

## ANALYZING THE QUALITY OF LIFE AND EMOTIONAL STATE OF PREGNANT WOMEN

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### RESUME

*Pregnancy is an important stage in a woman's life, accompanied by significant physiological and psychological changes. During this period, the psychoemotional state of a pregnant woman is influenced by many factors, among which the quality of life and family relationships occupy a special place.*

**The aim.** To assess the impact of quality of life and family relationships on the psychoemotional state of pregnant women.

**Materials and methods.** The study involved 78 pregnant women who were registered for pregnancy and childbirth at the KSC RAS hospital in Apatity, Murmansk region in 2023–2024 and gave birth at the beginning of December 2024. The average age was  $31.3 \pm 0.8$  years. The control group included 58 non-pregnant women, mean age  $32.7 \pm 0.6$  years. We used the SF-36 questionnaire and the pregnant woman questionnaire developed by the Central Research Institute of Healthcare Organization and Informatization of the Russian Ministry of Health.

**The results.** The results showed that the physical function ( $r = 0.48, p < 0.05$ ) has an effect on the pregnant woman's psychological state. Fatigue affects sleep quality ( $r = 0.35, p < 0.001$ ) and increases anxiety ( $r = 0.43, p < 0.001$ ). Intra-familial relationships ( $r = -0.42, p < 0.05$ ) have a significant influence on the emotional background of pregnant women. Support of the partner, harmonious relations in the family contribute to reduce stress and increase the level of psychological comfort. In addition, there is a relationship between psycho-emotional condition and family status ( $r = 0.36, p < 0.05$ ), number of children ( $r = -0.32, p < 0.05$ ) and average per capita income ( $r = -0.31, p < 0.05$ ). The emotional background of the pregnant woman is negatively impacted by complicated obstetric anamnesis, including miscarriages, complicated abortions, infectious and inflammatory diseases during pregnancy, and exacerbation of chronic extragenital diseases.

**Conclusion.** To improve the psychoemotional state of a pregnant woman, full-fledged psychological support is necessary at all stages of pregnancy and childbirth, including consultations and trainings with the development of social support measures and strengthening the institution of the family.

**Keywords:** pregnancy, psychological well-being, quality of life, family relationships

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## ОЦЕНКА КАЧЕСТВА ЖИЗНИ И ПСИХОЭМОЦИОНАЛЬНОГО СОСТОЯНИЯ БЕРЕМЕННОЙ ЖЕНЩИНЫ

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### РЕЗЮМЕ

*Беременность представляет собой важный этап в жизни женщины, сопровождающийся значительными физиологическими и психологическими изменениями. В этот период на психоэмоциональное состояние беременной оказывают влияние множество факторов, среди которых особое место занимают качество жизни и внутрисемейные отношения.*

**Цель.** Оценить качество жизни и психоэмоциональное состояние беременных женщин.

**Материалы и методы.** В исследовании приняло участие 78 беременных женщин, вставших на учет по беременности и родам в больницу КНЦ РАН, г. Апатиты Мурманской области в 2023–2024 гг. и родивших на начало декабря 2024 г. Средний возраст составил  $31,3 \pm 0,8$  лет. Контрольную группу составили 58 небеременных женщин, средний возраст  $32,7 \pm 0,6$  лет. Использовали опросник SF-36 и опросник беременной женщины, разработанный Центральным научно-исследовательским институтом организации и информатизации здравоохранения Минздрава России.

**Результаты.** Анализ полученных результатов показал, что в первую очередь на психоэмоциональное состояние беременной оказывает влияние физическое функционирование ( $r = 0,48, p < 0,05$ ). Утомляемость влияет на качество сна ( $r = 0,35, p < 0,001$ ) и повышает тревожность ( $r = 0,43, p < 0,001$ ). Существенное влияние на формировании эмоционального фона беременной оказывают внутрисемейные отношения ( $r = -0,42, p < 0,05$ ). Поддержка партнера, гармоничные отношения в семье способствуют снижению стресса и повышению уровня психологического комфорта. Помимо этого, отмечена взаимосвязь между психоэмоциональным состоянием и семейным статусом ( $r = 0,36, p < 0,05$ ), количеством детей ( $r = -0,32, p < 0,05$ ) и среднедушевым доходом ( $r = -0,31, p < 0,05$ ). Также, негативное влияние на эмоциональный фон беременной оказывает осложненный акушерский анамнез (выкидыши, осложненные аборт, инфекционно-воспалительные заболевания во время беременности и обострение хронических экстрагенитальных заболеваний).

