hospitalizations and deaths, depletion of health care resources, economic slowdown, loss of jobs, and reduced income and living standards for many families, as well as in the reduction of physical and social contacts, the risk of mental health disorders (post-traumatic stress disorder, anxiety, depression) and problem behaviors (alcohol abuse, substance abuse, aggression, domestic violence, etc.) are indicated as negative consequences of the pandemic (Holmes et al, 2020). In this context, it is reasonable to argue that 2020 was an exceptionally challenging time for young people who took the high school exit exam and entered college. They stood at the threshold of adult life with a package of personal resources that determined the degree of their personal resilience as a subjective meta-source that triggered adaptation processes, formed on the basis of the dynamics of their psycho-social experience' in synergy with their personal biography and developmental processes.

The purpose of the research presented was to determine the degree of psychological resilience of adolescents who entered college during the 2020 pandemic and to examine whether, and if so how, the strength of this trait changed relative to the levels observed in their predecessors in 2014 and 2016.

2.1. Sample

The research was conducted on two groups of first-year undergraduate students of pedagogy. The interval between the two examinations was 4 years. The first group, which included 166 students (N=166), was surveyed in the first quarter of 2016. The second group of 163 students (N=163) was surveyed in the fourth quarter of 2020. Both samples were predominantly female (86% and 90% females respectively), which fully reflects the gender structure prevailing among students of pedagogy in Poland.

It should be mentioned that, due to the pandemic, the students in the group examined in 2020 began their studies in the remote education system. Prior to that, they were also forced to take up distance learning in the few weeks preceding their high school exams, when they already experienced many negative effects of the pandemic, which was already spreading at that time.

Otherwise, the researchers used the 2014 published foundational data from a study on the mental resilience of high school graduates, conducted 3 months prior to the high school exit exam, with a sample size of N=82 (Ogińska-Bulik & Zadworna-Cieślak, 2014).

2.2. Materials and method

The Resilience Assessment Scale (SPP-25), authored by Ogińska-Bulik and Juczyński (Ogińska-Bulik & Juczyński, 2008), was used to measure the level of resilience in our own research as well as in the research that provided the earlier data sourced. The scale is a self-reporting tool that allows for the measurement of resilience as a personality trait. It consists of 25 items that help researchers determine the overall level of resilience as well as five of its component factors/dimensions: perseverance and determination in action, openness to new experiences and sense of humor, personal competence and tolerance for negative emotions, tolerance for failure and treating life as a challenge and an optimistic attitude, and ability to summon resources in difficult situations. Respondents give answers to the items on a 5-point Likert-type scale (from 0 - definitely no, to 4 - definitely yes). The maximum possible score for each factor/dimension is 20 points. The SPP-25 total score is the sum of the scores reached on the five factors/dimensions and can be up to 100. The higher the score, the higher the level of resilience. The SPP-25 scale was validated by its authors in Poland and obtained satisfactory psychometric properties (Ogińska-Bulik & Juczyński, 2008; Ogińska-Bulik & Zadworna-Cieślak, 2014).

Two types of statistical analyses were used in this study: the t-Student's test for one sample and the Student's t-test for independent samples (Bedyńska & Brzezicka, 2007).

The Student's t-test for one sample was used in the analysis of data from the 2014 study on a group of high school graduates (foundational data) and the 2016 study on a group of college students (the researchers' own work). The t-Student's test for two independent

samples was applied to the analysis of data from the researchers' own study conducted on groups of students in 2016 and in 2020.

The statistical analyses were performed using PS Imago Pro 7 (formerly SPSS) version 26 software.

3.Results

In the first step of our analysis, the strength of resilience in the group of first-year students from 2016 was determined on the basis of the mean total score then and the averages in all factors/dimensions of resilience obtained with the SPP-25 scale. The results showed that the mean values in terms of resilience and its dimensions were similar to the results obtained in the normalization studies (Ogińska-Bulik & Juczynski, 2008) and corresponded to the value of sten 5, i.e. fell within the range of average values (Table 1).

Table 1. Means and standard deviations for resilience and its dimensions in the 2016 student sample

Variables	M	SD	Min	Max
Resilience - overall score	69.40	15.22	22	100
Persistence and determination	13.61	3.84	2	20
Openness to new experiences and sense of humor	15.65	2.91	7	20
Personal coping skills and tolerance of negative emotions	13.43	3.77	2	20
Tolerance of failure and treating life as a challenge	14.20	2.93	5	20
Optimistic attitude to life and ability to summon resources in difficult situations	12.52	3.86	2	20

Source: own research

The second step was aimed at comparing the 2016 results with those from the high school graduates in the 2014 measurement (existing data) and checking whether the adolescents surveyed in 2016 were statistically significantly different in terms of the trait of resilience from their peers in 2014. For this purpose, a one-sample Student's t-test was applied. The results demonstrated that there was no significant difference in the strength of resilience between the two groups. The observed differences were statistically insignificant both for the mean total score of SPP-25 and for the mean scores for individual factors/dimensions of resilience. Thus, it can be assumed that the strength of resilience among adolescents from the 2014 measurement and adolescents from the 2016 measurement was at the same level. The details of the analysis are summarized in Table 2.

Table 2. Overall resilience score and resilience scores for each dimension in two samples of respondents: 2014 high school graduates and 2016 first-year students.

SPP-25 subscales	M [a)]	M [b)]	t (df)	p	Δ M	95% confidence interval for the difference between the two means	
						Lower end	Upper end
Resilience - overall score	68.97	69.40	0.367 (165)	0.714	0.43	-1.899	2.766
Persistence and determination	13.74	13.61	-0.432 (165)	0.659	-0.13	-0.719	0.456
Openness to new experiences and sense of humor	15.34	15.65	1.376 (165)	0.171	0.31	-0.135	0.756
Personal coping skills and tolerance of negative emotions	13.41	13.43	0.061 (165)	0.952	0.02	-0.560	0.596
Tolerance of failure and treating life as a challenge	14.23	14.20	-0.137 (165)	0.891	-0.03	-0.479	0.417
Optimistic attitude to life and ability to summon resources in difficult situations	12.25	12.52	0.895 (165)	0.372	0.27	-0.323	0.859

[a)] existing data (Ogińska-Bulik & Zadworna-Cieślak, 2014)

[b)] own research, 2016

In the next step of the analysis, the strength of resilience was determined in the group of first-year students surveyed in the fourth quarter of 2020, when the respondents, like the rest of the population in Poland and many other regions of the world, struggled with the effects of the COVID-19 pandemic. The mean total score of SPP-25 resilience reached the value of M=62.02, which corresponds to the values obtained in standardization studies at the level of sten score of 4 (Ogińska-Bulik & Juczynski, 2008). This means that it is at the upper end of low values (Table 3).

Table 3. Means and standard deviations for resilience and its dimensions in the 2020 student sample

Variables	M	SD	Min	Max
Resilience - overall score	62.02	14.32	27	99
Persistence and determination	12.27	3.50	3	20
Openness to new experiences and sense of humor	14.90	2.97	5	20
Personal coping skills and tolerance of negative emotions	11.58	3.56	3	20
Tolerance of failure and treating life as a challenge	13.03	3.43	4	20
Optimistic attitude to life and ability to summon resources in difficult situations	10.25	3.79	1	19

Source: own research

In order to determine changes in the level of the resilience as a trait between 2016 and 2020 in adolescents approaching adulthood, the final step of the analysis was undertaken to compare the mean SPP-25 total score and mean scores for individual resilience factors/dimensions from the 2016 and 2020 measurements (Table 4).

Table 4. Overall resilience score and resilience scores by dimension for 2016 and 2020 student samples

SPP-25 subscales	Year	M	SD	F (p)	t (df)	p	ES
Persistence and determination	2020	12.27	3.50	2.12	-3.306 (327)	0.001	0.37
Openness to new experiences and sense of humor	2016	13.61	3.84				
Personal coping skills and tolerance of negative emotions	2020	14.90	2.97	0.00	-2.328 (327)	0.021	0.26
Tolerance of failure and treating life as a challenge	2016	15.65	2.91				
Optimistic attitude to life and ability to summon resources in difficult situations	2020	11.58	3.56	0.14	-4.560 (327)	0.000	1.15
Persistence and determination	2016	13.43	3.77				
Openness to new experiences and sense of humor	2020	13.03	3.43	3.06	-3.327 (327)	0.001	0.61
Personal coping skills and tolerance of negative emotions	2016	14.20	2.93				
Tolerance of failure and treating life as a challenge	2020	10.25	3.79	0.15	-5.389 (327)	0.000	1.61
	2016	12.52	3.86				
Resilience – overall score	2020	62.02	14.32	0.35	-4.526 (327)	0.000	1.13
	2016	69.40	15.22				

Source: own research

An analysis of the mean SPP-25 overall scores using the Student's t-test for independent samples clearly showed that the level of resilience was higher among students measured in 2016 (M=69.40) compared to those tested in 2020 (M=62.02). The difference was statistically significant at $p<0.000$.

The higher strength of resilience in the 2016 student group was also evident with respect to the individual factors/dimensions of the scale.

The analysis with the Student's t-test for independent samples revealed that the level of *persistence and self-determination* in the group of students from 2016 measurement (M=13.61; SD=3.85) was statistically significantly higher than among those from 2020 sample (M=12.27; SD=3.50), although the d-Cohen effect size indicated a weak relationship.

Students from the 2016 study also scored higher on *openness to new experiences and sense of humor* (M=15.65; SD=2.91) compared to 2020 respondents (M=14.90; SD=2.97). The difference was observed to be statistically significant, but the strength of the association (d-Cohen) was found to be weak.

The level of *personal coping skills* and *tolerance of negative emotions* were significantly higher among students surveyed in 2016 (M=13.43; SD=3.77) compared to students surveyed in 2020 (M=11.58; SD=3.56). The analysis conducted with the Student's t-test showed that the result is statistically significant, and the effect size (ES=1.15) indicated a strong relationship between the results obtained.

Also, the scores for the next factor/resilience dimension, which is *tolerance of failure and treating life as a challenge*, indicated a higher strength of resilience in the group of students from the 2016 study (M=14.20, SD= 2.93) than among the those surveyed in 2020 (M=13.03; SD=3.43). The result was found to be statistically significant and the d-Cohen effect size was at the mean level.

The results obtained in the last subscale of SPP-25, i.e. *optimistic attitude towards life and ability to summon resources in difficult situations*, clearly show that the 2016 students demonstrated a statistically significantly higher strength of resilience (M=12.52; SD=3.86) than the students surveyed in 2020 (M=10.25; SD=3.79). The strength of the relationship was found to be very strong in this case (d=1.61).

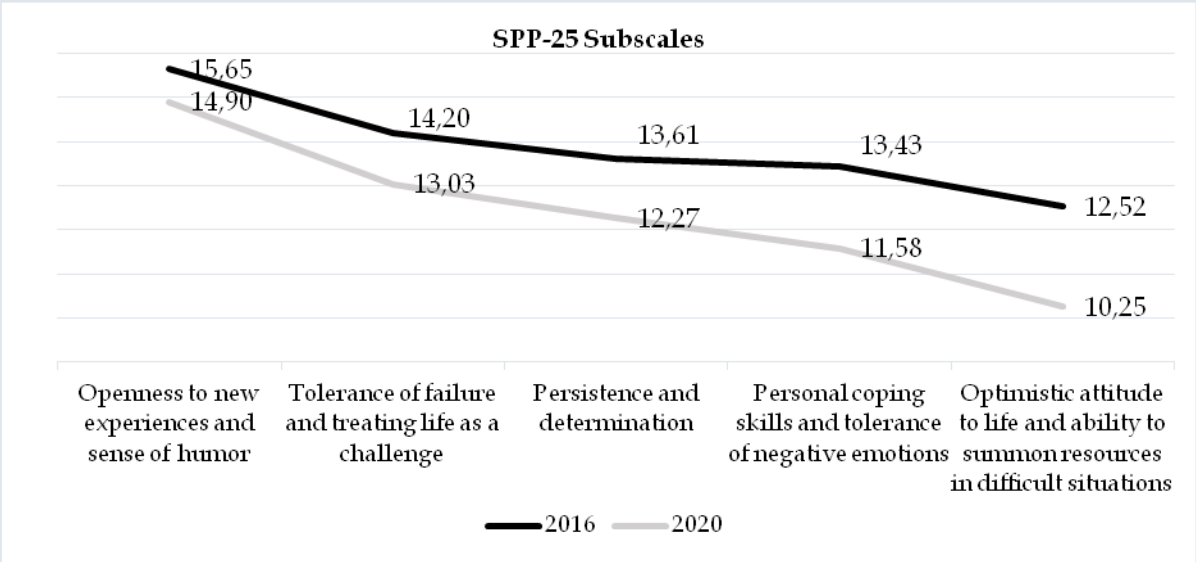
Referring to the common (by age and gender) provisional standards in the sten scores determined by the authors of the SPP-25 scale (Ogińska-Bulik & Juczynski, 2008) allowed us to visualize the overall resilience scores obtained in the 2016 and 2020 measurements on an ordinal scale. It turned out that more than 30% of the students surveyed in 2016 showed a high level of resilience, while in the group surveyed in 2020 a high level was recorded in fewer than 15% of the respondents. Significant disparities could also be observed in the low-level results obtained by more than 60% of the students surveyed in 2020, and the fewer than 40% of students from the 2016 measurement (Table 5).

Table 5. distribution of descriptive trait for resilience and results of chi² test

Resilience levels	**Student samples**				**Test chi²**
	2020		**2016**		
	n	%	n	%	
Low	102	62.6%	63	38.0%	chi²=21.736, (df=2), p<0.000, V Cramera =0.257
Medium	37	22.7%	51	30.7%	
High	24	14.7%	52	31.3%	
Total	163	100.0%	166	100.0%	

Source: own research

As each subscale had the same number of items, it was possible to list/visualize the scores from highest to lowest. Figure 1 presents the distribution of the trait of resilience from highest to lowest value in each factor/dimension of SPP-25. The highest level of resilience was reported in the dimension *openness to new experiences and sense of humor* among both 2016 and 2020 students, and the lowest in the dimension *optimistic attitude towards life and ability to summon resources in difficult situations*. Interestingly, the ranking of the resilience subdimensions was the same in both groups of students.



Source: own research

Figure 1. Mean scores obtained on the scales of each SPP-25 dimension among students from the 2016 and 2020 rounds

Conclusions

Mental resilience, understood as a personal disposition, allows for the maintaining of psychological well-being and good functioning in the face of traumatic events, demanding situations or the struggles of everyday life, as it plays the role of a particular regulator that activates the personal resources necessary to processes of adaptation. The effectiveness of these processes is associated with the understanding of such resources, which are specific to each individual, as formed in the course of personal development on the basis of biological determinants and in conjunction with the impact of factors inherent in the family and also in the non-family environment. Taking into account the developmental perspective, which highlights the special role of childhood and adolescent experiences, let us assume that we can talk about certain dynamics, both with reference to the effectiveness of adaptive processes, as well as resilience in terms of personality traits (Ogińska-Bulik & Juczyński, 2011).

In the research presented, we inquired into the level of psychological resilience as a trait in a group of adolescents on the threshold of adulthood in the years 2014 - 2020. Achieving a six-year perspective was possible thanks to the comparison of the results of our own research on psychological resilience, performed among students of the first year of pedagogical faculties in 2016 and in 2020 with the use of the SPP-25 scale, with the results of the previous research of 2014, which was conducted with the use of the same research tool among high school graduates. Although each round of research involved respondents at the same stage of physical and psychosocial development, those who were surveyed at the end of 2020 constituted a particular group, due to the fact that at the time of research they had already been experiencing the social and health effects of the spreading COVID-19 pandemic for several months, with many difficult - and for some even traumatic - situations emerging in many areas of their daily functioning. These young people lived in an atmosphere of threat, uncertainty, and fears of whether they would manage to accomplish the important tasks of this stage of their lives, i.e. obtaining a high school diploma and going to college. Then again, this group of respondents were first-year university students who faced the task of performing the new social role of students also in the situation of a continued pandemic, and while being confronted with many limitations. In this context, it was interesting to observe their level of resilience as a trait.

The results of the study do not give rise to optimism. Referring to the outcome of the normalization studies, it turned out that the average overall score of resilience in the group of students, who had faced the negative effects of the pandemic for several months, was located at the higher end of low score, while both the results obtained in our own research in 2016 and the results taken from the pertinent research in 2014 were in the range of medium scores.

At the same time, the difference in the strength of resilience among adolescents surveyed in 2016 and 2020 turned out to be statistically significant. Moreover, in the group studied in 2020, as many as 60% of the respondents scored low in resilience, and high levels of resilience were found in only 15% of the students, which was twice less than among the respondents in 2016. The scores of the students struggling with the pandemic were also statistically lower in individual dimensions/factors of resilience in comparison to their 2016 predecessors. It is worth noting in this context the large Cohen d effect size for two dimensions of resilience, i.e. the *optimistic attitude towards life and the ability to summon resources in difficult situations*, as well the level of *personal coping skills and tolerance of negative emotions*. This indicates that the level of resilience in these dimensions was significantly lower in students surveyed during the pandemic compared to the results obtained in 2016.

The manifestation of psychological resilience in situations that cause excessive mental burden, which is a threat to the fulfilment of needs and may interfere with goal achievement, requires the summoning of subjective resources that can be used in adaptation processes.

The decreased level of these resources in the examined group of students presented in this study begs the question of what its possible causes may be. With reference to the concepts mentioned in the literature review that explain the process of the formation of psychological resilience as a trait, it can be assumed that one of the reasons for the reduced level of resilience is the experience of the negative effects of the ongoing pandemic. This can be associated primarily with a lower level of optimism among young people, which was undoubtedly influenced by the threat to economic security felt by a significant portion of the population, concerns about the course of professional and educational careers, reduced social contacts, and a general decline in social mood. However, taking into account the fact that the drop in the strength of resilience in students surveyed in 2020 was recorded in all its dimensions, these causes should be considered in a broader perspective. Within this framework, we can refer to the concept of *generation,* considered in the context of social change (Sztompka, 2005), which has been observed in Poland in recent years at many levels. The sources of low resilience among these young people should also be sought in the conditions of the process of the formation of the personal resources necessary for adaptation processes, in childhood and adolescence, which are linked to the condition and the child-rearing effectiveness of the family as well as that of the educational and preventive role of schools. This direction of analysis would, however, require more, representative, research on psychological resilience as a characteristic of Polish adolescents on the threshold of adulthood.

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Impact of Coronavirus Outbreak Events, Perceptions of Sense of Safety and Distance Learning Among College Students During the COVID-19 Pandemic

Wpływ zdarzeń związanych z epidemią koronawirusa, postrzeganie poczucia bezpieczeństwa i kształcenia zdalnego wśród studentów uczelni wyższych podczas pandemii COVID-19

Abstract: A pandemic affects numerous areas of social life substantially. Significant changes have occurred in the area of education, including higher education. In the spring semester of the academic year 2019/2020, universities in Poland, within a matter of weeks, switched from full-time teaching to distance learning. This undoubtedly caused a degree of uncertainty among students regarding the development of events and the need to act in changing circumstances. It also involved a revision of communication patterns and interaction on many levels. The purpose of the present study was to determine the impact of the coronavirus outbreak on perceptions of security and higher education during the COVID-19 pandemic from the perspective of college students participating from universities across Poland. The study was conducted in May and June 2020 among 371 students in Poland by means of computer-assisted web interviewing (CAWI). Two standardized tools were used: the Polish version of the Impact Event Scale-Revised (IES-R) and the Security Experience Questionnaire (SEQ), as well as a proprietary survey questionnaire. The survey was posted on Google.com and also shared with the respondents online via Facebook. The students demonstrated significant effort in ridding themselves of trauma-related thoughts, emotions, or conversations. A sense of security was noted which, however, decreased significantly where PTSD scores increased. The male respondents had a significantly higher sense of security than did the female respondents. There was no evidence of influence based on field of study, year of study, or type of education upon the severity of traumatic stress or the experiencing of security. In terms of the impact of the epidemic on aspects of higher education, respondents showed concern for the quality of interpersonal relationships and the financial situations of their families. The traumatic stress severity index was found to be significantly higher in terms of content and technical aspects of education. The students' state of mind seemed to have no relationship to the gender of the respondent or the type of education. The impact of events related to the outbreak of the Sars-Cov-2 virus can be observed in a disturbance

of the sense of security among participants of varying majors and years of study in Poland. Students' fears were associated with a change in the realities of student life, in both the educational and the social spheres.
Keywords: COVID-19, distance learning, higher education, PTSD, stress, sense of security

Abstrakt: Pandemia wpływa istotnie na szereg obszarów życia społecznego. Znaczące zmiany nastąpiły w obszarze szkolnictwa w tym także szkolnictwa wyższego. W semestrze letnim roku akademickiego 2019/2020 uczelnie w Polsce, w przeciągu kilku tygodni, przeszły z nauczania stacjonarnego na nauczanie zdalne, co niewątpliwie zrodziło wśród studentów określony poziom niepewności, co do rozwoju wydarzeń i konieczność działania w zmieniających się okolicznościach oraz wiązało się ze zmienionym wzorcem komunikacji i interakcji na wielu płaszczyznach funkcjonowania. Celem niniejszej pracy było określenie wpływu zdarzeń związanych z epidemią koronawirusa, na postrzeganie poczucia bezpieczeństwa i kształcenia w zakresie szkolnictwa wyższego podczas pandemii COVID-19 z perspektywy uczestników studiów uczelni wyższych z całej Polski. Badania były przeprowadzone w okresie maja i czerwca 2020 roku wśród 371 studentów w Polsce, metodą computer-assisted web interviewing (CAWI). Wykorzystano w tym celu dwa narzędzia standaryzowane tj. polską wersję Zrewidowanej Skali Wpływu Zdarzeń i Kwestionariusz Doświadczania Bezpieczeństwa oraz autorski kwestionariusz ankiety. Ankietę zamieszczono na portalu Google.com, które udostępniono badanym internetowo, za pomocą portalu Facebook. Studenci wykazali znaczny wysiłek pozbycia się myśli, emocji czy rozmów związanych z traumą. Zaobserwowano stan poczucia bezpieczeństwa, który jednak istotnie zmniejszał się, wraz ze wzrostem wskaźnika PTSD. Mężczyźni posiadają istotnie większe poczucie bezpieczeństwa niż kobiety. Nie wykazano wpływu kierunku, roku studiów lub rodzaju kształcenia na nasilenie stresu traumatycznego i doświadczania bezpieczeństwa. W kontekście wpływu epidemii na aspekty związane z kształceniem na uczelni wyższej, badani wykazali obawy o jakość relacji międzyludzkich i sytuację materialną rodziny. Wskaźnik nasilenia stresu traumatycznego okazał się istotnie wyższy w sprawie merytorycznego oraz technicznego przebiegu kształcenia. Nastroje studentów wydają się nie mieć związku z płcią ankietowanego czy też rodzajem kształcenia. Wpływ zdarzeń związanych z epidemią wirusa SARS-CoV-2 daje się zaobserwować w zaburzeniu poczucia bezpieczeństwa wśród uczestników różnych kierunków i lat studiów w Polsce. Obawy studentów wiążą się ze zmianą realiów życia studenckiego w wymiarze dydaktycznym jak i społecznym.
Słowa kluczowe: COVID-19, kształcenie zdalne, studia wyższe, PTSD, stres, poczucia bezpieczeństwa

1. Introduction

The World Health Organization (WHO) announcement in March 2020 of the (Corona Virus Disease 2019) pandemic, of a highly infectious disease with a long incubation period, caused by the Severe Acute Respiratory Coronavirus 2 (SARS-Cov-2) virus (Huang, Wang, Li, et al., 2020; WHO, 2020), has disrupted the order and routine of life for societies around the world. The first case of coronavirus infection in Poland was reported on March 4, 2020 (in western Poland). Since then, the number of those infected has steadily increased, resulting in the declaration of a state of epidemic by the Minister of Health on March 20, 2020. In response to the coronavirus outbreak, government authorities adopted many drastic measures to protect the population, including closing the country's borders, a mandatory 14-day quarantine for people returning from abroad, working from home, the suspension of on-site activities at schools and universities, limiting retail store occupancy, limiting the number of worshipers in churches, the obligatory wearing of masks covering nose and mouth, and the closure of some services (e.g. hairdressers, beauticians, etc.) and venues related to culture

(e.g. cinemas, theaters, exhibitions, etc.). The rapid spread of SARS-Cov-2 and the increase in COVID-19 infections prompted a need to change the existing model of activities and habits characterizing human interaction. Essential aspects of life previously accomplished through face-to-face contact had to be transformed to a remote-access mode. This had a particularly powerful impact on work environments and on education. It is estimated that due to the epidemiological crisis, more than 1.5 billion students worldwide have experienced changes in the learning process. Higher education has undergone transformation for approximately 90% of students globally (Bozkurt & Sharma, 2020).

