Emotional state of women during pregnancy[1]

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Abstract: *Introduction:* Stress is described as feelings of worry, unease and mild anxiety. Subjective emotions and mood during pregnancy affect the psychological state of pregnant women. *Aim of the work:* To investigate the emotional state that characterises women during pregnancy and what determines it. *Material and method:* The study group consisted of 588 pregnant women. The study was conducted between November 2023 and January 2024 in women's counselling centres and birthing schools in the Lublin Province. A diagnostic survey method was used, with the author's survey questionnaire, the General Mood Scale (authors Wojciszke, Baryła) and the Emotions Questionnaire (authors Wojciszke, Baryła). *Results of the study:* Women between 26 and 35 years of age constituted the largest group (n = 417; 71%; 70.92%). One in five subjects (n = 118; 20.07%) was between 18 and 25 years of age, while pregnant women over 40 years of age accounted for approximately 1% of the subjects (n = 6). The subjects were divided into three groups, depending on the trimester of pregnancy: 1st trimester of pregnancy accounted for 8.33% of the subjects, 2nd trimester of pregnancy 48.64% (n = 286) and 3rd trimester of pregnancy 43.03% (n = 253). Statistical analysis showed no statistically significant differences (p>0.05) in the negative and positive mood scores of women in the different trimesters of pregnancy. High levels of negative emotions were found among women who felt a lack of support from relatives (M = 58) and among women who felt insufficient support from relatives (M = 51). In contrast, low levels of negative emotions were found among subjects who declared that they were coping well on their own (M = 39), as well as those who had high support from their partner/relatives (M = 39). The highest intensity of positive emotions was observed among women who had lost one pregnancy (M = 40), while the rate of positive emotions was slightly lower in subjects who had been pregnant for the first time or had no obstetric failures (M = 38). *Conclusions:* The stage of pregnancy does not significantly affect women's mood, but a slight increase in the intensity of positive mood is observed in the 3rd trimester of pregnancy and a higher intensity of negative mood in the 1st trimester of pregnancy. In addition, a higher intensity of negative emotions is observed for women of low material status, less educated, under 25 years of age and living in rural areas. Support from a partner/relative has a significant impact on the emotions felt and expressed during pregnancy. Negative emotions during pregnancy are mainly experienced by women who have lost three or more babies due to miscarriage, premature birth or stillbirth. It seems reasonable to conduct further research to identify stressors in pregnant women, which will allow to individualise professional care for this group of women.

Keywords: pregnancy, mood, emotions, stress

Introduction

Pregnancy and waiting for the birth of a child are recognised as a unique period in a woman's life marked by numerous physical, psychological and social changes. Whether it is planned and anticipated or a surprise, it is often considered as a stressful situation. Many women experience a deterioration

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1 Article in polish language: https://www.stowarzyszeniefidesetratio.pl/fer/59P_Stad.pdf

of their mental state during pregnancy, manifested by mood swings, fatigue, reduced vigour, anxiety, and restlessness (Arnal-Remón, Moreno-Rosset, Ramírez-Uclés et al., 2015; Carpinelli, Savarese, 2022; Postępska, Kanadys, Kęsik et al., 2023).

The psychological state of a pregnant woman is influenced by many factors, including: the length of the pregnancy and the associated hormonal changes taking place in the woman's body, as well as the physical changes resulting from the development of the pregnancy, partner relationships, the maternal-fetal bond, the course of previous pregnancies, or diseases complicating the pregnancy. It should also be emphasised that, nowadays, the course of pregnancy is less and less physiological, which is related to infertility treatment, late motherhood and, consequently, a higher incidence of co-morbidities. The above physiological, social and emotional factors have a significant impact on the mental health status of pregnant women (Agostini, Neri, Salvatori et al., 2015; Fisher, Tran, Duc Tran et al., 2013; McNamara, Townsend, Herbert et al., 2019; Verreault, Da Costa, Marchand et al., 2014).