**Заключение.** Для улучшения психоэмоционального состояния беременной женщины необходимо полноценное психологическое сопровождение, на всех этапах беременности и родов, включающее в себя так же консультации и тренировки с развитием социальных мер поддержки и укреплении института семьи.

**Ключевые слова:** беременность, психоэмоциональное состояние, качество жизни, внутрисемейные отношения

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## INTRODUCTION

Pregnancy is a significant stage in a woman's life, marked by profound physiological and psychological transformations. During this time, the psychoemotional state of the expecting mother is influenced by numerous factors, with quality of life and familial relationships playing a prominent role [1]. In recent years, there has been a growing focus on the impact of a woman's mental health and emotional state on her reproductive function, pregnancy outcomes, and perinatal health [2, 3]. Typically, many women experience anxiety and stress due to the physiological, psychological, and societal changes associated with pregnancy [4]. Hormonal fluctuations during pregnancy can contribute to emotional instability, including anxiety, depression, nervous tension, and other adverse emotions, which may result in various pathological conditions in the fetus and infant [5, 6]. Antenatal depression and anxiety have been linked to not only influencing birth outcomes, such as preterm birth and low birth weight, but also impacting maternal postnatal mental health and infant development [7].

Various studies have demonstrated that the incidence of perinatal anxiety among pregnant women in different countries is substantial, reaching up to 49 % [8-11].

There is a significant body of evidence regarding the significance of mental well-being during pregnancy. Much of this research has focused on mental health conditions such as depression and anxiety [12, 13].

Factors that influence the quality of life and thus the mental health and psychoemotional state of pregnant women vary and can have both positive and negative impacts [14]. Studies have shown that a low quality of life is linked to an increased risk of anxiety and depression during pregnancy [15].

Social relationships are believed to directly protect mental health or indirectly act as a buffer against stressors [16]. Previous studies have shown that consistent care and support from a partner and family members during pregnancy reduces the risk of depression, anxiety, and other mental health issues [17, 18]. Japanese researchers Ogawa A. et al. found that pregnant women who have husbands experience greater psychoemotional comfort [19]. Partner support and positive family relationships contribute to reduced stress and increased psychological comfort. In contrast, conflicts, emotional distance from a partner, and an unfavorable family environment can exacerbate symptoms of anxiety and depression.

Employment and working conditions during pregnancy can significantly affect the psychoemotional state of expectant mothers [20]. A study conducted in India found that unemployed women experienced lower levels of anxiety and were at a lower risk of depression [21]. Data from developed countries suggests that employment can have a protective effect against stress and depression [22, 23].

Despite a significant amount of research on the quality of life and family relationships of pregnant women, the complex impact of these factors on their psychoemotional state remains an area requiring further investigation. This study seeks to examine the correlation between quality of life, familial relationships, and psychoemotional states among pregnant women. It may also contribute to the development of targeted psychological support interventions for this vulnerable population group.

## THE AIM OF THE STUDY

To assess the quality of life and psychoemotional state of pregnant women.

## MATERIALS AND METHODS

The study involved 78 pregnant women who were enrolled at the hospital affiliated with the Kola Science Center of the Russian Academy of Sciences between 2023 and 2024 and who gave birth before the beginning of December 2024. The mean age of the participants was  $31.3 \pm 0.8$  years. A control group of 58 non-pregnant women was also included, with the mean age of  $32.7 \pm 0.6$  years. The study was conducted in accordance with the guidelines and regulations for biomedical research ethics outlined in the Helsinki Declaration of the World Medical Association on Ethical Principles for Medical Research (2013). The research was approved by the Ethics Committee of the Biomedical Adaptation Center for Arctic Human Ecology, a branch of the KSC RAS (protocol No. 1/2022, dated March 15, 2022). All participants provided written informed consent for voluntary participation in the study.

