

Postpartum depression and breastfeeding in primary care in Krakow, Poland

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Summary

Purpose of Investigation: The aim of this study was to examine the risk of postpartum depression (PPD) and its relationship with confidence in breastfeeding (BF) in women under the care of general practitioners in Krakow. **Materials and Methods:** The study among Polish women was performed in seven primary care out-patient clinics in Krakow in 2015. Each participant completed a personal questionnaire which included the Edinburgh Postnatal Depression Scale (EPDS) and the Breastfeeding Self-Efficacy Scale-Short Form (BSES-SF). **Results:** The authors examined 273 women of which 13% of participants were at risk of developing PPD. Women who are more likely to develop PPD are less satisfied with their BF or do not feed their children naturally at all. There was a statistically significant correlation between the risk of developing PPD and mothers' chronic diseases and occurrence of PPD after previous labours. **Conclusion:** After childbirth in women living in Krakow, the prevalence of the risk of PPD did not differ from other European countries and was higher in those with low BF self-efficacy scores.

Key words: Postpartum depression; Breastfeeding; EPDS; BSES; Poland.

Introduction

Postpartum depression (PPD) is a disease that belongs to the affective disorders. Usually it occurs within three months of giving birth. The prevalence of this disease in women is between 10-20%, and in men between 1-26% [1]. Polish studies show that as many as 21% of mothers can be affected by PPD [2]. The origin of PPD is multifactorial and requires consideration of various factors: sociological, psychological, and (to a much lesser extent) biological and biochemical. A key role is played primarily by interpersonal relations, type of personality, social status or traumatic experiences in the past [3-5].

To recognize PPD, typical depressive symptoms should be present from two to six months. They include lack of sense of joy from contact with a child, disturbed sleep, reduced appetite, depression, anhedonia, and lethargy. It also involves a sense of incompetence in breastfeeding (BF). Symptoms resulting from this disease can seriously disrupt the lives of the affected person and the entire family.

As is well documented, BF is the best method of infant feeding and brings many benefits to both mother and child, due to the wealth of nutrients contained in mother's milk and the opportunity to enhance contact with the child. For the mother, it is a natural way to reduce stress, favours establishment of ties with the child, positively affects the quality of sleep, lowers blood pressure, and the risk of breast and ovarian cancer [6, 7]. Benefits for the child in-

clude reduction in risk of infection, improvement of cognitive-motor functions, and positive effects on lipid metabolism [8].

Medical knowledge concerning maternal understanding of BF and its implications is not yet satisfactory [9]. Studies indicate the possibility of reducing the risk of developing depression by half when a mother is breastfeeding. Meanwhile, the risk of occurrence of depression in mothers who, due to various factors, have stopped BF is doubled [10]. BF is also less common in mothers with depression when it has already appeared during pregnancy or after childbirth [7]. It also seems that BF failure increases the risk of a child's potential health problems in the future [11].

PPD seems to be a growing problem in Polish society. It is recognized more often and physicians and nurses, as well as researchers pay more attention to it. To the best of the present authors' knowledge, deeper analyses of the relationship between PPD and BF have not been conducted in Poland.

The aims of this study were: (1) to determine the risk of PPD in women under the care of general practitioners in Krakow, (2) to explore social and health factors which influence the risk of PPD and BF termination, and (3) to assess the relationship between the risk of PPD and mothers' satisfaction with BF.

Materials and Methods

The study was designed as a cross-sectional questionnaire survey of women within six months of delivery who were admitted to general practitioners' surgeries in Krakow in 2015.

Each participant in the study completed an anonymous questionnaire consisting of three parts. The first part included questions about the woman's personal characteristics (age, employment, etc.) and gynaecological history e.g. the number of pregnancies, births, and type of most recent delivery. The questionnaire was typical for this type of study and contained 21 questions of which six were open and 15 were closed. It was developed by two authors of the study and the others checked its contents. Then, after a pilot study in a group of 30 women reflecting the target population, and after gathering comments, corrections in the questionnaire were made (evaluation of face validity).

The second part of the questionnaire covered the Edinburgh Postnatal Depression Scale (EPDS), with ten closed questions and answers with four options to choose from. It is one of the most common tools used to recognize the patients at risk of depression in pregnancy and after childbirth worldwide [12-16]. This questionnaire was validated and first published by Cox *et al.* in 1987 [17]. In the present study, a Polish version of the questionnaire which has high psychometric properties, was used [18]. The risk of developing PPD is high if a participant scores 13 or more points out of 30.