When analysing the factors that determine a woman's psychological well-being during pregnancy, Navon-Eyal, Taubman-Ben-Ari (2023) highlighted the importance of the concepts of 'stress' and 'distress'. The definition of stress shows that it is an indispensable part of life and affects every pregnant woman in different aspects. Factors causing stress can be emotional, physiological, anatomical or physical (Kaczmarska, Curyło-Sikora, 2016). Stress can have a positive effect, contributing to health and mobilising action, or a negative effect, destructively leading to health problems. In contrast, in the literature, the term 'distress' describes a type of negative stress that is associated with a feeling of being 'stressed'. This type of reaction causes feelings of overwhelm, anxiety as well as physical and psychological symptoms such as headaches, tension, insomnia, impaired concentration or irritability. In contrast, stress in the perinatal literature is described as feelings of worry, unease and mild anxiety. Meanwhile, anxiety compromises psychological well-being and sometimes leads to mental health disorders (Arnal-Remón et al., 2015; Wojciszke, Baryła, 2004). Women who are exposed to severe stress and anxiety during pregnancy have

an increased risk of miscarriage, premature birth, and giving birth to a low birth weight baby. It is also important to remember that the reactions in the mother's body triggered by a stressful situation have a multidirectional effect on the foetus, negatively affecting its development and the functioning of the hypothalamic-pituitary system. This is due to the secretion of large amounts of adrenaline and cortisol into the bloodstream of the pregnant woman, which cross the placenta to the fetus and negatively affect its development (Carpinelli et al., 2022; Noval-Eyal et al., 2023; Yildiz, Ayers, Phillips, 2017; Szczygieł, 2014). The subjective experience of different situations during pregnancy, whether in the form of non-specific mood or specific emotions, is part of psychological life. Subjective emotions and mood during pregnancy affect the quality of one's life.

The aim of the study was to investigate the emotional state that characterises women during pregnancy and what determines it.

1. Material and method

The study group consisted of 588 pregnant women, who were divided into three subgroups: Group 1 consisted of women in the 1st trimester of pregnancy (n = 49; 8.33%), Group 2 – pregnant women in the 2nd trimester of pregnancy – (n = 286; 48.64%) and Group 3 – pregnant women in the 3rd trimester of pregnancy (n = 253; 43.03%).

The study was conducted between November 2023 and January 2024 in women's counselling centres and birthing schools in the Lublin Province. A diagnostic survey method was used in the study. The tools used during the study were: the authors' survey questionnaire, General Mood Scale, Emotions Questionnaire. The author's survey questionnaire included: socio-demographic data (age, marital status, occupation, place of residence, education, material situation), data on the course of pregnancy and the occurrence of chronic diseases and interpersonal relations.

The General Mood Scale (Wojciszke, Baryła, 2004) contains 10 statements, which consist of claims formulated in such a way as to express a gen-

eral positive or negative mood. The respondent can mark the answer that is appropriate for her in the form of a number from 1 to 5 on a Likert scale, where 1 means 'I disagree' and 5 means 'I agree'. In addition, the scale contains 20 adjectives that describe a specific positive or negative mood. The respondent was asked to tick the relevant adjectives describing her mood in the 7 days prior to the survey. The result is the average number of positive and negative sequences indicated. The overall mood score is the sum of the obtained scores (ibidem).

The Emotion Questionnaire (Wojciszke, Baryła, 2004) consists of 6 main emotions (joy, love, fear, anger, guilt and sadness), contained in 24 adjectives, denoting the names of discrete emotions, four for each main emotion. The respondent was asked to indicate on a Likert scale from 1 to 7 how often she had felt the emotion in question in the seven days preceding the survey, where 1 means 'never' and 7 means 'always'. The result is the sum of the scores for positive and negative emotions (ibidem).

The following criteria were used to qualify women for the study:

- live pregnancy,
- any length of pregnancy,
- no history of diagnosed mental illness,
- at least 18 years of age,
- consent to participate in the study.

The statistical package Statistica version 13.3 was used for statistical analyses. A level of (p < 0.05) was considered statistically significant. The following were taken as independent variables: age, marital status, education, place of residence, financial situation, employment, trimester of pregnancy, obstetric failure, support received. The dependent variables were: the score from the General Mood Scale and the score from the Emotions Questionnaire. The average, standard deviation, minimum, maximum, median, upper and lower quartiles were used in the statistical description of the results obtained from the General Mood Scale and the Emotions Questionnaire. The differences between groups were assessed using the Kruskal-Wallis test.

