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The Importance of Health Education for the Health Behaviors of Pregnant Women

Znaczenie edukacji zdrowotnej dla zachowań zdrowotnych kobiet w ciąży

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Abstract

Introduction. Pregnancy is a unique period in a woman’s life, during which it is particularly important that she takes care of her health and makes informed decisions that are beneficial to both her and the child. Appropriate health habits can reduce the risk of complications and support the proper development of the child and the well-being of the mother. In this context, health education plays an important role, covering various forms of preparing for childbirth and motherhood, such as birthing classes, consultations with a midwife, or individual educational meetings. Participation in such classes promotes health awareness and beneficial health-related decisions during pregnancy.

Aim. The aim of the study was to assess the health behaviours of pregnant women

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and to analyse the relationship between the level of health knowledge, participation in educational programmes, level of education, and the overall health behaviour index (IZZ) and sense of readiness for childbirth.

Methods and materials. The study comprised 102 pregnant women. A standardised Health Behaviour Inventory (IZZ) questionnaire and a questionnaire developed by the authors were used to conduct the study.

Results. A high level of health behaviours was observed in 60.8% of participants. Participation in educational programmes correlated significantly with a higher IZZ level ($p = 0.002$) and better eating habits ($p < 0.001$). Positive correlations were observed between the level of health knowledge and pro-health behaviours ($rho = 0.42$; $p < 0.001$) and between education and IZZ ($rho = 0.38$; $p < 0.001$). 97.1% of women indicated the need to include emotional aspects in health education. The main barriers to health care were lack of time and financial difficulties. Participation in educational classes had a positive effect on the sense of feeling prepared for childbirth (77.4%).

Keywords: pregnant women, health behaviours, health education, IZZ, health knowledge

Abstrakt

Cel. Ciąża to wyjątkowy okres w życiu kobiety, w którym szczególnego znaczenia nabiera troska o zdrowie i świadome podejmowanie decyzji sprzyjających dobru zarówno matki, jak i dziecka. Odpowiednie nawyki zdrowotne mogą ograniczać ryzyko powikłań oraz wspierać prawidłowy rozwój płodu i dobre samopoczucie kobiety ciężarnej. W tym kontekście istotną rolę odgrywa edukacja zdrowotna obejmująca różne formy przygotowania do porodu i rodzicielstwa – takie jak szkoły rodzenia, konsultacje z położną czy indywidualne spotkania edukacyjne. Uczestnictwo w tego rodzaju zajęciach sprzyja wzrostowi świadomości zdrowotnej oraz podejmowaniu decyzji prozdrowotnych w okresie ciąży. Celem badania była ocena zachowań zdrowotnych kobiet w ciąży oraz poznanie zależności między poziomem wiedzy zdrowotnej, uczestnictwem w programach edukacyjnych, poziomem wykształcenia a ogólnym wskaźnikiem zachowań zdrowotnych (IZZ) i poczuciem gotowości do porodu.

Metody i materiały. Badaniem objęto 102 kobiety w ciąży. Do jego przeprowadzenia wykorzystano standaryzowany kwestionariusz *Inwentarz zachowań zdrowotnych* (IZZ) oraz kwestionariusz własnego autorstwa.

Wyniki i wnioski. Wysoki poziom zachowań zdrowotnych odnotowano u 60,8% uczestniczek. Udział w programach edukacyjnych korelował istotnie z wyższym poziomem IZZ ($p = 0{,}002$) i lepszymi nawykami żywieniowymi ($p < 0{,}001$). Zaobserwowano dodatnie korelacje między poziomem wiedzy zdrowotnej a zachowaniami prozdrowotnymi ($rho = 0{,}42$; $p < 0{,}001$) oraz między wykształceniem a IZZ ($rho = 0{,}38$; $p < 0{,}001$). 97,1% kobiet wskazało na potrzebę uwzględnienia aspektów emocjonalnych w eduka-

cji zdrowotnej. Główne bariery w dbaniu o zdrowie stanowiły brak czasu i trudności finansowe. Udział w zajęciach edukacyjnych wpływał pozytywnie na poczucie przygotowania do porodu (77,4%).

