

Research article

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Socioeconomic Risk Factors for Postpartum Depression and Postpartum Post-Traumatic Stress Disorder

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Abstract

Introduction. Postpartum depression and postpartum post-traumatic stress disorder (PTSD) are common disorders during perinatal period. They can significantly reduce the quality of life of the mother and have long-term consequences for her psychological well-being and her child's development. This is the first study where socioeconomic characteristics, namely family's economic status, place of childbirth, and the type of childbirth healthcare plan for childbirth, are explored in the context of elevated risk for postpartum depression and PTSD in the Russian sample. **Methods.** The study included 2,579 women aged 18–43 years who gave birth within 12 months prior to the survey. Depression was assessed using the Edinburgh Scale of Postpartum Depression and postpartum PTSD was measured using the City Birth Trauma Scale. In addition, information on demographic and obstetric characteristics was collected. **Results.** Statistically significant differences were found in the severity of symptoms of postpartum depression ($F = 13.678$, $p < 0.001$) and postpartum PTSD ($F = 10.235$, $p < 0.001$) depending on the economic status of the mother. There were also significant differences in the severity of symptoms of postpartum depression ($F = 10.780$, $p < 0.001$) and postpartum PTSD ($F = 10.410$, $p < 0.001$) depending on the type of childbirth healthcare plan (childbirth in a specialized maternity care hospital under state insurance/childbirth in a specialized maternity care hospital with a paid contract and option for a birth team of choice/home birth). There were no differences in the severity of symptoms of either postpartum depression or postpartum PTSD depending on the place of childbirth (rural area, urban settlement, city) ($F = 0.021$, $p = 0.979$, $F = 0.685$, $p = 0.504$, respectively). **Discussion.** The results of this work are consistent with previous studies in Russia and other countries, indicating the importance of socioeconomic factors in the etiology of postpartum depression and PTSD. The development of mental health support programs for women with low economic status during pregnancy, childbirth, and postpartum period may become promising avenues for the prevention of postpartum depression and PTSD.

Keywords: postpartum depression, socioeconomic factors, social factors, economic status, perinatal disorders, maternal depression, childbirth experience, perinatal period, risk factors

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Introduction

Perinatal period is associated with an increased risk of developing mental disorders (Pawluski, Lonstein, Fleming, 2017). One of the most common and dangerous disorders is postpartum depression (PPD). According to statistics, 10 to 26% of women experience PPD (Shorey et al., 2018). According to our previous studies in Russia, the prevalence of the disorder is up to 30% (Yakupova & Suarez, 2021). PPD is associated with increased risk of suicide (Shi et al., 2018; Mangla, 2019), difficulties in bonding between mother and child (Oyetunji & Chandra, 2020), shorter breastfeeding period (Silva et al., 2017). Infants of women with PPD are significantly more often have health problems, sleep disorders, and delayed motor, cognitive, linguistic, social, and emotional development (Slomian et al., 2019; Aoyagi & Tsuchiya, 2019).

Risk factors for PPD include a history of depression, emotional and physical abuse by a partner, belonging to an ethnic minority, poverty and financial difficulties, unwanted pregnancy, and traumatic birth experience (Perry, Ettinger, Mendelson, Huynh-Nhu, 2011; Thomas & Schetter, 2022; Choi, Mersky, Janczewski, Goyal, 2022; Cankaya & Atas, 2022). Many studies have noted that the lack of social support can increase the risk of depression (Abenova, Mysayev, Kanya, Turliuc, Jamedinova, 2022; Shin et al., 2020).

According to the review studies, post-traumatic stress disorder (PTSD) following childbirth is as common as PPD, with prevalence ranging from 3 to 33% in different countries (Grekin & O'Hara, 2014; Dickmen-Yildiz, Ayers, Phillips, 2016). However, postpartum PTSD caught researchers' interest relatively recently (Grekin & O'Hara, 2014). Risk factors for postpartum PTSD include complications during childbirth, danger to the child's life, obstetric violence, low socioeconomic status, belonging to an ethnic minority, lack of access to high-quality medical care, lack of support during labor, fear of childbirth, previous traumatic experience (Freedman, Reshef, Weiniger, 2020; Dickmen-Yildiz, Ayers, Phillips, 2018).