2. Results of the study

Among the women surveyed, the largest group was between 26 and 35 years of age (n = 417; 71%; 70.92%). One-fifth of the subjects were aged between 18 and 25 years (n = 118; 20.07%), while pregnant women over 40 years of age accounted for approximately 1% of the subjects (n = 6). Most of the subjects lived in a city: a large city with more than 50,000 inhabitants (n = 248; 42.18%) and a small town with less than 50,000 inhabitants (n = 155; 26.36%). Rural residents accounted for 31.96% (n = 188). Approximately three quarters (n = 437; 74.32%) of the female respondents declared their marital status as married. The remaining respondents were single (single – n = 128; 21.77%, divorced – n = 23; 3.91%). The vast majority of the subjects had a university degree (n = 398; 67.69%). More than 90% (n = 538; 91.15%) of the respondents were economically active before pregnancy, while those studying/learning (n = 10; 1.70%) and unemployed (n = 40; 6.81%) represented only a small percentage. More than three quarters of the respondents described their financial situation as good/satisfactory (n = 444; 75.51%), 120 (20.41%) female respondents described their financial situation as very good and 4.08% of the respondents (n = 24) as bad. It was the first pregnancy for more than three-quarters of the respondents (n = 445; 77.38%). Approximately one fifth of the respondents (n = 112; 19.05%) had experienced pregnancy loss once, the remaining respondents twice (n = 23; 3.91%) or more (n = 8; 1.36%). Approximately 15% of women (n = 90) had been treated for infertility. More than half of the respondents (n = 383; 65.14%) were expecting their first child, almost one third of the women surveyed (27.55%) had given birth only once, the remaining women (n = 43; 7.31) had given birth 2 or more times. Approximately half of the respondents (n = 282; 47.56%) said that their 'life energy' decreased significantly during pregnancy. A group of 116 women (19.72%) indicated that pregnancy had a positive impact on their overall well-being, while 15, 31% (n = 90) of the respondents stated that pregnancy had affected them negatively. The remaining respondents (n = 100; 17.01%) stated that the pregnancy had no impact on their well-being.

Comorbidities coexisting with and complicating pregnancy (thyroid disease, diabetes, hypertension, urinary and vaginal tract infections, allergies and others) were declared by more than two-fifths of the respondents (n = 255; 43.36%). Almost three quarters of the respondents (n = 409; 69.56%) indicated that they had a lot of support from their husband/partner in a difficult situation, a quarter of the respondents (n = 150; n = 25.51%) declared that they could rely on such support from their immediate family, but it was not sufficient, the remaining respondents (n = 29; 4.93%) felt there was a lack of support from their closest relatives.

The next part of the presentation of the study results analysed the influence of sociodemographic factors on the differentiation of emotions in pregnant women. The independent variable described on an interval scale consisted of factors such as age, marital status, education, place of residence, financial situation and employment. The dependent variable was the sum of scores indicating negative emotions obtained from the Emotion Questionnaire. The results in the form of median, standard deviation, minimum and maximum scores obtained in the study group are presented in Table 1.

The statistical analysis presented in Table 1 using the Kruskal-Wallis test showed statistically significant differences in the variables i.e. age, education, financial situation and marital status while proving that they have an impact on the intensity of negative emotions experienced during pregnancy. The analysis of the other variables did not show statistically significant differences. In contrast, the group of women surveyed with the highest mean level regarding negative emotions was composed of single women (M = 45.5), women with primary education

Table 1. Socio-demographic factors characterising the women surveyed and their negative emotions during pregnancy

Socio-demographic data		Negative emotions					Kruskal-Wallis test	
		N	SD	Min	Max	M	H	P
Age	18-25	120	17.96	16	100	45.00	13.050	0.0045
	26-35	415	16.34	16	96	42.00		
	36-40	47	13.42	16	79	34.00		
	>40	6	27.50	19	84	39.00		
Marital status	married	437	16.23	16	96	41.00	8.691	0.0130
	single	128	18.54	16	100	45.50		
	divorced	23	13.03	20	66	36.00		
Education	Primary	9	20.16	31	94	65.00	15.873	0.0012
	basic vocational	19	19.17	19	83	39.00		
	secondary	162	17.68	16	89	45.00		
	higher	398	15.79	16	100	41.00		
Place of residence	village	185	17.23	16	89	45.00	0.436	0.8039
	town with less than 50,000 inhabitants	155	15.15	16	91	42.00		
	provincial city	248	17.41	16	100	41.00		
Financial situation	very good	120	15.58	16	84	40.00	9.023	0.0290
	good/average	444	16.69	16	100	42.00		
	bad	24	20.78	17	85	58.00		
Employed	yes	538	16.33	16	100	42.00	1.465	0.4806
	no	40	21.22	16	94	47.00		
	student	10	19.25	31	83	41.50		

N – number of subjects; SD – standard deviation; Min – Minimum; Max – Maximum; M – median; H – test result; p – significance level.