Słowa kluczowe: edukacja zdrowotna, zachowania zdrowotne, IZZ, kobiety w ciąży, wiedza zdrowotna

Introduction

Modern societies, including Poland, are facing serious demographic challenges related to declining fertility and an ageing population. Data from the Central Statistical Office shows that in 2023 there was a negative natural increase of -3.6%, which resulted from the number of deaths exceeding the number of births – 272,500 children were born, whereas the number of deaths exceeded 409,000 (Stelmach *et al*., 2024). Such a demographic situation has significant social, cultural, and economic consequences. In this context, disease prevention among women of childbearing age (15–49 years) is of particular importance, as their lifestyle and health choices may be significant not only for their well-being, but also for the health of future generations (Furtak & Fiedorczuk-Fidziukiewicz, 2017). According to the definition provided by the World Health Organisation, health is not merely the absence of disease, but a state of complete physical, mental, and social well-being (Health and Well-Being, 2023). In this context, the concept of reproductive health, which emphasises the need for a holistic approach to women's health, takes on particular significance. It encompasses not only medical aspects, but is also related to lifestyle, including a healthy diet, regular physical activity, avoiding harmful substances, and mental well-being.

Pregnancy is a special period that requires increased attention to health. Women expecting a child should make informed health-promoting choices that reduce the risk of pregnancy complications and support the child's proper development. Despite numerous preventive and educational classes, knowledge about the health of pregnant women remains insufficient (Topolska *et al*., 2020). Therefore, it is extremely important to promote knowledge about healthy lifestyle and make programmes that support health-promoting behaviour more popular among future mums, who are responsible for their own health and the health of their developing baby.

The concept of health education became widely recognised in Poland at the end of the 20th century, although its various forms had existed earlier under different names. The development of health sciences has led to the recognition of health education as a part of the social sciences, integrating issues from the fields of biology, medicine, psychology, sociology, pedagogy, and ecology. Health education involves consciously planned activities aimed at supporting individuals in acquiring the knowledge and skills necessary

to maintain and improve their health. Andrew Tannahill (1990) distinguished three models of health education: the first focuses on disease prevention, the second on eliminating risk factors, and the third emphasises the importance of strengthening the individual's health potential (Woynarowska, 2017). Health education develops individual and social awareness, emphasising that caring for the health of individuals is also important for the well-being of the entire community. An important area of health education is pro-family education, covering issues of procreation, family planning, and human sexuality (Jurczak, 2015).

The health behaviours of pregnant women are important for the health and development of the child, and wrong decisions can lead to adverse effects, such as damage to the foetus's organs or cognitive development disorders. The key sources of information for pregnant women should be their attending physicians and midwives, who implement health promotion measures from the early weeks of pregnancy. Childbirth classes are particularly important, as they provide theoretical and practical lessons on diet, physical activity, hygiene, postpartum care, newborn care, and breastfeeding. The role of the midwife is not limited to educating pregnant women, but also includes supporting their environment and educating them from the stage of planning a pregnancy (Harasim-Piszczatowska & Słoma, 2016). From the 21st week of pregnancy, a woman is entitled to free prenatal education in the form of meetings with a midwife once or twice a week. Its main purpose is to provide practical knowledge about the changes taking place in a woman's body and how she can adapt to them. The educational programmes cover issues related to pregnancy, childbirth, postpartum and newborn care, as well as emotional and mental preparation for taking on a new role in life. Participation in such classes allows women to reduce their fear of childbirth, gain a sense of security, and trust in medical staff (Araszkiewicz & Plagens-Rotman, 2020).