Postpartum PTSD, as well as PPD, has negative impact on child's development and mother's life quality. Postpartum PTSD can affect the quality of daily functioning, the process of bonding, and the ability to cope with parental stress (Dekel et al., 2019; Romero et al., 2021). Similar to PPD, postpartum PTSD is associated with lower rates of breastfeeding (Cook, Ayers, Horsch, 2018; Garthus-Niegel et al., 2018) and difficulties in attachment formation between mother and child (Handelzalts et al., 2021).

As noted above, childbirth experience plays a significant role in the likelihood of developing PPD and PTSD. In addition to medical complications and a child's health problems, there are also psychological factors of traumatic birth experience. Thus, women who face obstetric violence during childbirth with multiple medical interventions are significantly more likely to experience symptoms of PTSD following childbirth (Yakupova & Suarez, 2022; Simpson & Catling, 2016;

Martinez-Vazques, Rodriguez-Almagro, Hernandez-Martinez, Martinez-Galiano, 2021).

Psychological safety and comfort during childbirth largely depend on the conditions of the childbirth facilities and the characteristics of the maternity care system. Russian maternal and child healthcare system is currently undergoing structural and value-based changes (Borozdina & Novkunskaia, 2022); it is becoming more humanistic and patient-orientated. The demand for agency on the part of patients is also increasing, with many women actively defending their rights during childbirth and making their needs visible (Kuksa, 2021; Ozhiganova, 2020). However, the opportunities for support during labor are still limited and the problems of ethical communication with patients is still present (Temkina et al., 2021). Furthermore, the presence of a doula or a private midwife during labor is available only with a paid contract with the maternity hospital (Kuksa, 2021). Moreover, the possibility of support depends significantly on the region and the particular maternity hospital where the birth takes place (Ozhiganova, Molodtsova, 2020; Kuksa, 2021). During the pandemic, opportunities to accompany pregnant women during labor were limited in even for the father of the child many maternity hospitals (Ozhiganova, Molodtsova, 2020). Such restrictions have negatively affected the mental health of mothers around the world (Gao et al., 2022).

To date, convincing evidence indicates the importance of supportive healthcare providers for a woman's satisfaction with childbirth and improvement of their outcomes (Futch Thurston, Abrams, Dreher, Ostrowski, Wright, 2019). It is also important to respect the childbirth plan, respond to a woman's requests, and include her in making decisions about childbirth (Hernandez-Martinez et al., 2019). The protective effects of psychological comfort and support during labor against postpartum disorders have been shown in multiple studies (Turkmen et al., 2020; Yakupova & Suarez, 2022; Falconi et al., 2022). However, often considering the woman's requests during childbirth and the possibility of support is available only when a paid contract is concluded in the maternity hospital (Kuksa, 2021). Thus, the role of socioeconomic factors in reducing the potential risks of postpartum disorders becomes evident.

Medical anthropologists are actively studying the transformation of the healthcare system and new patient needs. However, these changes remain outside the field of research of psychologists, and the question of their association with the psychological comfort of women remains open.

PPD and PTSD are complex conditions that are affected by many factors, both genetic and social. Both disorders have long-term consequences for mother's quality of life and her child's development. The childbirth experience plays an important role in the development of PPD and postpartum PTSD. It is important to investigate these disorders in the context of socioeconomic factors in Russia and consider the unique characteristics of its healthcare system. There are no such studies to date, and no opportunities to rely on any statistical data. They need to be obtained not only for the development of fundamental science, but also for consideration of possible practical applications, improvement of the maternity care system and perinatal support for women. The purpose of this study is to investigate the relationship between the risks of PPD and PTSD and the following variables: family income level, place of childbirth (city, urban settlement, or rural area), and types of childbirth healthcare plan (childbirth in a specialized maternity care hospital under state insurance, childbirth in a specialized maternity care hospital with a paid contract and option for a birth team of choice, home birth).

Methods

Study design

The study took place from May to September 2022. Women were invited to participate in the study via courses for expectant parents, parent communities, polyclinics, and maternity hospitals. The web-based survey was conducted using the 'Testograph' online tool. The study involved 2,579 women aged 18 to 43 years. The criteria for inclusion in the study were: age over 18 years, proficiency in Russian language, childbirth in Russia, and childbirth that occurred no more than a year ago. Exclusion criteria included age under 18, childbirth outside of Russia, more than a year since childbirth, and antenatal death of the child.

