Analysis of biopsychosocial factors in relation to the procreation plans of Poles of reproductive age

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A. Study design/planning • B. Data collection/entry • C. Data analysis/statistics • D. Data interpretation • E. Preparation of manuscript • F. Literature analysis/search • G. Funds collection

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ABSTRACT

Introduction: The aim of the study was to explore and analyse the current impact of biopsychosocial factors on the procreation plans of Poles of reproductive age.

Material and methods: The research was conducted using the CAWI method, which enabled the collection of public opinion *via* online forums. The research material consisted of a group of 736 Poles aged 18-45 years. A descriptive online survey was conducted, which provided quantitative data. Standardised tools in the Polish language were used. The survey questionnaire consisted of 44 closed questions with the possibility of single or multiple choice.

Results: Less than half of the surveyed people declared that they planned to have children in the future (45.4%). Every fifth person did not know yet (19.6%). The remaining 35% declared that they did not want to have children. The respondents considered good mental health as one of the most conducive factors to having children (78.6%). The study showed a significant relationship between satisfaction with mental health and procreation plans. Despite the fundamental dissatisfaction with the state of mental health the majority of respondents (76.9%) did not undergone treatment. Every 10th surveyed declared that they had experienced a difficult obstetric or parental situation. Furthermore, the data showed a significant relationship with planning children in the context of experiencing a difficult situation in the past.

Conclusions: Poles of reproductive age point out the importance of biopsychosocial factors in the context of procreation plans. The study showed that certain biopsychosocial factors negatively affect the planning of having children in the future. One of these factors is satisfaction with mental health. Despite high awareness of the importance of mental health, many Poles still refrain from starting treatment. Experiencing a traumatic obstetric or parental situation in the past also influences procreation plans. Traumatic events reduce the desire to have another child.

Key words: obstetric care, procreation, mental health, biopsychosocial model.

INTRODUCTION

Available literature shows that negative trends in demographic processes have been observed since the 1980s. Low fertility levels will continue to negatively impact future birth rates due to the projected significant decline in the number of women of childbearing age. The problem concerns not only Poland but also other Western European countries. According to 2023-2060 forecasts from the Central Statistical Office, unfavourable changes in the number and age structure of women of reproductive age are expected. In addition to the high scenario, a significant decline in the number of births is expected, mainly related to the decreasing number of women of reproductive age. It is estimated that between 2022 and 2060 the number of women of reproductive age will fall from 8.7 to 6.3 million in the high scenario and to 4.8 million in the low scenario. However, in the case of births in the medium and low scenarios, a decline in the number of births is expected. Only in the high scenario will the number of births be higher than in 2022. However, in none of these scenarios will the number of births exceed the level of 2015. The Central Statistical Office also states that the observed variability in demographic processes is the result of multidirectional, difficult-to-predict factors determining the social, economic, and health situation, which consequently determine the personal decisions of Poles [1-3].

The above data show the importance of the attitude of Poles to the issue of child planning. Currently, there are a lack of data in the literature regarding biopsychosocial factors in the context of reproductive health. Biopsychosocial factors are a comprehensive model that takes into account 3 main areas affecting the health and functioning of an individual: biological, psychological, and social. The above model assumes that these factors are interconnected and interact, influencing the functioning and quality of life as an individual. In practice, the biopsychosocial approach is used in medicine, psychology, and sociology to understand and treat health problems and more, in a holistic way, taking into account the variety of factors affecting the individual [4].

Foreign literature emphasises the importance of considering various problems using the biopsychosocial model. This emphasis results from the increasing awareness of society and the desire to approach the individual in a holistic way [5]. Due to the importance of the procreation problem in Poland, a study was conducted to better understand and consider biopsychosocial factors influencing decisions regarding parenthood.