A study conducted by Puszczałowska-Lizis and colleagues showed that prenatal education and attending a birthing school correlates positively with the pregnant women's quality of life. Participants were more prepared to cope with physical discomfort and knew pain relief techniques, which contributed to a calmer delivery. Knowledge of the stages of labour made it easier to control breathing and emotions, while the presence of partners strengthened family relationships and the sense of support. As many as 93% of women participating in the classes declared that they would recommend this form of preparing for childbirth and the postpartum period (Puszczałowska-Lizis *et al.*, 2016). These results indicate the need for further development and promotion of prenatal education as an important element in shaping the health awareness of women and their families.

The concept of health behaviours is closely related to the concept of a healthy lifestyle. Epidemiological studies allow us to assess the extent to which certain activities promote health and reduce the risk of disease. Health-promoting behaviours include, for example, a balanced diet, regular physical activity, effective stress-coping strategies, abstinence from stimulants, and regular use of preventive healthcare (Nowicki *et al*., 2018). Woynarow-

ska (2017) distinguishes four main areas of health behaviour: those related to physical health, psychosocial health, disease prevention, and avoidance of risky behaviours. These behaviours, shaped from early childhood within the family and social environment, may become established as both positive and negative habits. Of particular importance for women planning a pregnancy is to eliminate harmful behaviours and introduce changes that promote health — poor nutrition, smoking or alcohol consumption can lead to birth defects or abnormal birth weight in newborns (Studnicka *et al*., 2017). Social and cultural factors that determine how individuals perceive health and make health-promoting decisions may also be important in shaping health attitudes (Wojciechowska *et al*., 2020). In 1974, Mark Lalonde published a report that initiated a significant change in the perception of health determinants and contributed to the development of the New Public Health concept. In his report, he identified four main groups of factors determining health: lifestyle, environment, biological and genetic factors, as well as the healthcare system. He attributed the greatest importance — up to 53% — to lifestyle, emphasising the individual's responsibility for their own health (Banach & Glanowska, 2018).

In this study, health education was treated as various forms of involvement in educational programmes: birthing school classes, meetings with a midwife, workshops, and webinars. The original questionnaire used in the study made it possible to assess how women used these forms of support, what sources of health knowledge they considered most valuable, what barriers they encountered in taking care of their health, and how prepared they felt for childbirth. This, in turn, made it possible to link their involvement in education with specific areas of health behaviour measured using the Health Behaviour Inventory (IZZ).

Methodological Basis of the Study

Aim of the Study

The aim of the study was to assess the importance of health education in shaping the pro-health behaviours of pregnant women, including proper eating habits, preventive behaviours, daily health practices, and mental attitude. In addition, the study investigated the correlations between the level of knowledge about health, participation in health education, educational background, place of residence, and the intensity of health behaviours and preparations for childbirth.

Tools Used

The study had a quantitative design. A diagnostic survey method was used, employing a questionnaire as the primary means of data collection. The research tool was an original questionnaire and the standardised Health Behaviour Inventory (IZZ) developed by

Juczyński (2001). The questionnaires were made available in electronic form (online) and in paper form to pregnant women receiving prenatal care in medical facilities and birthing schools. Participation in the study was voluntary and anonymous, and the participants provided their informed consent.

The following tools were used to conduct the study:

Standardised IZZ Questionnaire (Health Behaviour Inventory) – The IZZ questionnaire by Juczyński consists of 24 statements on health behaviours, divided into four categories: proper eating habits, preventive behaviours, positive mental attitude, and health practices. The overall score was converted into stens (1–10). The level of health behaviours is classified as low, average, or high.

Original Health Behaviour Questionnaire – The questionnaire was developed for the purposes of this study in order to collect data on women's participation in health education programmes and to assess their knowledge, attitudes, and barriers to health care during pregnancy. The design of the questionnaire was based on a literature review (including Harasim-Piszczatowska & Słoma, 2016; Puszczałowska-Lizis *et al*., 2016; Woynarowska, 2017). The content of the tool was evaluated by two specialists, which allowed to verify the accuracy and comprehensibility of the questions.

