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The level of anxiety and depression in the early puerperium – preliminary report

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Summary

Introduction: Childbirth is both joyful and stressful life event. This stressful life event results in different emotions occurring with different strength among new mothers**,** one of them is postpartum depression**.** However, postnatal depression received the predominance of research attention in recent years, several authors have pointed attention to the importance of distinguishing between postpartum depression and postpartum anxiety.

Aim. The primary purpose of the presented research was to assess the level of anxiety and depression among women who were hospitalized after delivery. The second purpose was to determine if some additional factors influence the level of anxiety and depression.

Material. The study was conducted on the sample of 46 women who had delivered infants in Gynecology – Obstetrics Clinical Hospital UM in Poznan, Poland in 2010.

Method. Polish adaptations of standard questionnaires were used to measure variables such as anxiety (STAI), depression (BDI), styles of coping (CISS) and temperament (PTS). Additional data were collected using a questionnaire developed by the authors.

Results. Statistical analysis assessed the level and frequency of anxiety (as a state and as a trait) and depression and associations between these factors as well as associations with additional variables (including: mode of delivery, styles of coping with stress and temperament).

Conclusions. The score in BDI in mothers after delivery was associated positively with emotion – oriented style of coping and anxiety as a state and as a trait and negatively with strength of inhibition processes. Anxiety as a trait was positively related to c-section.

Key words: puerperium, depression, anxiety

Introduction

Although becoming a mother is regarded as positive and exhilarating event, the abrupt transition into motherhood is recognized as a stressful life event [1, 2]. This stressful life event results in different emotions occurring with different strength among new mothers. Postpartum depression along with postnatal psychosis and so-called ‘baby blues’, is one of three mental conditions that may be experienced by women in the postpartum period. Those disorders occur with varying frequency. While postnatal

psychoses are extremely rare (0.1-0.2%), baby blues is observed with a high frequency (25-85%). The prevalence rate of postpartum depression is typically cited as between 10 and 30% [3-7]. These disturbances differ according to the intensity of symptoms, the occurrence of additional symptoms (such as delusions and hallucinations in postpartum psychosis), the timing of onset and continuing of symptoms (e.g. 'baby blues' should recede in about 10 days after the birth of the child). According to DSM-IV criteria, postpartum depression can be diagnosed if depressive symptoms last for the most of the day over a 2 weeks period and occur during the first month after delivery [5].

Although research on postnatal depression have received the bulk of attention in recent years [8], several authors have also drawn attention to the importance of distinguishing between postpartum depression and postpartum anxiety [9-11]. It is commonly known that depression and anxiety co-exist, but some researches indicate that not all anxious mothers are depressive [9] and that depression and anxiety need different and specific treatments [12]. It has been also suggested that anxiety may be a precursor to depression as a result of altered psychological pathways, and represents the consequences of failing to manage stress [11].

Postpartum depression may result in maternal social or relational problems even after recovery [13,14]. Moreover, it is also associated with increased medical disorders, and unhealthy behavior such as smoking and alcohol abuse [15- 17]. Researches have also indicated the negative impact of postpartum depression also on infants' difficult temperament, poor self-regulation and behavioral problems [18]. Therefore, maternal depression that disrupts the relationship between the mother and her infant contributes to higher risk for poor infant and child developmental outcomes [19].

Aim

The primary purpose of the presented research was to assess the level of anxiety and depression among women who were hospitalized after the delivery. The second purpose was to determine if some additional factors influence the level of anxiety and depression in the studied female population.

Material

The study was conducted on a sample of 46 women who had delivered infants in the Gynecology – Obstetrics Clinical Hospital No. 3 in Poznan, Poland in 2010. Patients were recruited from maternity wards during their required hospitalization after delivery. The women were given the questionnaire after expressing their consent to participate in the study.

Method

Polish adaptations of standardized tests were used to measure the following variables: anxiety, depression, styles of coping and temperament. Additional data were collected using a questionnaire developed by authors.