Table 1. The main characteristics of the group

Characteristic	No.	%
Respondents	735	100
Sex		
Female	579	78.8
Male	152	20.7
Others	4	0.5
Education level		
Basic education	14	1.9
Secondary education	289	39.3
Higher education	424	57.7
Vocational education	8	1.1
Place of residence		
City < 500,000 inhabitants	310	42.2
City > 500,000 inhabitants	264	35.9
Town up to 10,000 inhabitants	26	3.5
Village	135	18.4
Marital status		
Formalised relationship	227	30.8
Informal relationship	354	48.2
Single	154	21.0
Type of income		
Own income	555	75.5
Dependent on someone	180	24.5
Offspring		
Lack of offspring	461	62.7
Having offspring	274	37.3

The main aim of the study was to explore and analyse the current impact of biopsychosocial factors on the procreation plans of Poles of reproductive age.

MATERIAL AND METHODS

A total of 736 Poles aged 18-45 years took part in the study. The size of the study sample was calculated assuming that the population of Polish residents aged 18 to 45 is over 14 million (data from the Central Statistical Office for 2022). Assuming a confidence level of 95% (95% – *Z*-score = 1.96), a fraction size of 0.5, and a maximum error of 5%, the required minimum number of people in the study is 384. With a confidence level of 95% and a fraction size of 0.5, the obtained number of respondents causes the maximum error of the study to be lower and amounts to 4%, which allows the sample to be considered representative.

To conduct the study, consent was obtained from the Independent Bioethics Committee (NKBBN/861/2022-2023) for Scientific Research at the Medical University of Gdańsk, in accordance with the Declaration of Helsinki, for research involving humans.

The research was conducted using the CAWI method, which enabled the collection of public opinion *via* online forums. A descriptive online survey was conducted and provided quantitative data. All participants were informed about the aims of the study and agreed to answer the questions in the questionnaire. Each participant of the target population had an equal chance of being included in the study (non-probability sample selection). The target comprised groups of people of reproductive age, student groups, professional groups, parenting groups, job seekers, apartment buyers, and residents of various agglomerations in Poland. Data were collected using the CAWI method. The survey collection process lasted from 28 March 2023 to 3 September 2023. In the case of research conducted *via* the Internet (CAWI), accessibility is wide, which favours the diversity of participants. Biopsychosocial data were analysed. Standardised tools in the Polish language version were used, i.e. WHOQOL-BREF and our own questions using a Likert scale. The WHOQOL-Bref is a widely used standardised tool developed by the World Health Organisation (WHO). The survey consists of 26 questions assessing the respondent's well-being, quality of life, and perception of health. The author's questions were created using a Likert scale, according to which respondents chose the answer closest to their feelings, with 1 meaning "I strongly disagree" and 5 meaning "I strongly agree". The inclusion criteria were age 18-45 years and Polish citizenship. Giving a negative answer to any of the exclusion criteria resulted in termination of participation in the study. The obtained data were subjected to statistical analy-

sis using the IBM SPSS Statistics package. The level of significance was set to $p < 0.05$. Quantitative variables were described using standard deviation and minimum and maximum values. For qualitative variables, the number and percentage of categories were provided. The relationship between 2 qualitative variables was checked using the chi-square (χ^2) test.

RESULTS

Characteristics of the respondents

The youngest respondent was 18 years old, and the oldest was 45. The vast majority of respondents were women. Every fifth respondent was male. There were 4 people in the study group who did not clearly state their gender. Less than half of the respondents were in an informal relationship (48.2%). About 1/3 of the respondents were in a formal relationship (30.8%). The remaining 21% of respondents were single. Most of the surveyed people lived in large cities with over 500,000 inhabitants (42.2%). Just over 1/5 of the respondents lived in a city with a population of 100,000 to 500,000 residents (21.9%). Slightly fewer respondents lived in rural areas (18.4%). Moreover, the surveyed group included 14% of respondents living in a city with 10,000 to 100,000 inhabitants and 3.5% of residents of towns up to 10,000 inhabitants. The largest group were residents of the Pomeranian Voivodeship (58%). A significant percentage were residents of the Masovian Voivodeship (8.4%). In the case of other voivodeships, the percentages were less than 5%. Only 4 people from the Świętokrzyskie Voivodeship took part in the study. More than half of the respondents had higher education (57.7%). Just over 1/3 of the respondents had secondary or post-secondary education (39.3%). Moreover, in the surveyed group there were 1.1% of respondents with basic vocational education and 1.9% of people with primary or lower secondary education. Most respondents had their own income (75.5%). The remaining respondents were dependent on someone else.