(M = 65), rural residents (M = 45), unemployed respondents (M = 47%) and respondents in the age range of 18 to 25 years (M = 45).

The emotional state of the women surveyed during each trimester of pregnancy was assessed with the General Mood Scale. Table 2 and Table 3 present a statistical analysis of the results of the study indicating positive and negative moods declared by the study women in each trimester of pregnancy.

Statistical analysis with the Kruskal-Wallis test showed no statistically significant difference in women's mood scores depending on the trimester of pregnancy. A slightly higher intensity of mean positive mood is observed in women in the 3rd trimester of pregnancy (M = 17).

An analysis of negative mood obtained using the General Mood Scale from respondents in different trimesters of pregnancy shows no statistically significant differences between groups (p > 0.05). The highest mean intensity of negative mood was found among women who were in the 1st trimester of pregnancy (M = 11) (Table 3).

Analysis of variance was used to assess the impact of the support perceived by the study women on their emotions. The independent variable described on the interval scale was women with different levels of support from a loved one. The first group consisted of women who claimed to be very supported by a relative/partner, the second group consisted of women who had some support, but in their opinion it was not insufficient, the third group consisted of women who indicated that they had no support from relatives, the fourth group included women who claimed that they had no support, but were doing well on their own. The sum of the scores obtained from the Emotions Questionnaire indicating positive and negative mood was used as the dependent variable (Table 4 and Table 5).

The perceived extent of support from the partner/relatives significantly influenced the positive emotions felt by the women surveyed. Statistical analysis showed statistically significant differences between the groups (p<0.001) divided according to the support received. The highest mean intensity of

Table 2. Positive mood declared by pregnant women in each trimester of pregnancy

Trimester of pregnancy	N	SD	Min	Max	Q25	M	Q75
First (1-12 weeks' gestation)	49	5.469	5	25	11.00	15.00	20.00
Second (13-27 weeks' gestation)	286	5.069	5	25	13.00	16.00	20.00
Third (28 weeks' gestation and more)	253	5.117	5	25	13.00	17.00	20.00
Total	588	5.129	5	25	_	_	_
Kruskal-Wallis test result	H= 1.226; p = 0.5418						

N – number of subjects; SD – standard deviation; Min – Minimum; Max – Maximum; Q25 – upper quartile; M – median; Q75 – lower quartile; H – test result; p – significance level

Table 3. Negative mood declared by pregnant women in each trimester of pregnancy

Trimester of pregnancy	N	SD	Min	Max	Q25	M	Q75
First (1-12 weeks' gestation)	49	5.948	5	25	5.00	11.00	15.00
Second (13-27 weeks' gestation)	286	4.983	5	25	6.00	10.00	15.00
Third (28 weeks' gestation and more)	253	5.101	5	25	6.00	10.00	15.00
Total	588	5.116	5	25	_	_	_
Kruskal-Wallis test result	H = 2.486; p = 0.2885						

N – number of subjects; SD – standard deviation; Min – Minimum; Max – Maximum; Q25 – upper quartile; M – median; Q75 – lower quartile; H – test result; p – significance level

positive emotions was among women who had great support from a partner/close relative (M = 41), while the lowest scores were obtained by those women who had no support from loved ones (M = 29) (Table 4).

In contrast, the highest mean score for intensity of negative emotions was among women who felt a lack of support from loved ones (M = 58). Women who felt insufficient support from loved ones also had a high mean score (M = 51). On the other hand, low intensity of negative emotions was found among respondents who declared that they were doing well on their own (M = 39), as well as those who had high support from their partner/relatives (M = 39) (Table 5)

The impact of obstetric failures in previous pregnancies (miscarriages, stillbirths) on the differentiation of emotions in the current pregnancy of the respondents is presented in Tables 6 & 7. The women surveyed were divided into four groups based on the number of obstetric failures. The first group consisted of women who had not been pregnant before or had no pregnancy loss, the second group consisted of respondents with one obstetric failure, the third group consisted of respondents who had lost a pregnancy twice and the fourth group consisted of women who replied that they had lost a pregnancy 3 or more times. The sum of positive and negative mood scores obtained from the Emotions Questionnaire was used as the dependent variable.

