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Selected psychological factors related to pregnancy planning in women diagnosed with paranoid schizophrenia. Preliminary study

Wybrane czynniki psychologiczne związane z planowaniem ciąży u kobiet ze stwierdzoną schizofrenią paranoidalną. Badania wstępne

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Abstract: The aim of the presented research was to determine whether the selected psychological variables are related to the desire to have a child in childless women diagnosed with schizophrenia, to check the differences in terms of these variables between women diagnosed with schizophrenia, who declare the will to have a child, and those who do not plan to have one, as well as the comparison of the results obtained in the group of women with no history of psychopathology. 30 women diagnosed with schizophrenia and 30 healthy women participated in the study. The Self-esteem Scale by Rosenberg was used, as well as the Strength of character VIA-120 by Peterson and Seligman. The results indicate differences in the level of self-esteem and selected strengths of character, both between women who want to have a child and those who do not declare such a willingness, and between the group of women diagnosed and the comparison group.
Keywords: paranoid schizophrenia, pregnancy, childbirth, maternity

Abstrakt: Celem przedstawionych badań było określenie, czy wybrane zmienne psychologiczne mają związek z pragnieniem posiadania dziecka u bezdzietnych kobiet ze stwierdzoną schizofrenią, sprawdzenie różnic w zakresie tych zmiennych pomiędzy kobietami z diagnozą schizofrenii, które deklarują chęć posiadania dziecka, a tymi, które posiadać go nie planują, a także porównanie wynikami uzyskanymi w grupie kobiet bez stwierdzonej psychopatologii w wywiadzie. W badaniu wzięło udział 30 kobiet z rozpoznaniem schizofrenii oraz 30 kobiet zdrowych. Wykorzystane zostały Skala Samooceny Rosenberga, a także test Sił Charakteru VIA-120 Petersona i Seligmana. Wyniki wskazują na występowanie różnic w zakresie poziomu samooceny oraz wybranych sił charakteru, zarówno między kobietami, które chcą posiadać dziecko, a tymi, które takiej chęci nie deklarują, a także między grupą kobiet z diagnozą, a grupą kontrolną.
Słowa kluczowe: schizofrenia paranoidalna, ciąża, poródm macierzyństwo

1. Instroduction

Several decades ago, it was still believed that the fertility rate of women with schizophrenia was below the average, i.e. 30% -80% of the fertility rate of the general population (Stewart, 1984). However, more recent studies do not find a significant difference between the number of pregnancies in women with schizophrenia and the number of pregnancies in the general population (Matevosyan, 2011; Solari, Dickson, & Miller, 2009). Some researchers even report that the percentage of pregnant women in this group of patients has increased significantly in recent years (Matevosyan, 2011; Simoila et al., 2019; Taylor et al., 2020). Even if the percentage of pregnant women suffering from schizophrenia is comparable to the percentage of mentally healthy pregnant women, the distinction may appear in

a different aspect. Previous studies show that women with schizophrenia reported behaviors related to rape or sexual violence as well as violence during pregnancy much more often. Miller (2009) reports that as many as 33% of the women surveyed were exposed to such violence, while Seeman (2013) stated that 14% of 808 women experienced physical violence during pregnancy. They were also supposed to engage in risky sexual behavior more often, were less satisfied with their sex life, and had definitely more sexual partners with whom they did not build solid relationships (Rola et al., 2019; Solari, Dickson, & Miller, 2009).

Already nearly four decades ago, Abernethy (1974) noticed in her research that the rate of sexually active women with schizophrenia was much higher than she had expected. More than two-thirds of the surveyed women declared they were active in this area, which can be confirmed by the research discussed above, but this is not the most important aspect. Abernethy (1974) reports that fifty percent of the women surveyed used some form of birth control, but only eighteen percent used actual contraceptives at their last intercourse, so the likelihood of pregnancy (including unplanned pregnancies) in this group is quite high. At the same time, it should be noticed that the clinical picture of the disease in women is different from that in men, among others women have much better developed social skills and function better in society, and thus more often have a chance to start a family and lasting relationships than men (Li et al., 2016; Prat et al., 2018).