In the spring semester of the 2019/2020 academic year, universities in Poland transitioned from on-site teaching to remote education within a matter of weeks. Remote education, i.e., the use of information and communication technology, had become a necessity. The SARS-CoV-2 virus pandemic and these aggressive changes in education have created a difficult and even crisis situation in student life with its specificity, dynamics, and social context. A crisis is a breakdown in life resulting from an event that has become an obstacle to realizing life goals, and consequently provokes strong emotions. A crisis situation is a state of disorganization in which a person feels anxiety, shock, and difficulty associated with experiencing a particular situation (James & Gilliland, 2006).

The differences in education being brought into existence by universities may have significantly affected students' perceptions of the educational process, generating various types of obstacles in the process of obtaining knowledge. The limited opportunities for practical training, along with technical problems in conveying theoretical content, may have translated into a reduced sense of security and of student values. Even though online access solutions are not new to the academic and scientific community, the epidemiological crisis that hasarisen and the increased need to use remote tools in the short term may have caused problems in the functioning of the system (Mian & Khan, 2020; Guadix, Winston, Chae, et al., 2020). With regard to the characteristics of courses of study in individual majors, the greatest disturbances can be expected in medical and technical faculties. Their highly practical educational profile is linked to greater losses associated with reduced access to assignments. The risk of SARS-CoV-2 virus transmission has prevented students from interacting with patients in teaching hospitals, which reduces their opportunity to gain valuable experience and acquire knowledge necessary to complete their education. Lack of access to technical labs as well as the restructured system of conducting examinations are other considerations that might have negatively affected students' frame of mind (Mian & Khan, 2020) and their assessments of the impact events associated with the coronavirus outbreak have had on the university's stated educational goals.

The COVID-19 pandemic not only affects physical health but can also lead to mental health problems such as sleep disorders, depression, and post-traumatic stress symptoms (Pfefferbaum & North, 2020; Holmes, O'Connor, Hugh, et al., 2020). A major infectious

disease pandemic can have widespread and pervasive detrimental effects on individuals' mental health (Terhakopian & Benedek, 2007). For example, a sudden disease outbreak that is associated with a high rate of infection and rapid transmission creates fear, anxiety, and distress in the community (Bonanno, Ho, Chan, et al., 2008; Sim, 2016). The prolonged stress and anxiety caused by a pandemic can further trigger symptoms of depression (Keita, 2017). The constant exposure to danger, illness, death, catastrophic situations, stigma, and discrimination during a pandemic can cause an acute stress response and even induce post-traumatic stress reactions (Jakovljevic, Bjedov, Jaksic, et al., 2020). Post-traumatic stress disorder (PTSD) is a common, severe, and complex mental disorder that occurs after exposure to traumatic events. It is characterized by the intrusion and re-experiencing of the trauma through dissociative reactionssuch as flashbacks, attempts to avoid thoughts, feelings, places, or people associated with the trauma, persistent negative perceptions and mood, and agitation in the form of anxiety, sleep difficulties, or irritability (Shalev, Liberzon, Marmar, 2017).

The incidence of post-traumatic stress disorder following infectious disease pandemics of the 21st century, including COVID-19, is mixed, according to a meta-analysis made from 88 studies and systematic reviews. Post-pandemic PTSD in the overall population was 22.6% (95% confidence interval [CI]: 19.9-25.4%). The highest prevalence of PTSD was observed in healthcare workers (26.9%; 95% CI: 20.3-33.6%), followed by infected individuals (23.8%: 16.6-31.0%) and the general public (19.3%: 15.3-23.2%) (Yuan, Gong, Liu, et al., 2021). Among the numerous factors associated with the pandemic, some have been linked to an increased risk of PTSD. Quarantine or experience of social isolation due to the pandemic (Sprang & Silman, 2013; González Ramírez, Martínez Arriaga, Hernández-Gonzalez, et al., 2020; Rossi, Socci, Talevi, et al., 2020; Shi, Lu, Que, et al., 2020) were a major risk factor for post-pandemic PTSD, along with poor social life (Lau, 2005) and economic losses (Sun, Goldberg, Lin, et al., 2020; Wei, Meng, Ni, 2020). In addition, having a high-risk or perceived high-risk of infection was also linked to a higher probability of post-pandemic PTSD associated with suspected or confirmed infection (Xu, Zheng, Wang, et al., 2011). A cross-sectional study of 1,912 university students in China (conducted in March and April 2020) assessing psychiatric symptoms (depression, anxiety, and traumatic stress) during state-enforced quarantine revealed symptoms ranging from mild to higher, based on clinical cutoff points, as follows: 67.05% of students reported traumatic stress symptoms, 46.55% had symptoms of depression, and 34.73% reported anxiety symptoms. In addition, 19.56% entertained suicidal thoughts to some extent (Sun, Goldberg, Lin, et al., 2020).

Considering the above arguments, it seems relevant to learn the level of post-traumatic stress, the sense of security, and the perception of distance learning in the new conditions of higher education. For this reason we undertook the evaluation of these factors among students.

2. Material and method

2.1. Purpose of the study

The present study focuses on determining the impact of coronavirus outbreak events, perceptions of feelings of safety, and higher education during the COVID-19 pandemic from the perspective of university study respondents from across Poland. The authors have paid particular attention to the stressful effects of the social lockdown that took place, and to the phenomenon of social distancing. This study aims to learn the state of mind prevailing among students, differentiating between majors and years of higher education. It indicates changes in perception of daily life and sense of security in the educational process.

2.2. Research Project

This is a cross-sectional survey that was conducted between May 9 and June 9, 2020, among 371 students in Poland. Since the government had introduced restrictions on face-to-face meetings as well implementing home isolation, the survey was carried out by means of computer-assisted web interviewing (CAWI). The survey was conducted among students using the ten most popular Facebook fan pages targeted at students in Poland. The fan page administrators were asked to post a link to the survey on their message boards twice over the course of the survey, that is, on the first and seventh days of the survey. The posted link redirected the study participant to a poll on the "google surveys" portal. Participants could only complete the survey once. Research stages within the project: 1. Creation of an electronic version of the survey questionnaire on google.com; 2. Requesting a link to the questionnaire through Facebook fan pages directed to students; 3. Statistical processing of the obtained research material and preparation for publication; and 4. Preparation of an educational module for students for forming competencies in coping with traumatic experiences working in high risk coronavirus conditions in academic education.

2.3. Ethical approval

Ethical approval was granted by the Bioethics Committee of the Medical University of Lublin (Decision number: KE-0254/73/2020). The study was conducted in accordance with the ethical principles contained in Recommendations from the Association of Internet Researchers. (Markham, Buchanan, 2012). Participation in the study was voluntary and anonymous. All study participants gave their informed consent to participate in the study electronically. The informed consent page included an explanation of the purpose and methodology of the study. It contained the option to choose to take part by selecting the "Yes"or to decline by selecting "No." Only respondents who selected "Yes" were taken to

the questionnaire page. The respondent could opt out of the study at any time by closing the web page with the survey questionnaire.

2.4. Study participants

To be eligible to participate in the study, respondents had to meet the following inclusion and exclusion criteria. Inclusion criteria: 1. Being a student pursuing distance education during the coronavirus outbreak defined as the period beginning March 20, 2020; 2. Participation in educational activities at the university before the announcement of the coronavirus outbreak defined as January and February 2020; and 3. Providing informed consent to participate in the study by answering "Yes." Exclusion criteria were: 1. Being on sick leave, maternity leave, parental leave, or childcare leave before the declaration of the outbreak in Poland (January and February 2020); 2. Being on sick leave, maternity leave, parental leave, or childcare leave after the declaration of the outbreak in Poland; 3. Being on dean's leave during the course of the study; or 4. Not giving informed consent to participate in the study.

2.5. Research Tools

To achieve the objectives of the study, a structured questionnaire was developed consisting of two standard tools and a proprietary tool. The tools used in this study were questionnaires assessing:

2.5.1. Symptoms of stress associated with traumatic stress

To assess traumatic stress, including trauma-related distressing memories and lasting negative emotions resulting from the pandemic, we used the Polish version of the Impact Event Scale-Revised (IES-R) by Weiss and Marmar (1997) in the Polish adaptation of Juczyński and Ogińska-Bulik (2009). The scale consists of 22 statements describing symptoms of perceived stress during the last seven days concerning the experienced traumatic event. The assessment is made on a five-point Likert scale (from 0- 4). It is used to determine the current subjective sense of discomfort associated with the specific events that had occurred. It captures the three dimensions of PTSD: Intrusion (expressing recurrent images, dreams, thoughts, or perceptual impressions associated with the trauma), Hyperarousal (characterized by increased alertness, anxiety, impatience, and difficulty focusing attention), and Avoidance (manifested by an effort to rid oneself of thoughts, emotions, or conversations associated with the trauma). In analyzing the results, we adopted the more restrictive approach justified by the current criteria for diagnosing PTSD, that a diagnosis of PTSD can be suspected only in those individuals whose result is higher than the cutoff point (> 1.5) in their total score and in each of the three dimensions. Internal consistency, as assessed by Cronbach's alpha, was .92 for the scale as a whole, and for Intrusion,

Hyperarousal, and Avoidance, respectively: .89, .85, and .78 (Juczynski, Oginska-Bulik, 2009). In our study we used a modification of the statements included in the scale such that they indicated the current situation associated with the coronavirus epidemic. The thirteen statements of the scale specified the coronavirus epidemic as the item that should be assessed in each statement. In the study group, the internal consistency for the entire scale was .89, while for the individual subscales, Intrusion was .86, Hyperarousal was .80, and Avoidance was .74.

2.5.2. Assessment of the level of experience of security during the coronavirus pandemic

The Security Experience Questionnaire (SEQ) by Klamut (2019) was used to assess the level of security experienced. The scale uses a two-factor model with two subscales: Sense of Security and Reflection on Security. The Sense of Security scale examines the level of experiencing security associated with the belief that one's basic needs are currently being met and that one has satisfactory living conditions and opportunities for activity. The scale of Reflection on Security examines the degree of taking into account issues concerning the safety of oneself, of loved ones, the nation, and the world in assessing life situations and social conditions. The scale consists of nine statements (five for the Sense of Security subscale and four for the Reflection on Security subscale). The respondent is asked to respond on a five-point Likert scale as to how the statement relates to his/her current situation (from 1 - strongly disagree to 5 - strongly agree). Reliability as measured by Cronbach's alpha coefficient for the Feeling Safe subscale was .85 and for the Reflection on Security subscale was .68 (Klamut, 2019). In our study, Cronbach's alpha coefficient for the Sense of Security subscale was .84 and for the Reflection on Security subscale was .64.

2.5.3. Sociodemographic variables

In successive questions, respondents were asked to provide several sociodemographic variables. They were asked about: gender, age, place of residence, those with whom the respondent lives, and questions about the type of academic institution, course, and year of study.

2.6. Methods of statistical analysis

The results of the study were presented in relation to qualitative data using count and percentage and quantitative data using mean, standard deviation, median, and minimum and maximum value. To verify the presence of statistically significant relationships, analysis was performed using Pearson's non-parametric Chi2 test for qualitative data. The distribution of quantitative data was examined using the Shapiro-Wilk Test. Upon determination of a non-normal distribution, the Mann-Whitney U Test was employed to

compare two groups, and the Kruskal Wallis Test was used to compare three groups. In cases of data distribution conforming to the norm, the Student's T-test was applied to compare two groups and for more than two groups, the Anova analysis of variance was used. The Spearman's R correlation coefficient was also determined. A value of $p < .05$ was considered as statistically significant. The analysis was conducted using the StatSoft Statistica 13.0 PL statistical package.

3. Results

3.1. Characteristics of the group being researched

Table 1 shows the sociodemographic characteristics of the study group. A total of 371 students from all over the country participated in the study (Figure 1). The mean age was 22.3 ± 4.5 years. Most of the respondents lived in cities (61.2%; n = 227) and with family (74.9%; n = 278). The vast majority of respondents were undergraduate students (79.8%; n=296), first and third-year students (42.9%, n = 159 and 27.5%, n = 102, respectively). More than half of the respondents represented medical education majors (53.1%, n = 197).

Table 1. Sociodemographic characteristics of the group of students studied (n = 371).

Variables	Variable categories	n (%)
Age [years]	M = 22.3 (SD = 4.5), Me = 21, Q1 = 18, Q3 = 59	
	<21	108 (29.1)
	21-23	216 (58.2)
	24-25	19 (5.1)
	26-30	11 (3.0)
	>30	17 (4.6)
Gender	Female	299 (80.6)
	Male	72 (19.4)
Place of residence	City	227 (61.2)
	Village	144 (38.8)
Lives with	Family	278 (74.9)
	Partner	42 (11.3)
	Roommate	36 (9.7)
	Alone	15 (4.0)

Variables	Variable categories	n (%)
Stage of education	Bachelor	296 (79.8)
	Master	46 (12.4)
	Uniform Master	29 (7.8)
Year of study	I	159 (42.9)
	II	89 (24)
	III	102 (27.5)
	IV	13 (3.5)
	V	8 (2.2)
Major	Medical	197 (53.1)
	Humanities	41 (11.1)
	Science	26 (7.0)
	Natural Science	13 (3.5)
	Technical	32 (8.6)
	Social	37 (10.0)
	Arts	10 (2.7)
	Economics	9 (2.4)
	Other (national security, economic, sport, political)	6 (1.6)

Abbreviations: M – mean; SD – standard deviation; Me – median; Q1 – upper quartile; Q2 – lower quartile.

Figure 1. Map of Poland with distribution of respondents' participation in the study

3.2. Traumatic stress symptoms among students according to the IES-R and experience of security according to the SEQ and their relationship to selected variables

Table 2 shows the mean overall score for traumatic stress and its three dimensions and the experience of security scores. The mean total score of the IES-R scale for the study group was 1.40 ± .62. Among the subscales of traumatic stress, the highest score was obtained in the Avoidance dimension 1.79 ± .82, followed by the Hyperarousal dimension 1.45 ± .73 and Intrusion dimension 1.02 ± .72. Since the total score and the Intrusion and Avoidance dimensions are lower than 1.5 among those studied, traumatic stress symptoms could not be diagnosed. In the Avoidance dimension, the score is higher than 1.5, which indicates a significant effort to get rid of thoughts, emotions, or conversations related to the trauma. Security Experience Scale (SEQ) scores in the mid-high range indicate a state of feeling safe, both in the Feeling of Security (3.68 ± .68) and Reflecting on Security (4.08 ± .57) subscales.

It was observed that the higher a student's PTSD score on the IES-R scale, the lower his/her Sense of Security ($p < .0001$); and as the IES-R total score increased, Reflection on Security also increased ($p < .001$). The Intrusion and Agitation subscales significantly increased with a decreasing Sense of Security ($p < .0001$). The greater the PTSD in the Intrusion and Avoidance subscales, the considerably greater the Reflection of Security of the subjects ($p < .0001$).

Table 2. Traumatic stress scores among students according to the IES-R and experience of security according to the SEQ, and correlations between the scales.

Variables	Overall Result (M ± SD)	Intrusion (M ± SD)	Hyperarousal (M ± SD)	Avoidance (M ± SD)
IES-R	1.40 ± .62	1.02 ± .72	1.45 ± .73	1.79 ± .82
Variables	Sense of Security (M ± SD)		Reflection on Security (M ± SD)	
SEQ	3.68 ± .68		4.08 ± .57	
Variables	IES-R Overall Result	IES-R Intrusion	IES-R Hyperarousal	IES-R Avoidance
SEQ Sense of Security	R = -.25; $p < .0001$	R= -.30; $p < .0001$	R = -.30; $p < .0001$	R = -.01; $p = .860$
SEQ Reflection on Security	R= .18; $p < .001$	R = .20; $p < .0001$	R = .18; $p < .0001$	R = .07; $p = .204$

Abbreviations: M – mean; SD – standard deviation; IES-R – Impact of Event Scale - Revised; SEQ – Self Experiences Questionnaire; R – Spearman's correlation coefficient value; p – statistical significance level.

Women scored significantly higher on the IES-R than men. Also, significantly higher values of the Intrusion, Hyperarousal, and Avoidance subscales were observed in women compared to men $p < .0001$ (Figure 2). Men had a significantly higher Sense of Security than women (3.84 *vs.* 3.64, $p < .01$).

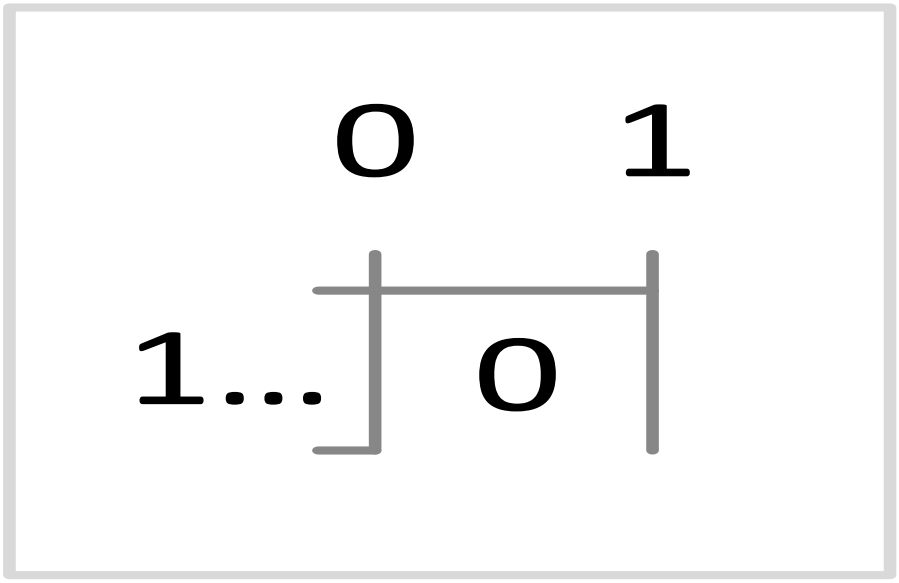

Figure 2: Student PTSD traumatic stress scores by gender.

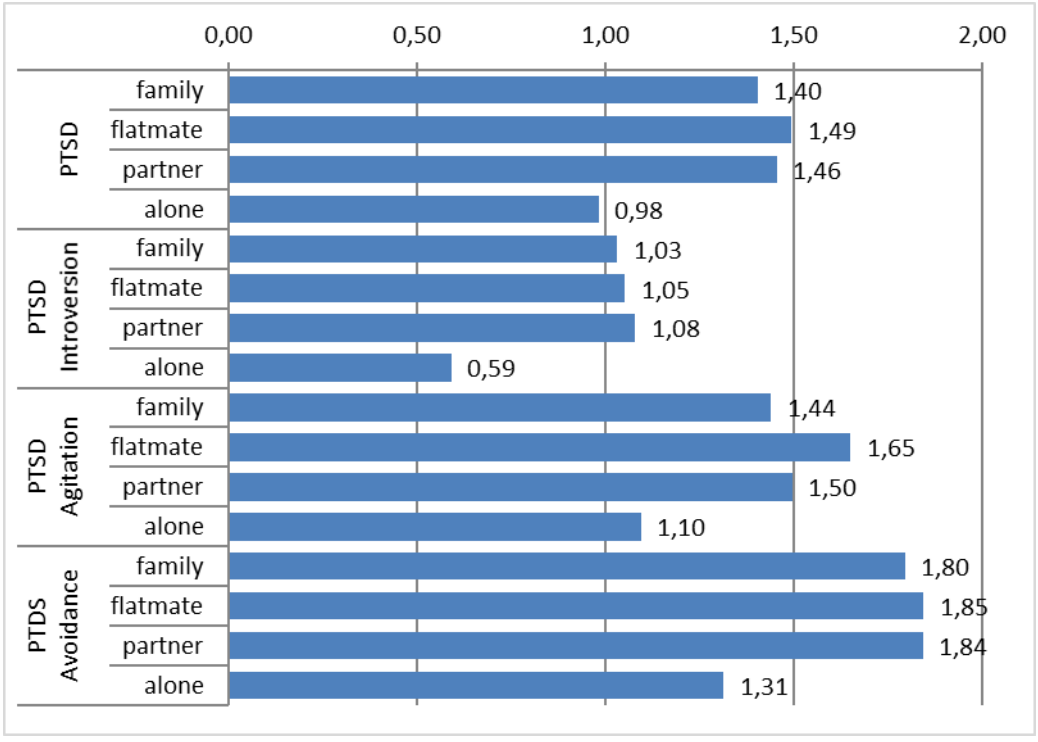

Figure. 3. PTSD traumatic stress scores among students by type of residence

Respondents living alone had considerably lower IES-R PTSD values than respondents living with others ($p < .05$). Similar relationships were associated with the values for Intrusion, Hyperarousal, and Avoidance, but the differences were not statistically

significant ($p > .05$) (Figure 3). Age and place of residence were not related to the severity of PTSD traumatic stress symptoms among students according to the IES-R ($p > .05$).

Field of study, type of education, and year of the study did not differentiate the severity of IES-R traumatic stress and experience of security among students according to the SEQ ($p > .05$) (Figure 3).

3.3. Students' perceptions of remote learning during the COVID-19 pandemic

Tables 3 and 4 present the perception of remote learning during the lockdown due to the COVID-19 epidemic in the opinion of students, and their relationship with selected variables. The results obtained indicate that with respondents' age, "Concern about experiencing technical problems during exams or thesis defense" decreased significantly (R= -.13, p < .009), as did "Fear of insufficient acquisition of practical knowledge, affecting professional future." (R = -.15, p < .004), and concerns for "Quality of family life in the financial context" (R= -.15, p < .004), "Amount of time spent on developing interests and hobbies" (R = -.11, p < .029), and "Quality of family relationships" (R = -.11, p < .04).

As the severity of PTSD increased, the severity of all analyzed fears present in the respondents (variables 10 to 15 in Table 3) and the quality of peer relationships increased significantly.

Significantly greater feelings of security were associated with respondents who experienced timelier delivery of information (to students) about exam deadlines (R = .12, p < .025), also with respondents who perceived improved quality of family life in the financial context (R = .22, p < .0001), more time devoted to pursuing interests (R = .20, p < .0001), or higher quality peer (R = .16, p < .002) and family relationships (R = .24, p < .0001). Fear of missing a semester was significantly lower than sense of security (R = -.24, p < .0001).

A significantly higher level of security in reflection was accompanied by students with a greater level of material completed in the remote education system (R = .12, p < .025) and a greater fear of insufficient acquisition of practical knowledge, affecting their professional future (R = .14, p < .006), while a significantly lower level of security in reflection was accompanied by students perceiving a lower degree of timeliness in being provided with information about course deadlines (R = -.13, p < .013).

The time devoted to the implementation of curriculum in the on-line system significantly increased for non-medical rather than medical students (3.13 vs. 2.68, p < .008). The severity of concerns related to various factors of remote learning was significantly stronger among females, and the selected factor of apprehension of remote learning during the lockdown period was expressed more frequently by non-medical majors.