The questionnaire consisted of 14 closed questions (single and multiple choice) and questions with the option of adding one's own answer. It was divided into four thematic areas: 1) data on the respondent and pregnancy (questions 1–2): month of pregnancy, subjective assessment of health knowledge; 2) participation in health education (questions 3–6): family discussions, participation in educational classes, place, and motives for participation; 3) sources of knowledge and educational preferences (questions 7–12): assessment of the availability and effectiveness of educational programmes, preferred forms of education and barriers to health care; 4) emotional and psychological aspects (questions 13–14): the importance of health education for understanding the principles of health care, and emotional well-being.

Characteristics and Selection of Respondents

The study was open to pregnant women, regardless of gestational age, place of residence, or level of education. The inclusion criteria were confirmed pregnancy and willingness to participate in the study. Restrictions on age or number of pregnancies were waived in order to obtain a more diverse representation of the population.

A total of 102 pregnant women participated in the study. The largest group of respondents (50%) were women aged 26–35. The subsequent age groups were 18–25 (23.5%), 36–45 (20.6%), under 18 (4.9%), and over 45 (1%). Most of the respondents had a university degree (64.7%), 17.6% had a secondary school degree, 10.8% had a vocational degree, and 6.9% had a primary school degree. In terms of place of residence, 41.2% of participants lived in a large city, 23.5% in the countryside, and 17.6%

in a small or medium-sized town. Most of the respondents were professionally active (78.4%), 10.8% were students, and 8.8% were unemployed. The remaining 2% indicated other forms of activity, such as parental leave. The vast majority of respondents (81.4%) were in a relationship, while 18.6% declared that they did not have a partner.

Results

Level of Health Behaviours

The average score on the sten scale for health behaviours was $M = 6.54$, $Me = 7.00$, $SD = 1.91$, with extreme values ranging from 1 to 10. The majority of the women studied achieved above-average results.

Table 1

Health behaviours of pregnant women – sten scales

Score level	Number of women (*N*)	Percentage (%)
Low (1–4)	14	13.7%
Average (5–6)	26	25.5%
High (7–10)	62	60.8%

The Relationship Between Knowledge and Health Behaviours

Spearman's rho correlation analysis was used to assess the relationship between the level of knowledge about health behaviours and actual health behaviours. All correlations were positive and statistically significant, with the strongest relationship for overall health behaviour intensity (*rho* = 0.42; $p < 0.001$) and preventive behaviour (*rho* = 0.40; $p < 0.001$). The weakest, but still significant, correlation was found for health practices (*rho* = 0.26; $p < 0.01$).

Table 2

Correlations between the level of knowledge and health behaviours in pregnant women

Variable	Spearman's *rho*	Significance
Overall intensity of behaviours	0.42	$p < 0.001$
Proper eating habits	0.30	$p < 0.01$
Preventive behaviours	0.40	$p < 0.001$
Positive mental attitude	0.39	$p < 0.001$
Health practices	0.26	$p < 0.01$

Participation in Health Education and Health Behaviours

The analysis examined the differences between women who participated ($n = 82$) and those that did not participate ($n = 20$) in health education. The Mann–Whitney

U test was used. The results showed statistically significant differences in the overall level of health behaviours ($p = 0.002$), healthy eating habits ($p < 0.001$), preventive behaviours ($p = 0.034$), and health practices ($p = 0.020$). No significant differences were found in terms of positive mental attitude ($p = 0.122$).

Table 3

Health behaviours – comparison of participation in health education

Health behaviours	No participation ($n = 20$)	Participation ($n = 82$)	Z	p	η^2
Overall intensity	M = 80.25; SD = 19.67	M = 93.88; SD = 10.55	-3.04	0.002	0.09
Proper eating habits	M = 3.07; SD = 0.92	M = 4.01; SD = 0.63	-4.26	<0.001	0.18
Preventive behaviours	M = 3.41; SD = 0.95	M = 3.91; SD = 0.56	-2.12	0.034	0.04
Positive mental attitude	M = 3.43; SD = 1.05	M = 3.88; SD = 0.55	-1.55	0.122	0.02
Health practices	M = 3.47; SD = 0.70	M = 3.84; SD = 0.66	-2.34	0.020	0.05

In summary, participation in health education was associated with significantly higher levels of healthy behaviours, particularly in terms of eating habits (strong effect) and general behaviours (moderate effect). Differences in psychological attitudes were not statistically significant.