1.1. Pregnancy and childbirth as triggers of schizophrenia

The perinatal period is known as the period of special risk as it may exacerbate symptoms in women with schizophrenia. As indicated by Jones et al. (2014; p. 1789) "*childbirth is a powerful trigger of mania and psychosis, and episodes at this time cause substantial morbidity and mortality, with suicide a leading cause of maternal death*". In the study conducted by Solari et al. (2009), as many as 55% of women diagnosed with a diagnosis experienced a severe psychotic episode in the first year after childbirth, and most of them in the first three months. In turn, in study by Khapre, Stewart, and Taylor (2021), the occurrence of positive, disorganization, and manic symptoms 2 years before pregnancy were associated with increased risk of relapse during pregnancy and postpartum. Similar dependencies were indicated by the results of a systematic review and meta-analysis by Wesseloo et al. (2015).Women with diagnosed schizophrenia also more often manifested symptoms of clinical postpartum depression (Solari, Dickson, & Miller, 2009).

Previous studies show that patients diagnosed with paranoid schizophrenia have more complications during childbirth than healthy women (Vigod et al., 2014), although the chronicity of the disease, long-term treatment and impaired social skills are more important here, which may result in the abandonment of appropriate treatment. perinatal complications, including those affecting the mental sphere (Stewart, 1984). The results of studies by Simola et al. (2020) indicate that women with schizophrenia have higher prevalence of psychosocial and somatic risk factors related to pregnancy, as well as pregnancy-related complications and disorders than non-affected women. Similarly, in studies of women with more than three months of hospitalization, as well as with active psychotic symptoms in the last six months before pregnancy, a greater risk of exacerbation of the disease immediately after delivery was found. They may experience auditory hallucinations that are harmful to the baby, believe that the newborn has a disease or are defective, as well as the illusion that the birth did not take place at all (Solari, Dickson, and Miller, 2009). It has also been noticed that after childbirth, especially in women with affective disorders, the mental state deteriorates most often, while the intensity and aggravation of symptoms is less frequent in women diagnosed with schizophrenia (McNeil et al., 2009; Taylor et al., 2015). However, when it occurs with a shorter time interval from childbirth than in affective patients, and the exacerbation state lasts much longer, the symptoms may get worse.

1.2. Risks for the mother related to schizophrenia

A potential threat for a pregnant woman with a diagnosis may be the cessation of taking antipsychotic drugs for the sake of an unborn child, while according to Łoza et al. (2016), a pharmacological break lasting only a few days carries an almost twofold increase in the risk of exacerbation of symptoms, relapse, and re-treatment in hospital. (Tomczak, 2016). According to Doyle, Carballedo and O'Keane (2015), for a woman with serious mental illness, at high risk of relapse, discontinuation of treatment may be unwise as for relapse may relatively be more harmful to the mother and child than continuing drug treatment. DeCesaris (2013) found that women with schizophrenia received less intensive prenatal care.

Fabre et al. (2021) postulated to define women suffering from schizophrenia as women with a much higher rate of prenatal complications. These women have been shown to exhibit significant symptoms of toxaemia, vaginal bleeding and proteinuria during pregnancy. It is interesting, however, that these results were significant only in the case of socio-demographic differences between the diagnosed women and the control group women. When women of similar social status were tested, these differences were negligible (Stewart, 1984). The earlier studies by Rieder et al. (1975) who investigated the reasons for the twice as many deaths of newborns and fetuses born to women with schizophrenia. The cause of some of the deaths was unknown, and some newborns or fetuses had significant neurological defects. The cause is considered to be the unfavorable environment of the uterus or the association with the toxicity of a drug taken by women during pregnancy (Teodorescu et al., 2017). Nilsson (2002) also argued for an increased frequency and severity of prenatal complications in women with schizophrenia. mortality among newborns in this group of women It was noticed that women diagnosed with pregnancy more often reported material problems, panic related to childbirth, fears related to childbirth and raising a child, and also more often postulated their unpreparedness for the role of a parent (Solari et al., 2009).

Another research proving the particular group of pregnant women with diagnosed paranoid schizophrenia is the Canadian study by Vigod et al (2014). The authors noted that diagnosed women were more likely to become pregnant in adolescence and were also exposed to a number of complications related to pregnancy, childbirth and the puerperium. Compared to women with no clinical history of psychiatric disorders, they had a higher rate of gestational hypertension (2.8% vs 2.0%), pre-eclampsia or eclampsia (2.2% vs 1.1%) and venous thromboembolism (1.6% vs 0.6%). Approximately 5.5% of women with schizophrenia also had gestational diabetes, while in the control group the rate was 4.7% (Vigod et al, 2014). Also Teigset, Mohn and Rund (2020) indicate the association between perinatal obstetric complications and executive dysfunction in early-onset schizophrenia.