The study utilized the SF-36 Health Status Survey, which was translated into Russian and validated by staff from the St. Petersburg Institute of Clinical Pharmacology Research [24]. The questionnaire specifically designed for pregnant women was developed by the Central Research Institute for Healthcare Organization and Information Technology [25].

Statistical analysis was conducted using the STATISTICA 10.0 software (TIBCO Software Inc., USA). The significance of differences between identical parameters in different study groups was compared using non-parametric methods, specifically the Mann-Whitney test for independent samples. A *p*-value of 0.05 was considered statistically significant. The Spearman's correlation coefficient (*r*-Spearman's) was used to assess the strength and direction of relationships between variables.

## THE RESULTS OF THE STUDY

Over a period of two years (2022–2023), a total of 127 pregnant women were examined at the Kola Science

Center hospital of the Russian Academy of Sciences, of which 123 (96.7 %) were registered for pregnancy and 4 (3.3 %) underwent abortions. As of early December 2024, 78 women (66.7 %) have given birth, while 6 (5.1 %) experienced miscarriages during early pregnancy, leaving 33 women (28.2 %) scheduled to give birth in the year 2025.

The average age of the participants in the study was  $31.3 \pm 0.8$  years, ranging from 19 to 44 years. Of these, 44.9 % of the women were primiparas, with an average age of  $29.6 \pm 4.2$  years, ranging from 19 to 36 years. At the time of the study, the pregnant women were between 15 and 33 weeks of pregnancy (second and third trimesters), with a median (Me) of 25 weeks.

All participants were urban residents with a secondary vocational education (25.8 %) or higher education (74.2 %). More than 90 % were in a registered or de facto marriage. Almost all participants reported a positive family environment, free from any form of violence (economic, psychological, physical, and sexual) (97.8 %), and normal living conditions (95.6 %). Among women, 55.6 % reported nicotine addiction in their partners' fathers, and 2.2 % reported alcohol abuse. A total of 73.1 % stated that they did not have any bad habits, and 17.9 % quit smoking during their pregnancy (Table 1).

An analysis of the attitudes of husbands and partners towards pregnant women and their unborn children has revealed that 76.9 % of women reported a positive attitude towards themselves and 88.5 % towards their unborn child. However, one woman reported a negative attitude towards herself and her child, in addition to her partner's intention to leave her. Additionally, approximately 30 % of pregnant women reported a change in their employers' attitude towards them after they informed them of their pregnancy (Table 2).

Analysis of the quality of life among pregnant and non-pregnant women, using the SF-36 questionnaire, revealed significant differences between the two groups on individual parameters (Table 3).

Specifically, significant differences were observed in the following physical health parameters:

1. Physical functioning (PF,  $U = 98.0$ ;  $p < 0.04$ ), which measures the degree of limitations in performing various physical activities, including self-care, mobility, climbing stairs, and lifting heavy objects;

2. Role functioning (RP,  $U = 85.0$ ;  $p < 0.025$ ), which reflects the impact of physical fitness on the ability to perform everyday social and work-related responsibilities.

Differences in mental health parameters were observed between the compared groups for the following variables:

1. Role functioning related to emotional state (RE,  $U = 85.0$ ;  $p < 0.025$ ), which reflects the extent to which daily activities (including work-related responsibilities) are limited due to emotional difficulties, as manifested by decreased productivity, increased time spent, and reduced quality of work;

2. Mental health (MH,  $U = 77.0$ ;  $p < 0.013$ ), which encompasses aspects of the affective sphere such

as anxiety levels, presence of depressive symptoms, and overall emotional state.