Table 3. Student perceptions of the remote learning situation during the lockdown period of the COVID-19 epidemic, and selected variables

Nr.	Variables	Age		IES-R		Sense of security SEQ		Reflection on Security SEQ	
		R	*p*	R	*p*	R	*p*	R	*p*
1.	Time spent on implementation of curriculum in the online system (classes and related tasks)	.05	.310	.02	.659	-.10	.067	-.01	*.858*
2.	Effectiveness and quality of distance learning activities	.06	.264	-.08	.148	-.04	.448	-.07	.211
3.	Actual number of classes held	-.05	.326	.04	.403	-.09	.096	-.10	.054
4.	Level and degree of completion of the material in the distance education system	.10	.065	.09	.070	.00	.994	.12	.025
5.	Motivation to engage in online learning	.10	.067	-.08	.113	.07	.177	-.02	.715
6.	Availability of academic teachers in the online system for conducting classes	-.06	.283	-.04	.430	-.03	.600	-.05	.302
7.	Promptness in providing students with information on appointed times for holding classes	-.01	.774	-.08	.124	.03	.596	-.13	.013
8.	Promptness in providing students with information on deadlines for credits and exams	-.05	.361	-.09	.073	.12	.025	-.01	.778
9.	Fairness in assessment of credits and exams in the online format	.08	.130	-.03	.595	.08	.106	.04	.464
10.	Concern about technical problems during exams or thesis defenses	-.13	.009	.13	.011	-.08	.107	.10	.063
11.	Concern about not passing the semester	-.02	.707	.25	.000	-.24	.000	.03	.605
12.	Fear of not completing the practical training (practical classes and internships) in the semester	-.03	.579	.19	.001	-.10	.077	.09	.097
13.	Fear of insufficient acquisition of practical knowledge, influencing	-.15	.004	.23	.000	-.08	.135	.14	.006

	professional future								
14.	Concern about extending the academic year	-.06	.212	.14	.007	.04	.422	.05	.359
15.	Fear of difficulties in obtaining a job in the (learned) profession	.01	.886	.15	.003	-.07	.153	.09	.098
16.	Quality of family life in the financial context	-.15	.004	-.14	.008	.22	.000	-.05	.326
17.	Amount of time devoted to hobbies and interests	-.11	.029	-.07	.209	.20	.000	.03	.616
18.	Quality of peer relationships	-.04	.440	-.15	.005	.16	.002	-.02	.769
19.	Quality of family relationships	-.11	.041	-.02	.660	.24	.000	.05	.338

Abbreviations: IES-R – Impact of Event Scale - Revised; SEQ – Self Experiences Questionnaire; r – Spearman's correlation coefficient value; p – statistical significance level.

Table 4. Perceptions of the remote learning situation during the lock-down period of the COVID-19 epidemic (March 11-June 8, 2020) as perceived by students, and selected variables: gender and type of study

Lp.	Variables	Gender					Type of studies				
		Categories	M	SD	Z	*p*	Categories	M	SD	Z	*p*
1.	Time spent on the implementation of the curriculum in the online system (classes and related tasks)	F	**2.91**	1.56	.57	.567	Med	**2.68**	1.49	-2.66	.008
		M	**2.79**	1.44			Nmed	**3.13**	1.56		
2.	Effectiveness and quality of distance learning activities	F	**1.95**	1.05	-1.25	.213	Med	**1.92**	0.99	-.88	.380
		M	**2.03**	0.86			Nmed	**2.02**	1.05		
3.	The actual number of classes held	F	**2.05**	1.09	1.06	.291	Med	**1.98**	1.08	-.73	.463
		M	**1.82**	0.79			Nmed	**2.02**	0.99		
4.	Level and degree of completion of the material in the distance education system	F	**3.53**	1.23	4.08	.000	Med	**3.41**	1.22	.19	.846
		M	**2.85**	1.10			Nmed	**3.39**	1.24		
5.	Motivation to engage in online learning	F	**1.97**	1.14	-1.23	.219	Med	**2.02**	1.12	.37	.712
		M	**2.10**	1,04			Nmed	**1.98**	1.12		
6.	Availability of academic teachers in the online system for the realization of classes	F	**2.68**	1,03	-1.37	.170	Med	**2.65**	0.99	-1.18	.237
		M	**2.86**	0,94			Nmed	**2.78**	1.04		
7.	Promptness in	F	**2.43**	1.11	-3.48	.000	Med	**2.34**	1.09	-3.53	.000

	providing information to students about course deadlines	M	**2.93**	1.00			Nmed	**2.74**	1.08		
8.	Promptness in providing students with information on the dates of credits and exams	F	**2.19**	1.08	-3.20	.001	Med	**2.19**	1.08	-1.63	.103
		M	**2.64**	1,00			Nmed	**2.37**	1.07		
9.	Fairness of the assessment of credits and exams in the online form	F	**2.50**	0.97	-2.78	.005	Med	**2.61**	0.96	1.06	.287
		M	**2.83**	0.75			Nmed	**2.52**	0.92		
10.	Concern about technical problems during exams or defenses	F	**4.26**	0.88	3.47	.001	Med	**4.27**	0.88	2.10	.036
		M	**3.85**	0.96			Nmed	**4.07**	0.94		
11.	Concern about not passing the semester	F	**3.65**	1.14	2.94	.003	Med	**3,70**	1.09	2.41	.016
		M	**3.19**	1.08			Nmed	**3,40**	1.18		
12.	Fear of not passing the practical training (practical classes and internships) in the semester	F	**4.32**	1.05	2.62	.009	Med	**4,52**	0.92	5.43	.000
		M	**3.88**	1.17			Nmed	**3,80**	1.19		
13.	Fear of not acquiring enough practical knowledge to affect future professional career	F	**4.10**	0.93	3.82	.000	Med	**4,30**	0.88	6.58	.000
		M	**3.54**	1.10			Nmed	**3.64**	0.99		
14.	Concern about extending the academic year	F	**3.96**	1.01	1.90	.057	Med	**4.19**	0.89	5.48	.000
		M	**3.61**	1.25			Nmed	**3.55**	1.16		
15.	Fear of difficulties in obtaining a job in the (learned) profession	F	**3.64**	1.00	1.83	.068	Med	**3.61**	1.08	0.36	.721
		M	**3.38**	0.93			Nmed	**3.56**	0.88		
16.	Quality of family life in the financial context	F	**2.61**	0.80	-1.71	.088	Med	**2.58**	0.85	-1.51	.132
		M	**2.83**	0.77			Nmed	**2.72**	0.73		
17.	Amount of time devoted to hobbies and interests	F	**3.13**	1.30	-.62	.537	Med	**3.25**	1.27	1.47	.141
		M	**3.26**	1.28			Nmed	**3.05**	1.31		
18.	Quality of peer relationships	F	**2.26**	0.95	-.67	.501	Med	**2.26**	0.94	-0.42	.677
		M	**2.33**	1.01			Nmed	**2.29**	0.99		
19.	Quality of family relationships	F	**3.16**	1.07	.20	.845	Med	**3.15**	1.07	-0.18	.860
		M	**3.14**	0.86			Nmed	**3.17**	0.99		

Abbreviations: M – mean; SD – standard deviation; Z – U Manna-Whitney's test result; p – statistical significance level; F – female; M – male; Med. – medical major; Nmed – non-medical major.

4. Discussion

The COVID-19 outbreak poses a huge challenge to the national education system, health care, and the country's economy, while the virus itself poses a threat to physical as well as mental health. For these reasons, the COVID-19 pandemic will have long-term consequences, affecting international and national public health policy (Forte, Favieri, Tambelli, et al., 2020b). The COVID-19 pandemic quickly led to the closure of universities and colleges around the world, along with government recommendations to observe social distancing to help flatten the infection curve and reduce deaths from the disease. The most important safeguard against the pandemic, known as "social distancing" or "physical distancing" was the limiting of interpersonal contact, thus minimizing the kind of social transmission able to quickly develop in dense social networks including but not limited to university campuses (Weeden & Benjamin, 2020). The impact of the pandemic on higher education was dramatic and transformational, and a common trend in education systems around the world as well as in Poland was to respond to the pandemic with "emergency e-learning" protocols, meaning a rapid shift from the classroom to online learning systems. The sudden change in adapting and implementing online learning led to overwork and stress involving all participants in the changing system, including students, who were very much affected (Rashid & Yadav, 2020)

Our study was conducted during the first wave of experiences in the changing system in higher education associated with the COVID-19 epidemic. We expected that the severity of PSTD traumatic stress symptoms would be high, but the results show that they were not severe in the group studied (the IES-R for the research group was 1.40 ± .62). The factors significantly influencing the occurrence of traumatic stress symptoms were female gender and living alone.

The symptoms of post-traumatic stress disorder appear after traumatic events beyond the scope of normal human experience, for example: violent physical assault, torture, accidents, rape, or natural disasters (Deja, Denke, Weber-Carstens, et al., 2006). The non-exacerbated intensity of traumatic stress symptoms in the general population during the COVID-19 pandemic is supported by the findings of Forte. Forte, Favieri, Tambelli, et al. (2020a) conducted among Italians, in which the overall mean score of the IES-R scale was 22.38, while the Intrusion subscale was 1.01, Avoidance subscale was 1.06, and the Hyperarousal subscale was .98. Meanwhile, in the general population of Egypt, the following mean scores were obtained: overall score 34.25, Intrusion - 13.68, Avoidance - 12.83, and in the Hyperarousal subscale - 7.73 (El-Zoghby, Soltan, Salama, et al., 2020). A similar mean score indicating mild stressful effects of the pandemic was found in the Chinese population in research by Zhang and Ma (2020) and Wang, Pan, Wan, et al. (2020). A study by Li, Fu, Fan, et al. (2021) found that the prevalence of PTSD among university and college students in

Wuhan four months after the COVID-19 pandemic was 16.3%. A study of university students from Chengdu Province and Chongqing City from January 30 to February 8, 2020, showed the prevalence of post-traumatic stress disorder and depression were 2.7% and 9.0%, respectively, one month after the COVID-19 outbreak there (Tang, Hu, Hu, et al., 2020).

Based on analysis conducted by Almaiah, Khasawneh, Althunibat (2020), referring to the critical challenges and factors affecting the e-learning system during the COVID-19 pandemic, the authors conclude that in order to accept the e-learning system, universities must consider the following categories: 1) technological factors, 2) e-learning system quality factors, 3) cultural aspects, 4) self-efficacy factors, and 5) confidence factors. Distance learning is neither simple nor inexpensive. It takes considerable effort and resources. Ensuring good quality education requires both ongoing monitoring of the learning process and, parallel to the didactic process, a continuous process of modification and improvement of teaching tools for tomorrow. The very rapid transition from traditional to remote education during the COVID-19 outbreak has created many difficulties for both students and teachers. The students in our study expressed many concerns about the technical problems of online contact, limitations for full realization of learning outcomes, and fears of not passing the semester or of having extended work in the semester. These fearsas well as concerns about the quality of their peer relationships grew alongside intensification of PSTD traumatic stress symptoms.

In a study of 830 students participating in distance learning programs who responded to an online survey (26 questions), it was found that while students were generally positive about their distance learning experience; they faced challenges to their education, especially in relation to effective teaching practices and communication patterns (Markova, Glazkova, Zaborova, 2017). A study of Romanian students (n = 762) during the coronavirus pandemic indicated a hierarchy of problems arising from remote learning related to technical issues including instructors' lack of technical skills, teaching styles inappropriately adapted to the online environment, and lack of interaction in the teaching process (Coman, Tîru, Mesesan-Schmitz, et al., 2020).

With every crisis come profound challenges and opportunities for transformation. Past educational crises have shown that it is possible to build better and to achieve better results. The contemporary experience of rapid changes in the university remote education system are undoubtedly forming a new standard of academic education.

5. Conclusions

Preliminary results of our research, conducted on a group of students at a time of accelerated transformation from traditional education to a remote system and during a time of intense psychological pressure related to the COVID-19 epidemic in its first phase of

development, indicate that symptoms of traumatic stress in the studied group did not increase. Increased symptoms did occur in the Avoidance subscale, which is associated with a significant effort to rid oneself of thoughts, emotions, or conversations related to the trauma experienced. Students' experience of security was maintained at optimal levels and indicated a preserved sense of security. It was observed that students with higher severity of traumatic stress symptoms exhibited lesser feelings of security and showed significantly more anxiety about many factors related to distance learning. Concerns about the quality of remote education were significantly more common among female and non-medical students.

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Adult experience of stress and anxiety and coping in the first phase of the lockdown related to the COVID-19 pandemic

Doświadczenie stresu i lęku przez osoby dorosłe a radzenie sobie w pierwszej fazie lockdownu związanego z pandemią Covid-19

Abstract: *Aim:* The aim of this study is to examine adults' coping with risks and losses experienced during the COVID-19 pandemic, taking into account: anxiety level, gender, age and place of residence. *Method:* For this purpose, research was carried out on a total of 235 adults, divided into five groups based on Levinson's (1978) model of life development, recruited using the snowball technique via remote communication technology. Self-report data was collected using the Covid-19-RL (Risks and Losses) open interview, polish adaptation of Spielberger's STAI Inventory (assessing anxiety as a state) by Sosnowski et al (2011) and Carver's COPE inventory adapted by Juczyński and Ogińska (2009). Comparative analyses were performed using the ANOVA model in the SPSS Program.
Results: The results show the pandemic is a considerable deprivation factor and a threat to a broad spectrum of needs, and it generates a high level of anxiety in men and women in all adult age groups. Simultaneously, the perception of stressors depends on gender, age and place of residence. It was also found that age and place of residence differentiated people's choice of the type of coping (confrontational, defensive and ignoring). The paper ends with the discussion of the results and limitations of the study.
Keywords: COVID-19, psychological stress, anxiety, styles of coping, psychological well-being

Abstrakt: *Cel:* Celem tego opracowania jest poznanie specyficznych stylów radzenia sobie z zagrożeniami i stratami doznawanymi przez osoby dorosłe w okresie pandemii COVID-19 w kontekście nasilenia: stanu lęku, płci, wieku i miejsca zamieszkania.
Metoda: W tym celu przeprowadzono badania w grupie 235 osób dorosłych (podzielonych w oparciu o periodyzację Levinsona na 5 próbek), rekrutowanych techniką kuli śnieżnej, w oparciu technologię komunikacji zdalnej. Dane typu self-report gromadzono w oparciu o wywiad Covid-19-ZS (Zagrożenia i Straty) - autorstwa własnego, Inwentarz STAI (część X1 do oceny stanu lęku) Spielbergera, Strelau, Tysarczyka i Wrześniewskiego (1996) oraz inwentarz COPE Carvera w adaptacji Juczyńskiego i Ogińskiej-Bulik (2009). Analizy porównawcze wykonano z wykorzystaniem modelu Anova w oparciu o Program SPSS.
Wyniki: Wyniki wykazały, że sytuacja systemowej walki z pandemią stanowi czynnik deprywacji i zagrożenia dla szerokiego spectrum potrzeb oraz generuje wysoki poziom lęku u mężczyzn i kobiet we wszystkich grupach wiekowych osób dorosłych. Jednocześnie specyfika percepcji stresorów uzależniona jest od płci, wieku i miejsca zamieszkania. Wyłonione style radzenia sobie: konfrontacyjny, obronny i lekceważący okazały się specyficzne dla grup zróżnicowanych ze względu na wiek i nasilenie stanu lęku. Dyskusja wyników oraz analiza ograniczeń generalizacji wyników wieńczy pracę.
Słowa kluczowe: COVID-19, psychologiczny stres, lęk, style radzenia sobie, psychiczny dobrostan.

1. Introduction

Nowadays, adult people constantly struggle with stressors of a biological, psychological, social, economic, political and spiritual nature. These stressors can be classified according to a number of different criteria. For instance, taking into account duration, the following stressors can be identified: life events, chronic stressors and nonevents (Wheaton & Mantazar, 2010), whereas if we consider the importance of a stressful event, there are minor (*daily hassles*) and serious stressors. Also, we can distinguish controlled and uncontrolled stressors. Finally, the range of activity allows us to distinguish common and individual stressors, while the level of repeatability - repetitive (cyclical) and sudden (unpredictable) events (Lazarus & Cohen, 1977).

The current COVID-19 pandemic is a sudden, chronic, uncontrolled, unknown, universal stressor that disrupts human functioning in many areas of life. People on all continents experience stress not only due to the spread of various forms of the virus, but also because of the prevention restrictions (mainly social distancing) imposed by governments and international institutions (WHO, 2020; Farooq & Ali, 2020). The first phase of the systemic prevention efforts in Poland began on March 12, 2020 and involved implementing the principles of social distance in economic and cultural life, education, entertainment, and transport.

For example, traditional forms of education were replaced with distance learning (in kindergartens, schools and universities); entertainment, art and tourism institutions were closed; and freedom of movement within and outside the country was restricted. These changes and limitations disrupt people's everyday functioning and constitute a stress factor, posing a potential threat to one's mental health (Rajkumar, 2020; Brooks et al., 2020). Pandemic-induced stress, manifested in increased anxiety, depends on many factors. Gender and marital status proved significant, as anxiety was higher among women and married persons (Moghanibashi-Mansourieh, 2020; Fu et al., 2020; Duygu et al., 2020). Fear appears to be concentrated in regions with the highest reported COVID-19 cases and urban environments. Moreover, people who followed coronavirus-related news more often, as well as those aged over 40 years, reached a higher level of anxiety (Fitzpatrick et al., 2020). The type of profession seems to be another significant moderating factor since healthcare workers experienced higher anxiety than workers of other professions (Duygu et al., 2020). Next, it appears that mental condition also influences anxiety connected with the COVID-19 pandemic. For example, the patients with anorexia and bulimia marked increased anxiety and reported greater concerns about the impact of COVID-19 on their mental health than physical health (Termorshuizen et al., 2020). However, no worsening of anxiety and depression levels was found in patients with multiple sclerosis (Capuano et al., 2020). Increased anxiety may also result from enforced social isolation. Home quarantine very often

involves spending an excessive amount of time in front of screens and social media as well as oversearching and listening to Covid-19–related news. This can lead to the spread of unscientific news and information that cause fear and paranoia (UNICEF, 2020). However, it is not yet known what information related to coronavirus generates the state of anxiety in people of different age, gender and place of residence in Poland. To date, research in Poland has focused mainly on health hazards in people at risk (Krok & Zarzycka, 2020).

Anxiety signals that the individual experiences stress, but also motivates the individual to cope with a stressful situation (Man et al., 2020). The present study is based on a cognitive approach, emphasizing the regulatory role of subjective assessment of the situation in the stress transaction and coping (Lazarus & Folkman, 1984; Hobfoll, 1998). Psychological stress occurs when an event is evaluated as dangerous, i.e. when it poses a challenge, a threat, loss or damage to a person. This process of evaluating the situation is called the *primary appraisal*. A specific internal representation of the situation initiates the analysis of resources available to a person (*secondary appraisal*). If an individual perceives his or her resources as sufficient, a state of positive stress (*eustress*) arises. However, when an individual assesses his or her resources as insufficient, a state of negative stress (*disstress*) appears. The coping strategies taken in a given stress situation are then assessed as part of the next stress transaction cycle (*reappraisal*). An important factor signaling the appearance of negative stress is anxiety. According to Cofer and Appley's (1972) Theory of Threat Perception, when events are perceived as repetitive and predictable, an individual activates ready-made, routine coping strategies (*coping behavior*). However, when unpredictable situations appear, anxiety increases (*primary threshold of excitation*), which motivates the individual to expand the coping strategies at his or her disposal. If these new strategies prove satisfactory, re-adaptation takes place. Yet, if none of the actions taken are effective, the *frustration threshold* is passed, the main indicator of which is a high level of anxiety. In this situation, the individual is mainly motivated to defensive actions. When the cost of defense efforts outweighs the benefits, the individual risks reaching the *exhaustion threshold*, which leads to withdrawal, helplessness and a lack of hope for improvement.

Thus, in the cognitive approach, the perceived losses and anticipated risks related to the pandemic cause anxiety, which, in turn, activates the coping process. A successful use of coping strategies helps individuals manage stressful events and reduce negative emotions (Lazarus, Folkman, 1984). As the course of the pandemic development is currently hardly predictable and controllable, strategies based on modifying oneself may prove more effective in preventing the escalation of stress than strategies aimed at solving the problem (c.f. Antonovsky, 1979; Park et al., 2001). This seems to be confirmed by empirical research as regarding coping styles in Wuhan. The findings show that approximately 70.2% of residents have actively responded to the epidemic by participating in activities, talking with others about worries, and looking on the bright side. In comparison, 29.8% relied on passive coping

styles, such as escapism, smoking, and depending on others during the COVID-19 pandemic (Fu et al., 2020). Adaptive coping strategies (e.g. *"Tried to look on the bright side"; "Rediscovered what is important in life"; "Made light of the situation"; "Tried to control my disappointment, regret, anger, and sadness"*) improve psychological resistance while maladaptive coping strategies (e.g. *"Tried to make myself feel better by eating, drinking, smoking, using drugs or medication, and so forth"; "Tried to forget the whole thing"; "Accept the reality as there is no other way"*), induce acute stress disorder (ASD) (Zhi & Xueying, 2020). However, alcohol and drug misuse, consistent rumination about COVID-19, or engaging in high-risk behaviors (i.e., *gambling/excessive spending*) may be harmful in the long term (Balasubramanian et al., 2020). As indicated by the studies above, coping strategies undertaken to deal with the pandemic may have a different value for the well-being of an individual; therefore, their exploration seems crucial for developing guidelines for psychological practice. To date, studies of coping with the COVID-19 pandemic in Poland were based on the top-down approach, whereby the existing classifications of coping were applied to the new situation of the pandemic (Rogowska et al., 2020; Krok & Zarzycka, 2020). Therefore, it is worth making an empirical exploration of ways of coping based on a bottom-up approach in order to understand the specifics of responding to the current pandemic in the first phase of its development.

To sum up, the present study aims to explore subjective representations of losses and risks that cause anxiety, and the coping strategies of various groups of adults in the first phase of the fight against the COVID-19 pandemic in Poland. For this purpose, the following research problems were formulated:

1) What risks and losses do adults perceive in connection with the first phase of the COVID-19 pandemic in Poland, depending on gender, age and place of residence?

2) What is the level of anxiety in adults in relation to the first phase of the COVID-19 pandemic in Poland depending on gender, age and place of residence?

3) What are adults' coping styles in the first phase of the COVID-19 pandemic in Poland, depending on gender, age and place of residence?

4) What strategies of coping do adults take in the context of various risks and losses related to the first phase of the COVID-19 pandemic in Poland?

5) What risks and losses related to the first phase of the COVID-19 pandemic in Poland are more strongly associated with anxiety in adults?

6) How do adults with varying anxiety levels related to the first phase of the COVID-19 pandemic cope?

For open-type questions (1-4) no hypotheses were formulated. Only in relation to question 5 can we assume, according to A. Maslow's Hierarchical Concept of Needs (2014), that losses and risks related to lower-order needs generate a higher level of anxiety than those related to higher-order needs. Also, in relation to question 6, in line with the Theory of Threat Perception by Cofer and Appley (1972), it can be expected that people with a low

anxiety level undertake routine coping strategies, people with a moderate anxiety level tend to expand their set of strategies, and people with a high anxiety level prefer defensive ways of coping with stress.

2. Methodology

2.1. Participants

This was a cross-sectional online study, in which participants were recruited using the snowball technique: initial respondents were invited to join the study via social media and encouraged to send the survey to as many people as possible. This method of collecting data is based on type II randomization, in which the researcher randomly divides the participants into several groups and takes the average of participants' reactions as a final result (Brzeziński, 2012).

The research sample consisted of a total of 235 people, of which 36.2% were men and 63.8% were women. The respondents were assigned to five groups, according to Levinson's (1978) five stages of development. The "early adult transition" group (18-22 years of age) consisted of 49 people, the "entering the adult world" group (22 to 28 years of age) - 102 people, the transition period group (28-33 years of age) - 27 people, the "settling down" group (33-40 years) - 17 people and 40 people were assigned to middle and late adulthood group (40-65 years). The respondents represented various environments: rural areas (28.1%), municipal city (11.9%), poviat city (11.9%), voivodeship city (46%). The respondents mainly had higher (56%) and secondary (37.5%) education; only 6.4% of the respondents had elementary level education.

