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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

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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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