An analysis of the physical condition of pregnant women based on the results of the "Pregnant Women's Questionnaire" [25] revealed that only 44.4 % were able to maintain their work capacity; most women experienced a reduction in performance or a lack of desire to work. Nearly all pregnant women reported feelings of fatigue: 44.9 % after prolonged exertion, and 31.1 % after significant physical activity. Approximately 70 % experienced shortness of breath while climbing 3–4 flights of stairs, and 11.1 % experienced it during any activity. No more than 13.4 % reported frequent headaches (Fig. 1).

An analysis of psychoemotional states of pregnant women revealed that 64 % reported sleep disturbances, with 2 % experiencing nightmares. Approximately 51 % rated their mood as variable, and 66 % described themselves as easily upset and tearful. A minority of 14 % expressed unreasonable anxiety, while 5 % expressed concerns about their ability to provide for their child and family. Only 42 % did not report any fears, while the remaining 58 % expressed at least one form of anxiety, including fear of childbirth (for first-time mothers), worry about the health of their child, concern about their appearance, and fear of job loss (Fig. 2).

Spearman's correlation analysis revealed a significant association between physical functioning and psychoemotional state parameters ( $r = 0.48$ ,  $p < 0.05$ ). In particular, the psychoemotional state measures showed a relationship with physical functioning, particularly sleep disturbances ( $r = 0.35$ ,  $p < 0.001$ ) and anxiety ( $r = -0.34$ ,  $p < 0.001$ ). Additionally, individual psychoemotional state parameters correlated with fatigue and shortness of breath (Fig. 3).

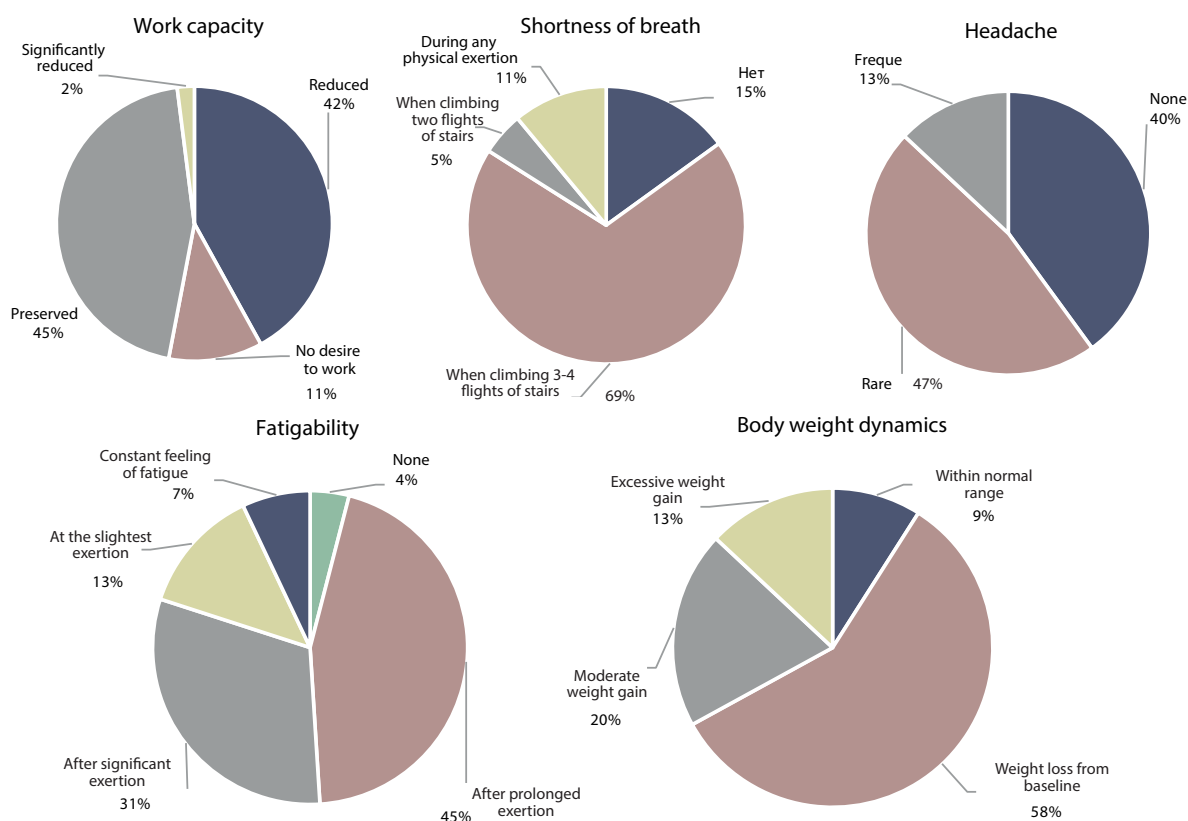
In addition, a correlation was observed between the psychoemotional state and the "Attitude towards the mother and the unborn child" block ( $r = -0.42$ ,  $p < 0.05$ ). Anxiety was influenced by the following factors: "the attitude of relatives from the mother's and father's sides towards the pregnant woman and her unborn child" ( $r = -0.49$ ,  $p < 0.05$  and  $r = -0.36$ ,  $p < 0.05$ , respectively), as well as "the attitude of the management at work towards the pregnant employee" ( $r = -0.48$ ,  $p < 0.05$ ) (Fig. 3).