2.2. Tools

The research was based on a mixed qualitative and quantitative model. Qualitative methods are used to gain subjective meanings from textual data. It allows researchers to understand others based on cultural codes. In order to obtain "new" information and better understand the perception of losses and risks related to the COVID-19 pandemic by adults, problem-focused interviews with two open-ended questions were used (Juszczyk, 2013):

1) What do you consider a risk in the current pandemic situation?
2) What have you lost in relation to the outbreak of the pandemic?

The data were analysed following an inductive "bottom-up" approach, which involved:

a. reviewing the statements and distinguishing various aspects of their meanings;

b. preparing a list of separate semantic codes (content interpretations);

c. re-coding individual statements, based on a previously prepared list of codes, by two experts (Psychologists) using the Kappa-Fleiss test for nominal data.

The detailed and general categories of risks and losses with examples of statements are presented in Table 1.

Table 1. Detailed and general categories of Risks and Losses with examples of statements in the RL-COVID-19 Interview

General categories of Risks	Detailed category of the Risks	Examples
Health	Own Health	*„I'm afraid I'll get infected"*
	Health of loved ones	*„I'm afraid of my parents and grand mum"*
Economical safety	Financial resource	*„I will probably not get my salary"*
	Work	*„I'm afraid I will lose my work"*
General categories of the Losses	Detailed category of Losses	Examples
Economical income	Financial resource	*„I lost part of my income"*
	Work	*„There are no new orders at work". "We can't organize meetings with clients"*
Afiliation	Direct contact with my relatives	*„I can't visit my father"*
	Direct social contact	*„I miss meeting my friends"*
Autonomy	Freedom of movement	*„I can't freely do shopping" „I must not leave my city"*
	Rhythm of life so far	*„I lost my routine"*
	Control of life activity	*„I can't organize my future"*
	Active leisure time. hobby	*„I can't attend at the gym"*
	Religious practices	*„I can't attend the mass celebration"*
Emotional wellbeing	Safety gratification	*„I have lost my sense of security. I'm afraid of what will happen"*
	Emotional balance	*„It is frustrating; It costs me a lot of nerves"*
Traditional form of life engagement	Traditional form of study	*„I miss attending classes"*

Next, two experts assigned appropriate codes for each statement, based on the set of general categories of losses and risks. The experts' compliance was analyzed using the Cohen's Kappa test, which takes into account random compliance in determining the actual agreement of raters. The obtained values at the level of 0.45 for coding losses ($Z = 4.08$) and 0.43 for coding risks ($Z = 2.68$) indicate a statistically significant agreement of the experts ($p < .01$), and confirm the reliability of RL (risks and losses) COVID-19 interview. This tool can be

used not only to explore qualitatively different stressors, but also determine the intensity of stress by adding up different stressors.

To assess the intensity of actual anxiety, the first part of *The State-Trait Anxiety Inventory* (STAI-X1), adapted by Sosnowski et al. (2011) was used. There are 20 items included in the scale measuring the level of state anxiety, defined as "*subjectively perceived feelings of fear and emotional tension which are accompanied by and related to the activation of the autonomic nervous system*" (Spielberger, 1966, 16-17).(e.g. *I am tensed, I am worrying that something bad is going to happen, I feel carefree)*. The tool complies with the psychometric criteria for reliability and validity. The internal consistency (Cronbach's *a*) estimates for 0,84, whereas test-retest reliability for the state anxiety equals 0,46 (low score indicates a more dynamic variable). To assess the validity of the scale for measuring state anxiety, the researchers made use of experimental situations with different threat levels (a normal lesson, an imaginary test, a real test). The differences between distinguished groups appeared to be statistically significant ($p < .01$ or $p < .05$), which confirms the diagnostic value of the scale x-1.

Finally, a multidimensional self-report coping inventory (COPE) by Carver et al (1989) adapted by Juczyński and Ogińska-Bulik (2009) was used to assess different ways in which people respond to stress. In the instruction, the respondents were asked to refer to currently experienced risks and losses related to coronavirus. The COPE inventory includes 13 dimensions of coping: five interpreted as sub-dimensions of problem-focused coping (i.e., *active coping, planning, suppression of competing activities, restraint coping, seeking social support for instrumental reasons*), and another five as sub-dimensions of emotion-focused coping (*seeking social support for emotional reasons, positive reinterpretation and growth, acceptance, denial, turning to religion*); the remaining three were classified as "*less useful*" strategies (*focus on and venting of emotions, behavioral disengagement, mental disengagement*). The set had been extended to include two additional scales: *a sense of humor and substance use*. Cronbach's *a* coefficients of the scales range from 0,48 to 0,94 and the stability coefficients of a test-retest (after 6 weeks) procedure are between 0,45 to 0,82.

2.3. Procedure

The research project was positively assessed by the Research Ethics Committee of the UJK Department of Psychology (NR KEBN-KP-UJK 2/2020). The web-side research was carried out from March 24 to 30, 2020, i.e. during the introduction of a lockdown in various areas of public life in Poland (e.g. education, transport, tourism, the hotel and catering industry, cultural life). On receiving and clicking the link the participants got redirected to the information about the study and informed consent. After they accepted to take the survey, they filled up the demographic details. Then a set of questionnaires appeared

sequentially (RL-COVID-19, STAI-X1, COPE) which the participants were to answer online through Google forms.

2.4. Research model and quantitative data analysis procedure

The analyses were based on a comparative model. For this purpose, individuals differentiated in terms of an independent variable were distinguished and compared in terms of a dependent variable. The normality of the distributions of variables was assessed with the Kołmogorov-Smirnov and Liliefors tests, and the homogeneity of variance was tested with the Levene's test. Next, groups were compared using both parametric tests (t-test, univariate and multivariate ANOVA) and non-parametric tests (U Mann-Whitney, Kruskal-Wallis). Post-hoc Scheffe and Bonferroni tests for multiple comparisons showed significant differences between the groups in the perception of stressors, anxiety level and coping. Moreover, the analysis of specific coping styles to deal with the effects of the pandemic was carried out using the Exploratory Factor Analysis.

3. Results

3.1. Adults' perception of risks and losses in the first phase of the COVID-19 pandemic by gender, age and place of residence

The respondents' statements were assigned to the categories of risks and losses distinguished on basis of the RL- COVID-19 interview. The frequency of these stressors in terms of gender, age and place of residence is presented in Tables 2, 3 and 4.

Table 2. Comparisons of the frequency of the Risks and Losses due to pandemic of COVID-19 depending on gender

The types of Risks (R) and Losses (L)	Total (%)	Men (%)	Women (%)	X^2	*p*
Own Health (R)	31.1	29.4	32.0	0.17	.68
Health of loved ones (R)	22.6	16.4	26.0	2.82	.09
Economical safety (R)	25.1	34.1	20.0	5.75	**.01**
Economical income (L)	26.4	29.4	24.7	0.63	.43
Afiliation (L)	30.2	25.9	32.7	1.18	.28
Autonomy (L)	34.0	27.1	38.0	2.89	.09
Emotional wellbeing (L)	8.5	8.2	8.7	0.01	.91
Traditional form of life engagement (L)	8.1	5.9	9.3	0.87	.35

Table 3. Comparisons of the frequency of the Risks and Losses due to pandemic of COVID-19 depending on age

The types of Risks (R) and Losses (L)	18-22 (%)	22-28 (%)	28-40 (%)	40-65 (%)	X^2	*p*
Own Health (R)	12.2	34.3	38.6	37.5	10.56	**.01**
Health of loved ones (R)	18.4	22.5	25.0	25.0	0.78	.85
Economical safety (R)	16.3	26.5	29.5	27.5	2.69	.44
Economical income (L)	18.4	31.4	18.2	32.5	5.22	.16
Afiliation (L)	38.8	28.4	20.5	35.0	4.28	.23
Autonomy (L)	14.3	36.3	47.7	37.5	12.63	**.006**
Emotional wellbeing (L)	6.1	10.8	4.5	10.0	2.04	.56
Traditional form of life engagement (L)	8.2	6.9	13.6	5.0	2.54	.47

Table 4. Comparisons of the frequency of Risks and Losses due to pandemic of COVID-19 depending on place of residence

The types of risks (R) and losses (L)	Village (%)	Commune and poviat city (%)	Voivodeship city (%)	X^2	*p*
Own Health (R)	31.8	30.4	31.5	0.03	.98
Health of loved ones (R)	13.6	30.4	25.0	5.22	.07
Economical safety (R)	21.2	14.3	34.3	8.67	**.01**
Economical income (L)	22.7	26.8	29.6	0.99	.61
Afiliation (L)	31.8	33.9	27.8	0.74	.69
Autonomy (L)	28.8	30.4	40.7	3.22	.20
Emotional wellbeing (L)	6.1	5.4	11.1	2.20	.33
Traditional form of life engagement (L)	6.1	14.3	5.6	4.29	.12

The data in Table 2 show that the respondents experience various stressors related to the pandemic: loss of their own autonomy (34.0%) and loss of the possibility of contact with others (22.6%), risk to their own health (31.1%), risk to relatives' health (22.6%), job loss and income loss (26.4%) or fear that economic problems will arise in the future (25.1%). According to the frequency analysis, the perception of stressors by men and women is similar, although men more often experience risks associated with keeping a job and ensuring financial security ($p < .01$).

A comparison of the frequency of stressors in different age groups shows that people entering adulthood (18-22) less often associate the COVID-19 pandemic with loss of their own autonomy in comparison with other age groups ($p < .01$) and less often perceive it as a risk to their own health ($p < .01$). The percentage analysis suggests that loss of interpersonal contacts is more often noticed by the youngest group of adults (38.8%), and the deterioration

of job situation is more often declared by respondents aged 22-28 years (31.4%) and 40-65 years (32,5%). No significant differences were found in the perception of stressors between respondents living in various urban and rural settlements. Only a higher percentage of "Work and financial" risk ($p < .01$) was observed in respondents living in a voivodeship city (34.3%), compared to the respondents living in a commune and poviat city (14.3%) as well as a village (21.2 %). There were no statistically significant differences with regard to the remaining categories of stressors, although the comparison of the percentage share of stressors did not give such clear results. For example, respondents from the countryside declared the health risk of relatives at the level of 13.6% while respondents in other groups at the level ranging from 30.4% to 31.5%. Similarly, loss of respondents' own autonomy was declared by the respondents living in a voivodeship city at the level of 40.7%, while by those living in other settlements at the level ranging from 28.8% to 30.4%.

3.2. Anxiety level associated with the first phase of the COVID-19 pandemic by gender, age and place of residence

Basic descriptive values and a comparisons of the intensity of anxiety related to the COVID-19 pandemic by gender, age and place of residence are presented in Table 5.

Table 5. Comparisons of the intensity of Anxiety as a state related to the COVID-19 pandemic by gender age and place of residence

Variables	Anxiety		Leven's test		ANOVA	
	M	*SD*	*R*	*P*	*F*	*p*
Men	45.33	12.04	0.79	.37	10.77	**.001**
Woman	50.55	11.54				
18-22 aged	47.96	12.16	0.09	.98	0.78	.53
22-28 aged	49.28	12.00				
28-33 aged	49.70	12.42				
33-40 aged	51.24	12.11				
40-65 aged	46.15	11.39				
Village	48.73	10.93	0.76	.52	1.07	.36
Commune city	51.14	13.62				
Poviat city	50.04	11.45				
Voivodeship city	47.17	12.18				

The distribution of anxiety in all groups is platykurtic, which indicates a considerable diversity among respondents in particular research groups. Having confirmed the homogeneity of distributions, we performed a one-way analysis of variance, which showed

that women are more likely to experience higher levels of anxiety related to the COVID-19 pandemic than men ($p < .001$). However, adopting the Polish norms for both genders to particular age groups, a high anxiety level was found both in the group of men and women (ranging from 7 to 8 sten scores) (Sosnowski et al., 2011). Age and place of residence had little impact on the severity of anxiety related to the COVID-19 pandemic.

3.3. Adults' coping with risks and losses in the first phase of the COVID-19 pandemic by gender, age and place of residence

As coping is a multidimensional concept, exploratory factor analysis was used to identify the main ways of coping to deal with the pandemic. Based on the Kaiser-Mayer-Olkin test (.79) and the Barlett test ($X^2 = 1202.10$; $df = 105$; $p < .001$), we decided to reduce the number of variables. Due to the expected relationships between the individual coping styles (measured with the COPE inventory), we used non-orthogonal factor analysis, based on the principal component method, with Oblimin type rotation and Kaiser normalization. Having analyzed the scree plot, we decided to distinguish three factors, which explain the cumulative variance to a satisfactory level (52.30%). A detailed summary of the factor analysis is presented in Table 6.

Table 6. Loadings from Exploratory Factor Analysis of coping with Pandemic Covid-19*

Type of coping	Factors		
	1	2	3
Active coping	**.716**	-.334	-.106
Planning	**.855**	-.100	-.036
Instrumental suport	**.823**	.014	.081
Emotional suport	**.819**	.129	-.007
Suppressing activities	**.694**	-.119	-.080
Religion	.404	.241	**-.609**
Reinterpretation	.379	-.411	-.073
Restraint	.419	-.096	.313
Acceptance	.271	**-.588**	.299
Venting emotion	**.707**	.355	-.020
Denial	-.021	**.636**	.221
Mental disengagement	.327	.154	.434
Behavioural disengagement	.160	**.654**	.097
Substance use	.081	.217	**.643**
Humour	-.068	.086	**.702**

* Rotation reached convergence the after 20 iterations

The content analysis of these factors showed the consistency of related coping strategies, which resulted in the emergence of three types of coping with the pandemic. The "*confrontational*" coping style is characterized by cognitive and emotional concentration on the situation; it is based on the strategies of Active coping, Planning, Seeking social support for instrumental and emotional reasons, Avoidance of competing activities, and Focus on emotions. The "*defensive*" coping style involves activating perceptual defense and is based on the strategies of Restraint and Denial while minimizing the use of Acceptance strategy.

We named the third coping style "*ignoring*" as individuals who prefer this coping style tend to underestimate the pandemic and resort to the strategies of Psychoactive substances, Humor while avoiding the strategy of Turning to religion.

The comparison of coping styles in terms of gender, age and place of residence is presented in Tables 7, 8, 9.

Table 7. The differences between Men and Woman in Confrontational (CO) Defensive (DE) and Ignoring (IG) styles of coping with Pandemic of Covid-19

Coping styles	Men		Women		Leven's test		ANOVA	
	M	*SD*	*M*	*SD*	*R*	*P*	*F*	*p*
CO	-0.16	0.96	0.09	1.01	0.38	.54	3.66	.05
DE	-0.14	0.76	0.08	1.11	5.92	.01	-	-
IG	-0.14	0.97	0.08	1.01	0.10	.75	2.70	.10

Table 8. The differences among the age group in Confrontational (CO) Defensive (DE) and Ignoring (IG) styles of coping with Pandemic of COVID-19 due to age

Coping styles	18-22 (n49)		22-28 (n102)		28-33 (n27)		33-40 (n17)		40-65 (n40)		Leven's test		ANOVA	
	M	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*	*R*	*p*	*F*	*p*
CO	-0.48	1.07	0.10	0.93	0.09	0.82	0.21	1.14	0.17	1.00	0.96	.43	3.79	**.005**
DE	0.33	1.17	-0.02	1.05	-0.02	0.91	-0.42	0.72	-0.16	0.68	1.97	.10	2.42	**.05**
IG	0.57	1.06	0.06	0.92	0.02	0.79	-0.25	1.04	-0.74	0.76	1.28	.28	11.56	**.001**

The variance analysis showed that women more often than men prefer confrontational style (p-.05), while no gender differences were found for the ignoring and defensive styles (based on the non-parametric U-Mann-Whitney test due to the lack of homogeneity of the group variance). Confrontation in women, however, is usually based on seeking emotional support (Z = 2.76; p <.01) and venting emotions (Z = 3.62; p <.01), and therefore is more affective in nature.

Table 9. The differences among the age group in Confrontational (CO) Defensive (DE) and Ignoring (IG) styles of coping with Pandemic of Covid-19

Coping styles	Village (*n*66)		Commune city (*n*28)		Poviat city (*n*28)		Voivodeship city (*n*108)		Leven's test		ANOVA	
	M	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*	*R*	*p*	*F*	*p*
CO	0.15	1.08	-0.15	0.91	-0.14	1.01	0.01	0.99	0.51	.67	0.89	.45
DE	0.16	1.04	0.34	1.16	-0.09	1.06	-0.21	0.85	1.72	.16	3.40	**.02**
IG	-0.13	0.95	0.01	0.94	0.42	1.19	-0.06	0.95	0.87	.46	2.24	.08

The analysis of variance showed that age of respondents influenced the frequency of using confrontational (p = .005), defensive (p = .05) and ignoring (p = .001) styles. Multiple comparisons with the use of Scheffe's post-hoc test indicated that the youngest group of respondents, in particular, significantly less often used the confrontational style while preferring the ignoring and defensive styles more often, compared to other groups. However, while the difference between the youngest group of respondents and other groups in using the confrontational style is abrupt (the mentioned post hoc test distinguished two different subsets at the p - level of .05), it is more continuous with regard to the ignoring style (Sheffe's post hoc test distinguished three different subsets at the p - level of .05). This suggests that the ignoring attitude decreases with age.

Place of residence, on the other hand, had little impact on the frequency of using confrontational and ignoring styles. One difference was found between the groups in terms of the defensive style, based on the ANOVA (p = .02), indicating that inhabitants of small towns use defensive strategies more often compared to respondents living in large cities. However, the post-hoc Scheffe test shows that all groups are homogeneous in terms of the frequency of using confrontational (p = .60), defensive (p = .09) and ignoring (p - .09) styles.

3.4. Adult coping strategies in the context of various risks and losses related to the first phase of the COVID-19 pandemic in Poland

A diverse picture of the respondents' coping prompts us to examine the role of specific situational contexts. As none of the coping styles had a normal distribution, we used the nonparametric U Man-Whitney test to compare the coping of people who are affected and those who are not affected by particular stressors. Table 10 presents those risks and losses in which specific coping strategies were observed.

Table 10. Comparisons of coping strategies between the respondents noticing (1) and not-noticing (2) particular risks (R) and losses (L) related to the COVID-19 pandemic

Strategies of Coping	Own Health (R)			Health of loved ones (R)			Affiliation (L)			Autonomy (L)		
	*R*0	*R*1	*Z*	*R*0	*R*1	*Z*	*R*0	*R*1	*Z*	*R*0	*R*1	*Z*
Active coping	110.00	135.75	2.71**	109.67	146.60	3.51**	112.40	130.94	1.94*	108.15	137.08	3.12**
Planning	106.66	143.16	3.83**	111.46	140.45	2.75**	114.64	125.77	1.16	109.53	134.42	2.67**
Instrument suport	111.52	132.39	2.19*	111.05	141.85	2.92**	110.46	135.42	2.60**	113.23	127.24	1.51
Emotional suport	111.52	132.39	2.10*	110.58	143.47	3.12**	107.72	141.75	3.54**	108.75	135.92	2.92**
Suppress. Activities	112.03	131.25	2.02*	113.02	135.08	2.01*	116.31	121.90	0.58	111.67	130.26	2.00*
Religion	114.85	125.00	1.07	115.73	125.78	0.96	116.05	122.51	0.68	113.84	126.06	1.32
Reinterpretation	115.45	123.65	0.86	115.16	127.74	1.19	117.89	118.25	0.04	110.88	131.79	2.25*
Restraint	115.77	122.95	0.76	115.89	125.24	.89	116.78	120.82	0.42	114.64	124.52	1.07
Acceptanc	116.24	121.91	0.60	115.54	126.43	1.04	117.09	120.09	0.31	113.78	126.17	1.34
Venting emotion	109.06	137.85	3.02**	112.02	138.53	2.51**	108.40	140.18	3.31**	113.36	126.98	1.46
Denial	121.64	109.93	1.27	123.30	99.78	2.30*	119.20	115.22	0.43	122.54	109.21	1.48
Mental disengag.	119.73	114.16	0.59	119.18	113.93	0.50	113.32	128.82	1.62	117.71	118.57	0.09
Behaviour disengag.	119.92	113.75	0.65	119.57	112.60	0.67	117.59	118.95	0.14	120.36	113.43	0.75
Substance use	123.17	106.52	2.06*	119.01	114.55	0.50	118.09	117.80	0.04	118.02	117.96	0.01
Humour	125.53	101.29	2.57**	121.53	105.87	1.50	117.00	120.31	0.35	121.16	111.88	1.01

*$p < .05$; **$p < .01$

People who perceive a risk to their own health during the pandemic more often declare resorting to the following strategies: active coping, planning, seeking social support for instrumental and emotional reasons, avoiding competitive activities, focus on and venting of emotions (confrontational style) and less often use psychoactive substances and humor to reduce stress than people who do not perceive this type of risk ($p < .05$ or $p < .01$) Similarly, people who perceive a risk to the health of their relatives during the pandemic more often report using the following strategies: active coping, planning, seeking social support for instrumental and emotional reasons, avoiding competitive activities, focus on and venting of emotions (confrontational style) and less frequently use denial strategies than people who do not notice this type of risk ($p < .05$ or $p < .01$). It can, therefore, be concluded that those who perceive a risk to their own as well as their relatives' health are more prone to use the mechanisms of confrontational coping than people who do not indicate such risks. In turn, people who experience a loss of close relations with others more often declare undertaking strategies based on seeking instrumental and emotional support and sharing negative emotions with others ($p < .01$). These strategies can minimize the contact deficit. Moreover, these respondents more often declare using an active type of coping ($p < .05$). On the other hand, respondents who experience a violation of their own autonomy in the

pandemic resort to active coping strategies more often; they plan, avoid competitive activities, seek emotional support, but also re-evaluate the current situation ($p < .05$ or $p < .01$). Therefore, they can focus on the current situation but also distance themselves from it, accept the necessity of limitations and use task-oriented strategies. However, there were no differences in coping between people who notice and those who do not perceive risks and losses of their own financial resources.

3.5. Anxiety in people with varying perceptions of risks and losses related to the COVID-19 pandemic

In order to examine how various stressors influence anxiety, anxiety level was compared in people noticing particular risks and losses related to the pandemic. The results of the statistical analysis are presented in Table 11.

Table 11. Comparisons of anxiety level in respondents noticing particular risks and losses related to the COVID-19 pandemic

The types of risks (R) and losses (L)	Noticing		Not-noticing		*T*	*p*
	M	*SD*	*M*	*SD*		
Own Health (R)	50.37	11.305	47.90	12.209	-1.47	.14
Health of loved ones (R)	52.66	10.688	47.50	12.094	-2.80	**.005****
Economical safety (R)	49.73	11.355	48.31	12.175	-0.79	.43
Economical income (L)	50.87	11.245	47.87	12.148	-1.70	.09
Afiliation (L)	50.21	12.315	47.99	11.787	-1.28	.19
Autonomy (L)	50.11	10.964	47.92	12.420	-1.39	.18
Traditional form of life engagement (L)	50.16	10.324	48.53	12.112	-0.57	.57

*$p < .05$; **$p < .01$

The level of experienced anxiety positively but moderately ($r = .21$) correlates with general stressfulness of the situation ($p = .001$). However, it is the risk to relatives' health that causes the highest anxiety levels ($p = .05$). The remaining stressors (risk to one's own health and losing financial resources, deprivation of the need for affiliation, autonomy, and financial security) did not significantly differentiate the groups in terms of anxiety level.

3.6. Coping of people with varying anxiety levels related to the coronavirus pandemic

Initial correlation analyses show statistically significant positive relations between the severity of anxiety and the confrontational ($r = .41$; $p = .01$), defensive ($r = .34$; $p = .01$) and ignoring ($r = .16$; $p = .05$) coping styles, which indicates that a higher anxiety level is associated with using a broader repertoire of coping strategies. However, assuming a

curvilinear influence of anxiety on coping, we decided to identify people with low, average and high levels of anxiety (based on the standard deviation in the sample). Next, the groups were compared in terms of the declared coping strategies (see: Table 12).