To determine the competence of BF, the third part of the questionnaire: the Breastfeeding Self-Efficacy Scale Short Form (BSES-SF) was chosen. The BSES-SF was developed in 2003 by Cindy-Lee Dennis, and is an effective tool with good psychometric properties willingly and widely used in research worldwide [19, 20, 21]. It identifies a mother's confidence in her ability to BF and mothers at risk of premature termination. In the study, a Polish version of the questionnaire was used [22]. The BSES-SF consists of 14 questions. Answers are presented with a 5-point Likert-type scale (1 indicates: not at all confident; 5 indicates: always confident). The higher the score, the more convinced the woman is about her ability to feed in a natural way.

The study was performed in seven primary care outpatient clinics in Krakow, randomly selected among all ($n=194$) institutions of this type in the city. The authors used computer-generated random numbers for selecting the practices.

In the study, the authors recruited women who, within six months of delivery, had consulted their general practitioners in order to register their newborn child to a patient list, to have their child's health check up performed or to vaccinate their baby. Other inclusion criteria were as follows: being at least 18-years-old and delivering a written informed consent to participate in the project. The exclusion criteria were: chronic diseases negatively affecting mothers' mental state (e.g. cancer, thyroid disorders, schizophrenia) and not living with the child's father.

Data were collected in the periods from February 1st to March 31st and from October 1st to November 30th, 2015. Such periods were chosen because depression is more likely to occur in autumn and winter seasons [23]. After signing informed consent, participants received from the researcher the questionnaires and completed them in the outpatient clinics in the presence of the researcher.

The statistical analysis was performed using Statistica 12 software. Mann-Whitney U-test, chi square, and Spearman's rank correlation coefficient were used. Statistical significance was set at the 0.05 level.

Permission No. 122.6120.148.2015 was obtained from the Bioethical Commission of the Jagiellonian University Medical College to conduct this research. Each participant received a written informed consent form to sign before completing the questionnaires.

Results

The authors invited 282 women to participate in this study and 273 agreed, of whom 245 proceeded to further analysis. Eighteen women were excluded due to comorbidities and ten because of incorrectly completed questionnaires. Mothers were approximately 30.58 ± 3.35 years-old, 195 (80%) of women had higher education, 50 (20%) of them secondary, 215 (88%) were employed, 139 (57%) of them had only one child, 85 (35%) had two, and 21 (8%) were taking care of three children. One hundred forty-three (58%) mothers gave birth naturally and the remaining underwent a caesarian section during the most recent labour. Nineteen (7%) mothers suffered from chronic diseases from which the most commonly reported were gastroesophageal reflux (2%), arterial hypertension (2%), and allergy (1%).

Women were mostly admitted to the general practitioner's office with children at the average age of 3.26 ± 1.55 months. One child was conceived using in vitro methods, which is interesting because this method is still not widely used in Poland. Two hundred forty (98%) children scored at least 8 points according to the Appearance, Pulse, Grimace, Activity, and Respiration (APGAR) scale. Since birth, 195 (80%) of them were described by their mothers as having been healthy. As reported by mothers, sick children mostly suffered from colds (5%), bronchitis (2%), and atopic dermatitis (1%).

The mean EPDS score of the entire sample of mothers was 6.51 points (SD = 5.04; range: 0-27). In this study 32 (13%) out of 245 women scored 13 points or above on the EPDS, which indicated that they were at risk of developing PPD.

Within the group at risk of PPD, the average score on the EPDS was 16.66 points. Analysing answers to particular questions in the EPDS, women most frequently reported problems of anxiety and worry for no apparent reason (question No. 4). Most mothers from this group ($n=18$; 56%) felt anxious or panicky without reason (question No. 5). Every second woman was so unhappy that she was tearful and could not cope with everyday situations as well as usual (question No. 9). One-third of respondents ($n=11$; 35%) thought about harming themselves (question No. 10). In the group of women not at risk of developing PPD, mothers mostly unnecessarily blamed themselves in situations where they failed in achieving their goals (question No. 3).