1.3. Risks for the child related to maternal schizophrenia

One of the most dangerous symptoms that may occur during pregnancy in women with schizophrenia is psychotic denial of pregnancy (Solari et al., 2009). It is associated with a high risk, as for a woman may completely refuse prenatal care, which should be particularly careful in the case of pregnancy in a woman diagnosed with paranoid schizophrenia. Some of the women who fall under the delusion that they are not pregnant may not recognize the birth, and violent and independent delivery can lead to the death of the child. Apart from the classic complications that can occur with each birth, a woman may think that the delivery is a movement of the bowels and the baby may be born on the toilet, for example (passive delivery). A woman may also be shocked by the delivery and the arrival of the baby that she bury it or leave it in the garbage can (active birth) (Stewart, 1984). It is believed that such methods of denial of pregnancy may be defense mechanisms against the possible and expected loss of a child. This is also evidenced by the fact that psychotic denial of pregnancy is more common in women who have previously lost custody of their children (Solari et al., 2009).

A pregnant woman with schizophrenia may also be convinced about the special nature of the child. Shee may suspect his conception of God or Satan, which in both cases may be dangerous for the fetus and cause attempts at an abortion on his own (Stewart, 1984). Therefore, an important aspect of caring for a woman who showed any psychotic symptoms is the control of her contact with the child, which at the same time can give the woman a sense of security and the opportunity to learn how to care for a child. Olsen et al. (2012) showed that recent psychiatric episodes may influence women's decisions to have an induced abortion.

A study conducted in the USA in 2002-2003 by Havens et al. (2009), which included women aged 14 to 44 (1,800 pregnant women and 37,527 non-pregnant women), showed that one in four took psychoactive substances during pregnancy. This percentage was particularly large in the group of women with possible psychopathology (Seeman, 2013) and this may be one of the reasons for the loss of health and life of children. Research conducted in the USA also shows that the group of women with various types of psychopathology, including schizophrenia, is a high-risk group in the context of using various psychoactive substances (Klimkiewicz, Jasińska, 2018; Seeman, 2013).

1.4. The determinants of the decision making process about pregnancy

In recent decades, almost all areas of our life have changed, including the perception of a child as a value and the decision-making process itself, which is to lead to a possible pregnancy (Lesińska-Sawicka, 2007). Therefore, the question arises as to what is the cause of this and is it possible to consider these changes unambiguously as a positive or negative phenomenon? According to Mynarska (2011), the decline in the fertility rate in the developed countries of Western Europe began in the 1960s, respectively later (i.e. in the 1990s) the same phenomenon occurred in the post-socialist countries (Młynarska, 2011).

What aspects of the decision about the baby have changed? The first and perhaps most important difference is that the arrival of a child is not a "mandatory" complement to a relationship between two people. You can have it, but it is not an absolute value and the main goal (Lesińska-Sawicka, 2007). Another element is the reorientation of the reasons influencing the decision to have a child. There are completely new conditions that must be met, at least at an optimal level, to make the decision about a child easier or to consider having it at all. (Lesińska-Sawicka, 2007). These include: getting an education (Thalberg, 2013), independence and a stable situation on the labor market (Soderberg, 2015), or having a partner who, in the opinion of women, would be a suitable candidate for a father (Soderberg, 2015). Other reasons include the economic situation and the lack of a proper pro-family policy (Mills et al., 2011).

There were also three significant social differences: the decision about parentage is made at an increasingly later age (Kossakowska & Soderberg, 2021), and thus the number of children in the family decreases significantly, and couples remaining in relationships more and more often decide on the so-called childlessness by choice (Mynarska, 2015, Mynarska & Rytel, 2020; Tochioni et al., 2022).

The above-described social changes and factors influencing the decision to motherhood have an impact on the attitudes towards motherhood among women suffering from schizophrenia. Additionally, Seeman (2013) points out that the clinical team that the patient enters may be of key importance for a woman's decision. Sometimes it happens that the desire to have a child and convincing a partner, as well as the whole family, about the rightness of this decision is in opposition to the position of a doctor who may find it inadvisable for the sake of the patient herself or the consequences of pregnancy that may threaten the child (Seeman, 2013). Gadamer (2004) noted that each patient related stakeholder contributes important arguments and broadens the horizons of discussion on pregnancy planning. He also stated that such a discussion, repeating key information, exchanging arguments and trying to look at the conflict from different sides is very valuable for the patient and allows her to maintain autonomy and conviction about agency. The whole process also helps the patient to understand the complexity of the consequences and facilitates the reorganization of assumptions and a gradual understanding of the validity of the doctor's opinion and its causes (Seeman, 2013).