Among other assessment criteria, the following relationships were noted: marital status and anxiety ( $r = 0.36$ ,  $p < 0.05$ ); fears, sleep disturbances, and the number of children ( $r = -0.42$ ,  $p < 0.05$  and  $r = -0.32$ ,  $p < 0.05$ , respectively); and per capita income and anxiety ( $r = -0.31$ ,  $p < 0.05$ ).

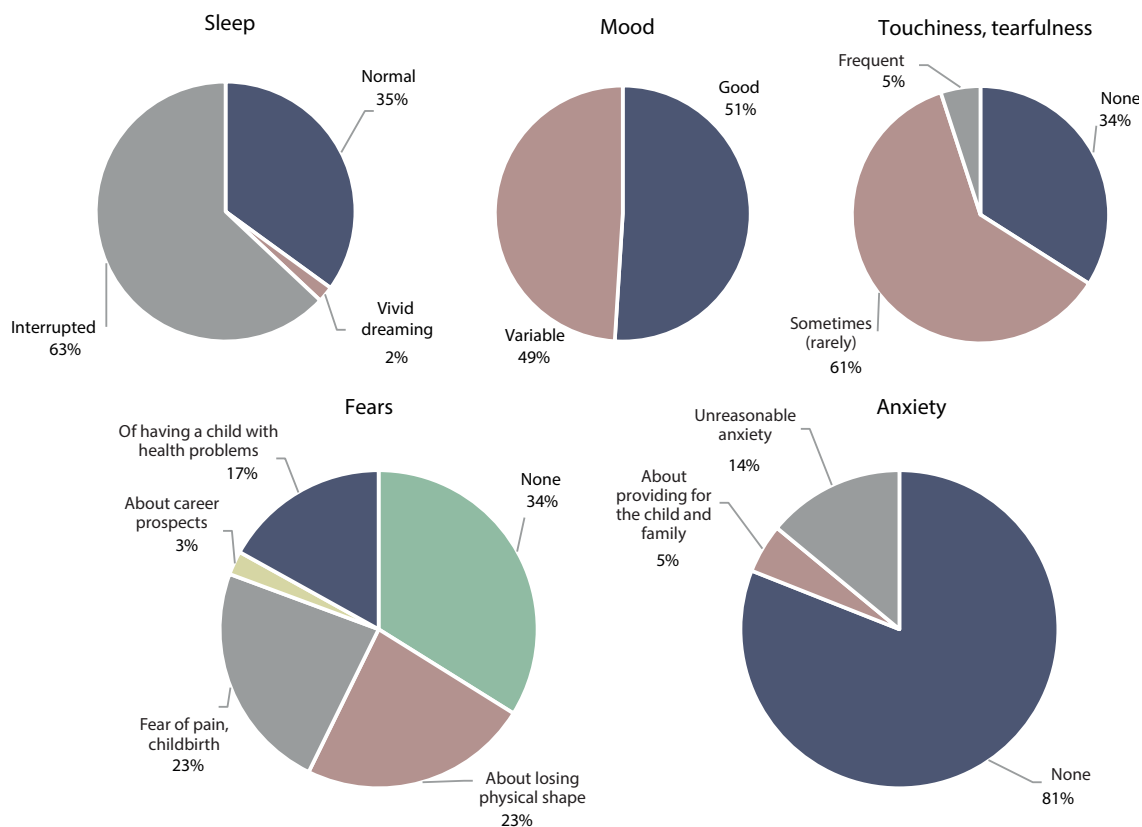
Among women registered for pregnancy at the Kola Scientific Center of the Russian Academy of Sciences, 28.2 % had a history of complications in previous pregnancies (miscarriages, stillbirths, or complicated abortions) (Table 4). In addition, 11.5 % had chronic gynecological conditions such as endometritis or oophoritis in their medical history. During pregnancy, 9.0 % of women reported experiencing acute infectious