In the groups of women with different numbers of obstetric failures in previous pregnancies, statistical analysis showed no significant differences in feeling positive emotions during the current pregnancy. The highest intensity of positive emotions was observed among women who had lost one pregnancy (M = 40), while the intensity of positive emotions was slightly lower (M = 38) in respondents who were pregnant for the first time or had no obstetric failures (Table 7).

The negative emotions experienced by the women surveyed during pregnancy were not significantly dependent on the number of obstetric failures. The high-

Table 4. Positive emotions and perceived support during pregnancy

Perceived support during pregnancy	N	SD	Min	Max	Q25	M	Q75
I have great support from my partner/relatives	409	7.682	8	56	35.00	41.00	46.00
I have some support but I think it is not sufficient	150	7.649	13	55	29.00	34.00	37.00
I have no support from relatives	13	11.781	14	51	22.00	29.00	37.50
I have no support, but I cope well on my own	16	9.501	22	53	28.50	33.00	39.50
Total	588	8.441	8	56	32.00	38.00	45.00
Kruskal-Wallis test result	H=85.127; p<0.001						

N – number of subjects; SD – standard deviation; Min – Minimum; Max – Maximum; Q25 – upper quartile; M – median; Q75 – lower quartile; H – test result; p – significance level

Table 5. Positive emotions and perceived support during pregnancy

Perceived support during pregnancy	N	SD	Min	Max	Q25	M	Q75
I have great support from my partner/relatives	409	15.084	16	96	30.00	39.00	50.00
I have some support but I think it is not sufficient	150	16.958	16	100	40.00	51.00	65.00
I have no support from relatives	13	18.787	27	84	42.00	58.00	72.50
I have no support, but I cope well on my own	16	19.759	16	91	32.00	39.00	58.50
Total	588	16.766	16	100	32.00	42.00	55.00
Kruskal-Wallis test result	H=66.790; p<0.001						

N – number of subjects; SD – standard deviation; Min – Minimum; Max – Maximum; Q25 – upper quartile; M – median; Q75 – lower quartile; H – test result; p – significance level

Table 6. Positive emotions related to pregnancy loss

Pregnancy loss	N	SD	Min	Max	Q25	M	Q75
No	445	8.332	8	56	32.00	38.00	44.00
Yes, 1 time	112	8.602	17	56	34.00	40.00	47.00
Yes, 2 times	23	8.796	21	53	33.00	37.00	45.00
Yes, 3 or more times	8	11.134	19	48	28.50	36.50	48.00
Total	588	8.441	8	56	32.00	38.00	45.00
Kruskal-Wallis test result				H=3.672; p<0.299			

N – number of subjects; SD – standard deviation; Min – Minimum; Max – Maximum; Q25 – upper quartile; M – median; Q75 – lower quartile; H – test result; p – significance level

Table 7. Negative emotions related to pregnancy loss

Pregnancy loss	N	SD	Min	Max	Q25	M	Q75
No	445	16.568	6	100	32.00	42.00	56.00
Yes, 1 time	112	16.290	6	94	30.50	40.00	51.00
Yes, 2 times	23	18.304	9	80	30.00	44.00	56.00
Yes, 3 or more times	8	23.856	1	84	34.50	70.50	81.50
Total	588	16.766	6	100	32.00	42.00	55.00
Kruskal-Wallis test result				H=4.4194; p=0.2196			

N – number of subjects; SD – standard deviation; Min – Minimum; Max – Maximum; Q25 – upper quartile; M – median; Q75 – lower quartile; H – test result; p – significance level

est intensity of negative emotions was observed in the group of women who lost 3 or more pregnancies (M = 70), while significantly less negative emotions were found in the other study groups.