Ethical considerations

The study was approved by the Ethical Committee of the Russian Psychological Society. Participation in the study was voluntary, and only women over the age of 18 were included. The survey was conducted online using the 'Testograph' platform. Prior to the survey, the participants confirmed that they were 18 years or older and provided informed consent to participate in the study.

Methods

Socio-demographic and obstetric characteristics

We asked the study participants to provide socio-demographic data: the mother's age at the time of the study, the child's age (months), the number of children, the status of family relations (married, cohabiting with a partner, single, divorced, in relationship without cohabiting), the level of education (primary, secondary, higher). We also asked the participants to mark the place of childbirth (city, urban settlement, or rural area) and indicate their family income level in comparison to other residents of the area they live in (low, middle, high).

Information about childbirth was collected: gestational week at birth, type of childbirth (vaginal birth, instrumental birth, emergency caesarean birth, planned caesarean birth), what was the type of childbirth healthcare plan (childbirth in a specialized maternity care hospital under state insurance, childbirth in a specialized maternity care hospital with a paid contract and option for a birth team of choice, home birth).

Postpartum depression

PPD was measured using the Russian version of Edinburgh Postnatal Depression Scale (Cox, Holden, Sagovsky, 1987) in Yakupova's adaptation (2018). The scale consists of 10 statements, which are rated using a 4-point scale (from 0 to 3). Thirty points are the maximum score, and ten points are considered a cut-off point for clinically relevant symptoms of depression. The Russian version of the Edinburgh Scale demonstrated high reliability ($\alpha = 0.87$) (Yakupova, 2018).

Postpartum PTSD

To assess postpartum PTSD, we used the Russian version of the City Birth Trauma Scale (Ayers, Wright, Thornton, 2018) in Yakupova's adaptation (2020). The scale consists of 29 questions that meet the DSM-5 criteria. The respondent is asked to estimate the frequency of symptoms over the last week on a scale from 0 ('never') to 3 ('5 or more times'). A higher score corresponds to more pronounced symptoms of PTSD. Questions related to criterion A of the DSM-5 are evaluated as 'yes/no'. Stress, disruption of daily functioning, and possible physical reasons of the

symptoms of PTSD are evaluated as 'yes/no/partly'. The Russian version of the City Birth Trauma Scale demonstrated high reliability ($\alpha = 0.89$) (Yakupova, 2020).

Statistical analysis

We investigated the relationship between the severity of symptoms of PPD and postpartum PTSD and the level of education, marital status, place of childbirth, socioeconomic status, type of childbirth healthcare plan (state insurance, paid contract, home birth) and type of childbirth using ANOVA. We analyzed the correlation between symptoms of PPD and postpartum PTSD and the age of the participants, gestational age, time after childbirth (months), and the number of children using linear regression.

We studied the relationship between the place of childbirth, type of childbirth, socioeconomic status, and type of childbirth healthcare plan using Pearson's Chi-square.

All statistical procedures were adjusted for covariates: maternal age at childbirth, the level of education, marital status, the time after childbirth, gestational age, and the place of childbirth.

Statistical analysis was performed using SPSS Statistics 25 software.

Table 1

Sample characteristics

Characteristics	Study Participants (n=2579)		
	Mean/ N	SD/%	Range
Age	31.14	6.92	18-43
Education	Primary	44	1.7
	Secondary	185	7.2
	Higher	2350	91.1
Marital status	Married	2366	91.7
	Cohabiting with a partner	131	5
	Single	20	0.7
Marital status	Divorced	31	1.2
	Have a non-cohabiting partner	20	0.7

Characteristics	Study Participants (n=2579)		
	Mean/ N	SD/%	Range
Time since childbirth	5.48	3.51	0-12
Gestational age at birth	39.58	1.69	24.0-43.0
Type of childbirth	Vaginal birth	18.81	72.9
	Emergency caesarean birth	407	15.8
	Planned caesarean birth	227	8.8
	Instrumental birth	64	2.5
Place of childbirth	City	23.77	92.2
	Urban settlement	108	4.2
	Rural area	94	3.6
Number of children	1	1627	63
	2	700	27.3
	3+	252	9.7
Type of childbirth healthcare plan	Childbirth in a specialized maternity care hospital under state insurance	1523	59.1
	Childbirth in a specialized maternity care hospital with a paid contract and option for a birth team of choice	984	38.1
	Home birth	72	2.8
Postpartum PTSD scale	15.79	10.08	0-53
Postpartum depression scale	9.08	6.15	0-30
Socioeconomic status	Low	258	10.1
	Middle	1699	66.2
	High	607	23.7

Results

The socio-demographic and obstetric characteristics of the sample are presented in Table 1 (Table 1).