**TABLE 1**  
**SOCIAL FUNCTIONING AND LIVING CONDITIONS OF PREGNANT WOMEN, %**

Parameters	n=78	%
<b>Age, years</b>		
<25	10	12.8
25–30	19	24.4
31–35	25	32.1
36–40	24	30.8
<b>Marital status</b>		
Married	62	79.5
De facto marriage	10	12.8
Visiting partner	0	0.0
Single, living with relatives	0	0.0
Single, living alone (without support)	6	7.7
<b>Maternal employment status</b>		
Homemaker (before and during pregnancy)	14	17.9
Stopped working during pregnancy	30	38.5
Continued working during pregnancy	34	43.6
<b>Family composition</b>		
No children	35	44.9
Has one or two children	36	46.2
Has three or more children	7	9.0
Has a child with a disability	0	0.0
<b>Per capita monthly family income, based on municipal data for 2024</b>		
Below the subsistence minimum (25,390 RUB)	0	0.0
25,390 to 30,000 RUB	24	30.8
31,000 to 40,000 RUB	21	28.2
More than 41,000 RUB	33	42.3
<b>Housing conditions</b>		
Standard living conditions	45	57.7
No separate bedroom for the couple	3	3.8
Substandard housing (lacking amenities, damp, or cold)	0	0.0
<b>Family environment</b>		
Positive	70	89.7
Conflictual situation	8	10.3
<b>Father's characteristics:</b>		
Smoker	49	62.8
Drinks alcohol	8	10.3
Unemployed (has a disability)	0	0.0
Drug user	0	0.0
<b>Maternal substance use</b>		
None	57	73.1
Former smoker (quit before pregnancy)	14	17.9
Currently smoking during pregnancy	7	9.0
Consumes alcohol (e.g., vodka, beer) at least once every two weeks	0	0.0
Consumes alcohol more than once every two weeks / Uses narcotic substances	0	0.0



**FIG. 1.**  
Assessment of the physical condition of pregnant women



**FIG. 2.**  
Assessment of the psychoemotional state of pregnant women

or inflammatory conditions (ARIs or bronchitis). Approximately 40 % had extragenital pathologies (EGPs), with hypertension and gastritis being the most common conditions. Complications during pregnancy occurred in 52.6 % of cases, including edema, polyhydramnios (excess amniotic fluid), threatened miscarriage (associated with bleeding), high blood pressure, and first-trimester toxicosis.

A correlation analysis between the “morbidity of pregnant women” block and the psychoemotional state revealed a relationship between anxiety and miscarriages complicated by abortion ( $r = 0.42, p < 0.006$ ); infectious and inflammatory illnesses (ARI) during pregnancy ( $r = 0.32, p < 0.05$ ) and exacerbation of chronic extragenital diseases ( $r = 0.42, p < 0.05$ ).

## DISCUSSION

Factors influencing the quality of life (QoL) of pregnant women are diverse and can have both positive and negative effects. As an integrated measure, QoL provides an effective and informative method for assessing the overall health of a population and specific subgroups.