The mean BSES-SF score of the entire sample of mothers was 58.58 (SD=10.33; range 14-70). Three-quarters (74%) of women were breastfeeding at the moment of the study, 15% fed their babies naturally after delivery. but later withdrew, and 11% of mothers had never begun to breastfeed. Precise numbers of women are presented in Figure 1

The main reasons for stopping BF was lack or minimal amounts of breast milk. Mothers also indicated problems

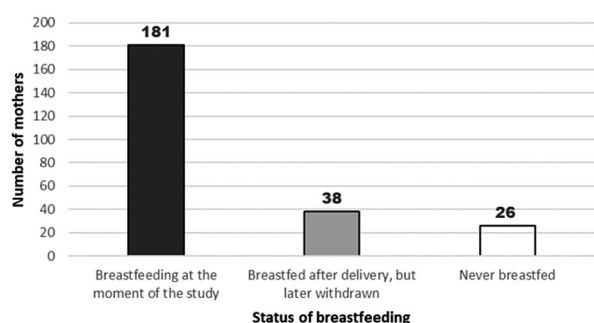


Figure 1. — Status of BF in the examined population.

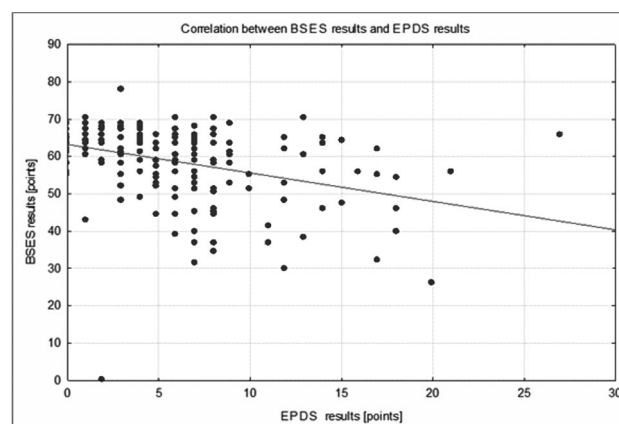


Figure 2. — The correlation between self-efficacy of BF measured by the BSES-SF and risk of PPD measured by the EPDS. BSES=Breastfeeding Self-Efficacy Scale-Short Form; EPDS=Edinburgh Postnatal Depression Scale

Table 1. — Comparison between women with low and high risk of developing PPD.

	Low risk for PPD (n=213)	High risk for PPD (n=32)	p
Average age of mother (years)	30.51 (\pm 4.36)	31.00 (\pm 4.25)	NS
Higher education (%)	79.34	81.5	NS
Average age of child (months)	3.31 (\pm 1.58)	2.90 (\pm 1.29)	NS
Caesarean section (%)	39.90	53.13	NS
Mothers with chronic disease (%)	5.63	21.90	0.001
Child's health problems (%)	20.65	18.75	NS
Average of pregnancies	1.64 (\pm 0.73)	1.59 (\pm 0.95)	NS
No-breast feeding mothers (%)	23.95	60.40	NS
Average of the BSES-SF (points)	59.27 (\pm 9.90)	52.73 (\pm 12.21)	NS
Average of the EPDS (points)	4.99 (\pm 3.16)	16.66 (\pm 3.12)	NS
Previous episode of PPD	0.02(\pm 0.15)	0.1(\pm 0.3)	0.037

PPD = postpartum depression; NS = not significant, $p > 0.05$

with nursing the baby, infant's lack of appetite or allergies. In women at risk of PPD, only 19 (59%) were BF, while in their healthy coevals this number was higher – 161 (76%).

The average score in the BSES-SF was 58.58 points (a total score ranging from 14 to 70, SD=10.33). Most mothers (n= 125; 69%) had no significant problems with BF. Women achieved the highest scores in a statement regarding a willingness to feed naturally (question No. 7). They indicated that they mostly did not have to use artificial milk (question No. 3) and that they were capable of providing a proper child's positioning while BF (question No. 4). The most difficult issue for them was to assess if their child had achieved satiety (question No. 14).

In Table 1, the comparison between women without risk of PPD and women at risk of developing it are shown. The present study revealed that there was a statistically significant correlation between the risk of developing PPD and two characteristics of mothers: chronic diseases and previous occurrence of PPD. Moreover, the authors found a statistically significant trend that women with higher scores

in the EPDS were better educated, more often underwent caesarian section, and rarely fed their babies naturally. Additionally, mothers undergoing caesarian section often present reduced lactational ability, a contributing factor in the development of PPD in the present findings.