Few studies deal with the problem of procreation in women suffering from schizophrenia. This applies to aspects related to pregnancy and puerperium to a lesser extent, but the issues of procreation attitudes in this group of women seem to be completely ignored.

The aim of the research presented in this paper was to determine whether there are specific psychological determinants of the decision to pregnancy in women diagnosed with schizophrenia. And if they exist, what is their influence on the decision-making process and how does this process differ in diagnosed women compared to healthy women? And also whether there are specific personality conditions for wanting to have a child, or whether the disease and certain limitations associated with it exist, are not an obstacle.

The research was exploratory in nature, no directional hypotheses were formulated, however, the following research questions were formulated:

1. Is there any differentiation in terms of strength of character and self-esteem among healthy women and women diagnosed with paranoid schizophrenia, declaring their desire to have a child?
2. Do the diagnosed women who declare their will to become a mother differ in terms of their strength of character and self-esteem from the diagnosed women who decide not to have a child?
3. Does having a partner by women diagnosed with schizophrenia differentiate in this group in terms of declarations of the will to have a child?

2. Method

2.1. Procedure

The research was cross-sectional and was carried out in the Internet space. The data collection lasted from March to August 2019. The selection criteria for the study group were the diagnosis of paranoid schizophrenia, age from 18 to 45[1], gender–women and not having children. The selection criteria for the comparative group were the lack of psychopathology, gender – women, and the same age range as in the group of women diagnosed with and not having a child.

The study involved women who replied to the Internet advertisement about the study. The recruitment of women to the comparative group took place either on portals devoted to pregnancy and motherhood, or acquired through social contacts. Women diagnosed with paranoid schizophrenia were recruited for the study from groups and online forums on mental disorders.

The research procedure was performed in accordance with the Helsinki Declaration of Human Rights (WMA, 2013). The study was approved by the university advisory board. As the study was of an informative cross-sectional purely descriptive nature, no formal ethical approval was required under the country's legislation. Participants were informed of the purpose, risks, and benefits of the survey. They were told they could withdraw from the study at any time and for any reason without a penalty. All participants provided electronic informed consent prior to participate in the study. Electronic informed consent was prepared in accordance with the Ethics Guidelines for Internet mediated Research (British Psychological Society 2017).

2.2. Study tools

In addition to the questionnaire collecting data on the age of the respondents, the age of receiving the diagnosis (for women in the study group), marital status and the declaration of the desire to have a child, the following tools based on the self-report method were used in the study: Rosenberg's Self-Assessment Scale–SES (Rosenberg, 1965), The Character Strength Test–VIA-IS (Peterson & Seligman, 2004).

2.2.1. The Self-Esteem Scale

For measuring self-esteem level, the Self-Esteem Scale (SES) by M. Rosenberg in Polish adaptation by I. Dzwonkowska, K. Lachowicz-Tabaczek and

1 The reproductive age of women in Poland is 15-49 years of age. The given age range (18-45 years) was intended to invite only adult women to participate in the study. The adoption of the upper limit as 45 was based on the data from the GUS demographic report (2019), which shows that the percentage of women who gave birth to their first child after the age of 45 is only 0.1%.

M. Łaguna (Dzwonkowska et al., 2008) was used. SES consists of 10 diagnostic statements and examines the general level of self-esteem (understood as a constant attitude towards self–positive or negative). The respondent marks her answer on a four-point scale, determining the degree of compliance of the statement with self-confidence. The reliability of the scale is high, Cronbach's alpha ranges from 0.81 to 0.83 for different age groups. The numerous data collected during the adaptation of the Polish version of the SES, as well as the correlations with questionnaires examining similar psychological constructs testify to the high accuracy of the SES (Dzwonkowska et al., 2008).