Table 12. Comparisons of coping strategies in low, average and high intensity of anxiety as a state respondents reported to COVID-19 pandemic

Strategies of Coping	1. Low Anxiety		2. Average Anxiety		3. High Anxiety		*F**	*p***
	M	*SD*	*M*	*SD*	*M*	*SD*		
Active coping	9.61	2.60	10.72	2.43	10.89	2.20	3.78[12 13]	**.024**
Planning	7.13	2.94	9.58	2.79	9.94	2.53	14.11[12 13]	**.000**
Instrumental suport	7.66	2.89	9.73	2.65	10.48	3.06	11.92[12 13]	**.000**
Emotional suport	8.08	3.22	10.59	3.26	11.68	3.69	13.05[12 13]	**.000**
Suppressing activities	7.58	2.32	9.09	2.40	8.43	2.43	6.75[12]	**.001**
Religion	8.25	4.49	9.75	4.44	8.77	4.76	2.14	.120
Reinterpretation	12.05	2.84	11.30	2.32	9.91	2.90	7.90[13 23]	**.000**
Restraint	8.89	2.41	10.73	2.15	10.75	2.29	11.46[12 13]	**.000**
Acceptance	12.11	3.01	12.67	2.17	11.85	3.10	2.15	.119
Venting emotion	6.55	1.63	9.56	2.52	12.27	2.40	59.56[12 13 23]	**.000**
Denial	5.29	1.58	5.61	1.86	5.69	2.24	0.56	.570
Mental disengagement	8.28	2.76	10.01	2.48	10.25	2.54	8.37[12 13]	**.000**
Behavioural disengagement	5.70	1.45	6.91	2.05	7.19	2.48	6.69[12 13]	**.002**
Substance use	4.63	1.53	5.28	2.41	7.21	4.11	11.22[13 23]	**.000**
Humour	6.75	2.57	6.40	2.22	7.04	3.16	1.20	.302

* The numbers: 1.2.3 refer to groups between which statistically significant differences were observed on the basis of post-hoc tests

** The significance of the differences was also positively verified by the non-parametric ANOVA

The analysis of the distributions and means of particular strategies in groups differing in terms of anxiety shows both straight and curvilinear relationships. Positive rectilinear correlations were observed between anxiety and confrontational strategies (*Active coping, Planning, Seeking social support for instrumental and emotional reasons, Focus on emotions*) as well as defensive strategies (*Denial, Restraint coping, Mental disengagement and Alcohol use*). The results of the variance analysis and multiple comparisons confirmed the above correlation data, namely that people with low anxiety undertake fewer coping strategies compared to people with medium and high anxiety levels. Only the *Denial* strategy did not significantly differentiate the groups. Next, a negative correlation was observed between

anxiety and the strategy of *Reevaluation*, which is used less frequently by people with high anxiety compared to other groups. On the other hand, curvilinear relationships were observed in relation to the following strategies: *Suppression of competing activities, Turning to religion, Acceptance* (in the form of inverted U) and *Sense of Humor* (in the form of typical U). This means that people with moderate anxiety are relatively more inclined to undertake these coping strategies (except for *Sense of Humor*, which is less frequently used). Although, the analysis of variance and multiple group comparisons proved that people with moderate anxiety tend to avoid competing activities compared to the low anxiety group, the other differences did not reach statistically significant level.

4. Discussion of the results

The results show the pandemic situation is a deprivation factor and a threat to a broad spectrum of needs, and generates a high level of anxiety both in men and women in all adult age groups. Simultaneously, the perception of stressors depends on gender, age and place of residence. It was found that for men, especially from the voivodeship capital, the economic threat is of particular importance. On the other hand, people entering adulthood ignore the risk to their own health and the loss of autonomy and emphasize the loss of social contacts. Despite a high level of anxiety, the respondents undertake coping strategies of different stimulating value, depending on age and gender. The youngest people more often try to reduce tension through strategies belonging to the ignoring or defensive style, while the remaining age groups are more likely to choose confrontational strategies. The ignoring coping style, preferred by people entering adulthood, may result from the mechanism of "false alarm", because in the first phase of the pandemic, the relationship between the lack of preventive behavior (e.g. keeping distance, wearing masks) and getting sick was unobservable. Moreover, blocking the gratification of the need for intimacy (affiliation), which is the leading need in early adulthood, could strengthen the confirmatory tendency, i.e. a biased selection of facts about the lack of an epidemic threat to support one's own hypothesis (Evans, 1989). It was also found that the confrontational style in women is more often, compared to men, based on the reduction of emotional tension (i.e. seeking support and ventilation of negative emotions), which is confirmed by other studies (Rogowska et al., 2020). Thus, the different perception of stressors and coping styles may results from the different motives and developmental tasks of people belonging to different gender and age groups (Levinson, 1986; Havighurst, 1981).

The type of stressor influences the severity of anxiety and types of coping strategies undertaken in a stressful situation. The study found that the perceived risk to the health of relatives induces the highest anxiety levels. This finding seems to be confirmed by the research of Roy et al. (2020) which reported that individuals were worried for themselves

and their families during the on-going pandemic. Anxiety for one's own health or the health of the loved ones more often leads to a cognitive and emotional confrontation with the situation; experiencing the deprivation of the need for affiliation makes one undertake strategies based on interpersonal contact, while the loss of autonomy is associated with attempts to change this situation or reevaluate it. The type of strategy undertaken by an individual is, therefore, tailored to the specificity of the current stressor and can be considered rational (Zhi, Xueying et al, 2020). Moreover, the general severity of anxiety was found to be connected with an increased frequency of using confrontational and defensive coping in the first phase of the coronavirus pandemic. People with a low anxiety level showed the lowest involvement in undertaking coping strategies in comparison to other groups. People with a moderate level of anxiety used confrontational strategies as often as people with a high anxiety level, but less frequently strategies based on venting emotions and using psychoactive substances. This result is consistent with Cofer's and Appley's (1972) Theory of Threat Perception, as unpredictable situations activate the *primary threshold* of inducing stress, which motivates an individual to extend his or her common set of coping strategies. However, exceeding the *threshold of frustration* prompts defensive actions.

More detailed analyses showed further relationships between anxiety and type of coping strategies used by respondents. Specifically, an average level of anxiety is optimal for activating the strategy of *Avoiding competing activities*, while a low anxiety level is connected with a higher frequency of using *Re-evaluation* strategy. This result can be interpreted according to the second Yerkes-Dodson law, which indicates a negative impact of arousal on solving non-routine, unusual tasks.

Recommendations and limitations

Relying on a confrontational type of coping in the form of active coping or planning may bring effective results in the case of a controllable stressor. However, anxious fixation on confrontational strategies during a prolonged pandemic (and related restrictions) creates the risk of exceeding the *frustration threshold* and, next, the *exhaustion threshold.* (cf. Baker & Berenbaum, 2011). Therefore, it would be advisable to help reduce anxiety not only by supporting effective strategies aimed at strengthening immunological resistance, economic security, but also gratifying mental needs, especially the needs for affiliation and autonomy (c.f. Balasubramanian et al, 2020). In unpredictable and low controllable situations, strategies based on self-regulation and decentration, activated more easily with a lower level of anxiety, would prove most effective. These strategies reduce the risk of both the "miss" and "false alarm" errors, and thus facilitate adaptation in a world of changing, both current and potential, risks related to the COVID-19 pandemic.

This preliminary study is an attempt to explore how different perceptions of stress are related to anxiety and adults' coping with the COVID-19 pandemic. The research was carried out on a small research sample and its results should be cautiously generalized to the entire population. The development of the pandemic should prompt the researchers to continue longitudinal research, as the phenomena captured in the first phase may change as the pandemic evolves.

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Online Learning During the Pandemic in the Experience of Future Teachers

Zdalna edukacja w czasie pandemii w doświadczeniach przyszłych pedagogów

Abstract: The coronavirus pandemic resulted in a very difficult global situation which led to total and forced isolation in social life and interpersonal communication. In the area of education it was a new and unexpected challenge which resulted in the model of teaching and learning online. Also, it is a new experience both for the students and for the teachers. This fact was the author's inspiration to carry out empirical research in order to learn about the students' opinion on remote education with reference to their personal experience and participation in e-learning.
Therefore, the main research problem was formulated as follows: *What are the students' opinions on online education in the time of the pandemic?* In the author's own empirical research, the diagnostics assessment was applied with the SWOT questionnaire. The survey was carried out at the turn of May and June 2020 in two selected universities. 172 students of pedagogy specializations took part in the research. The results indicate that remote education has both strengths and weaknesses. Nevertheless, the percentage distribution of the collected data is higher in the aspect of weak points. There is no doubt that there are still many actions we should implement in practice and everyday academic education. Perhaps it would be a creative solution to introduce selected online learning elements into our studies. This may help the students acquire new IT and digital competences, as well as develop active approach to learning, self-discipline and independence in studying.
Keywords: online education, coronavirus COVID-19, pandemic, online education

Abstrakt: Pandemia koronawirusa spowodowała na globalną skalę bardzo kryzysową sytuację, która doprowadziła do całkowitej i przymusowej izolacji w życiu społecznym oraz komunikacji międzyludzkiej. Na płaszczyźnie edukacji było to nowe i niespodziewane wyzwanie, które doprowadziło do zastosowania modelu nauczania poprzez formę zdalną. Jest to również nowe doświadczenie zarówno dla studentów jak także dla nauczycieli. Fakt ten był inspiracją do przeprowadzenia empirycznych badań własnych, których celem było poznanie opinii studentów na temat tej formy nauczania w odniesieniu do ich osobistego doświadczenia i realizacji e-learningu w praktyce akademickiej.
W związku z tym, główny problem badawczy sformułowano następująco: *Jakie są opinie studentów na temat zdalnego nauczania w czasie pandemii?* W empirycznych badaniach własnych zastosowano metodę sondażu diagnostycznego z techniką ankiety, wykorzystano kwestionariusz SWOT. Badania zostały przeprowadzone na przełomie maja i czerwca 2020 roku, w dwóch wybranych uczelniach wyższych. Wzięło w nich udział 172 studentów kierunków pedagogicznych. Uzyskane rezultaty z badań wskazują, że nauczanie w formie zdalnej ma zarówno specyficzne pozytywne jak także negatywne

strony. Niemniej większy rozkład procentowy uzyskanych danych jest w aspekcie słabych stron. Niewątpliwie jest jeszcze wiele działań, które powinniśmy być wprowadzone do praktyki i codziennej edukacji akademickiej. Być może pewnym kreatywnym rozwiązaniem będzie wprowadzenie pewnych tylko elementów zdalnego nauczania, co może przyczynić się do lepszego nabywania kompetencji informatycznych i cyfrowych, oraz pomóc w rozwijaniu u studentów aktywności, samodyscypliny i samodzielnej nauki.
Słowa kluczowe: edukacja online, koronawirus COVID-19, pandemia, zdalne nauczanie

Introduction

The coronavirus pandemic resulted in a very difficult global situation which led to total and obligatory isolation in social life and interpersonal communication. It was a new and unexpected educational challenge, as a result of which the model of remote education was introduced. This is a new experience both for students and for teachers. It inspired the author of this article to carry out empirical research aiming at learning about students' opinion on this form of education, with reference to their personal experience and fulfillment of e-learning in academic practice.

The main research problem was: *What are students' opinions on online education during the pandemic?* Within this scope, the following specific problems were formulated: *What are the advantages and disadvantages of remote education according to the students?*

In the author's empirical research, the method of diagnostic assessment was used with the SWOT questionnaire[1]. This questionnaire is a tool with which one may identify strengths, weaknesses, opportunities and threats of a given situation. The questionnaire included four open questions, as well as basic personal data such as the student's sex, age, name of university, as well as the structure and level of studies. Due to the restrictions and prohibitions related to the pandemic, direct contact with the surveyed students was impossible. That is why, the questionnaire was prepared in the electronic form and included online on the Survio[2] platform. It seems that it was a good, effective and safest possible way of collecting the research materials.

The author obtained the consent for carrying out the research from the authorities of two selected universities: Jesuit University Ignatianum in Kraków and Jan Kochanowski University in Kielce. The information about the research was sent to the students through university mailing systems. The request for filling in the questionnaire was preceded by a letter that contained the objective and scope of the research, as well as the link to this tool. Participation in the survey was anonymous and voluntary. The research was carried out at the turn of May and June 2020.

[1]The name SWOT stands for *Strengths*, *Weaknesses*, *Opportunities* and *Threats*.
[2] It is an online survey system for the preparation of online questionnaires, available at: https://www.survio.com/pl/ (access: 05.05. 2020).

1. Online education in the light of selected theories and hitherto studies

E–learning is learning with the use of information technology. It means supporting the didactic process with personal computers, smartphones, tablets (m-learning) and the internet. E-learning refers to using IT in a much broader scope than in traditional computer courses or computer supported education. Blended learning is a method that combines traditional learning techniques with remote activities carried out through internet platforms. This method is appreciated by the best universities in the world, such as Harvard, Oxford or MIT which use it on a mass scale and build "virtual classrooms", e g. edX or Coursera[3].

Online learning (including E-learning and blended learning) partially results from the need to adjust education to modern challenges. The emergence of the digital society[4] (cf. GUS, 2019), the process of digitalization, as well as increased use of modern technology in all areas of life, influence and determine the process of education. New technologies, especially IT tools, as well as other social innovations, facilitate prompt access to the existing scope of knowledge, support data processing, ensure analytic tools, and improve the process of archiving and collecting information. The representatives of young generations, who have been functioning in the internet from their earliest years, and who use all kinds of IT and communication tools as well as social media, expect modern methods of learning, new educational instruments, and new teacher-student roles.

In the context of the development of students and people living in the network society, it is worth reading the theory by Stephen Downes, called Learning 2050 (http://www.slideshare.net/Downes/learning-2050). Downes predicts that in forty years all objects will be able to communicate with people, explain what they are, and tell people how to use them. The network (which will be much more advanced that today's internet) will no longer be a passive reality, but it will become a dynamic network the elements of which will be able to communicate with one another. This network will be able to know and learn many things. Thus, according to Downes, learning will be a continuous process based on knowledge-sharing, irrespective of people's age and educational level. Education will become a "stream" and not a closed resource which we use for all our life. The essence of the educational process will be the acceptance of change and the ability to acquire knowledge needed for the proper functioning in life. Since the environment will be changing constantly and quickly, the same will happen to the tools we will be using. Each of us will create their own network of people and tools useful in the process of education.

[3] In Poland, PUW (Polish Virtual University) has been functioning for almost twenty years under the supervision of AHE (University of Humanities and Economics in Łódź).

[4] Information technologies of the modern world have revolutionized the way of working, changed economy and exerted an irreversible influence on the way we function in the IT society.

In the report entitled *How will Education Change? Challenges for Polish Schools and Students*, Witold Kołodziejczyk and Marcin Polak introduce possible scenarios for the educational future. They enumerate three groups of such scenarios: status quo, re-schooling and de-schooling. Here is what they write: „One of the areas of the activity of OECD is education and research on the future of schools. At the beginning of the 21st century, six scenarios for the development of education were prepared. Each of them may turn out to be true, depending on the influence of various factors, such as demography, educational policy, development of internet educational resources and technologies. The scenarios were divided into three groups which were described as *status quo* (i. e. the institution of school and formal education similar to the one that appeared at the end of the 20th century), *re-schooling* (changing schools in order to adjust it to changing conditions of social life), and *de-schooling* (rejection of one, traditional model of school and introduction of different forms of education, including online education; in the most radical forecast it may mean the end of the school we know today). These scenarios may be the starting point for thinking about the way in which education will be changing" (Kołodziejczyk, Polak, 2011, pp. 19-20).

While discussing the international processes of deschooling and reschooling (cf. 2019), Guglielmo Malizia describes various forms of education carried out outside schools. He mentions Illich (cf. Illich, 1972) and educational vouchers, the SOLE (Self Organized Learning Environment) project initiated in India and developed in Europe[5] (cf. Bottani, 2013), replacing teachers with robots (cf. Castoldi, Chiosso, 2017), homeschooling, unschooling (cf. Malizia, Nanni, 2015), as well as the UN project called "Education 2030" (cf. Unesco, 2015).

From the point of view of a student, the advantages of e-learning and blended learning may include: individual course of learning (each participant chooses the scope of knowledge he/she needs, omitting the contents they already know); flexibility (the participant chooses time and place of learning according to their needs); unity and validity of learning contents (the participant does not have to worry about lower quality of educational contents as compared to other participants); attractiveness of the form (contrary to traditional forms, the educational content may include multimedia sources such as presentations, interactive graphic items, audio/video recordings, etc.).

While discussing remote teaching and learning during the COVID-19 pandemic, Aleksander Nalaskowski (cf. 2020, pp. 20-23) emphasizes three desired features of an "online student": the willingness to learn, strong motivation and self-discipline. The author adds that these features are rare among today's adolescents (cf. Nalaskowski 2020, p. 23). He also mentions other problems with online learning, e. g. parent's commitment. Nalaskowski

[5] The SOLE Project was initiated in India in 2008-2009. Since 2014, professor Sugata Mitra from the University of Newcastle in Great Britain has been developing the idea of 'School in the Cloud', encouraging children to sit in a circle and work with a computer.

believes it is a huge challenge because, as experience shows, parents like to cede the responsibility for their kids' education and upbringing to the school. The author's summary of remote education in the times of the pandemic (which he calls the "educational prosthetic device") is as follows:

„It is not enough to apply the Marxist way of changing structures or multiplying institutional entities or regulations. We have to reach further, restructuring the social approach to education. And this is a huge task for the whole generation and a return to the sources. This is the necessity to re-instill in the young generation ambition and perhaps even set a trend for learning. Such a trend would be useful not only in case of remote learning. Moreover, we should think of long-term actions building students' curiosity of the world, cognitive motivations, reliability, and discipline on all sides of this barricade. For this struggle, we have to create a social atmosphere, a toolkit; we should also review our opinions on who can and should be a teacher" (Nalaskowski, 2020, p. 23).

Apart from the advantages of online education, there are certain disadvantages. Remote learning includes processes related to the new opportunities of cyberspace and virtual world, and, indirectly, also to manipulation and psycho-manipulation which evoke negative associations. Cyberspace is where both students and teachers work. Some of them may use the internet to manipulate facts, language or emotions. Also, media, multimedia and cyberspace, e. g. applications and multimedia presentations, may be used to manipulate other people.

On the level of education, particular threats result from cognitive-intellectual dangers related to cognitive activity and school education. Such dangers include the cognitive area threats (unification and/or reduction of experience); limitations in perceiving various problems; dominance of visual materials over verbal ones; the flood of ready-made hypermedia information that make it impossible to create and use data in a creative manner; and the inability to make rational decisions and actions.

The inability to select content and information is an increasing problem as well. A lot of young people, who overuse or are addicted to the internet, fail to concentrate, synthesize or combine contents to create a logical text. Manfred Spitzer initiated an important discussion in Germany claiming that digitalization may lead to people's dementia as they use too much technology in the process of education. His famous book: *Digital Dementia. How do we deprive ourselves and our children of our minds* (Spitzer, 2013) has become the foundation for criticizing the excessive digitalization of the cognitive process, especially among children and youth. In his book, Spitzer strongly criticizes the new media and the new "pseudo-communication". He claims that excessive digitalization and modern technologies result in limiting the brain's ability to process and memorize things. Moreover, handwriting (as compared to writing on a computer) is very important for the child's development. Spitzer believes that computers exert a very negative psycho-somatic influence

on young people (e. g. addiction). Multitasking, which is promoted through digitalization, results in increasing problems with concentration, reliability while doing tasks, and mindfulness. Tablets for children are, according to Spitzer, educational evil which should be forbidden.

Overusing the internet and computers is also criticized in a famous book by Robert Putnam: *Our kids – The American Dream of Crisis* (2015). In the context of computerization and digitalization, Putnam emphasizes unequal access to technologies, the asymmetry of information, and, first of all, the fact that children from poor families use the internet in a thoughtless manner. They only treat it as entertainment, and not as the source of knowledge and information.

From the student's point of view, the barriers for implementing e-learning and blended learning include: poor knowledge of information technologies and fear of using new tools; the lack of access to proper computer technologies – many possible users of e-learning fail to posses good quality computer equipment and accessories (e. g. webcams, earpieces with microphones) or a fast internet connection; general lack of trust to new things (a conservative approach to many areas of life, including education); a sense of isolation and loneliness (some online learning users have problems with talking to people with whom they cannot contact directly); and the lack of self-discipline, which means that many people cannot motivate themselves to learn.

In the times of COVID-19, online learning has become popular and some studies concerning this form of education have already been published. The objections of parents and children to remote learning are formulated, e. g. on the popular educational platform called Librus (2020).

Those problems refer to:

- the limited access to equipment (1/3 parents cannot afford to provide each of their children with proper computers and accessories for online learning. In those families equipment is shared by a few people);

- the scope of remote education (4% parents declare that online learning is not carried out in their children's schools; 9% parents say that online learning includes less than a half of school subjects);

- the formula of online education (lecturing methods definitely prevail. According to the parents, teachers mainly choose indirect contact with the student: they send children exercises from books and tell them to do the tasks on their own);

- the excessive commitment of the parents (21% parents who took part in the survey admit that they spend five or more hours a day working with children on their lessons);

- the lack of direct contact with peers (59% of the surveyed people) and teachers (54%);

- individual work, e. g. planning and using different methods of learning (34% of the surveyed people);

- children's overload with work (36% parents claim that there is definitely too much work, and 35% say that there is rather too much work).

Teachers also report many problems (Gryc, 2020). Here are some of their utterances: "Preparation for online teaching takes a very long time. Sometimes I work for more than 12 hours. Receiving and reading my students' works is a difficult and toilsome task. Checking them and entering descriptions into the e-register takes a few hours, too. I am exhausted because there is much more work than before". "After a few weeks of online education I can definitely say that this is fiction. While teaching online, I do not feel any satisfaction with my job. I do not know whether my effort is wasted or not. This is just giving information to the students, nothing more. I do not feel the atmosphere of the class. A teacher uses a tone of voice in his/her work; he/she knows what to emphasize with it. Another issue is the specific nature of a given school subject. Sometimes it is impossible to carry out online lessons because a teacher needs more time to discuss various topics with the students. A brief instruction is not enough in such cases. In order to teach and learn, we need the energy of the class, questions, doubts, a "living" contact between a teacher and a student. Now the only thing we have is voice".

In their scientific report concerning online education during the COVID-19 pandemic, Jacek Pyżalski and Wiesław Poleszak (cf. 2020, pp. 28-36) emphasize that relationships (student-student, teacher-student, student-parents), which are the core of traditional education, remain in the same place in remote education. It is a huge challenge to build them in the conditions of indirect communication.

2. Characteristics of the surveyed group

172 students participated in the research. The selection of them was purposeful. The author only chose students of pedagogical specializations. The general characteristics of the surveyed students will be discussed taking into account such variables as: sex, age, the name of the university, and the cycle of studies.

Table 1. Characteristics of the surveyed students

Variable	Number	Percent of the total number of people
Sex		
Woman	155	90.1
Man	17	9.9
Age		
18-20 years	32	18.6
20-22 years	76	44.2
22-24 years	45	26.1
24-26 years	16	9.3
26-28 years	1	0.6
28-30 years	2	1.2
Name of university		
Jesuit University Ignatianum in Kraków	94	54.6
Jan Kochanowski University in Kielce	78	45.4
Cycle of studies		
The first	106	61.6
The second	45	26.1
Uniform master's studies	21	12.2

Source: *the author's own research*

The surveyed group of people included 90.1% women (155 people) and only 9.9% men (17 people). There were much more women than men. We should remember that in Poland there are more female than male students, and that mainly women study pedagogical subjects at universities. Taking into account the age variable, the surveyed people were 19-30. Most of them: 44.2% (76 people) were 20-22 years old; 26.1% (45 people) represented the age group of 22-24; 18.6% respondents were below 20 (32 people); 9.3% (16 people) were 24-26; and 1.2% students (2 people) were 28-30 years old. Only one person who took part in the survey was 27, which constituted 0.6% of the total group. The average age of the surveyed students was M = 22.16, and the standard deflection was SD = 1.87.