According to available data, one of the main factors positively influencing the QoL of pregnant women is support from a spouse and relatives [26]. Negative factors include physical symptoms [27, 28], as well as depression, anxiety, and fatigue [29]. These factors reflect the levels of physical, mental, and social adjustment of the pregnant woman and can be considered emotional and behavioral characteristics of high-risk pregnancies. They can also be used to measure the level of adaptation and assess individual behavior.

According to the literature, physical activity in pregnant women may be restricted by their health condition. In their study, Litvinova A.A. et al. [29] showed that among pregnant women, the “Physical Functioning” (PF) score was rather low, at  $43.78 \pm 2.3$ , compared to a control group score of  $74.15 \pm 4.8$ . In our study, we identified differences between pregnant women and a control group in two components of the “Physical Functioning”: PF was  $63.1 \pm 3.4$  for pregnant women versus  $89.3 \pm 2.9$  for the control, and “Role Functioning” RP was  $63.2 \pm 2.8$  for pregnant women and  $85.8 \pm 3.1$  for the control.

The course of pregnancy may be indirectly influenced by a number of factors, including the mother’s psychological state (psychosomatic condition), living conditions, and family relationships [25]. An analysis of the data collected revealed that housing conditions may influence the incidence of infectious and inflammatory illnesses (ARI) during pregnancy ( $r = 0.66, p < 0.035$ ).

## CONCLUSIONS

Therefore, an analysis of the findings suggests that physical functioning, which plays a significant role

**TABLE 2**  
**THE ATTITUDE OF OTHERS TOWARDS THE MOTHER AND THE UNBORN CHILD, %**

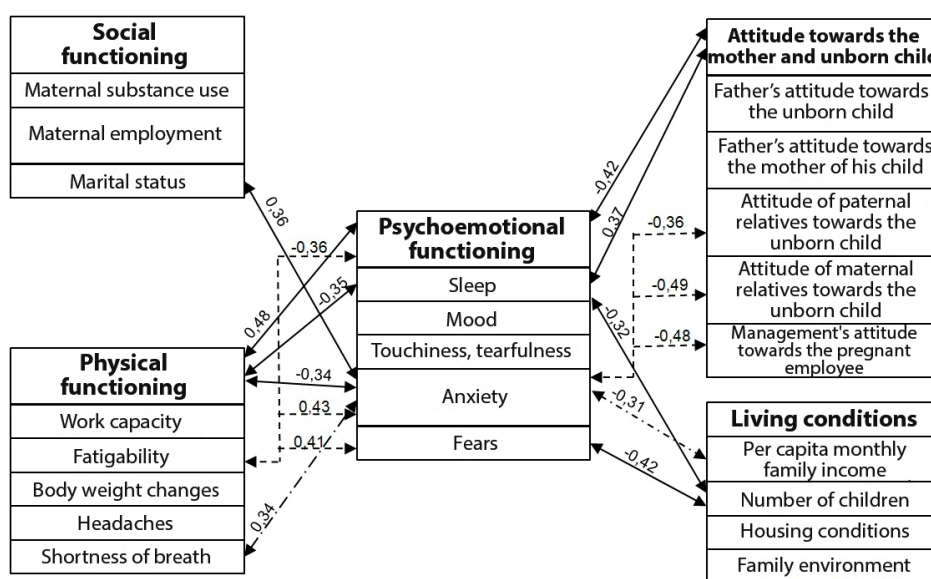
Parameters	n=78	%
<b>Father's attitude towards the unborn child</b>		
Positive	69	88.5
Indifferent	8	10.3
Fearful	0	0.0
Negative	1	1.3
Insists on termination of pregnancy	0	0.0
<b>Father's attitude towards the mother of his unborn child</b>		
Attentive	60	76.9
Absent due to work	3	3.8
Provides no support	4	5.1
Constantly dissatisfied	10	12.8
Leaves the mother of his unborn child	1	1.3
<b>Attitude of maternal relatives towards the expectant mother and her unborn child</b>		
Positive	60	76.9
Overprotective	1	1.3
Overly critical and opinionated	16	20.5
Worried about additional burdens	1	1.3
Unwilling to have the child in the home	0	0.0
<b>Attitude of paternal relatives towards the expectant mother and her unborn child</b>		
Positive	62	79.5
Overprotective	12	15.4
Overly critical and opinionated	1	1.3
Worried about additional burdens	3	3.8
Unwilling to have the child in the home	0	0.0
<b>Management's attitude towards the pregnant employee</b>		
Positive	52	66.7
Increased fault-finding	19	24.4
No transfer to light-duty work	6	7.6
Reduced payments	1	1.3
Termination of employment	0	0.0