2.2.2. The Values in Action Inventory of Strengths (VIA-IS)

For measuring character strengths, the Polish version of the VIA-IS (Peterson & Seligman, 2004; Polish language version: Najderska & Cieciuch, 2013) was used. The instrument consists of 240 items rated on a five-point Likert scale (from 1 = "strongly disagree" to 5 = "strongly agree"), representing the defined 24 character strengths assigning to six core virtues: creativity, curiosity, judgment, love of learning, and perspective (assigned to the virtue of wisdom and knowledge); bravery, perseverance, honesty, and zest (assigned to the virtue of courage); love, kindness, and social intelligence (assigned to the virtue of humanity); teamwork, fairness, and leadership (assigned to the virtue of justice); forgiveness, humility, prudence, and self-regulation (assigned to the virtue of temperance); and appreciation of beauty and excellence gratitude, hope, humor, and spirituality (assigned to the virtue of transcendence). Research on the Polish adaptation of this test has shown that the reliability of the features ranges from satisfactory (0.60) to quite high (0.70), so it can be concluded that the reliability of the Polish adaptation of the Character Strength Test is satisfactory. The accuracy of the tool was assessed using English studies (Lindley et al., 2007) and almost all statistically significant differences were reflected in the Polish adaptation of the test (Najderska, Cieciuch, 2013).

2.3. Statistical analysis

All statistical analyses were performed using the Statistical Package for the Social Sciences (SPSS) version 25.0 for Windows. In the case of the variables for which the Shapiro-Wilk test results showed no normal distribution for the analyzed variables, the Mann-Whithey U test was used in further analysis to determine differences between the groups. In the case of normally distributed variables, the Student's t-test was used to compare the results in two independent groups. and the chi-square test to determine the significance of differences in abundance distributions. The level of statistical significance for the study was set at $p < 0.05$.

3. Results

3.1. Characteristics of the study group

The mean age of all respondents is 26.3 years (SD = 5.1). Half of them (n = 30) are women diagnosed with paranoid schizophrenia between the ages of 15 and 34 ("diagnosis" group), the other half (n = 30) are healthy women ("healthy" group). The mean age of women in diagnosis group was 28 years (SD = 5.4), and in the healthy group was 24 years (SD = 3.8). A majority of women in the diagnosis group, do not have a partner (70%), and also 70% of them want to have a child or have seriously considered having a child. In the healthy group, 83.3% of the respondents declared the will to have a child, and 70% of them have a partner. Detailed characteristics of the respondents are presented in Table 1.

3.2. Differences in terms of character strength among healthy women and women diagnosed with schizophrenia, declaring a desire to have a child

Due to the lack of normal distribution of the analyzed variables, in order to determine whether healthy women who declare the desire to have a child differ from women with schizophrenia who want to become a mother in terms of their strength of character, the

Table 1. Study groups characteristic

	Diagnosis group *n*=30		Healthy group n=30		Total *N* = 60	
	M	*SD*	*M*	*SD*	*M*	*SD*
Age	28.4	5.4	24.3	3.8	26.3	5.1
Age of diagnosis	24.1	5.5	*NA*	*NA*	*NA*	*NA*
	n	%	n	%	n	%
Marital status						
Married/ informal relationship	9	30	21	70	30	50
Single	21	70	9	30	30	50
A desire to have a child						
yes	21	70	25	83,3	46	76,7
no	9	30	5	16,7	14	23,3

NA – not applicable

non-parametric version of the Student's t-test for independent groups was used–the Mann-Whitney test.. The results are presented in Table 2.

The results indicate only one significant difference between the group of women with schizophrenia and the group of healthy women. The Mann-Whitney test result: Z = -2.027, p = 0.043 (p <0.05) indicates that *Social Intelligence* as strength of character measured by the VIA-IS questionnaire is higher in the group of women diagnosed with paranoid schizophrenia compared to the group of women healthy (M = 27.86 *vs* M = 19.84).

3.3. Difference in self-esteem among healthy women and women diagnosed with paranoid schizophrenia, declaring a desire to have a child

As the distribution of self-esteem in women from both the diagnosis and the healthy group was normal (Shapiro-Wilk test results: $p_{\text{diagnosis group}} = 0.200$ and $p_{\text{healthy group}} = 0.800$), both groups are equal, and the result of Levene's test was 0.106), the Student's t-test was used for independent samples. The results ($t_{(58)} = 9.526$; p <0.001) indicate that the level of self-esteem is different in both groups–higher in women with a diagnosis (M = 45.5; SD = 9.5) compared to healthy women (M = 26.0; SD = 6.0).