The students represented two selected universities: 54.6% of them (94 people) studied at the Jesuit University Ignatianum, while 45.4% (78 people) were the students of the Jan Kochanowski University in Kielce. All of them were students of full-time studies in the pedagogy specialization. Taking into account the level of studies, the percentage of the

surveyed people was as follows: 61.6% students (106 people) participated in the first-cycle studies, 26.2% (45 surveyed people) took part in the second-cycle studies, and 12.2% (21 people) of them were on uniform master's studies.

172 survey sheets were submitted to the qualitative and quantitative analysis. The questionnaires were varied in terms of the contents, because some of them only included single words, phrases or sentences, while others were more developed. It is worth emphasizing that many respondents provided extensive utterances, which suggests that the students found the survey interesting. It may result from their need to express their thoughts, as well as critical opinions and assessments related to online learning in a very difficult situation such as the coronavirus pandemic and the time of social isolation.

In order to carry out the analysis of the contents the students provided, the method of categorizing was applied. Thus, a very important element of the analysis included categorising the responses in order to obtain a uniform message, similar texts, reflections, feelings and opinions of the respondents. Then, a critical analysis of the data was carried out, both in terms of quantity and quality.

The author will present and discuss the results of her own empirical research with reference to the advantages and disadvantages of e-learning. The advantages shall include opportunities and chances, while the disadvantages shall contain weaknesses and threats. Finally, the author will formulate conclusions and postulates for educational practice.

3. Advantages of online education in the opinions of the surveyed students

An important and valuable issue related to the research was learning about and analysing the students' opinion on the advantages of remote education. In order to achieve this aim, the students were asked to answer two questions: *What are the strengths of e-learning?*, and: *What opportunities are related to e-learning*?

Since those were open questions, which made it possible for the respondents to provide free and open answers, many different replies were obtained. In order to arrange and analyse the data, the author distinguished three main categories of the answers which were presented in the following table.

Table 2. Categories of the surveyed students' replies concerning strengths of online education

Categories of replies	Number of indications	Percentage of indications (%)
Saving time	58	33.7
Individual time management	34	19.7
Study/work at home	27	15.6
Individual learning	26	15.1

Comfort	24	13.9
Being at home	17	9.9
Cost reduction	14	8.1
No strengths	13	7.5
Access to materials	12	6.9
Continuity of the learning process – the ability to continue studying	9	5.2
Contact with teachers and transfer of information	8	4.6
Connecting learning with work	5	2.9
Reduced stress	3	1.8
Reducing the coronavirus spreading	3	1.8
Better concentration	2	1.2
One does not have to participate in the classes	2	1.2
No delays	2	1.2
Other strengths	13	7.5

Source: *The author's own research.*

According to the students, one of the greatest strengths of online education was saving time because of the fact that they did not have to go to universities. This indication was made by 33.7% students (58 replies). The next good point indicated by the respondents was individual time management – 19.7% (34 indications). A little less, i. e. 27 students (15.6%) mentioned studying/working at home, and 15.1% students (26 indications) claimed that individual learning was an advantage. An interesting and intriguing indication is the selection of the category specified as comfort, which constituted 13.9% of the replies (24 answers). It should be emphasized that those were mainly single-word answers. We may suspect that remote education is comfortable because it can take place any place and any time, which makes the atmosphere of work comfortable and relaxing.

Within the context of the coronavirus pandemic and social isolation, being at home is a particularly important answer. It was indicated by 9.9% students (17 answers), so we can assume that staying at home and following the epidemiological regulations was important for those students. In this context, it is also worth mentioning the answer according to which one of the advantages of e-learning is limiting the coronavirus spreading, which was given by 0.9% students (3 answers).

The reduction of costs was mentioned by 8.1% students (14 replies). This is definitely related to the fact that the students did not have to go to the universities, buy tickets or rent flats. In this aspect, especially in the situation of the students who have to commute to the universities, remote learning is definitely advantageous.

In the opinion of 7.5% students (13 indications), remote education has no advantages. It seems useful to consider why they think so. Perhaps the surveyed students do not have much personal experience with online learning, or maybe they just do not see any advantages related to this form of education.

Another percentage distribution, i. e. 6.9% (12 indications) referred to the access to educational materials. In particular, the surveyed people appreciated the opportunity to record videos and play them later. They were also satisfied with the presentations and other materials sent by the teachers. Another important strength of online education is the continuity of the educational process – the ability to continue studies in the difficult pandemic situation. This issue was mentioned by 5.2% students (9 indications). Contact with the teachers and transfer of information was appreciated by 4.6% students (8 indications). They mainly emphasized the speed of connection and transfer, which is definitely related to multiple opportunities provided by digital technologies. For 2.9% students (5 indications) one of the advantages of online education is combining studies with work and other obligations. A little less, i.e. 1.8% students provided two categories of answers: lower stress level and fighting the coronavirus through limiting its spreading (three indications were given in each of the category). The answers: better concentration, no delays, and the fact that one does not have to participate in the classes, were given two indications each, i. e. 1.2% students.

There were not many students who mentioned the following strengths of online learning: a sense of safety, the safest form of education, very good organization of e-learning, using new technologies, more exercises in English, improving the ability to write, interesting classes, no noise, respect for the teacher, documenting teachers' work, saving paper, self-discipline, or the fact that it is a new experience.

To sum up the discussion and analysis of strengths of online learning with reference to its advantages, we can conclude that the students notice many good aspect and benefits that are related to this form of education.

Another question included in the questionnaire directed to the students was related to their opinion on e-learning opportunities. In this case, the answers were different, too, which is why the data was categorized and presented in a table.

Table 3. Categories of opportunities related to online education in the students' opinions

Categories of answers	Number of indications	Percentage of indications (%)
continuation of studies	22	12.7
gaining new IT competences	17	9.9
no opportunities	15	8.7
learning about, developing and using new technologies	13	7.5

online lectures	12	6.9
the classes are available for the disabled and the ill	9	5.2
combining study with work	7	4.0
completing the semester	5	2.9
self-education	5	2.9
obtaining better marks	4	2.4
saving time	4	2.4
individual time management	4	2.4
lower stress	4	2.4
great potential – a step towards the future	4	2.4
a good and interesting method of studying	4	2,4
learning self-discipline	3	1.8
learning independence	3	1.8
comfort	3	1.8
good alternative and solution in difficult and crisis situations	3	1.8
conducting classes for a very big group of people	2	1.2
conducting courses and training sessions without leaving home	2	1.2
Other opportunities	9	5.2

Source: *The author's own research.*

According to the result analysis, the largest percentage distribution, i. e. 12.7% (22 answers) refers to the answer that continuation of studies is the greatest opportunity of e-learning. I seems that it is very important for the students who wanted to complete their studies and close the stage of life connected with choosing and finishing the studies that began before the pandemic. A little less students – 9.9% (17 answers) declared that it was important for them to acquire new IT competences. 8.7% of the surveyed people (15 indications) answered that they see no opportunities as far as online education is concerned. On the one hand, this result is quite surprising because one might have supposed that young people, who spend a lot of time in front of computers and often use the internet resources, would be satisfied with e-learning and that they would see many opportunities to use such form of education in future. On the other hand, perhaps it was difficult for the students to indicate specific advantages of this form of education because, at this stage, it was a new experience for them. Moreover, they might have experienced digital burnout. Also, it is

worth mentioning that this category (the fact that the students see no opportunities related to online education) may be considered in a negative aspect.

Other opportunities mentioned by 7.5% students (13 answers) included learning, developing and using new technologies, and conducting lectures online 6.9% (12 students). A little less students, i.e. 5.2% (9 people) believes that the access to classes conducted in this form is an opportunity for the disabled and the ill. For 4.0% (7 people) it is an opportunity to reconcile studying with work and other obligations. It seems that this is an important advantage of online education, especially for those who, for various reasons, have to work during the studies. The opportunities such as completing the semester and self-education received 5 answers each (2.9% students). A little less answers, i. e. 2.4% (4 indications) referred to the opportunities of e-learning in the context of six issues such as: saving time, individual time management, lower stress, obtaining better marks, a good and interesting method of work, and the fact that e-learning has a great potential and it is a step towards the future.

Also, 1.8% students believes that it was important for them to learn self-discipline and independence, to experience comfort related to this form of education, and to use online learning as an alternative and solution in difficult times of the pandemic. All the three statements received the same number of indications, i. e. 3. A similar number of answers (2 indications each) were provided for the opportunities such as conducting classes for a very large group and conducting courses and training sessions without leaving home. Other replies, which only obtained one indication each, include: fast transfer of information, technological progress of many lecturers, opportunity to train lecturers, opportunity to make money on one's own online courses, changing the approach to the process of teaching and learning, a chance for studying for the students who cannot afford it, and time for building family relationships. In the context of the coronavirus pandemic it was particularly interesting that for some students online education was just a chance to survive and a good option despite the fact that it deprived us of many things.

To sum it up, it is worth mentioning that the surveyed students notice many different opportunities connected with online education. Nevertheless, it would be useful to analyse this deeper and learn their expectations related to this form of teaching and learning.

4. Negative aspects of remote education in the opinions of the surveyed students

Also, it is interesting to learn about the disadvantages of online education. That is why, in the author's empirical research, the students were asked to answer the question: *What are the weaknesses of e-learning?* This open question made it possible for the author to

collect many different answers which were arranged in particular detailed categories presented in the below table.

Table 4. Categories of the surveyed students' replies concerning weaknesses of online education

Categories of answers	Number of indications	Percentage of indications (%)
too much content and works to prepare	94	54.6
technical problems	65	37.7
limited direct contact with people	38	22.0
difficult contact with the lecturers	31	18.0
poor quality of classes and conducting them in an unreliable manner	26	15.1
no motivation for learning	10	5.8
being unprepared for e-learning	6	3.4
the lack of access to materials and books	5	2.9
too much time spent in front of the computer	5	2.9
stress, frustration	5	2.9
costs	5	2.9
no practical classes	4	2.3
poor organization	4	2.3
poor level of education	3	1.8
loneliness	3	1.8
worse ability to acquire knowledge	3	1.8
lecturers' misunderstanding of the students' situation	3	1.8
no self-discipline	2	1.2
tiredness and overload	2	1.2
other weaknesses	7	4.0

Source: *The author's own research.*

The analysis of the collected data shows that the distribution of the answers is varied. In the opinion of the students, too much content and too many works to prepare are the worst aspects of online education. This category was mentioned by more than a half of the respondents, i. e. 54.6% students (94 indications). The main problem was the necessity to prepare many written tasks and works which have not been explained well enough. Also, the students were given a lot of new materials for individual work that were not discussed or explained by the teachers. Also, technical problems were the reason why remote education was difficult. Such problems were experienced by 37.7% students (65 utterances)

who took part in the survey. In this respect, the students paid attention both to the issues related to computer equipment and to its quality, and to the internet access, the internet connection overload and other problems, as well as disturbed operation of educational platforms. 22% students indicated that a negative aspect of this form of learning is a limited contact with people. This category was mentioned by 38 students. One can definitely assume that it resulted from the reduction of meetings and contacts with others in order to avoid spreading the coronavirus infection. This restriction has been a challenge for the students, especially because of the fact that the situation occurred suddenly and unexpectedly. Also, it is worth mentioning that the surveyed students belong to the generation living in the times when people did not have to limit their functioning in any way. As for other weaknesses of e-learning, 18% students (31 indications) mentioned a difficult contact with the teachers, while 15.1% (26 answers) claimed that the quality of the classes was poor and that they were conducted in an unreliable manner. Much less, i. e. 5.8% students (10 people) declared that remote education results in the lack of motivation for learning, and 3.4% (6 answers) wrote that being unprepared for e-learning was a problem, especially on the part of the teachers. The following three categories were also indicated as online education weaknesses: too much time spent in front of the computer; stress and frustration; costs. Each of these categories was mentioned by the same number of students: 2.9% (5 indications in each category). These problems were mainly connected with buying computer equipment or fast internet connection, and with the lack of access to proper materials and books. We should definitely pay attention to the fact that in the time of social isolation libraries were closed. Thus, the students could only use their own books, provided that they had them at all. Also, they could use e-books but it was definitely more difficult for them than using books from libraries. Two other negative aspects of online learning were indicated by 2.3% students (4 people) in each category: no practical classes and poor organization.

The following categories obtained 1.8% answers each (3 indications per category): poor level of education, loneliness, worse acquisition of knowledge, and the fact that the teachers do not understand the students' situation. The factors such as the lack of self-discipline, as well as tiredness and overload, were mentioned by 1.2% students (2 indications in each of the categories). Single indications referred to the following utterances: using different educational platforms which resulted in disorganization, worse concentration, no team work, the lack of individual approach to the student, and sharing computer equipment with other family members. The following statements were also important and interesting: because of online education the place of rest becomes the place of work and study; due to remote learning one has to be at home all the time. We may assume that it was partially related to the observance of the safety rules and the "stay at home" campaign.

An important issue taken up in the research was the analysis of the students' opinions concerning threats that may result from online learning. The respondents were

asked the following question: *What threats are related to e-learning?* The analysis of the answers also indicated that the opinions were varied, so the author specified a few main categories, too. Detailed data related to this issue was presented in the following table.

Table 5. Categories of threats related to online education in the opinions of the surveyed students

Categories of answers	Number of indications	Percentage of indications (%)
Low level of education	45	26.1
Health problems	33	19.2
Weakening of interpersonal relationships	33	19.2
Social isolation	14	8.1
Cheating	13	7.5
Problems with passing some exams	12	6.9
Stealing computer data, hacking one's account	6	3.5
Low motivation for learning	5	2.9
Laziness	5	2.9
No practical competences	5	2.9
No commitment on the part of the student	4	2.4
Computer equipment failure	3	1.8
Comfort	3	1.8
Digital exclusion	3	1.8
Plagiarism	3	1.8
Other threats	14	8.1

Source: *The author's own research.*

The percentage distribution of these answers is very unequal and varied. There is no doubt that, in the opinion of the surveyed students, the most serious threat related to remote learning is a low level of education. This category was mentioned by more than ¼ students, i.e. 26.1% (45 indications). Thus, one may suppose that the quality of education and its high level is important for the students who believe that good quality studies will make it possible for them to find a good job in future.

The next threats mentioned by the respondents were qualified as health problems and constituted 19.2% of the replies (33 indications). Within this group, the following health problems were especially listed: worse sight and hearing, pains in the backbone, overweight, addiction to the internet, tiredness, stress, frustration, depression, neurosis, as well as mental health disorders. In this respect, it is worth mentioning that during the pandemic people

aged 18-24 (i. e. the students as well) reveal a higher increase in the symptoms of depression and general anxiety disorders than other age groups. Some of these young people have even experienced suicidal thoughts or self-harm behaviours in this difficult time (cf. Gambin et al., 2020).

The same number of students – 19.2% (33 indications) mentioned limitation of interpersonal relationships. This is a very important statement because it makes it possible for us to appreciate the role of interpersonal contacts in a person's functioning. One may conclude that the presence of another person and interpersonal contacts are very important both for the students and for the whole educational process. There is no doubt that social isolation is a challenge for a person and it reveals the value, need and significance of interpersonal relationships. Also, it seems that for the students who will work as teachers the issue of building interpersonal relationships is very important. Moreover, 8.1% students (14 utterances) perceives social isolation as a threat resulting from the lack of direct contact with people. A little less, i. e. 7.4% of the respondents (13 indications) declared that cheating is a significant threat related to online education. Some students are dishonest as they do not write works on their own, and they cheat during tests and exams. One may reach the conclusion that most students are aware of such improper practices. Another group of the students - 6.9% (12 respondents) believe that online learning threats include problems with completing a given subject, passing some exams or finishing a course or the whole academic year. A little lower percentage distribution – 3.5% (6 indications) refers to stealing data or hacking one's internet account, and this is definitely a threat that results from using the internet very often. In this aspect, the students mainly paid attention to stealing information by hackers, processing one's personal data or cyberbullying. The following answers were given by the same (2.9%, i.e. 5 indications) number of students: laziness, low or no motivation, and the lack of practical competences. For 2.4% students (4 answers) an online education threat is the lack of the student's commitment to the process of learning. Other dangers mentioned by the respondents, which were grouped into three categories with the same percentage of answers (1.8%, i.e. 3 indications), include: failure of the computer equipment, comfort, digital exclusion or plagiarism.

The group of other threats mentioned by the students (only one indication per each threat) included: the impossibility to check the knowledge and effects of studying, unfair marks, no group work, lower responsibility, failure to read books, weak contact with books and magazines, decrease in the value of books, problems with handwriting, lowering the competence of self-presentation and huge amount of electricity used to work on the computer. What is also valuable and interesting are the declarations that threats of online learning include the lack of friendships, getting used to this form of education, lowering the value of traditional studies, as well as the fact that universities become the places of making diplomas and not developing knowledge.

One has to admit that there are many threats related to online education, but it is possible to think about and implement some actions that may help reduce or eliminate such problems.

The analysis of the students' opinions on good and bad aspects of online education was a very interesting activity taken up within the author's research. Nevertheless, it is useful to look at the comparative analysis taking into account whether there are more advantages or disadvantages of online learning. The students' opinions reveal that remote studying has both strengths and weaknesses. However, a larger percentage distribution resulting from the obtained data falls within the scope of negative aspects of online education. Moreover, because of the fact that, during the survey, the students did not have much experience with participating in this form of learning, one has to approach the results of the questionnaire with cautiousness.

Conclusion

The present, non-standard situation connected with the coronavirus pandemic is still a serious challenge for education and interpersonal contacts. It provided us with an interesting area of research related to preparing online education and evaluating different ways in which we can cope with the difficult situation. Due to the fact that online learning was introduced suddenly and unexpectedly, participation in the classes and conducting them was new and stressful for everyone. That is why, the above presented and discussed experiences of the students, which were gained in the time of online learning, indicate that there are still many solutions we could introduce into our practice and everyday academic work.

A constructive use of strengths and weaknesses of remote learning, as well as elimination of problems and threats related to online learning will definitely be a good solution for the future. Perhaps it would be useful and creative to introduce only a few elements of remote learning, e. g. online lectures into the academic practice. Also, we can conduct hybrid learning, i. e. combine classroom learning with online classes. This may facilitate the acquisition of IT and digital competences, as well as help students develop their activeness, independent learning and self-discipline.

The analysis of the results from the author's empirical research definitely shows that one has to be careful in thinking about fast development of remote academic learning. However, the author's conclusions may be treated as suppositions being the starting point and inspiration for further research concerning the advantages, disadvantages, opportunities and threats of online education. Thus, it is important to further reflect on whether those negative and positive experiences of the students will be reflected in specific approaches to carrying out remote classes in future. It will definitely depend on many different factors.

That is why, it is important to conduct more detailed longitudinal studies on online learning from the perspective of both students and teachers. It is worth emphasizing that "the pandemic reveals various weaknesses related to material, organizational and relational resources. Some of them may be removed more easily, while others require greater material and organizational efforts. All of them require creating (reinforcing) the atmosphere of cooperation and team work" (Karwińska, Karwiński, 2020, p. 243). Also, the pandemic resulted in a serious social and economic crisis, and it revealed new solutions to problems related to forced isolation, the lack of communication, being cut off from the external world, and participating in the process of education. Remote education is definitely a huge challenge in terms of technical and logistic aspects. In the present situation in which the educational process is carried out, we can refer to very true and adequate words of Jędrzej Witkowski: "Remote education is a discipline which we are all learning (almost none of us has taught others only online before). It is similar with the organisation of online learning – we have no experience or solutions in this area. Let us admit this and be kind to one another. Let us allow one another make mistakes and correct them. What can save us in this situation is peace and open communication among all the interested parties" (Witkowski, 2020, p. 92).

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Determinants Reading COVID-19 Visual Messages Located in Public Urban Spaces from the Perspective of P.M.Lester's Theory of Visual Communication

Uwarunkowania czytania komunikatów wizualnych COVID-19 znajdujących się w przestrzeniach publicznych miast z perspektywy teorii Komunikacji wizualnej P.M. Lestera

Abstract: In the face of the multiplication of images in all spheres of human life, it is necessary to discuss the need to develop visual education, the purpose of which is to prepare people to read visual messages in the conditions of a changing culture. For the needs of the research challenge, the source of which was the global crisis caused by the Covid 19 pandemic, the subject of scientific interest was defined, which are the conditions for reading covid 19 visual messages located in public urban spaces. The article presents a fragment of a wider research. Due to the carrier of the visual message used, the analysis was based on photos presenting Covid 19 visual messages, obtained from cities in New Zealand, China and Kenya. It has been adopted that the critical theory and visual culture focused on the message can mutually support each other with the traditions of their discourses in the descriptions of the analyzed phenomena. For the purposes of the research, the theory of visual communication by P.M. Lester was adopted, taking into account six perspectives of knowledge: 1) historical, 2) personal, 3) ethical, 4) cultural, 5) technical and 6) critical.
Keywords: covid 19 pandemic, visual reading, visual communication,

Abstrakt: W obliczu mnożenia się obrazów we wszystkich przestrzeniach życia człowieka, można mówić o konieczności rozwijania edukacji wizualnej, której celem jest przygotowanie do czytania komunikatów wizualnych w warunkach zmieniającej się kultury. Na potrzeby podjętego wyzwania badawczego, którego źródłem stał się globalny kryzys wywołany pandemią Covid 19, zdefiniowano przedmiot zainteresowania naukowego, którym są uwarunkowania czytania komunikatów wizualnych covid 19 znajdujące się w publicznych przestrzeniach miast. W tekście zaprezentowany został wycinek szerszych badań. Z uwagi na zastosowany nośnik komunikatu wizualnego do analiz wybrano fotografie prezentujące komunikaty wizualne civid 19, pozyskane z miast w Nowej Zelandii, Chin i Kenii. Przyjęto stanowisko, że teoria krytyczna oraz kultura wizualna ukierunkowana na komunikat mogą wzajemnie wspierać się tradycjami swoich dyskursów w analizach i opisach analizowanych zjawisk. Na potrzeby badań przyjęto teorię komunikacji wizualnej P.M.Lestera uwzględniającą sześć perspektyw wiedzy: 1) historycznej, 2) personlanej, 3) etycznej, 4) kulturowej, 5) technicznej i 6) krytycznej.
Słowa kluczowe: covid 19, czytanie wizualne, komunikacja wizualna

1. Introduction

The area of many cities on all continents resembles a scene of pictures and people, a performance, a spectacle that carries important informational functions (concerning the city, its inhabitants, visitors, social rules and interpersonal communication). These functions are integrating, aesthetic, but sometimes also disrupting correct perception of reality, a specific loss in urban visuality, in the processes of communication with others (mainly "strangers", the unknown) and in deciphering the pictorial code of the city, on the one hand close to many such spaces, on the other - specific, unique for a given area (see: Perzycka, Łukaszewicz - Arcaraz, 2019; 2020).

The COVID-19 pandemic has triggered changes in social relationships of a hitherto unknown nature (see: Menkes, Suska, 2021; Lupton, Willis, 2021; Czerepaniak – Walczak, 2020; Dhawan, 2020). Human activities in public urban places change day by day. There is no certainty about tomorrow. It is today and what people can do not to make it worse. More and more stringent restrictions on the prohibition, the injunction are communicated by the mass media and posted in the form of posters, stickers, leaflets and other messages, in public places: on doors, walls, floors, fences, sidewalks, streets, poles, vehicles, etc. In places intended for disseminating public information as well as in places not used for this purpose so far.

The quantity and variety as well as the place where COVID-19 visual messages are published in public urban spaces open up various possibilities for researchers to gather knowledge about the communicative meaning of visual messages in social relations (see: Bailenson, 2020). Public space is understood here as a place and space of communication. In terms of conceptual solutions to the issues indicated, Agora's proposal by J. Habermas (2002) is interesting. The interpretation problems of Habermas' public space are part of the current debates on social and cultural life, but also inspire reflection on the material elements of urban public spaces.