Most of the participants are women with higher education, living in cities, and officially married. According to the postpartum depression screening scale, 37.4% have clinically significant depressive symptoms, 45.9% of study participants have severe symptoms of postpartum PTSD, and 16% of women meet all criteria for postpartum PTSD diagnosis according to DSM - V.

Symptoms of PPD and PTSD are significantly correlated ($\rho = 0.651$, $p < 0.001$). Furthermore, severity of PPD symptoms is negatively correlated with age ($B = -0.071$, 95% CI 0.15; -0.04, $p < 0.001$) and gestational age ($B = -0.065$, 95% CI -0.37; -0.09, $p = 0.001$). No significant associations were found between the time since childbirth and the symptoms of PPD. The level of education and marital status are significantly associated with the level of severity of symptoms of PPD ($F = 9.712$, $p < 0.001$ and $F = 6.696$, $p < 0.001$, respectively). The lowest rates of PPD are observed among women who are married and have higher education (Table 2).

The severity of symptoms of postpartum PTSD negatively correlates with maternal age ($B = -0.073$, 95% CI -0.26; -0.08, $p < 0.001$) and gestational age ($B = -0.040$, 95% CI -0.46; -0.01, $p = 0.041$). The severity of symptoms of postpartum PTSD further significantly correlates with the time since childbirth: over time, the severity of symptoms increases ($B = 0.122$, 95% CI 0.23; 0.45, $p < 0.001$).

Table 2

Mean values of postpartum depression and postpartum PTSD for the analyzed variables

Variables		Average PRD values (range 0-30)		Average PTSD values (range 0-53)	
			SD		SD
Marital status	Married	8.91	6.06	15.53	10.03
	Cohabiting with a partner	9.81	6.61	16.92	9.28
	Single	11.55	6.37	21.50	10.71
	Divorced	13.58	6.17	23.19	9.85
	Have a non-cohabiting partner	11.45	6.51	15.50	10.26
Education	Primary	11.25	6.47	18.70	11.68
	Secondary	10.66	6.40	16.04	10.90
	Higher	8.92	6.10	15.72	9.98

Variables		Average PRD values (range 0-30)		Average PTSD values (range 0-53)	
			SD		SD
Type of childbirth	Vaginal birth	8.67	5.96	14.90	9.85
	Instrumental birth	10.49	6.51	19.06	11.16
	Emergency Caesarean birth	10.03	6.39	18.48	10.31
	Planned Caesarean birth	10.09	6.49	16.98	9.60
Place of childbirth	City	9.04	6.12	15.77	10.04
	Urban settlement	9.21	6.36	14.81	10.18
	Rural area	9.15	5.96	16.35	9.96
Type of childbirth healthcare plan	Childbirth in a specialized maternity care hospital under state insurance	9.50	6.11	16.37	10.17
	Childbirth in a specialized maternity care hospital with a paid contract and option for a birth team of choice	8.54	6.11	15.10	9.82
	Home birth	6.61	5.48	11.36	8.67
Socio-economic status	Low	11.06	6.73	18.66	11.05
	Middle	9.03	5.97	15.40	9.70
	High	8.28	6.10	15.48	10.35

Marital status was also associated with the severity of symptoms of postpartum PTSD ($F = 6.684$, $p < 0.001$). Single women have the highest mean scores on the PTSD scale (Table 2). There were no significant associations between the level of education PTSD symptoms.

Place of childbirth

There were no differences in the severity of symptoms of PPD and postpartum PTSD depending on the place of childbirth (rural area, urban settlement and city) ($F = 0.021$, $p = 0.979$, $F = 0.685$, $p = 0.504$, respectively). However, there was an association between the place of childbirth and the type of childbirth healthcare plan (Pearson's Chi-square = 13.1, $p = 0.011$). Childbirth with

a paid contract in the maternity hospital is significantly more likely to take place in cities (Pearson's Chi-square = 9.622, $p = 0.008$).

Delivery format

We found significant differences in the severity of symptoms of PPD depending on the type of childbirth healthcare plan ($F = 10.780$, $p < 0.001$). The lowest PPD symptoms were in the group of women who gave birth at home (Table 2). A statistically significant association was also found between the symptoms of postpartum PTSD and the type of childbirth healthcare plan ($F = 10.410$, $p < 0.001$). The lowest postpartum PTSD symptoms were also observed in the group of women who gave birth at home (Table 2).