3.4. Differences in strength of character among women diagnosed who declare and those who do not wish to have a child

The Mann-Whitney test was used to determine whether there are differences in character strength between women who want and do not want to have a child in the group with the diagnosis. Significant differences were only noticed only for the *Prudence* dimension. Results are presented in Table 3[2].

The Mann-Whitney test result: Z = -2.428, p = 0.015 indicates that *Prudence*, as strength of character measured by the VIA-IS questionnaire was higher in diagnosis group declaring the will to have a child compared to women not declaring it (M = 18.05 vs M = 9.56).

3.5. Differences in self-esteem among women diagnosed with a desire to have a child and those who do not

Despite the normal distribution of the examined variable (results of the Shapiro-Wilk test: $p_{\text{diagnosis group}} = 0.200$), the assumption about the equality of the examined subgroups was not met (women who wanted to have a child n = 21; women who did not want to have a child n = 9). Therefore, the non-parametric Mann-Whitney test was used to determine whether there are differences in self-esteem between women who want and do not want to have a child in the diagnosis group. The results are presented in Table 4.

Although the level of self-esteem, assessed with the SES questionnaire, is higher among women who want to have a child, the Mann-Whitney test result: Z = -1.359, p = 0.174 indicates that these differences are not statistically significant.

2 Due to the large number of dimensions in the Character Strength Test and the extensive table that would take them into account, it was decided to present in the article only the results in which a statistically significant difference was obtained. The remaining results are available from the authors at the request of the Readers.

Table 2. Comparison of the results in terms of character strength among healthy women and women with the diagnosis of schizophrenia, declaring the desire to have a child

	Diagnosis group n=21[1]		Healthy group n=25[2]		Mann-Whitney test	*Z*	*p*
Strenght of character	Average rank	Total ranks	Average rank	Total ranks			
Self-regulation	24.5	515.0	22.6	566.0	241.0	-0.476	0.634
Excellence gratitude	24.5	515.0	22.6	566.0	241.0	-0.475	0.635
Zest	25.3	531.0	22.0	550.0	225.0	-0.828	0.407
Spirituality	22.8	479.5	24.1	601.5	248.5	-0.310	0.756
Humor	21.6	454.5	25.1	626.5	223.5	-0.863	0.388
Social intelligence	27.9	585.0	19.8	496.0	171.0	-2.027	0.043*
Love	22.0	531.0	24.7	575.5	214.5	-0.765	0.533
Teamwork	20.9	439.5	25.7	641.5	208.5	-1.193	0.233
Perseverance	23.3	488.5	43.7	592.5	257.5	-0.111	0.912
Judgment	24.1	506.0	23.0	575.0	250.0	-0.276	0.782
Forgiveness	20.2	423.5	26.3	657.5	214.5	-1.525	0.122
Humility	25.8	541.5	21.6	539.5	192.5	-1.061	0.289
Bravery	22.2	466.0	24.6	615.0	235.0	-0.608	0.543
Fairness	23.6	494.5	23.5	656.5	261.5	-0.220	0.982
Perspective	24.6	515.5	22.6	565.5	250.0	-0.486	0.627
Hope	22.2	467.0	24.6	614.0	236.0	-0.586	0.558
Bravery	20.4	446.5	25.5	537.0	222.0	-0.111	0.120
Honesty	24.4	512.0	22.8	569.0	224.0	-0.409	0.683
Leadership	21.5	452.0	25.2	629.0	221.0	-0.918	0.359
Curiosity	23.2	488.0	23.7	593.0	257.0	-0.122	0.903
Love of learning	23.3	489.0	23.7	592.0	250.0	-0.099	0.921
Appreciation of beauty	21.6	454.0	25.1	627.0	223.0	-0.875	0.381
Prudence	26.8	562.5	20.7	518.5	193.5	-1.525	0.127

1 the number of women declaring the will to have a child in the group with the diagnosis;
2 the number of women declaring their will to have a child in the healthy group;
Z – Mann Whitney test result
*indicates p<0.05

Table 3. Comparison of the Prudence results among women with the diagnosis who declare and do not wish to have a child

	Willing to have a child n=21		Not willing to have a child n=9		*Z*	*p*
	Average rank	Total ranks	Average rank	Total ranks		
Strenght of character					-2.428	0.015
Prudence	18.05	379.00	9.56	86.00		