3. Discussion

A woman's emotional state during pregnancy has a significant impact on the course of pregnancy. It is shaped by physical, social and psychological factors. It could be hypothesised that maintaining a positive mood and a positive emotional state in pregnant women has an impact on the prevention of pregnancy complications. An analysis of studies conducted by Cai, Busch, Wang et al. (2022) and Andhavarapu, Orwa, Temmerman et al. (2021) shows that stress triggers during pregnancy manifested by increased anxiety and fear correlate with the incidence of pregnancy complications such as preterm delivery, depression during pregnancy or after delivery, poorer psycho-physical development of the child. Similar

conclusions were reached by Grigoriadis, Graves, Peer et al. (2018), who observed low fetal birth weight in addition to the above-mentioned complications.

Therefore, the authors of the present study attempted to determine the mood and emotions experienced by pregnant women, depending on the influence of selected factors such as length of pregnancy, loss of previous pregnancies, support from partner/relatives and certain socio-demographic factors. In our study, the most common positive emotions experienced by respondents were joy (n = 227; 38.61%;), a sense of security (179; 30.44%) and optimism (n = 170; 28.91%), while the negative emotions experienced by pregnant women were anxiety (n = 286; 48.63%) and worry (n = 274; 46.59%). A similar study among pregnant women was conducted in Sweden by Zheng, Naurin, Markstedt et al. (2022). The results of that study indicate that pregnancy mainly evokes positive emotions such as joy, feelings of security and strength, but is also largely a cause for worry, but rarely a cause for anger or shame.

The available literature (Alves, Cecatti, Souza, 2021; Postępska et al., 2023; Andhavarapu et al., 2021; Kanadys, Tyrańska, Lewicka et al., 2018; McLeod, Ebeling, Baatz et al., 2021) contains many reports assessing the influence of socio-demographic factors on shaping mood and evoking specific emotions in pregnant women. When analysing our own study, we found that higher levels of negative emotions were found in women who were young (18-25 years), unmarried and had primary/vocational education. The place of residence and low material status were also influential. The relationship between low social status and high prevalence of negative emotions was presented in an analysis of a study by Lamgretse van den Berg, Lucassen, Kuipers-Nap (2013). In the same study, it was shown that younger mothers were more critical towards each other, while older women were more emotionally involved in terms of helping each other, which generated positive emotions. Similarly, the results of our own study showed that women between the ages of 36 and 40 were characterised by the highest levels of positive emotions. Married (M = 96) and single (M = 100) respondents also achieved a high median level, while divorced women had a low average level of positive emotions (M = 66).

In our study, positive and negative moods were compared across different trimesters of pregnancy. Statistical analysis did not show a statistically significant difference in the assessment of positive as well as negative mood by women in different trimesters of pregnancy. However, negative mood was found to be highest among women in the 1st trimester of pregnancy (M = 11), while positive mood was only slightly higher among respondents in the 3rd trimester of pregnancy (M = 17) compared to the other respondents. This varied similarly in a study by Alderdice, Lynn, Lobel (2012), where women in the 1st trimester of pregnancy were more likely to report negative emotions, such as shock, anxiety, depression, which were most commonly associated with anxiety about pregnancy loss. As the pregnancy progressed, frustration, uncertainty, and guilt appeared in some subjects. In this study, the authors also assessed the type of support provided to women. The results of the study suggest that the support received was negligible, and many of the subjects faced negative judgement from relatives and medical staff. Respondents said

they were stressed by situations arising from everyday life. Women felt stigmatised, misunderstood and mentioned a lack of support from those around them. Other results were obtained in our study, where the vast majority of the respondents indicated that they had great support from loved ones during pregnancy (n = 409; 69.56%), which translated into high rates of their positive emotions. In contrast, women who had no support or felt there was insufficient support were characterised by elevated rates of negative emotions. There was a statistically significant difference in the experience of positive as well as negative emotions depending on the support received. Based on a study by Lahdepuro, Lahti-Pulkinen, Tuovinen et al. (2020) pregnant women experiencing higher levels of positive emotions during pregnancy and social support had a lower risk of psychiatric disorders. Partner support also correlates with a woman's positive feelings during pregnancy, and protects against the development of psychiatric disorders especially in women at increased risk of depression. Social support of pregnant women increases their resilience to stress and reduces the incidence of stress-related complications (Alves et al. 2021; Al-Mutawtah, Campbell, Kubis, Erjavec, 2023).