and has a negative impact on emotional well-being, predominantly influences the psychoemotional state of pregnant women. A decrease in psychoemotional state primarily results from increased fatigue, which manifests itself in reduced physical activity in daily life and an overall deterioration in health, leading to sleep disturbances, the development of anxiety and depressive disorders, and heightened anxiety.

The family environment, particularly that of a woman's parents and extended family, as well as the attitude of her employer, significantly influence her psychoemotional state during pregnancy. Family relationships are critical in shaping a pregnant woman's emotional state. The support of a partner and harmonious family relationships can reduce stress and promote psychological well-being, while conflicts, emotional distance from a partner, and an unfavorable family environment can exacerbate anxiety and depression. Marital status, the number of children in the family, and per capita income all have an impact on a woman's experience of pregnancy. A family's financial stability is directly linked to the quality of a pregnant woman's life. Low income can limit access to healthcare, healthy nutrition, and adequate living conditions, increasing stress and negatively impacting her psychological well-being.

An analysis of the "morbidity of pregnant women" block revealed that the most significant negative impact on their psychoemotional state (specifically, anxiety and fear) was exerted by a complicated obstetric history, including miscarriages and complications from abortions ( $r = 0.42, p < 0.006$ ). Additionally, infectious and inflammatory diseases during pregnancy (ARI) ( $r = 0.32, p < 0.05$ ), as well as exacerbations of chronic extragenital conditions ( $r = 0.42, p < 0.05$ ), also had a significant impact on the women's mental health.

To improve the psychoemotional state of pregnant women, it is essential to provide comprehensive medical support throughout all stages of pregnancy and child-birth. This includes psychological counseling and support programs, as well as the development of measures to strengthen social support for women and the institution of family.



**FIG. 3.** The relationship between the quality of life and the psychological state of a pregnant woman

**TABLE 3**  
**AVERAGE VALUES OF SF-36 TEST SCALES BY GROUPS**

Parameters	Pregnant women (n=78)	Control group (n=58)
Physical health component scales	PF	61.3
	RP	63.2
	BP	76.4
	GH	62.9
Mental health component scales	VT	78.1
	SF	80.7
	RE	64.1
	MH	47.3

Note. Significance level \*  $p < 0.05$ ; Mann-Whitney test.

**TABLE 4**  
**FACTORS COMPLICATING THE COURSE**  
**OF PREGNANCY, %**

Parameters	n=78	%
Complicated obstetric history:	22	28.2
miscarriages	15	19.2
recurrent pregnancy loss	3	3.8
complicated abortions	4	5.1
Chronic gynecological inflammatory diseases:	9	11.5
endometritis	6	7.7
oophoritis	3	3.8
Infectious and inflammatory diseases during pregnancy:	7	9.0
acute infectious and inflammatory diseases (ARVI and bronchitis)	5	6.4
exacerbation of chronic inflammatory diseases during pregnancy	2	2.6
Chronic extragenital diseases (EGD):		
anemia, hypertension, gastritis, asthma	31	39.7
exacerbation of EGD during pregnancy	19	24.4
Pregnancy complications:	41	52.6
edema and polyhydramnios	34	43.6
threatened miscarriage (bleeding)	27	34.6
high blood pressure (>140 mmHg)	24	30.8
first-trimester toxicosis	17	21.8
injuries, surgeries during pregnancy	0	0.0

#### Conflicts of interest

The authors declare no conflicts of interest.

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