Attitude towards procreation

About 1/4 of the surveyed people had children (26.7%). Most respondents did not have children. 13.1% of respondents had one child, and 10.5% had 2 children. Moreover, in the study group there were 2.2% of people who had 3 children, 1% with 4 children, and one person who had at least 6 children. Less than half of the surveyed people declared that they planned to have children in the future (45.4%). Every fifth person surveyed did not know this yet (19.6%). The remaining 35% of respondents declared that they did not want to have children.

Biopsychosocial part

Biopsychosocial part was analysed based on WHOQOL-BREF and the author's questions in the survey. The analysis of biopsychosocial factors showed which factors, according to the respondents, presented in Figure 1, are most conducive to having children. The respondents consider the most important factors to be the partner's readiness to become a parent (84.5%), the partner's involvement in childcare (83.9%), and good mental health (78.6%).

The study showed a significant relationship between satisfaction with mental health and planning to have children in the future (Fig. 2). The group of respondents who were satisfied with their mental health included the highest percentage of people who planned to have children in the future. In turn, this percentage was the lowest for respondents who were dissatisfied with their mental health.

Additionally, approximately 1/4 of the respondents had undergone treatment for mental problems in the past and had completed it (10.5%) or were still undergoing it (12.7%). Despite the fundamental dissatisfaction with the state of mental health among the respondents, the majority of them (76.9%) had not undergone mental health treatment (Fig. 3).

Every 10th respondent declared that they had experienced a difficult situation in the form of a miscar-

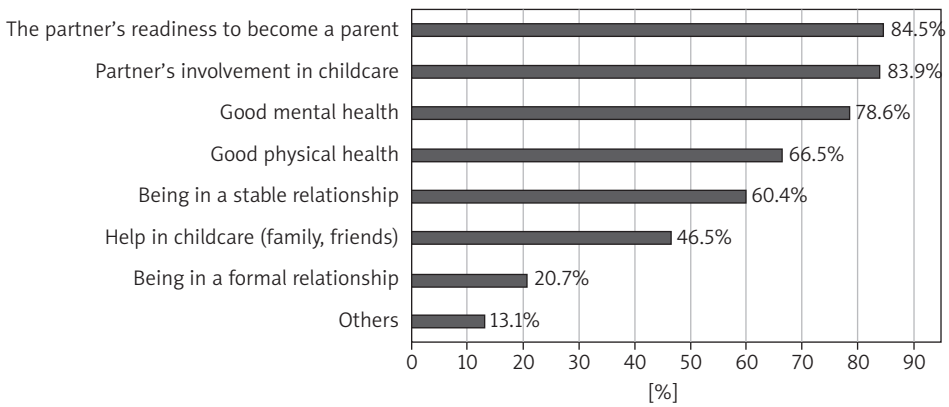

Figure 1. Biopsychosocial factors that are most conducive to having children

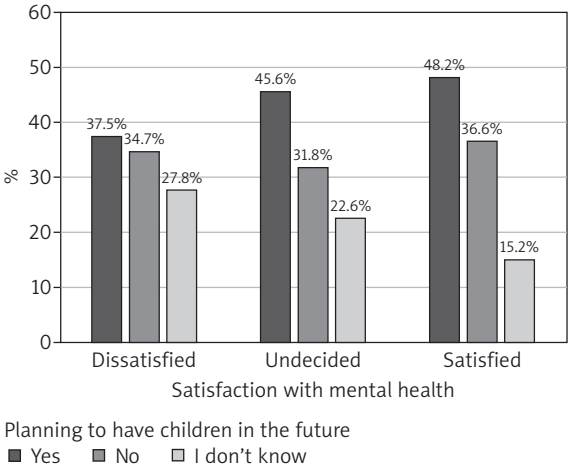

Figure 2. Satisfaction with mental health and planning to have children in the future. Chi-square = 13.340, $p = 0.010$