The relationship between education and health behaviours

In the next stage of the analysis, it was examined whether there was a significant and positive relationship between the educational background of pregnant women and their health behaviours. Due to the ordinal nature of the education variable, Spearman's non-parametric rho correlation test was used. The results are presented in Table 4.

Table 4

The relationship between education and health behaviours

Health behaviours	Spearman's *rho*	Significance
Overall intensity of behaviours	0.38	$p < 0.001$
Proper eating habits	0.31	$p < 0.01$
Preventive behaviours	0.40	$p < 0.001$
Positive mental attitude	0.31	$p < 0.01$
Health practices	0.25	$p < 0.05$

The analysis showed that the higher the level of education of the women studied, the level of their health behaviours was significantly higher. The strongest correlation was found in preventive behaviours (*rho* = 0.40), and the weakest in health practices (*rho* = 0.25). All correlations proved to be statistically significant, confirming the correlation between education and pro-health behaviours of pregnant women.

In addition, the relationship between the place of residence and the availability of educational programmes for pregnant women was examined. Spearman's *rho*

correlation showed no significant relationship (*rho* = 0.03; *p* = 0.764), which means that the place of residence did not determine the availability of such programmes.

Women's opinions on health education, preparation for childbirth, and barriers to health care

Respondents were asked for their opinion on the scope of health education, and in particular whether it should also cover the emotional and psychological aspects of pregnancy. The vast majority (97.1%) answered in the affirmative, with 74 women (72.6%) considering this aspect to be very important. Only 2.9% of women did not attach much importance to this aspect.

Table 5

Women's opinions on the inclusion of emotional and psychological aspects in health education

Answer	*N*	%
Yes, it's very important	74	72.6%
Yes, but more emphasis should be placed on physical aspects	25	24.5%
No, I don't think it's very important	3	2.9%

The rest of the study analysed the barriers to caring for one's health during pregnancy. As the question enabled multiple choices, the answers could add up to more than 100%. The most frequently cited barrier was lack of time (66.7%), followed by financial difficulties (45.1%) and limited access to specialists (40.2%). Remarkably, none of the respondents indicated a lack of educational classes as a barrier.

Finally, the feeling of being prepared for childbirth was analysed in the context of participation in health education. The largest number of health education participants (44.1%) felt more prepared, although they still had their doubts. 33.3% of women felt well prepared. Only 10.8% (11 women) said they did not feel prepared. 11.8% of respondents did not participate in health education classes at all.

Health behaviours of pregnant women and determining factors – discussion

The health status of pregnant women is significantly determined by their health behaviours, which include diet, physical activity, preventive behaviours, daily health-promoting practices, and mental attitude. The results of this study indicate that 60.8% of respondents scored highly in terms of health behaviours, 25.5% scored average, and 13.7% scored low. Such score distribution may reflect a relatively high health awareness and the presence of health-promoting attitudes among the pregnant women examined. This implies

their commitment to taking care of their own health and that of their developing child, which is manifested in undertaken preventive measures, nutritional habits, and physical activity. Compared to Duda's study (2021), in which women with poor health behaviours predominated (53%), the differences are significant. In Duda's study, only 11% of women achieved high scores, while 53% achieved low scores.