The city is a constantly changing organization/organism, created and changed by specific communication practices. It is a diverse and dynamic civilization creation with a complex spatial and mental structure, which is why it still inspires research. The multi-faceted nature of the city gains particular potential in constructing and creating multidirectional learning processes inspired by critical reflection, addressed to various groups of recipients, and therefore it inspired the research presented in this study.

The development of modified and/or new forms of visual communication enables the creation of new types of messages (see e.g., Dylak, 2012; Barnes, 2017; Teruggi, 2021), and this entails setting new research fields and revising the existing knowledge. Therefore, taking into account the unusual methods of social communication, including the visual messages of

covid 19, an attempt was made to identify and describe this phenomenon. Three research objectives were identified: 1) theoretical - selecting a theoretical model of reading visual messages in the contemporary iconosphere, 2) cognitive - recognizing and describing the possibilities and limitations of reading covid 19 visual messages located in public spaces of selected cities, 3) practical - developing a proposed criteria of reading visual messages posted in public places for the sake of social security. The interest in the issues of visual communication has become a challenge to outline the theoretical and methodological scope of the research. This study focuses on the first two objectives due to their current implementation. The practical objective has been announced and shall constitute a separate study. The presented fragment of research is continued in the project carried out as part of the HORIZON 2020 program - H2020-MSCA-RISE-2016 No. 734602, entitled: Technologies of Imagining in Communication, Arts and Social Science (TICASS) (Perzycka, Łukaszewicz - Arcaraz, 2019; 2020).

2. Conceptualization of the Visual Messages Reading Theoretical ModeliIn The Contemporary Iconosphere

Messages that connect people with the global data space (see **e.g.,** Hoelz & Marie, 2015) are no longer hand-painted, as can be seen in African countries, e.g. in Kenya (see: Perzycka, Łukaszewicz - Arcaraz, 2019; 2020). An analog photographic image is used to show visibility - distant places, it evokes the behavior of animals as well as people. Digital technologies, on the other hand, communicate events - situations that are difficult to observe, such as cosmic phenomena, the activity of human organs, or the behavior of animals living in the depths of the seas and oceans. Images, regardless of the technique they are created, affect knowledge of people and their world, as well as the way people perceive this world and themselves (see **e.g.,** Mitchell, 2005; Virillo, 1912; Fuller, 2018).

Taking into account the social point of view in visual communication, culture and everyday life are of great importance. The subject of research on these relationships are various scientific disciplines and sub-disciplines, including semiotics, sociology, the theory of visual communication, visual cultural studies, and visual anthropology (see **e.g.,** Lestner, 2011; Ryan, 2020b; Reynolds, Niedt, 2020). Visual messages are used to define identity and tell stories, which is studied by poststructuralism and critical theory (see e.g., Tagg, 1988; Rose, 2014). Images are used in the process of medical and scientific diagnosis, which is also the subject of humanistic (see **e.g.,** Freenberg, 2010; Hausken, 2013) and social (see **e.g.,** Sztompka, 2014, McQuail, & Deuze, 2020) research.

Looking at how a person perceives the images contained in the iconosphere, one can notice the relationship of knowledge about the human attitude to visual messages in direct contact, and how these messages are reconfigurable, thanks to which and within which that

person works, maintains relationships with others, fills time with own activities. Increasingly, feedback takes the form of a visual presentation. Visualizations occur in many cultures and are often understood or interpreted differently (see: Perzycka, Łukaszewicz - Alcara, 2019, 2020). As a result, the importance of the shape and location of the message is growing exponentially, especially in the sphere of the use of media and multimedia information carriers. This is perfectly illustrated by the example of billboards, graffiti on the walls of buildings, packaging of everyday products or posters and leaflets with medical information about diseases and how to prevent them.

The time of the COVID-19 pandemic introduced a mass of different types of messages into the space of human life than has been practiced so far (see **e.g.,** Ryan, 2020a; Aiello, Parry, 2019). Therefore, in the face of this phenomenon, it seems reasonable to ask how messages are read and/or can be read, so that people can understand them and act in accordance with their content (see: Dylak, 2012; Ashman, Elkin, 2009) Since the interpretation of an image is inherently subjective, in order to objectify it, one should infer its meaning through careful analysis. For the purposes of the analysis of visual messages in public urban spaces, a methodology was used that takes into account the theory of visual communication by Paul Martin Lester (2011) referring to six perspectives of knowledge: 1) historical, 2) personal, 3) ethical, 4) cultural, 5) technical and 6) critical.

3. Methodological Conditions of Research

Imaging technologies are groups of technological imaging practices that are used in scientific projects, artistic research, and contemporary visual culture. This approach is based on the philosophy of Luis Althusser (2014) and Michel Foucault (2017; 2020), or the interpretation of John Tagg in relation to photography (Althusser, 2014). Photography is seen as devoid of any eternal or unchanging essence. It is not understood as a subject, a specific (ideal, mental) thing, but as a set of social practices developed by individuals and their bodies as a result of their capillary dissemination in the social body, in societies. These practices are closely related to social identities, supporting the process of constructing and reconstructing social identities and worldviews (Foucault, 2020). This perspective is developed and thus includes imaging technologies that originated from the first technology-based imaging practice, namely the image. Understanding the communicated content of visual messages with the use of photography as a cognitive tool is conditioned to the extent and to what extent photography is a construction, and photography is a construct of visual reality (see **e.g.,** Sztompka 2012, McQuail, & Deuze, 2020).

In visual sociology, image anthropology, as well as in other fields of science, photography is treated as a research method. Krzysztof Konecki (2005, p. 45) indicates four research strategies with the use of photography: 1) active photography, 2) analysis of

photography as existing materials, 3) combination of both strategies, 4) photography as an illustration of research results. Following the remarks of the cited researchers, for the purposes of this research, the strategy of analyzing existing photography was adopted. In that strategy photography may on the one hand be a carrier of a visual message and, on the other, may become a visual message analyzed in the research procedure. In the presented fragment of research, photography is a tool that documents the visual message found in public urban spaces (shops, stops, stations, public transport, streets, parks, squares, offices, etc.). The perception of images in these spaces takes place in a distracted state. As already indicated, the interpretation of the image is inherently subjective. In order to objectify it, all elements of the message must be read and analyzed in accordance with the adopted theory of description and interpretation (see: Lester, 2011; 2020). It was also assumed that the possibilities and limitations of the use of visual technologies are subject to dynamics of changes and depend on the contexts of the location of visual messages: cultural, religious, political, economic and other. Therefore, in this case it seems justified to refer to the methods of visual anthropology and visual culture. These methods allow to recognize the interdependence of people, their culturally defined messages and technologies developed by them: images, structures, information patterns and methods of communication. Visual anthropology allows the use of an approach to the image in all these relations by extending the definition of an image beyond its position in the history of art (see **e.g.,** Belting, 2014; Freedberg, 2021). Visual culture provides researchers with tools to analyze various relationships with images on an emotional, social and political level (Mitchell, 2005). The visual message analyzed by design (resulting from external regulations) contains information formulated in the form of principles, rules, instructions for the functioning of people in the spaces in which it was placed.

Due to the limitations of movement, the empirical material was obtained using e-mail. Scientists - academic teachers (10 people), students (1 person) and friends (5 people) were asked to take pictures of visual messages in public places of cities and containing information about the covid 19 pandemic. These people were informed about the purpose of the photo. Some of the photos (60) were taken by the author of the research project. Each person sending the photo was asked to describe the place where the photo was taken and to translate the text from the native language into English from the messages. A total of 210 photos were obtained from 15 countries diversified in terms of culture, economy, religion and politics, including Europe (8 places) Africa (2 places), North America (2nd place), South America (1st place), New Zealand (1 place), Asia (3 places). The numerical list of places and photos as well as the list of people who are the authors of the photos are presented in the table no. 1

Table 1. Quantitative list of places and photos showing covid 19 visual messages and photographers

No.	Country	City/Town	Number of photos	The photographer
1.	Poland	Szczecin	20	author of the research
		Chojnice	11	
		Katowice	8	academic teacher
		Zielona Góra	6	academic teacher
		Rzeszów	8	academic teacher
2.	Germany	Hamburg	9	friend
3.	Sweden	Sztokholm	7	academic teacher
4.	Denmark	Aarhus	18	author of the research
		Odense	11	
5.	Norway	Stawanger	16	friend
		Lillehammer	12	academic teacher
6.	Czech Republic	Usti Nad Labem	6	academic teacher
7.	Belgium	Liege	5	friend
8.	Great Britain	Londyn	29	academic teacher
		Manchester	8	academic teacher
9.	Kenya	Pwani	11	academic teacher
10.	Republic of South Africa	Johannesburg	4	academic teacher
11.	Columbia	Barranquilla	4	academic teacher
12.	Canada	Gwelp	7	friend
13.	United States	Santa Ana	6	academic teacher
14.	India	Srinagar	4	academic teacher
15.	New Zealand	Wellington	5	friend
16.	China	Ningbo	12	student
17.	United Arab Emirates	Dubai	2	friend

Source: own study

The greatest number of photos was obtained from Poland (55). The task involved academic teachers from four academic centers located in remote parts of Poland: Szczecin, Zielona Góra, Katowice and Rzeszów. The choice was based on contextual variables: regional differentiation. The United Kingdom was second in terms of the number of photos taken (27). The photos were taken by academics in London and friends in Manchester. Here, too, attention was paid to regional differences. Subsequently, a large number of photos were obtained from the Scandinavian countries: Denmark (29) - two cities: Aarhus and Odense

and Norway (28) - two cities: Lillehamer and Stawanger. Here, too, the places are distant and regionally different. The smallest number of photos (2) were obtained from the United Arab Emirates, from the city of Dubai, with the annotation "with limited photo opportunities in public places, without clearly indicating the reason why the photo is taken". From the rest of the world, the number of photos oscillated around 5-10. More than ten photos were obtained from China and Kenya. These are the countries where the photographers collaborate scientifically with the author of the study as part of the TICASS project. The involvement of people taking the pictures was greater in the case of a stronger scientific and/or friendly relationship with the researcher of the described project.

In the conducted research, the phenomenon of a universal pandemic is not associated with any ethnic group or nationality. In order to avoid stigmatization of the place of origin of Covid 19 visual messages, no value comparisons were made with regard to the origin of the message. Each visual message was described and interpreted in relation to the applied theory of scientific cognition. For the purposes of this text, all messages were treated as unit material, the subject of which is the Covid 19 pandemic. PM Lester.

Photo 1.
Ningbo, China
Author: Chan Chan

Photo 2.
Wellington, New Zealand
Author: Anna Borowska - Rudings

Photo 3.
Pwani, Kenya
Author: Aleksandra Łukaszewicz - Alcaraz

4. Possibilities and Limitations of reading visual messages from covid 19 located in public spaces of selected cities - cognitive objective

4.1. Personal perspective

P.M. Lester (2011) claims that unforgettable images always evoke strong emotions in the recipients, both positive and negative, and thus allow them to create their own assessment of the message. After looking at the photos for the first time, the recipients quickly develop their intuitive assessment of what is seen. They use words such as: "pretty", "ugly", "I like it", "I don't like it". In this way, the recipient of the message establishes an emotional connection with the message. A bond is created with the message on the basis of

positive reception and acceptance, or its rejection under the influence of a negative attitude. The reception and evaluation of a message depends on individual evaluation. This can sometimes conflict with cultural, religious, political values and many other local and social factors.

Visual communication from the personal perspective is characterized by the recipient's instinctive reactions as a result of subjective own opinions, evoked under the influence of emotions. The judgment and evaluation of messages cannot be generalized beyond individual opinion. The essence of this perspective is that it says a lot about the commentator. At the same time, Lester (2011) emphasizes that such opinions and feelings are individual and do not reveal much in relation to the essence of the message.

4.2. Historical perspective

This perspective relates to a specific space of time and the circumstances in which the message carrier was created. Through the medium, the author of the message presents specific content with a unique history, as well as a certain sequence of events, which may consequently favor its understanding and promotion. The recipient's knowledge of the history of the medium that was used to convey the information has an impact on how the message will be received. Lester emphasizes that "the creative production of visual messages always results from the awareness of what happened in the past" (Lester, 20011, pp. 135-136). Three photos were taken into account for the analysis. Photo 1 shows the message on the billboard, photo 2 shows the message on the poster and photo 3 shows the message on the mural.

When undertaking the historical setting of: billboards, posters, it is worth noting that their evolution has been shaped over the years, but these were not events that should be considered very distant in time. The roots of the mural in photo 3 seem to be older. At the same time, it is important in this approach that learning about the history of a given message carrier, including its changes in production technology and the philosophy of technology that have occurred over the years, determines the understanding of the trends related to it, in our case, the choice of the carrier for the message covid 19 (Doucet, Netolicky, Timmers, Tuscano, 2020). Awareness in this area can be considered necessary when creating and reading visual messages, moreover, it is important due to the process of changing the use of media in the context of their, also in the future, as shown in photo 2.

The analysis of visual messages: 1,2,3, allows to capture the process of media evolution in the region, and also shows the diversity of evolutionary conditions related to these changes. It is important to consider reading visual messages by showing the history of typography and the history of graphic design, from the pre-Gutenberg period to the digital age.

4.3. Technical (aesthetic) perspective

This perspective indicates the carrier of the message - the medium that was used to create, save and present specific content, and it is associated with the assessment of the technology used in this area. When analyzing the message from this perspective, one should take into account the exposure, position and appearance of the image, the use of text, graphics, and the arrangement of elements in the message. Relationships/dependencies/relations between the elements included in the message are very important.

In the case of picture 1, there are two elements that relate to each other. They are drawing and text written in Chinese characters. The drawing of a knight-warrior, despite being placed in the lower left corner of the message, occupies the foreground, and thus becomes a visually significant element, influencing the relationship with the recipient. Translated into English, the text on the billboard says:"Epidemic prevention starts with me. How to proceed:

1. Do not shake your hand during meetings, keep a distance of one meter and nod your head.
2. Show your health code voluntarily and have your temperature measured.
3. Cover mouth and nose when coughing and sneezing. Civilized habits are key.
4. Sit separately during a meal. Don't talk much, eat quickly.
5. Do not directly touch the buttons on the elevator or wash your hands after use.
6. Don't share things like cutlery with others. Hygiene is paramount.
7. Always wear a mask. Wash your hands often "(translated by Kamil Kilian).

The billboard is located in Ningbo, China, in front of the entrance to a large shopping mall. The communication contains guidelines on what precautions should be taken by the city community. The described rules of behavior also take into account educational aspects, such as: "civilized habits are key", "don't talk a lot, eat quickly", "hygiene is the most important thing".

The second drawing is a poster on a bank door in Wellington, New Zealand. The poster is a form of appeal to residents asking them to scan a message to prevent the virus. To read, it is necessary to have a medium connected to the Internet, with the ability to read QR codes. After scanning, the recipient receives information in English: "Protect yourself, your whānau (in Maori it means - family) and your community. The sooner we can contact people who may have been exposed to COVID-19, the sooner we can stop the spread of the virus. You don't have a smartphone? You can register online to share your latest contact information". The following is the instruction on how to proceed with the application that can be downloaded to a smartphone in the App Store and GooglePlay. The content is as follows: "Here's how you can help support contact tracing: Enable Bluetooth Tracing - the faster we can alert people, the faster we can get ahead of the virus, Keep scanning QR codes -

the more we scan, the safer we will be, Add your up-to-date contact information so contact tracers can get in touch if they need to, Add your NHI number for quick reference if you need a test, Keep the app up to date to get all the latest features, Ask your whānau, friends and workmates to join in, You are in control of your data – your diary and Bluetooth data doesn't leave your phone unless you choose to share it."(https://tracing.covid19.govt.nz). The visual announcement was prepared by the Ministry of Health and is aimed at every New Zealand citizen.

The third picture is a mural located on a building in the city of Pwani in Kenya. It contains three clearly marked parts. Each part is information in the form of a command/recommendation written in English, enhanced with a colored symbolic drawing. Reading from the left side, the first element is the outline of the house with the information: "stay at home". The second figure shows the symbols of the three covid 19 viruses, under which there is a forearm with a hand on which drops coming from the dispenser of a bottle with a disinfectant liquid are poured. The whole is surrounded by the words: horizontally "wash" and smaller vertically "hands", and also: "be safe", "Covid 19 hashtag", "save life", "disinfectant". The third element is the figure of a man in a mask covering his mouth and nose with the inscription in the frame next to the head – "wear the mask". The whole picture is very colorful and comic.

The analysis of messages 1, 2, 3 showed the diversity of the use of message carriers, the purpose of which is to inform about recommendations to prevent getting sick. The language used is also different. The first messages indicated the rules of human functioning in a social group. In the second message, the content is aimed at arousing responsibility for oneself and others by carefully observing oneself and others. The second message contains guidelines on what must be done to avoid virus infection by covid 19 (see: Doucet, Netolicky, Timmers, Tuscano, 2020). The variety of form and content indicates the need to know two ways of reading the messages. For the first and third, instructions for reading analog messages are necessary. To read the third message, it is necessary to use an additional medium to be able to decode the message, which requires an instruction to read digital messages. The development of visual technologies is therefore related to the development of the competence of reading messages, taking into account changes in the area of technical and aesthetic perspective (with) understanding the message. The variety of stimuli is conducive to activating, sometimes strengthening or limiting cognitive activity: perceptive, emotional, intellectual and also manual. The wider the scope of the impact, the better the message will be conveyed by the covid 19 visual message.

4.4. Ethical perspective

The meaning of this perspective includes moral and ethical responsibility for the used message carrier, i.e. the medium, the presented topic and the reception of the content. At the

same time, it takes into account the obligations incumbent on both the creator of the message and its recipients in this respect (Lester, 2011, p. 137). It is a moral responsibility, it connects the creator, viewer and message. This perspective is encapsulated in six categories: 1) categorical imperative, 2) utilitarianism, 3) hedonism, 4) golden mean, 5) golden rule, and 6) veil of ignorance.

In messages 1 and 2 categorical commands can be found. They adopt the principle that what is good for one person is also good for the rest of the group. Categorical commands are unconditional, without any mitigating conditions, without any exceptions. People's behavior must comply with the adopted imperative - in this case, the order to follow the rules written on the billboard and mural. People in the Kenyan community are to stay home, wash their hands and wear masks. The list of guidelines is also addressed to those wishing to enter the mall in Ningbo city: shake hands order, consent to share a health code, consent to take temperature, cover mouth and nose when coughing and sneezing, sitting down with meals separately, not touching directly elevator buttons, not talking over a meal, eating a meal quickly, not sharing cutlery, wearing a face mask and washing your hands frequently. Responsibility for the spread of covid 19 has been shifted to everyone in the community with the first sentence posted on the billboard: epidemic prevention starts with me.

The second message highlights the second category of description, namely utilitarianism. According to the saying "although an act may not be beneficial for a few, the result may help many" in the analyzed message: family, friends and also colleagues. Having the program in your cell and using it to monitor the spread of virusa covid 19 is to minimize the risk of infection. In communiqué 2 we also find the golden mean and the golden rule. A visual message is designed to redirect the recipients of messages to the application, in which they learn that only those who will use it will be included in the group of people who will be protected and will receive quick help if such a situation occurs. According to the golden rule, everyone cares for others as well as for themselves. For the sake of family, friends and colleagues, a person should have applications, because it is humane behavior. Every person is to respect the principles of functioning, as this will also protect others.

Despite the common theme, visual messages are structured differently and contain different wording. The recipient needs to know what types of constructions appear in the messages. The competence of critical reading of visual messages is indispensable, as it will allow to assess what means of social impact in the message were used.

The perspective of culture (semiotic perspective) - it is the recognition of the identity of the image. The description contains words that are related to the content, dynamics and symbolism of the image - sociology.

4.5. Cultural perspective

A cultural perspective for Lester (2011) is an analysis of metaphors, including signs and symbols that communicate meaning in a specific social group, at a specific time. In terms of interpretation, he proposes a semiotic approach, pointing to two outstanding figures in semiotics: Ferdinand de Saussure and Charles Sanders Peirce (2006). Lester follows Peirce in recognizing three types of signs: index, iconic, and symbolic. He recommends that in this approach, in particular, analyze the text accompanying the image, the style, as well as the attitudes expressed by the creator, as well as define the recipient of the presented content. Using this perspective allows to identify the message. The content contains words which together with the content, dynamics and symbolism create a coherent or dispersed message.

Index characters were used in message 2. They have a logical, common-sense relationship with the image accompanying the message and the adopted idea - protection against falling ill. These signs represent phenomena, they do not have a direct similarity to the object of reference - QR code.

In messages 1 and 3, iconic signs are used. They express a strong resemblance to the images they represent.

In all messages, the addressees are city residents and all persons staying in the places where the messages are posted. They are global in nature. They relate to each person, making them responsible for themselves (message 3) and for themselves to others (message 1 and 2). Symbolic signs can be found on each message. They are the most complex and their meaning is based on historically conditioned cultural experiences that must be taken into account in order to understand the meaning of "words, numbers, colors, gestures, institutional logos, drawings." All of them are important, have their place and meaning in the communication message (Lester 2011, p. 56) and should be analyzed in the context of the place where they were created and posted.

4.6. Critical Perspective

This perspective deals with issues that go beyond specific images or shape in personal (subjective) reactions. It is an objective and final reflection and evaluation of a visual message in terms of its usefulness to society. It is also important to establish whether after a more detailed study of resources, as in the case of message 2 - Internet resources, the initial perception of the message conditioned by the first diagnosis has changed (Lester, 2011).

In communication gestures, images and proxemic location are much more informative than words. Every culture is made up of signs, each one different from itself, and the people of the culture are concerned with giving meaning to these signs. It can be stated with full conviction that in the case of messages 1,2,3, the words / phrases / sentences

contained in them have their own language and structure organized according to a specific "grammar". Reading them helps to understand the main values, their hierarchy, social order, relationships and events that are aimed at the recipient. The content of the messages takes into account the social interest, not only the individual one.

Each message informs, suggests and urges people to do something they haven't broken up before. For this reason, even anti-virus covid 19 messages are not innocent. The messages were built using a variety of practices, technologies and knowledge. Therefore, a critical approach to visual messages is needed: one that thinks about the agency of the image, takes into account social practices and the effects of its circulation. You may ask: who needs to read visual messages in public spaces with understanding? For all members of society? Only for residents? Or maybe for guests?

The following categories can be used to read and interpret visual messages in the public sphere: social justice, equality, freedom for all genders, age and social role. These categories were used to determine the content of information placed in selected places and recorded in photographs taken by researchers in the TICASS project (Perzycka, Łukaszewicz - Alcaraz, 2020), which I mentioned at the beginning, and in which groups I conduct my research. The analyzed messages noted that:

- Reading visual elements, both material and symbolic, is possible in relation to the cultural contexts in which it is placed / localized.

- Reading images in terms of the power relations in which it is embedded means that the visual messages are based on some kind of ideology: political, social and economic.

- The purpose of visual communication was in the case of the message 1- compulsion, message 2 - information, message 3 - encouragement. (Lester, 2011, pp. 77-88).

- The symbols presented were a stereotype in the case of messages 1 and 2, and an oversimplification of gender in the case of message 3. In Communication 1, "correctness" was exaggerated.

The critical perspective of reading visual communication in the public sphere helps to define their meanings in terms of universal conclusions about the dominant ideology, freedom and social justice (Lester, 2011). In the case of the analyzed three selected demonstration (linguistically, culturally and medially differentiated) visual messages, I do not undertake such a generality. The analyzes are individual and cannot constitute the basis for the generalization of conclusions.

A full reading of visual messages will be possible by a multicultural team who will fully discuss the message in the context of broad contexts.

Concluding Thoughts

Public urban spaces are shaped by people and for people. Houses, streets, parks, squares, buses, taxis, bicycles, etc., contain a number of data and information that communicate with each other and with those for and to whom they were directed - us, users of these things, these places. Messages from covid 19 are increasingly becoming an important and particularly useful category in the processes of social communication in the conditions of multidimensional diversity of cities around the world (see: Sztompka, 2005, p. 11). This has many different conditions (see: Reynolds, Niedt, 2020). Cities are mostly global because of the unlimited flows of people and capital as well as information increasing the power of media and visual culture today (Heiferman, 2012).