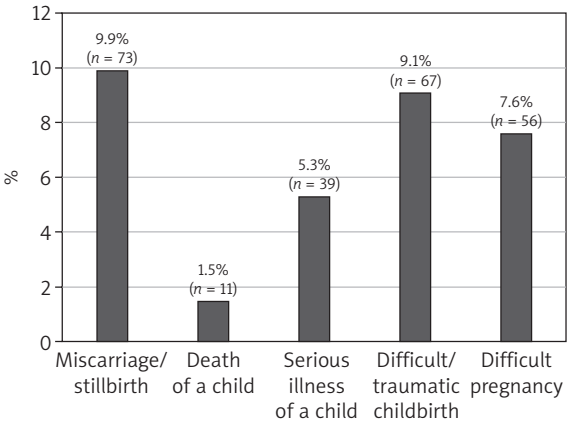

Figure 4. Difficult situations in the past

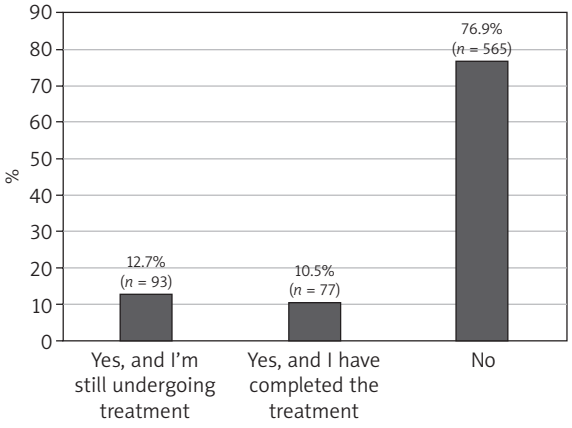

Figure 3. Psychiatric treatment in recent years

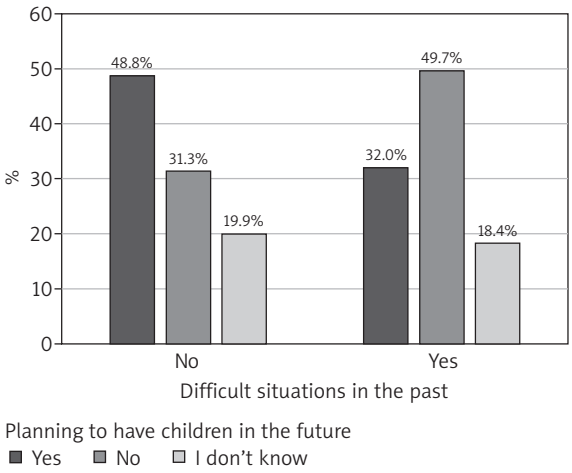

Figure 5. Difficult situations in the past and planning to have children in the future. Chi-square = 18.823, $p < 0.001$

riage or stillbirth (9.9%). Slightly fewer people experienced a difficult or traumatic birth (9.1%). In turn, 7.6% of respondents indicated that the pregnancy was difficult, and 5.3% of respondents declared a serious illness of a child as a difficult situation in the past. For 1.5% of respondents, the difficult situation was related to the death of a child (Fig. 4).

Therefore, the analysis showed a significant and strong relationship with planning to have children in the context of experiencing a difficult situation in the past (Fig. 5).