Z – Mann Whitney test result

Table 4. Comparison of the self-esteem results among women with the diagnosis who declare and do not wish to have a child

	Willing to have a child n=21		Not willing to have a child n=9		*Z*	*p*
	Average rank	Total ranks	Average rank	Total ranks		
Self-esteem	16.93	355.50	12.17	109.50	-1.359	0.174

Z – Mann Whitney test result

3.6. Marital status of women diagnosed with a diagnosis and differentiation in terms of declarations of the will to have a child

The chi-square test was used to determine whether the frequency of declarations of willingness to having a child is more frequent among women with a diagnosis who have a husband / partner than among women with a diagnosis who are single. The obtained result $(1, N = 30) = 0.370$; $p = 0.543$ indicates no differences in the frequency of declaring the desire to have a child due to the marital status of the respondents.

4. Discussion

The aim of the presented study was to check whether self-esteem and selected strengths of character differentiate between healthy women and women diagnosed with schizophrenia in terms of the declared willingness to have a child. The obtained results show that both healthy and diagnosis group of women think about their offspring and declare their will to have one, which suggests that the fact of suffering from serious mental illness such as schizophrenia is not a factor that excludes a satisfactory motherhood. This corresponds to the conclusions of Abernethy (1974), who signaled that, contrary to popular opinion, a surprisingly large percentage of women suffering from paranoid schizophrenia is sexually active, and thus the possibility of pregnancy also appears (Stewart, 1984).

It cannot be concealed, however, that the research of Abernethy (1974) is quite outdated research, especially if we take into account the dynamics of the scientific discipline of psychiatry and psychology. However, the thesis is confirmed by newer research. Miller (2009) stated that there are no significant differences between the fertility rate of healthy women and those diagnosed with paranoid schizophrenia, so presumably women diagnosed with schizophrenia decide to have a child almost as often as healthy women (Solari, Dickson, & Miller, 2009). Thus, are there any features or their compilations that make women diagnosed with them want to have a child? Are these features completely the same as in healthy women, or are there any differences between the two groups?

The results obtained in the VIA-IS questionnaire for the assessment of character strengths show that among women who declare their will to have a child, and those who do not in the group with the diagnosis, a statistically significant difference can only be seen in the strength of prudence. Prudence is defined here as being cautious in making choices or refraining from excessive risk (Najderska & Cieciuch, 2018). It can be assumed that in the group of mentally ill women, those who want to have a child consulted a doctor or read about heredity, contraindications and possible complications during pregnancy, childbirth and puerperium, so they know about possible limitations and hence a higher level of prudence.

The second significant difference between the study groups concerns strength known as social intelligence. Similarly, its levels are higher in women with paranoid schizophrenia than in healthy women. People with high social intelligence are characterized by awareness of one's own and other people's motives and feelings as well as knowing what to do to adapt to different social situations (Najderska & Cieciuch, 2018). The obtained result seems interesting if we take into account the fact that poorer social functioning is inherent in the specificity of functioning and axial symptoms of

schizophrenia. There is growing evidence that the ability to make accurate inferences about mental states in others known as social intelligence is impaired in schizophrenic patients (c.f. Najderska & Cieciuch, 2018). Despite the lack of directional hypotheses, we rather assumed that social intelligence would be the domain of healthy women. The explanation should probably be sought in the characteristics of the control group studied, which in turn results from the method of recruitment. The diagnosed women belonged to social groups, so we can assume that they were more active in seeking information about their disease and social support. Probably, therefore, they either had a higher "baseline" level of social intelligence, or they had the opportunity to develop this trait through belonging and active participation in group activities. The adoption of such an interpretation suggests at the same time one of the possible directions of preventive interventions in relation to women suffering from schizophrenia, especially in the context of reproductive plans. It seems that the ability to function as a member of a group in which diagnostic diagnosis does not constitute a stigmatizing etiquette may support the development of their interpersonal competences and shape other individual characteristics, such as social intelligence.

Another difference between the groups shown in the presented studies concerns self-esteem, and the nature of this difference is similar to the variables described above–the level of self-esteem is higher in women diagnosed with schizophrenia. These results differ from those obtained in the Dordzik (2019) study, in which mothers suffering from schizophrenia showed lower self-esteem than healthy mothers. Granberg et al. (2001) claims that the self-image and self-esteem of patients suffering from schizophrenia are similar to the average results of healthy people, which, however, does not have to favor adaptive behaviors in interpersonal relationships, because this self-esteem is most often associated with the symptoms of the disease (i.e. defense mechanisms). The fact of the stability of such a self-image is quite a matter of a person, research by Harder (2006) showed that only 1/3 of respondents suffering from schizophrenia do not change their image of themselves under the influence of their mental state (Chuchra, 2008).