There is a significant association between the type of childbirth healthcare plan and type of childbirth (Pearson Chi-square = 28,873, $p < 0,001$). Accordingly, home births are predominantly vaginal (Pearson Chi-square = 27,485, $p < 0,001$). Differences in the types of childbirth, depending on whether they were provided with state medical insurance or with a paid contract with a maternity hospital, were not identified.

Types of childbirth

The severity of postpartum PTSD symptoms is significantly associated with the type of childbirth ($F = 17,968$, $p < 0,001$). The highest mean PTSD symptoms are observed in the group of instrumental birth and emergency caesarean birth (Table 2). We also found a relationship between the type of childbirth and the severity of the symptoms of PPD ($F = 7,877$, $p < 0,001$). The lowest mean PPD symptoms are observed in the vaginal birth group (Table 2).

Socioeconomic status

There were statistically significant differences in the severity of PPD symptoms depending on the socioeconomic status ($F = 13,678$, $p < 0,001$). The lowest mean PPD symptoms are observed in the group with high socioeconomic status (Table 2). Statistically significant differences were also found in the severity of postpartum PTSD symptoms, depending on the socioeconomic status of a woman ($F = 10,235$, $p < 0,001$). The highest mean postpartum PTSD symptoms are observed in the group with low socioeconomic status (Table 2).

Discussion

The purpose of the study was to investigate the association between the risks of developing PPD and postpartum PTSD, obstetric characteristics, and socioeconomic factors. The main variables were the level of family income, the place of childbirth (city, urban settlement, or rural area), and the type of childbirth healthcare plan (state insurance, paid contract, home birth).

The majority of the participants of this study have higher education, live in cities, and are officially married. 37,4 % of women have clinically significant symptoms of PPD, 45,9 % have severe symptoms of postpartum PTSD, and 16 % of women meet all DSM-V diagnostic criteria for postpartum PTSD. Data on the prevalence of postpartum PTSD are generally consistent with statistics across European countries (Grekin & O'Hara, 2014; Dickmen-Yildiz, Ayers & Phillips, 2016).

The statistics of PPD are slightly higher than those globally. A meta-analysis of 58 studies shows an average prevalence of 17% for PPD for women without a history of depression, with figures reaching 26% in the Middle East and about 8% in Europe (Shorey et al., 2018). In the

systematic review by Gelaye, Rondon, Araya, and Williams (2016), it is shown that one in four women experience PPD in middle- and low-income countries. The high rates of depression in our study may be due to the nature of the sample. It is possible that women who suffer from depression are more likely to participate in the study. In addition, there are women with and without a history of depression in our sample, which can increase the statistics. At the same time, our data suggest that PPD symptoms are significantly lower among married women with higher education, who constitute the majority of the participants in our study. Thus, unmarried women with elementary and secondary education might have even higher PPD symptoms and they are the ones driving the statistics higher. In the absence of official statistics of mental disorders, it is difficult to speculate about the true extent of the PPD prevalence. However, the problem of mental health of mothers is evident.

According to the results of our work, the frequency of PPD is associated with the marital status of the study participants. Milder symptoms were observed among women with a partner (in a legal or civil marriage, also without cohabitation). More severe symptoms were observed in divorced or single women. These observations replicate previously found associations: the marital status of a woman was found to be a risk factor for PPD in several earlier studies from different countries (Akincigil, Munch & Niemczyk, 2010; Segre et al., 2007). However, recent studies that investigate marital status as a risk factor for PPD and other mental health problems, mainly focus on distinguishing between married and single mothers and assessing the contribution of the quality of their relationship with their partners, with a special emphasis on the latter. That is, an unsatisfactory relationship with a partner or spouse is considered a risk factor for PPD (Hutchens & Kearney, 2020). The current study methodology does not allow us to assess the differences in the qualitative characteristics of family and/or partnership relations among the respondents. However, given the relevance of the topic of mental disorders following childbirth and their association with sociodemographic characteristics, it is worth highlighting the contribution of this factor in future studies. A woman raising a child without a partner may face a greater burden of caring for her baby and solving all the family problems. In turn, this load is associated with higher risk of depression (Yakupova & Liutsko, 2020).