There was a correlation between mother's BF self-efficacy and the season in which she gave birth ($p = 0.006$; $r = 0.18$) and her education ($p = 0.000$; $r = 0.25$). Mothers delivering in the spring season and those with higher education were more confident in their ability to BF their new baby. Furthermore, there was a statistically significant inverse correlation between the number of pregnancies and the results in the EPDS ($p = 0.04$; $r = -0.13$), which indicates that women with more children had less risk of developing PPD. Last but not least, there was a strong inverse correlation between results in the BSES-SF and results in the EPDS ($p = 0.00$; $r = -0.3$). This indicates that women with higher self-awareness in their BF competence had lower risk for PPD (Figure 2).

Discussion

In this cross-sectional study the authors found that 13% of women after childbirth were at risk of PPD and they were less confident in their ability to breastfeed or did not feed their children naturally at all. Mothers with chronic diseases and previous postnatal depression episodes are at higher risk of suffering from PPD. A mother's confidence in her ability to breastfeed her baby correlates with the season of birth (higher in the winter than in the autumn) and her level of education. Factors like the mothers' and newborns' ages, education or the number of children seem to have no significant influence for PPD occurrence and maternal BF self-efficacy.

A limited number of studies assessing correlation between BF and PPD have been conducted throughout the world. These mostly produced similar results to the present study, but often emphasised other problems and interesting issues.

In Norway, researchers analysed the proportion of women at high risk of PPD and found that it was 10-15% [24]. Between four and six weeks after childbirth, Teissedre and Chabrol observed postpartum depression in 18.1% of women in three obstetric clinics in Toulouse, France [25]. In the Czech Republic, depressive symptoms at six weeks and six months after delivery were present in 11.8% and 10.1% mothers, respectively [26]. According to Barlow *et al.*, epidemiological studies performed in developed countries indicated an occurrence of postnatal depression below 15% [27].

In England, Brawn *et al.* conducted a study with the aim of determining the relationship between BF and PPD symptoms and to identify specific reasons for ceasing breastfeeding. The study revealed that early weaning and multiple reasons for it (especially physical difficulty and pain connected with BF, e.g. nipple tenderness, which is very common among BF women), were associated with higher depression score [28]. In the present study, women with higher scores in the EPDS also rarely fed their babies naturally.

A study conducted in California concentrated on the questions of whether BF might decrease the risk of PPD and also if depressive symptoms before delivery might reduce rates of subsequent BF. According to the results, the association between BF and depression seemed to be bidirectional. Women with prenatal depressive symptoms weaned their infants 2.3 months earlier than their healthier coevals. Additionally, BF predicts declines in maternal depression up to two years after birth. American researchers found that women who fed their babies naturally more frequently at three months after delivery, showed greater subsequent declines in depressive symptomatology compared to women who breastfed less often [29]. All of these results are also visible in the present study.

The Zubaran *et al.* study performed in Southern Brazil

was more general. It showed that BF efficacy was significantly related to mothers' health status and well-being. Women who exclusively BF had significantly higher well-being status than mothers who used artificial ways of feeding their newborns. In turn, health status was an important element in developing postnatal depression. The conclusion of this study was mostly similar to the present study. In contrast in Poland, well-being status seemed to play a less important role in BF self-efficacy than in Brazil. The mean BSES-SF score of the Brazilian sample was higher (63.51; SD = 6.25; range = 43-70) than the mean scores of Polish mothers (58.56; SD= 10.33, range= 14-70) [21].

What is particularly interesting is that results from Asia differ more from the present study than those cited previously. In Malaysia it was discovered that being a housewife, having a caesarian section, low social support, family history of depression, previous history of depression, and non-exclusive BF were associated with PPD. Nevertheless, predictors of PPD were non-exclusive BF and previous history of depression. It is also worth mentioning that the percentage of women at higher risk of PPD in Malaysia (6.8%) is much less than in Poland (13%) and in Europe (10-15%) [30]. Another study from China showed that the prevalence rate of depressive symptoms was 11.8% at six months postpartum [31].