An analysis of the relationship between the level of knowledge and health behaviours revealed a significant positive correlation. Particularly strong relationships were observed in the areas of preventive behaviours, proper eating habits, and a positive mental attitude. A weaker relationship was found in daily health practices. Similar relationships were found in a study by Rizkia *et al*., which aimed to determine the correlation between knowledge and behaviour of pregnant women during the COVID-19 pandemic. As many as 50.7% of the respondents had good knowledge, and statistical analysis showed a significant relationship between knowledge and health behaviours (Rizkia, 2020). In turn, a study conducted at the Kuta Baro Health Centre showed that the majority of pregnant women (87.2%) had good knowledge of proper nutrition and presented positive nutritional habits (85.1%). A significant relationship between the level of knowledge and nutritional behaviour was confirmed (Rizkia *et al.*, 2023).

Analysis of the results of this study indicates a relationship between participation in educational programmes and more beneficial health habits, including nutritional habits, in pregnant women. However, no significant differences were found in terms of positive mental attitude. These results are consistent with earlier scientific reports. Puszczałowska-Lizis *et al*. (2016) showed that participation in birthing classes significantly increases women's sense of feeling more prepared for childbirth – 90% found relaxation techniques helpful, and 83% declared that the knowledge they gained made it easier to care for their newborn (Puszczałowska-Lizis *et al*., 2016). In turn, a study from 2025 proves that comprehensive perinatal education (including workshops, digital platforms, counselling) improves knowledge, reduces anxiety and depression, and increases the percentage of natural births (Wei Li *et al.*, 2025).

The authors' own analysis also showed a significant positive correlation between the educational background and the intensity of health behaviours, including eating habits, preventive behaviours, positive mental attitude, and health practices. Similar conclusions can be drawn from the study by Bień *et al*. (2016), where education differentiated all indicators of health behaviours (nutrition, physical activity).

Approximately 97.1% of the participants in this study considered it important to include emotional and psychological aspects in health education, with 72.6% considering it very important. The main barriers to health care are lack of time, financial difficulties, and limited access to specialists. Olejniczak and Krakowiak (2013) showed that although the majority of women (95.3%) consider health education to be necessary, 21.5% did not receive answers to their questions, which points to the need to improve the acces-

sibility and quality of education. Roozbeh *et al*. (2016) identify a number of barriers to accessing prenatal care, including individual, financial, and cultural barriers.

It was found in this study that participation in health education improves the sense of feeling prepared for childbirth (33.3%). Despite this, 44.1% of respondents had doubts and 10.8% felt unprepared, which emphasises the need for individualised educational programmes. Similar conclusions can be drawn from the study by Gębicz *et al*., where participation in birthing classes significantly reduced fears related to childbirth and the postpartum period (100%), especially among women who were pregnant for the first time (61.43%; Gębicz *et al*., 2019). The sense of security during childbirth was higher among women who attended birthing classes – 100% positive responses, compared to 47% who did not feel secure in the control group ($p < 0.001$). Puszczałowska-Lizis *et al*. also emphasise the important role of birthing classes in preparing for motherhood – 87% of women appreciated the knowledge of how to alleviate pain, and 83% of participants used non-pharmacological methods, compared to 47% of women in the control group ($p < 0.001$) (Puszczałowska-Lizis *et al*., 2016).

Conclusion

- The results of the study confirm that health education plays an important role in shaping the health behaviours of pregnant women, but its significance may vary and depend on the level of knowledge, educational background, and individual experiences of women.
- Participation in educational classes contributes to undertaking health-promoting behaviours, especially in terms of proper eating habits and preventive measures, but it is not the only factor determining these behaviours.
- The relationship between the educational background and the intensity of health behaviours indicates the need to tailor educational content to different target groups, especially women with lower levels of education and limited access to information.
- The barriers to taking care of one's health during pregnancy are primarily organisational and economic in nature, which emphasises the importance of systemic support for pregnant women in terms of access to health education.
- The results obtained allow only indirect conclusions to be drawn about the effectiveness of various forms of health education – further research should focus on developing clear indicators for assessing the level of health education and precise tools for measuring participation in educational programmes.
- Health education should be integrated, combining physical, emotional, and social aspects, in order to effectively support women in preparing for motherhood and in shaping lasting health-promoting attitudes.

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