Educational status, which is one of the most commonly used indicators of socioeconomic status, can be associated with a variety of psychiatric disorders, including depression, PPD, and PTSD (Lorant et al., 2003). At the same time, the direct correlation between the level of education and the risk of PPD varies significantly (Lane et al., 1997; Anding, Röhrle, Grieshop, Schücking & Christiansen, 2016). It may depend on other factors, such as the time and place of receiving education and cultural and biological factors in general. However, the recent major work by Matsumura, Hamazaki, Tsuchida, Kasamatsu, and Inadera (2019) demonstrated that mothers' low education is an independent risk factor for PPD. The results of our study are in line with this evidence, as at lower levels of education (elementary and secondary), the prevalence of PPD was significantly higher than among respondents with a university degree. This association may be explained by women's lower awareness of mental disorders and opportunities for their treatment (Kondirolli & Sunder, 2022). There are studies that demonstrate the association of the level of education with the self-assessment skills (Lozupone et al., 2022). The level of education may also correlate with the socioeconomic status of a woman.

Our results further show statistically significant association between socioeconomic status and PPD. These findings are consistent with research data from different countries. Parental

depression is generally correlated with poverty-related stress (McDonald, Thompson, Perzow, Joos & Wadsworth, 2020; Wadsworth et al., 2011). Zhang et al. (2022) showed a significant relationship between PPD and low family socioeconomic status. Maternal hardship acted as a mediator variable between depression and low socioeconomic status. There is a probability that women with low socioeconomic status are more likely to experience difficulties in motherhood due to limited access to domestic comfort, childcare, healthcare and timely assistance, etc. The study by Rokicki et al. (2022) confirms the link between PPD, low socioeconomic status, and maternal hardship.

Our data also demonstrate significant association between a woman's low socioeconomic status and the increased risk of postpartum PTSD. Researchers identify socioeconomic status as a risk factor for developing PTSD (Freedman et al., 2020; Dickmen-Yildiz et al., 2018). Particularly, this association can be explained by cultural characteristics and characteristics of the healthcare system. That is, in Russia, women with high socioeconomic status more often live in cities and have greater access to high-quality healthcare. They can choose a maternity hospital. Moreover, paid contracts with maternity hospitals are more often registered in cities. In many maternity hospitals, individual birth support is available only with a paid contract (Ozhiganova & Molodtsova, 2020). Individual birth support is associated with greater birth satisfaction and reduced risks of psychological trauma (Hodnett, Gates, Hofmeyr, Sakala & Weston, 2011; Ulfsdottir et al., 2014). Furthermore, in large maternity hospitals in cities, humanistic and tactful communication with patients is developing more actively (Temkina et al., 2021). Proper communication with healthcare providers, support and comfort during childbirth are associated with a lower risks of developing PTSD following childbirth (Yakupova et al., 2022; De Schepper et al., 2016; Shiva et al., 2021).

Women with low socioeconomic status are statistically more likely to experience domestic violence and have a traumatic past experience (Satyanarayana et al., 2015; Goodman, Smyth, Borges, Singer, 2009), which are strong risk factors for both PPD and postpartum PTSD (Gelaye et al., 2016; Van Heumen et al., 2018).

Intriguingly, we did not find a significant association between the severity of symptoms of PPD and PTSD and the place where the birth took place: in the city, in an urban-type settlement, or in a rural area. Similar results were demonstrated by authors from India who studied postpartum PTSD (Shiva et al., 2021). However, UK researchers found a significantly higher risk of developing perinatal depression and anxiety among women living in rural areas (Ginja et al., 2020). In contrast, the group of scientists from Canada showed that women living in cities with a population of more than 500,000 people are significantly more likely to experience symptoms of PPD (Vigod et al., 2013). In high income countries, where childbirth is not only a medical event but also a normal social event in the lives of women who have choices of maternity care and childbirth settings, the place of birth might matter more than in middle- and low-income countries where childbirth is considered as a gynecological process requiring medical support (Ghanbari-Homayi et al., 2019). However, this ambiguity in the results also suggests that the relationship between PPD and postpartum PTSD with the place of birth is complex and mediated by other factors. In our study, we did not find a direct correlation between the place of birth and mental health problems after delivery, but we found a correlation between the place of birth and the type of childbirth healthcare plan. In turn, the type of childbirth healthcare plan was significantly correlated with the severity of symptoms of postpartum depression and PTSD. That is, the lowest risk of PPD and postpartum PTSD is observed in women whose births