DISCUSSION

When focusing on biopsychosocial factors related to reproductive health, several aspects should be taken into account, which may vary depending on the literature and the criteria for selecting the respondent group. In our study, less than half of the surveyed people declared that they planned to have children in the future (45.4%). CBOS (pol. Centrum Badania Opinii Społecznej, ang. Centre for Public Opinion Research) also reported similar data [6].

However, specialists identified a certain discrepancy between declared values and life plans and actual actions, and they call this phenomenon "ambivalence of Poles' procreative attitudes" [7]. Additionally, the Central Statistical Office, Stępnik, and Więckiewicz emphasise the complexity of reproductive decisions, which are the result of the influence of economic, cultural, military, social, health, political, and many other factors [3, 7, 8]. In foreign literature, many researchers, in the context of reproductive health, mainly focus on the problem of the biological sphere, and more specifically – the problem of infertility in both genders. On the other hand, in Polish literature, most experts focus on economic and cultural factors. Despite the existence of a wide base of literature on this topic, the issue of reproductive decisions has not yet been thoroughly researched and lacks data on factors, e.g. biopsychosocial, which, as our study showed, are important and require further exploration and broader research. It is worth noting that despite an attempt to equally recruit respondents of both sexes, mostly women took part in the study

(the ratio was 5 : 1), but, interestingly, other researchers conducting study in this area also point to similar observations, indicating there is greater interest in this topic among women [9].

In the biopsychosocial part of our study, respondents' responses significantly emphasised the importance of mental health, which was the third highest factor conducive to having children, just behind the partner's readiness to become parents and the partner's involvement in caring for the child. Awareness of the importance of mental health is increasing, both globally and in Poland. Notwithstanding, available literature lacks sufficient references linking the quality of mental health to procreation plans. However, in some publications one can find a connection between planning a child and the psychological consequences associated with it. Namely, it should be remembered that becoming a parent is one of the key interpersonal changes during adulthood, not only for women, but also for men. This process requires acquiring new skills and taking on additional responsibilities. The moment of preparation for the role of a mother or father is usually a time when future parents experience intense, chaotic feelings. These changes may contribute to personal development, but at the same time they may predispose individuals to mental disorders [10-12]. According to 2013 data from the WHO, in the context of mental disorders, depression took second place, and was estimated to be in first place by 2030 [13]. Studies on the increase in the incidence and burden of major depressive disorders and anxiety disorders as a result of the COVID-19 pandemic have shown a significant increase in the incidence in adults around the world, including in Poland [14, 15]. Currently, the WHO reports that approximately 280 million people suffer from depression globally [16]. Interestingly, Polish statistics show that the SARS-CoV pandemic contributed to a further decline in the fertility rate, and in 2021 it was the lowest in 5 years [17]. Unfortunately, despite the constantly increasing number of cases and greater public awareness of mental health, many people still do not seek treatment. According to the data we obtained, the group of respondents who were satisfied with their mental health included the highest percentage of people who planned to have children in the future. In turn, among respondents who were dissatisfied with their mental health, this percentage was the lowest. However, despite the fundamental dissatisfaction with the state of mental health among the respondents, most of them (76.9%) did not use mental health treatment. Statistical data from around the world show that a significantly larger proportion of women suffer from depression, but men cope with it much worse. In Poland, the death rate due to suicide, an important measure of mental health, among men is almost 68% higher than the average for European Union countries [18]. Registration of reports to psychiatric facilities, according to a report from 2011, amounted to approximately 1.5 million, while according to the EZOP (pol. Epidemiologia Zaburzeń Psychiatrycznych i Dostępność Psychiatrycznej Opieki Zdrowotnej, ang. Epidemiology of Psychiatric Disorders and Availability of Psychiatric Health Care) epidemiological study, the estimated number of people requiring help in a given period was at least 6 million [18].