The visual messages from covid 19 are polyphonic, i.e. they have a variety of content and form (see: Reynolds, Niedt, 2020). One can recognize contradictions and sometimes absurdities in them. In many cities they are similar to each other, but there are also some that differ fundamentally from each other. Reading them requires specific competencies to be fully recognized and understood. There is no society today that would not solve the problems of communication in cities, in their public spaces saturated with covid 19 messages and which can be read in various ways (adequate, incorrect, falsified) by city users (residents, tourists, visitors, researchers). There is no teaching in school curricula to read and interpret visual messages present in social spaces. Therefore, from my point of view, as a researcher - educator - an important result of theoretical reflections and conducted research is the proposal to develop an integral (and possibly universal) theory of visual education using the knowledge of visual messages from covid 19 distributed in urban public spaces. I observe the need for educational support in the field of visual and informational thinking, building and developing visual and informational competences and developing, as far as possible, uniform visual messages relating to human behavior in crisis situations. This challenge is international, interdisciplinary and global.

Visual awareness enables the creation, reading and understanding of the message, as well as building a coherent image of the perception of messages as a source of information. It provides knowledge that allows to use message carriers and use them as a factor in learning about communication processes. Recalling the sentence of Jerome Bruner, who indicates that life is not “as it is”, but as it is interpreted and reinterpreted, tells and recounts again "(Bruner, 1990, p. 17), one can conclude on the basis of the analysis of messages contained in the photos that public transport is not what it is, but it is defined by the way visual messages are interpreted and reinterpreted and how people experience them and read them themselves (Myers, 2021). This challenge is international, interdisciplinary and global. It is worth considering creating a “global” visual alphabet that may be useful to users of the urban public sphere in different parts of the world.

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On the taming the space of dialogue by deaf people during the COVID-19 pandemic

O oswajaniu przestrzeni dialogu przez osoby głuche w czasach pandemii Covid-19

But if you tame me, my life will be filled with sunshine.
Antoine de Saint-Exupéry

Abstract: The article is empirical. The aim of the research was to diagnose the specificity of subjective experiences related to the impact of a pandemic situation on the shaping of the dialogical space. The focus was on the following problem: how do deaf people perceive their experiences of creating a space where authentic dialogue takes place? The research used the method of individual cases. The analysis of empirical material obtained on the basis of a narrative interview with deaf students allowed us to learn about their experiences and personal experiences related to the creation of a space in which dialogue takes place in a pandemic situation. Qualitative analysis showed three areas discussed by the respondents, these were reflections on: dialogue as a form of communication, the subject of dialogue and the value of dialogue. The collected narratives revealed emotional experiences that influenced the interpretation of events by deaf students.
Keywords: deaf person, dialogue, dialogue space

Abstrakt: Artykuł ma charakter empiryczny. Celem zrealizowanych badań było poznanie specyfiki subiektywnych przeżyć związanych z wpływem sytuacji pandemicznej na kształtowanie przestrzeni dialogowej. Skoncentrowano się na następującym problemie: jak osoby głuche postrzegają swoje doświadczenia związane z tworzeniem przestrzeni, w której odbywa się autentyczny dialog? W badaniach wykorzystano metodę indywidualnych przypadków. Analiza materiału empirycznego uzyskana na podstawie wywiadu narracyjnego z głuchymi studentkami pozwoliła na poznanie ich doświadczeń, osobistych przeżyć związanych z tworzeniem przestrzeni, w której odbywa się dialog w sytuacji pandemicznej. Analiza jakościowa odzwierciedliła trzy obszary omawiane przez osoby badane, były to refleksje dotyczące: dialogu jako formy komunikacji, podmiotu dialogu i wartości dialogu. W zebranych narracjach ujawniły się przeżycia emocjonalne, które wyraźnie rzutowały na interpretację zdarzeń przez głuche studentki.
Słowa kluczowe: osoba głucha, dialog, przestrzeń dialogowa

1. Introduction

Is dialogue becoming less relevant in the era of the COVID-19 pandemic? On the contrary, today its essence and significance resound in a special way. This new life experience shows the drama of human existence, reminds us of the brutal lesson of the truth about our existence, about the helplessness, not only of people but also of systems. The

natural reaction to address this existential situation was to hide and thus neglect direct interactions of the encounter with the other person. Understanding, knowing and experiencing the otherness of functioning in a different, pandemic reality has become troublesome and even unpleasant. Man expects to come out of the isolation in which he had to hide temporarily. Obviously, the contemporary media technology, the global infrastructure has significantly widened the possibility of interpersonal communication by proposing a modification of the quality and quantity of social relations, thus creating a wider context for effecting a dialogue. There has been a change in the model of the structures of interpersonal relations; the group model based on community has been replaced by a network model.[1] Unfortunately, interactions made through digital space create an illusion for the formation of a genuine dimension of social communication and interpersonal relations (Borsook, 2000; Cummings, Butler, Kraut, 2002). The use of these latest means of communication perpetuates the network individualism and leads to a seemingly open or deep encounter in a networked community.

While considering connotations of the meaning of the very notion of *dialogue* one should bear in mind the perspectives of representatives of the philosophy of dialogue and of the existential and personalistic thought, which allow noticing open semantic ranges (Gara, 2008). Referring to the etymology of the word 'dialogue' in Greek, the words: *logos* (meaning 'word' and 'speech'), and *dia* (meaning 'through') allows to explain dialogue as a passage through something or movement from one point to another. In the context of the above explanations, dialogue means an exchange of information between at least two interlocutors. Already in ancient times the interpretation of the knowledge about conditions which have to be fulfilled for a dialogue to take place can be found in dialogue theories. The creator of the dialogic method, Socrates, explained that it is only a dialogue that allows one to care for the soul of another person and discover the truth hidden in them. Plato was convinced that the greatest value of dialogue lay in the directness and substantiality of the soul's conversation with itself. Dialogue between man and man became a principle for the first time in the philosophy of Ludwig Feuerbach. Contemporary dialogists referred to his thesis, criticising the naturalism and atheism of this thinking. He influenced, however, the founder of the philosophy of dialogue, Martin Buber, who understood dialogue as achieving unity with another human being. It was the establishment of a relationship of a personal character that became the starting point of dialogue: I and Thou, and unlike monologue, it constituted and constitutes the only open form of communication (Pelczarska, 2014). Therefore, true dialogue is expressed through partnership and cannot exist without respect, trust and responsibility. Participants in a dialogue address each other, on the one hand, with the sincere intention to build reciprocity and, on the other hand, to preserve the actual separateness of matters of

[1] Barry Wellman (1999, p. 1) proposed the term 'networked society', i.e. society that creates networks of various kinds being the preferred form of organisation.

importance to each other. For Emmanuel Levinas (and also M. Buber), dialogue leads to mutual understanding, to coming closer to the other person. Its essence is the meeting with 'the Other', going beyond the bubble of egoistic 'I' and creating a new quality of a dialogical relation. The essence of the dialogic relation is thus co-presence understood as co-experiencing and co-loving[2] in the perspective of 'the Other'. An in-depth analysis of the idea of a creative, yet dramatic experience of the mutuality of persons was described by Karol Wojtyła in his drama *Radiation of Fatherhood* (*Promieniowanie ojcostwa*). Dialogic relations oscillate between meeting and fulfilment and, as the author writes: '*You need to want together. – One cannot evade wanting because then the feeling confuses… and the word 'mine' remains in a kind of vacuum and that is why it hurts…*' (Wojtyła, 2004, p. 282). Józef Tischner (2006) also emphasised the dramatic character of dialogue, assuming that man as a dramatic being '*takes part in the drama … He cannot live otherwise. His nature is a dramatic time and two openings – an intentional opening towards the stage and a dialogical opening towards another human being*' (Tischner, 2006, p. 10). Therefore, participation in the drama means that dialogical relations may lead to the bond being saved or lost because each of the subjects of the meeting will want to assimilate what is important from their perspective. Genuine dialogue shapes the relationship with the other person, which is so necessary for existence, a personal relationship in which the human being is perceived as a cognitive subject. The individual character and the individual fate of man both express and reveal the quintessence of the essence of dialogue. Understood in this way, dialogue gives meaning to the community of human communication.

The space in which the dialogue between D/deaf people and hearing people takes place requires clarification and understanding of their identity dilemmas. In fact, the quality of their encounter is determined by linguistic and cultural distinctiveness. In definitional terms, the word 'Deaf' (capitalised) refers to the sociocultural issues of being a deaf person as opposed to the word 'deaf' (in lower case) defining the medical nature of the aspect of native lack, impairment or total loss of hearing.[3] The D/Deaf community is very diverse internally, with individuals who identify with the culture of either hearing people and/or people with varying degrees of hearing impairment. The Deaf community demands to be perceived as a linguistic and cultural minority, to be able to communicate freely and to express their emotions in a natural, visuospatial and sensorily accessible language, such as Polish Sign Language (PJM). For them, Polish is not only a foreign language of 'foreigners in their own

[2] It should be mentioned that already in the ancient account of the title character in Sophocles' drama *Antigone*, a dialogic challenge is formulated. When Antigone says, '*I was born to join in love, not hate – that is my nature*', she stresses the importance of the ties that bind the family, the social group and advocates dialogue based on a sense of community, mutual kindness and profoundly human truth rooted in the dignity of personal existence.

[3] It is worth recalling that Paddy Ladd (2003), introduced the term *deafhood* to emphasise the 'nationality of the deaf' (from *nationhood*; as opposed to *deafness* in medical terms).

country' but also difficult to learn due to its non-visual-spatial nature (Swidzinski, 2005). It is PJM that allows them to satisfy their own needs: group belonging or acceptance, provides a natural exchange of experiences and establishes a dialogue with people who have similar life experiences. They perceive the different interpretations of identity imposed on them by the hearing community in a subjective and even hostile way. An analysis of the literature on the subject allows the conclusion that d/Deaf people have experienced exclusion and discrimination from hearing people over the past years and, due to this social perception, have become sceptical and distanced from initiatives or suggestions of hearing experts supporting their development (Adamiec, 2003; Zaborniak-Sobczuk, 2009; Podgórska-Jachnik, 2013; Dunaj, 2015). On the other hand, for a group of deaf people and those with varying degrees of hearing impairment, everyday existence in a hearing environment does not present difficulties in social functioning because they function culturally as hearing people. They communicate in Polish and can decide for themselves and participate in various social and cultural initiatives organised by hearing people. They adapt to the cultural and linguistic reality imposed on them and, stepping out of the horizon of human prejudices, enter into dialogue.

2. Methodological basis for the research

The aim of the qualitative research presented here was to explore subjective experiences related to the impact of the pandemic situation on the formation of a dialogical space. The focus was on the following problem: how do deaf people perceive their experiences of creating a space where genuine dialogue takes place?

In order to obtain an answer to the problem question posed, secondary qualitative data analysis was used. This approach made it possible to search for the depth of the phenomenon under study while seeking a new perspective. The research presented used the method of individual cases. The techniques of narrative interview and individual in-depth interview (IDI) were used. The following tools were used: instructions for the interview organising the course and direction of the narrative and a semi-structured IDI questionnaire. The individuals who participated in the research were three deaf female students. The survey was conducted in February 2021. The author met with the ladies remotely using the Microsoft Teams application. Each of those meetings lasted on average about 1.5 hours. The empirical material obtained during the interviews was video-recorded with the prior written consent of the subjects.

3. Characteristics of the subjects

Three female students participated in this research project.[4] One of them was Maria, who is 21 years old and lives in the Silesian Province. Her hearing loss occurred in the prenatal period and was caused by her mother's illness during pregnancy. Audiometric testing showed a profound bilateral sensorineural hearing loss, namely a hearing loss in the range of 1000-4000 Hz of 90 dB for the right ear and almost 70 dB for the left ear. She received early development support, and at six months of age she underwent a hearing implant surgery and had a hearing implant fitted in her right ear at the Institute of Physiology and Pathology of Hearing in Kajetany. Thanks to systematic auditory and linguistic rehabilitation in a specialist clinic in Katowice, she pursued her education through a system of integrated education. Currently, she is a second-year student of first-cycle studies in social-care pedagogy and family life education at the University of Silesia in Cieszyn. She communicates in Polish but does not know the PJM. Another student who expressed her willingness to participate in the research was Aleksandra. She was born in 2001 and lives in the Małopolskie Province. The cause of her hearing loss is unknown. Thanks to the obligatory screening test performed on the second day of life at the neonatal unit, she was referred to the next level of laryngology and audiology where another hearing test confirmed the diagnosis of hearing impairment. Audiometric testing showed a hearing loss (40 dB for the right ear and more than 90 dB for the left ear in the range of 1000-4000 Hz). In infancy she had a cochlear implant inserted in her left ear, and she wore and is still wearing a hearing aid in her right ear. She received speech therapy for the deaf at a specialist clinic; in addition to this, her parents provided her with other specialist classes for psychological and educational support at home. She first attended a mainstream primary school and then continued her education at an integrated lower and then upper secondary school. Currently she studies preschool and early-school education at the Andrzej Frycz Modrzewski Krakow University. Her dominant language of communication is vocal Polish but she also uses the PJM to communicate with deaf people. Another student who agreed to participate in the research was Ewa. She was born in Krakow in 2000 and developed hearing loss in infancy; she contracted meningitis and received ototoxic antibiotics. At the age of eight months, she was diagnosed with a hearing loss of almost 90 dB in her right ear (in the range of 1000-4000 Hz) and 40 dB in her left ear. After the age of one, she received early development support and auditory-verbal therapy. She had a hearing aid implanted in her right ear and wears a hearing aid on her left ear. Ewa completed primary school, lower and

[4] The author of the paper made a commitment to the female students interviewed that their names would not be disclosed because they wished to remain anonymous: therefore, the first names of the interviewees were changed and their surnames are not given. All statements made by the respondents have been authorised.

upper secondary school in the integrated system. For the last two years, she has been studying advertising and computer graphics at the School of Management and Banking in Krakow. Her dominant language in everyday communication is spoken Polish; she is also fluent in the PJM and is roughly familiar with the manually coded language (SJM).

4. Results of the analysis of the research material

The initial qualitative analysis reflected three areas discussed by the interviewees, i.e. reflections on dialogue as a form of communication, the subject of dialogue and the value of dialogue.

A. Reflections on dialogue as a form of communication concerned categories such as:

The language of dialogue;

The style of dialogic communication.

B. The reflections relating to the subject of dialogue allowed the following categories to be distinguished:

The dialogic man;

I and Thou.

C. Reflections concerning the **value of dialogue** were expressed in categories such as:

Creating the dialogic space;

Searching for the truth about oneself and the world.

Re: A.

The qualitative analysis of the students' statements demonstrates that the dialogues were dominated by conversation in which participants ask each other questions and provide answers. Their roles were not accidental, but clearly defined by the perspective of understanding the intentions, both individually and collectively. Obviously, dialogue is a process, and the specificity of its dynamics was evidenced by such features as spontaneity, the participants' involvement, and the language of dialogue. Dialogue took place not only through words, but also through means of non-verbal communication which became a method of conveying contents considered as important by the actors. The style of communication should build a common space where understanding and agreement of thoughts is evident. Unfortunately, it appears from the ladies' statements that during the COVID-19 pandemic, dialogue did not always contribute to the formation of deep relationships between hearing and deaf people. It appears that the way one speaks is more important than what one speaks about. Here are examples of narratives that illustrate the above categories.

'I have no trouble communicating in Polish. I can talk, ask questions and express myself. I learn from others and they learn from me. I choose my words very carefully when I speak. If I can see

the person I talk to, it's easier for me to engage in a dialogue. I don't impose my point of view, I listen to comments, and I care about reaching common conclusions. However, the pandemic has limited my contacts. I don't meet socially; I don't invite friends to my home due to the advanced age of my parents. We communicate on Skype or Zoom. These are very helpful facilities because they allow you to share your screen, and you can communicate by text, voice or camera image. What can I say about those people on the screen? The dominant style is almost telegraphic; you have to speak sparingly and briefly. In this telegraph form I won't be able to get to know a person; I don't know if they're pretending or "what's in their soul". Is it a real dialogue? Well, no' (Maria).

'In my family home we have a dialogue. Just like in other families, we talk, we argue, we quarrel. We use all possible means, from Polish language to facial expressions and gestures. When my mum stamps her feet, it means that I won't convince her to agree with my opinion. My mum is a hearing person, but she reacts in such a funny way. I'm no chicken when it comes to talking to hearing strangers. I'm not going to pretend it's easy for me to live in the pandemic. I don't understand everything that's going on. But I listen carefully to what takes place on the street, at home and at the university. I am resourceful, I find information online, read the alerts on my phone, and I watch TV. With instant messaging and Facebook, you can communicate and you don't have to meet directly' (Aleksandra).

'Dialogue is a matter of good manners. I'm not afraid of dialogue in Polish or using the PJM. You can see the character of a person in their style of communication. If a hearing or a deaf person is shy or composed, then they speak or sign slowly, show signs calmly. If the person is impetuous, they communicate gestures and signs quickly, hurriedly, but clearly. The voice also signals emotions and disposition. The fact is that there is now the coronavirus pandemic and everyone is wearing masks, their faces are covered and this makes dialogue through facial expressions, body language and spoken language difficult. In this difficult time, we are unable to meet each other, to listen to each other's problems. I communicate a lot online; there are a lot of apps, Instagram, Facebook. The internet really helps with maintaining long distance relationships. These are contacts not only with friends. I often meet new people online. Thanks to the internet, you can have a nice time and there is an opportunity to have a dialogue' (Ewa).

Re: B.

The analysis of the ladies' narratives shows that genuine dialogue requires participation of a human being who is an autonomous subject and represents a certain internal attitude. A dialogic attitude is expressed not only in unveiling yourself, taking off the mask, but also in openness to new, unknown experiences and in sensitivity to others: You, the Other. A proper I-Thou (the Other) relationship will only be true when there is mutual understanding and feeling of empathy for each other. The students emphasised not only the differences between I and You (Thou), but also the unpredictability of the nature of their relationship as a result of varying experiences. The statements presented are an illustration of the category discussed.

'There should be two people in the dialogue. I usually participate in dialogue with hearing people. A hearing person is not always honest. My family, my mum, my dad want to share their experiences, their judgements with me. Yes, they are sincere. I try to be open to the other person, to their thinking. Unfortunately, I find this most difficult to achieve in dialogue with my fellow students. They are not honest. I can see it in their faces. I see their pity, it is a gracious participation. Their facial expressions are emotions. Their emotions are written on their faces. In the pandemic it is even worse. There are additional difficulties now. I am good at lip reading. When a person has a visor, it is easier for me to read the message even though the voice is a bit distorted. A face mask suppresses the voice very much; I can only see the eyes. The eyes will not show the content. We look at each other like that, we don't talk, I don't even know if we smile at each other' (Maria).

'I see the hearing people's fear during a dialogue. Who are they? Hearing friends at the secondary school, college friends, the lady at the post office, at the doctor's surgery. They have attitudes that show stereotypes about me as a deaf person. I overheard a conversation between hearing girls at university. It was in the toilet, they didn't know I was there. That deaf one, they said, is held down, she mutters and doesn't speak; oh, she's do irritable; the professors will go easy on her, they treat her better than the rest of us. It was unfair. Maybe this pandemic is good because I don't have to try to get help from hearing people. Please, understand when your face is covered I don't know what they are talking about. A plexiglass shield on a shop counter or at a reception desk makes it difficult for me to read a command or a question. Lecturers have moustaches and beards, and they speak fast. The good thing about classes in the pandemic is that lecturers prepare presentations and send notes to students' (Aleksandra).

'A question about a person who is in dialogue is a very wise question. There should be a minimum of two in a dialogue. Each of them should be sincere, and recognise your dignity and have respect themselves. I know who I am, and that gives me the strength not to be humiliated. If the hearing one is not sincere, I ask myself, why should I be sincere? Why should I talk about myself? Why should the hearing one only find out about my experiences? The way I see it, in order to have a dialogue, you have to be really together in a genuine way. You need to live in truth as we see it' (Ewa).

Re: C.

The research participants' reflections on the value of dialogue stemmed from their experiences of interacting with hearing people and allowed them to explore and understand the meaning. Their constructing of a space for dialogue is closely related to their functioning 'here and now', to their activity in the time of the COVID-19 pandemic. Reflected in their narratives is the specificity of their personal baggage of experience. In fact, sincere and deep dialogic relationships can open a person to the problems of others and bring them closer to one another. The low level of knowledge among hearing people about the impact of hearing impairment on human functioning, as signalled by the deaf students, is significant so that

the weight of these relationships is clearly shifted in the dialogue space to the side of the environment whose culture has the dominant dimension. Here are some sample narratives:

'For me, what matters most is a dialogue where I can share experiences, talk about intimate matters and be sure that I will get a helping hand. And reciprocally, I will give the same. If we trust each other then we can rely on each other. Even despite the various obstacles caused by COVID-19. Sure, there are people with whom I have better or worse rapport. Better with my mum and worse with my dad. It depends on them and on me. As for my hearing friends, we are also different. We think, feel and see the world differently. They are behind in their knowledge on deaf people. They stopped long ago when deaf people were not rehabilitated or provided with hearing implants at an early age. The implant gave me a new lease of life; with it I can hear well, and under normal conditions I have no problems communicating' (Maria).

'This terrible disease has knocked us out of normal life; I don't feel safe. Now I understand how important dialogue is. We were condemned to live from day to day; our plans were suspended. It was a shock. When it started, over a year ago, I talked a lot with my mother and my sister. About wanting to live, to be in good health; and there were also sad conversations about death. If it wasn't for my family, it would be hard for me to cope. I can't rely on hearing friends or acquaintances (Aleksandra).

'The value of dialogue is getting to know yourself and the person you are talking to. It doesn't matter if they are Polish, Slovak, old or young. You have to talk about what is important, what you are afraid of. COVID is an unexpected thing. I have some apps that enable me to have a dialogue with anyone. I can do some very good chatting with a new friend. I think deaf people really want their education to be based on dialogue. There is a folk saying, 'He that is full will not understand him that is hungry'. We belong to two different worlds and there are things that divide us. Yes, there are friends, hearing friends who try to understand me. It's a nice feeling when I talk to her and I can see that she is surprised and even happy because she has learned so much about deaf people' (Ewa).

Concluding reflections

The analysis of the empirical material obtained from the narrative interviews with deaf students made it possible to learn about their personal experiences related to the creation of a space where dialogue takes place in the pandemic situation. The collected narratives revealed deep reflections prompting contemplation and thoughtful action. A very important space of dialogue for the respondents is the microsystem, specifically the hearing parents. They remain with each other in a system of relatively fixed, prototypical relationships that determine the quality and intensity of the dialogue that takes place. They know each other and use signals developed by them to convey specific information or meanings. An additional factor implying the intensity and permanence of dialogic relations during the COVID-19 pandemic is the fact that they live together and meet every day. In the present context, the whole spectrum of non-verbal communicators, conveyed through

gestures, proxemics, and of course the means of communication associated with the space in which the dialogue takes place, are all relevant. Positive educational attitudes represented by the parents of the respondents additionally allow the building of deep relations between them based on emotional closeness and foster the satisfaction of the need for support, so important in the times of the COVID-19 pandemic. Dialogue does not exist without a personal relationship; it is a process that requires time, persistence and effort. Shared experiences, family events, attachment and emotional closeness have influenced the development of a space for dialogue in which they can express their opinion.

Unfortunately, it appears from the respondents' statements that by functioning away from the community of hearing students, they do not build a common dialogic space. The COVID-19 pandemic has meant that the dialogue between deaf female students and their hearing colleagues does not take on the dimension of mutual socialisation on a cognitive, emotional and social level. In their relations, the boundaries are clear enough to protect privacy and maintain a sense of separateness. The taming of the space for dialogue will be hampered if there is no genuine turning towards each other, understanding of the person in the human being, as well as an expression of personal feelings, thoughts and behaviour. Then a dialogue is accomplished, which *'is not idle and random chatter, but strenuous and at the same time extremely interesting creative work'* (Kępiński, 2009, p. 43).

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