took place at home, and the highest is in those whose births took place in the state maternity hospitals. These results are in line with previous work from Russia (Yakupova & Suarez, 2022; Yakupova, Suarez & Kharchenko, 2022), and global statistics (Furuta, Sandall, Cooper & Bick, 2016; MacKinnon et al., 2017; Rijnders et al., 2008), where the lowest risk of postpartum PTSD and other mental health problems after childbirth was observed in the group of participants who had a planned home birth. It is of importance that, according to qualitative studies, women are statistically significantly more likely to talk about their choice made in favor of a planned home birth after the first traumatic birth experience in a maternity hospital or other medical institution (Bernhard, Zielinski, Ackerson & English, 2014). In Russia, medical support for home births is still illegal, which presents high medical risks. Despite evidence-based healthcare data on home birth safety for women without known risk factors and their babies (Hutton, Reitsma, Simioni, Brunton & Kaufman, 2019; Reitsma, Simioni, Brunton, Kaufman & Hutton, 2020), the topic of home birth remains marginalized. Therefore, women who decide to have a home birth may be considered a special group, which is likely to be characterized by a special attitude toward childbirth and more thorough preparation (Ozhiganova, 2019). A more detailed study of the motives and methods of preparation for childbirth in women who decided to have a home birth may be a promising direction in the prevention of PPD and postpartum PTSD.

According to our results, postpartum PTSD was significantly associated with the type of childbirth. The highest scores were among women with emergency caesarean or instrumental vaginal birth. These findings are consistent with a previous study on a Russian sample (Yakupova & Suarez, 2022), indicating their reliability. Furthermore, these results are in line with studies from other countries. In the study from the United States of America, where instrumental delivery and emergency caesarean birth were included in the same category, there was a significant association of these types of childbirth and notable symptoms of PTSD after delivery (Dekel et al., 2019). In a study from Greece, women were significantly more likely to experience symptoms of postpartum PTSD if they gave birth via emergency caesarean (Orovou et al., 2020). Unexpected medical procedures during vaginal delivery and unplanned caesarean births can be traumatic experiences and become potential risk factors for postpartum PTSD due to their unpredictable nature, possible complications during delivery, potential danger to the baby, and the lack of awareness and preparedness of women to these birth outcomes.

Conclusion

Postpartum PTSD and postpartum depression are complex disorders with a number of risk factors that are related not only to complications during childbirth and physiological characteristics, but also maternal socioeconomic status and the conditions of childbirth. It is important to consider childbirth and postpartum period in the context of a biopsychosocial model. An important task of our society is the prevention of postpartum disorders and psychological support of socially vulnerable mothers (those who raise children without a partner, have a low socioeconomic status and level of education), and psychological education on postpartum disorders and providing comfort during childbirth for all women.

Therefore:

1. Symptoms of postpartum depression (PPD) are lowest in women with higher education and a registered marriage.
2. The type of childbirth is associated with perinatal disorders. Postpartum PTSD rates are higher in women who had instrumental and emergency caesarean births. Postpartum depression

rates are lower in women with vaginal delivery.

3. The mildest symptoms of PPD and postpartum PTSD were observed in the group of women who had a home birth.
4. High socioeconomic status is associated with lower PPD symptoms. Low socioeconomic status is associated with higher PTSD symptoms.

Limitations

The first limitation of our study is the way the data were collected, namely anonymous online survey. Researchers and participants did not have interpersonal contact, which, on the one hand, may limit the level of participants' trust to the authors, and on the other hand, allowed them to share difficult experiences. Sadly, this effect cannot be ruled out. Second, all data were based on self-reports, without extracts from medical records and childbirth records provided by maternity hospitals. The rates of PPD and postpartum PTSD symptoms are screening rather than diagnostic tools. Finally, the third significant limitation relates to the characteristics of our sample, where most participants are married, have higher education, and live in cities. It limits the possibility to generalize our results to other populations. At the same time, the composition of our sample generally corresponds to the composition of Russian society: 57 % of citizens have higher and secondary education, less than 5 % have elementary education (Agranovich, Ermachkova & Seliverstova, 2019). Furthermore, according to 2021 data, 75 % of citizens live in cities (Website 'Rosstat', 'Demography' section (rosstat.gov.ru, rosstat.gov.ru/folder/12781)).

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Conflict of interest information

The authors have no conflicts of interest to declare.