Another interesting result concerns the relationship between having a partner and the willingness to have a child among women from the group with a history of psychopathology. Interestingly, the desire to have a child is more often declared by women who are not in a stable relationship and again, it may be caused by the diversity of groups (partner/no partner), but it may also lead to the conclusion that in the group of women, where the average age is almost 27, the desire to have a child does not translate into real plans and is rather a fantasy.

The search for factors influencing the decision to have a child among women with schizophrenia seems to have a significant application significance, for example, serving to create effective programs supporting them both in the decision made and in adapting to motherhood despite the disease. Research shows that many mothers with schizophrenia consider motherhood an important and rewarding aspect of their lives. At the same time, it is estimated that approximately fifty percent of diagnosed mothers are temporarily or permanently deprived of childcare (Seeman, 2013). The awareness of such a risk favors women with schizophrenia to experience anxiety–especially in the perinatal period–before delivering the child. According to Solari et al. (2009), the actual loss of a child can be a disaster for their mental and physical health.

Although, as some studies show (Naslund et al., 1985), mothers diagnosed with schizophrenia provide their children with parental care comparable to healthy mothers, there are differences in the mother's response to the signals sent by the child, often already at the stage of understanding them (Davidsen et al., 2015; Singhai et al., 2022). On the other hand, Kasperek-Zomowska et al. (2008) notes that mothers with schizophrenia are less likely to hug their children and less likely to play with them. The results of subsequent studies also indicate that the history of severe psychopathology is associated with more suboptimal and pathological caring representations, less joy of future parents, and excessive overwhelming responsibilities related to parental care (Røhder et al., 2019). The research by Dordzik (2019) shows that mothers suffering from schizophrenia exhibit parental attitudes based on demand

and protection, while these two dimensions together reflect the control over the child, which may limit its freedom. As Dordzik (2019) points out, excessive demands and protection–presented at the same time–can strongly, symbiotically bind the child with the mother, which, according to transgenerational concepts, may be one of the risk factors for the child becoming ill in the future or for developing other psychological problems.

Studies trying to establish predictors of antenatal representations of caring mothers who had been diagnosed with severe mental illness, including schizophrenia, showed that childhood experiences, and above all relationships with the mother, have a large impact on models of care for one's own child (Røhder et al., 2019). Insufficient or considered inadequate practical support from the mother's own mother was negatively associated with the pleasure of caring for the child and positively with helplessness in contacts with the child. Interestingly, dissatisfaction with both practical and emotional support from partners was associated with increased care for the offspring and difficulty in separation. This shows how invaluable influence the development of a healthy mother-child relationship is from social support and the family of origin of women with a history of psychopathology. It is also valuable information for specialists who, realizing the impact of the patient's suboptimal social relations, may propose compensatory support (Røhder et al., 2019).

The current study is a preliminary study–it was conducted with the participation of a small group of women, and the problem addressed in it requires further exploration. However, given the fact that women perinatal period is a time special risk that may be a trigger and/or exacerbate symptoms in women with schizophrenia, its results shed new light on the issue of offspring planning by women diagnosed with schizophrenia. These results may be useful for taking preventive and intervention measures addressed to women of reproductive age planning to give birth to a child.

Study limitations

Despite the high importance of identifying specific psychological variables influencing on the decision about pregnancy in women diagnosed with schizophrenia, our study has some limitations that should be mentioned. First, the cross-sectional nature of the study precludes drawing causal conclusions. Thus, prospective longitudinal studies seem to be necessery to explore the association between some interpersonal factors such as strengts of character and self-esteem and the decision of having a child among schizophrenic women. Second, as participants were volunteers and the study sample was relatively small, especially when divided into women who declared willingness or not having a child, and they not represent the total population. Third, the limitations of the online survey as a data collection method should also be mentioned, particularly sample bias. Finally, women with diagnosis in our study was not assessed by clinical diagnostic interview, and we rely only on participants' declaration that they suffering from schizophrenia. In further research, in addition to self-report scales, qualitative assessment methods should also be used, including, for example, a structured clinical interview such as SCID-I.

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