In our study, every 10th respondent declared that they had experienced a difficult situation in the form of a miscarriage or stillbirth (9.9%). Slightly fewer people experienced a difficult or traumatic birth (9.1%). In turn, 7.6% of respondents indicated that the pregnancy was difficult. Therefore, the analysis showed a significant relationship between planning a child and experiencing a difficult situation in the past. Many researchers emphasise the importance of the impact of a difficult obstetric situation in the past, as a biopsychosocial factor, on planning offspring in the future [19, 20]. Pregnancy and childbirth are a significant life change that most of society associates mainly with positive emotions. Despite the dynamic development of medicine and positive changes in the field of obstetrics and perinatology, for many women and men the waiting time and the birth of their child can be an unpleasant experience that may lead to post-traumatic stress, postpartum depression, trauma, or resignation from further procreation [21]. Psychoanalytic considerations recognise that pregnancy and childbirth are a moment of developmental crisis for both women and men. Psychoanalysis also shows that during procreation one returns to unresolved problems in the relationship with one's partner or conflicts from childhood. In the absence of emotional support while trying to restore mental balance, mental health breakdown may occur [22]. Although, as we mentioned above, society is becoming increasingly aware of taking care of mental health, many parents, faced with traumatic events related to pregnancy or childbirth, seek help on their own, or this help is offered at an early stage in an increasing number of facilities. Despite this, for example after the trauma caused by intrauterine foetal death, 22-55% of women suffer from depression, while 22-41% suffer from anxiety and panic attacks. Research shows that the quality of care a woman and her loved ones receive significantly affects the mourning process and mental health in the coming years, which may translate into the desire to continue expanding the family. Situations of foetal death or traumatic childbirth burden not only parents but also medical staff [23].

In Poland and around the world, medical staff are still grappling with burnout. Therefore, due to its important role in the support of future parents this fact may siginificanty influence their future reproductive

plans [24]. By definition, burnout is the result of long-term exposure to stress in the workplace. In 2011, Nowak-Starz *et al.* conducted an analysis which indicated that among respondents who were nurses, as many as approximately 85% of them were exposed to stressors at work. This result proves the wide prevalence of this phenomenon in the health sector [25]. Considering the specificity of the work performed, e.g. by midwives, nurses, or paramedics, and their position in the professional hierarchy, it can be assumed that they are much more exposed to burnout. The above-mentioned position in the hierarchy refers to the phenomenon of devaluation, especially stemming from doctors, which is observed in Polish hospitals [26]. This generates another problem in the context of the results of our study. When people experience a traumatic birth or pregnancy/baby loss, it is best for their health if they received interdisciplinary care, and this is where the idea of a therapeutic team comes into play. Some researchers in their studies emphasise the fact that the efficiency of teamwork is based on the humility and interpersonal and professional skills of the group leader. Meanwhile, Nowaczyk *et al.*, in the face of this statement, confront research conducted in 2012 in Poland, which still shows a rigorous division between different groups of medical professions, because the foundation of these relations is still based on negative stereotypes. The idea of a therapeutic team is extremely necessary nowadays, not only to improve the quality of patient care, but also to improve the functioning of medical staff, who will be able to focus on patients without unnecessary burdens [23].

CONCLUSIONS

The matter of Polish people's intentions regarding procreation is complex and requires a multifaceted approach.

Poles of reproductive age point to the importance of biopsychosocial factors in the context of their procreation plans.

The study showed that certain biopsychosocial factors, such as poor mental health and the growing problem of Poles of reproductive age experiencing difficult obstetric situations, negatively affect their planning of having children in the future.

A relationship has been shown between satisfaction with mental health and planning to have children in the future: the greater the satisfaction, the more willing Poles are to plan to have children. Despite high awareness of the importance of mental health, many Poles still refrain from starting treatment.

There is a relationship between experiencing a traumatic obstetric or parental situation in the past and planning to have children in the future. Traumatic events reduce the desire to have another child.

Disclosures

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The study was approved by the Independent Bioethics Committee for Scientific Research at the Medical University of Gdańsk (Approval No. NKBBN/861/2022-2023).
The authors declare no conflict of interest.

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