One of the strengths of the present research is the fact that for the first time, the study assessing the correlation between BF and postnatal depression was conducted among Polish women. In Central and Eastern Europe, this problem is poorly researched. The studies performed around the world concentrate rather on the topic of how PPD influences BF [29]. Moreover, the present study was conducted in general practice surgeries, which is also unique in comparison with other studies which were performed mainly in gynaecological or obstetric outpatient surroundings [25] or in hospital departments [30].

PPD is not only a problem of these specialities. The present authors wanted to assess what the risk was for this disorder in the population under the care of general practitioners. It is also worth highlighting that all the questionnaires used in this present study were validated, ensuring good quality measurement.

Obviously, there were some limitations in the present work. First of all, the study population was rather small (the limited resources available to the authors) and originated from only one city. This indicates that generalisation to a wider population is not justified since the urban population constitutes 60% of Polish inhabitants. Secondly, the study was performed in two seasons: autumn and winter, when the risk of depression is generally higher [23]. Data collected from the entire year would give a better view of the situation. Another issue is that there are many factors which are difficult to evaluate, but might strongly influence the results of such a study. According to the literature, one of the most significant factors predicting PPD development is

support from the partner [32]. Only women living with their partners were examined, however living with a spouse does not always guarantee receiving support from them. Another limitation of this study was that only those mothers who consulted general practitioners and registered their child on the list of patients were included. It is possible that the results for mothers who did not consult a general practitioner would be different from those that were received in the present study. The authors believe that this limitation is insignificant. In Poland, all people up to the age of 18 are publicly insured and receive free care regardless of whether or not the mother or father are insured.

The problem of BF and PPD is still unappreciated even though every tenth woman may suffer from this disorder. There are many factors connected to these topics that require further investigation. The situation in Poland does not seem to differ much from that in other countries, especially in Europe. However, it is worth asking and exploring what the reasons are for the differences in the BSES scores and the risk of PPD between Poland and countries like Brazil or Malaysia. It is essential to continue research on PPD and BF, not only in Europe and North America, but also in other continents like South America or Asia, as differences between countries worldwide are already seen in addressing to these issues. Thanks to the world's diversity and the possibility of learning from others different ways of coping with PPD and BF problems, we can take better care of patients.

According to scientific research, the mastery of proper BF plays a significant role in decreasing the risk of PPD development. However, researchers emphasise another very important and interesting issue. In Norway, as well as in Poland, sociologists pressure women to breastfeed and it is believed that being a good mother means being able to do this. In turn, many new mothers endure painful and worrying weeks or months in order to naturally feed their babies which can result in decreased well-being and even depressive symptoms. The researchers have come to the view that the Norwegian way of supporting new mothers works well for women who manage to breastfeed successfully; however those who, for some reason, are not able or do not want to breastfeed are perhaps made more vulnerable to developing PPD. In Western Europe, the importance of BF is not underlined to any great extent. This seems inappropriate on one hand, but on the other, mothers who have problems with it are not stigmatised [24].

General practitioners and other specialists who care for mothers and children after childbirth should be aware of complex BF problems and prevention of depression. Recognition by the general practitioner that a mother has stopped breastfeeding should result in careful evaluation if the patient suffers from depression. Furthermore, the prevention of PPD could be obtained by presenting a more detailed picture of the importance of BF. Also, BF teaching can be combined with repeated practical and emotional

support or feedback indicating whether the mother is doing it correctly. These ideas should definitely be taken into consideration by family practitioners. This is why the enormous role in the care of young mothers is within the realm of these medical professionals. They have long-term contact with women even before pregnancy, so they can prepare them for maternity and inform them about the psychological problems that might occur after labour. Knowing that PPD remains dependent on mothers' chronic diseases, previous PPD episodes or season of the year, general practitioners should pay special attention to women in particular risk groups. Such mothers should be engaged early in the postpartum period or even during pregnancy planning, and they should be educated about PPD and BF. Last but not least, general practitioners know mothers' local environments, most family or community problems, and can offer a holistic approach to breastfeeding and the prevention of PPD.

Conclusion

In Krakow, 13% of women during the first six months after labour are at risk of developing PPD, which is similar to other European countries. There is a positive correlation between the risk of PPD and the mother's competence in BF. The risk of PPD also correlates with mothers' chronic diseases and previous episodes of PPD. General practitioners should pay more attention to recognizing the problem of psychological disorders related to labour and should be prepared to encourage and inform women about efficient BF. They should also give advice and properly refer women to other specialist care or institutions which can offer additional support.

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