Another element analysed in the study was the emotional response of women after pregnancy loss. A study by Fernandez-Basanta et al. (2023) showed that miscarriage or stillbirth is a traumatic event, causing some women to take a cautious approach to the next pregnancy: they constantly monitor the condition of the fetus and try to eliminate any risky behaviour. Other authors have found that the severity of negative emotions after pregnancy loss was higher in a group of women who lacked social support, had difficulties in their relationship and did not have children, and especially in women after pregnancy termination due to fetal defects (Dembińska, Wichary, 2016; Battulga, Benjamin, Chen et al., 2021; Lamgretse van den Berg et al. 2013; Paz, Otaño, Gadow et al., 1992). In contrast, a study by Shen, Zhong, Wang et al. (2024) found an increase in psychiatric disorders in female patients after pregnancy loss. The risk of psychiatric disorders in women increases significantly after the loss of two or more pregnancies. A study by Paz et al. (1992) showed that the occurrence of defects such as anencephaly,

Down's syndrome, multiple malformations, spina bifida, congenital hip dislocation, low birth weight or clubfoot are associated with early pregnancy loss and should be taken into account when assessing the risk of defects in a subsequent pregnancy. The results of a study conducted in Scotland by Bhattacharya, Townend, Shetty et al. (2008) found a higher risk of pre-eclampsia, threatened miscarriage, preterm birth and postpartum haemorrhage in women who had previously lost a pregnancy. In the study, the impact of pregnancy loss on the emotional state of the respondents was assessed. In the study group, the highest level of positive emotions was observed in women who had lost a pregnancy once. The highest level of negative emotions was displayed by the group of women who had lost a pregnancy (miscarriage) three or more times.

Over the years, a number of studies have attempted to identify factors that reduce stress levels and determinants of well-being in pregnant women (Agostini et al., 2015; Fisher et al., 2013; McNamara et al., 2019; Verreault et al., 2014; Savory, Hannigan, Sanders, 2022; Noval-Eyal et al., 2023). When analysing the literature, it can be concluded that, regardless of the number of stressors occurring during pregnancy, a very important protective role is played by the maternal-fetal bond, which determines maternal well-being. Studies indicate that the stronger the mother's bond with the prenatal child, the fewer symptoms of anxiety and depression reported and observed during pregnancy and after delivery (Goecke, Voigt, Faschingbauer et al., 2012; Matthies, Müller, Doster, Sohn et al., 2020; Petri, Palagini, Bacci et al., 2017, Noval-Eyal et al., 2023). In theory, assuming that a mother's bond with her prenatal child may have protective properties against stress allows one to see the mother-child dyad differently, which is most often viewed from the perspective of the child's well-being. In practice, creating a good prenatal bond between a mother and her unborn baby, among many other benefits, can help the pregnant woman cope with stress. A second important factor that has a positive impact on the psychological state of pregnant women is a good relationship with the partner/husband and the support received mainly from the family. It is also important to take into account that pregnant women experience stress that stems from the pregnancy itself

(Ibrahim, Lobel, 2020; Penner, Rutherford, 2022) and relates to the physical symptoms of pregnancy, changes in the body, changes in interpersonal relationships, the health of the fetus or the mother, the impending birth or caring for the baby (Alderdice et al. 2012; Ibrahim et al. 2020). Therefore, pregnant women should be offered individual and holistic care, diagnosing factors that trigger negative emotions and offsetting them by enhancing factors that positively influence mood and emotions.

4. Study limitations

The first limitation of the study may be due to the fact that the study group represented only the eastern part of Poland and therefore may not be representative of the entire population of pregnant women in Poland. The second limitation of the study may be due to the convenient sampling method of selecting participants due to their convenient accessibility and proximity. This does not allow us to generalise the results of the study. The results of our study indicate the need for further research in this area.

Conclusions

1. The stage of pregnancy does not significantly alter women's mood, however, a slight increase in positive mood is observed in the 3rd trimester of pregnancy and higher intensity of negative mood is observed in the 1st trimester of pregnancy.
2. A higher intensity of negative emotions applies to women of low material status, less educated, who are under 25 years of age and who live in rural areas.
3. Support from a partner/relative has a significant impact on the emotions felt and expressed during pregnancy. Negative emotions during pregnancy are mainly experienced by women who have lost three or more babies due to miscarriage, premature birth or stillbirth.
4. Further research to identify stressors in pregnant women seems warranted in order to individualise professional care for this group of women.

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