The State-Trait Anxiety Inventory (STAI) was used to diagnose the level of anxiety [20]. The level of depression was measured using Beck Depression Inventory (BDI) [21]. Moreover, two additional standardized questionnaires were used: Coping Inven-

tory for Stressful Situations (CISS) [22] and Temperament Questionnaire - Pavlovian Temperament Survey (PTS) [23]. The author's questionnaire contained both some demographic and obstetric questions including the following: age, education, social status, occupational activity, place of residence, gestational age of delivery, number of pregnancies and deliveries, participation in labor and delivery school, newborn's weight and Apgar scale and mode of delivery. All the participants in the study was informed about the purpose of the survey and provided their consent.

Results

The study was carried out on the cohort of 46 parturients. Their age varied between 23 and 37. The mean participant age was 30. The majority (69.6%) had higher education. Most (67.4%) assessed their financial situation as 'good'. Similarly, most (82.6%) were occupationally active and over 80% lived with a family. In addition, 82.6% of this participant group ddi not attend a labor and delivery school. Finally, 58.7% had a spontaneous childbirth, 30.4% had a c-section, and 4.2% delivered by vacuum; three patients did not answer this question.

Basic obstetrical data regarding the studied population is presented in the Table 1.

Tab. 1. **Obstetrical independent variables in the investigated group of mothers – descriptive statistics**

Variable	N	Min.	Max.	Av.	St. dev.
Gestational age at delivery	43	28	42	38.77	2.428
Number of pregnancies	41	1	5	1.93	.877
Number of deliveries	43	1	3	1.70	.674
Newborn's weight	43	1290	4460	3425.16	656.037
Apgar	42	6	10	9.62	.854

Further statistical analysis concerned psychological variables such as: anxiety as a state and as a trait, depression, styles of coping with stress and temperament. Descriptive statistics of these variables (excluding depression) were presented on the table below (Table 2 – *next page*).

The level of depressive symptoms in the investigated group of women was assessed using the Beck Depression Inventory. The achieved results were divided into three groups: high results, medium results and low results. 54% of the population had low results in BDI, 18% had medium results, and 4% achieved high results. It should also be noted that 24% of women did not complete the BDI questionnaire, preventing the inclusion of their responses in the statistical analysis.

The analysis of frequency of anxiety (as a state and as a trait) and depression indicate the presence of an association between them and with additional variables such as mode of delivery, styles of coping with stress and temperament. The measure of all mentioned variables is based on five hypotheses.

Tab. 2. **Descriptive statistics of psychological variables in the analyzed sample of mothers**

Scale	Variable	N	Min.	Max.	Av.	St. dev.
STAI	Anxiety as a state	40	24.00	61.00	41.1500	7.94387
	Anxiety as a trait	37	21.00	62.00	39.8378	9.11809
BDI	Depression	35	.00	22.00	6.4000	5.61091
CISS	Task-oriented style	31	.00	76.00	51.9355	18.19695
	Emotions-oriented style	29	2.00	53.00	37.9310	11.04190
	Avoidance-oriented style	30	5.00	64.00	42.5667	12.57716
	Involving in substitute activities	28	9.00	32.00	18.9643	5.58757
	Looking for social contacts	30	3.00	25.00	17.1000	5.17521
PTS	Strength of stimulation processes	28	3.00	60.00	43.0357	14.07778
	Strength of inhibition processes	28	3.00	59.00	46.2143	15.02678
	Activity of nervous processes	27	6.00	66.00	49.5556	13.23263

The first hypothesis assumed there was a relation between the anxiety and the mode of delivery. It was expected that women who had c-section may score higher on the measures of anxiety as a state and as a trait. The analysis of variance revealed a significant relationship between the mode of delivery and anxiety, in women who delivered by c-section experiencing higher anxiety as a trait ($F(1.35) = 4.22$; $p < 0.05$). However, there was no statistically significant difference between the modes of delivery and anxiety as a state ($F(2.36) = 1.42$; $p = 0.255$).

The second hypothesis was that there was a relation between personal style of coping in stressful situations and the score in BDI. Mothers with an emotions-oriented style of coping with stress were expected to have higher scores in BDI after delivery. Women with task-oriented style, on the other hand, were not expected to have higher scores in the Beck Depression Inventory. Results indicated statistically significant correlation between the score in BDI and the emotions-oriented style, higher emotions -oriented style scores in this scale were associated with higher scores in BDI ($R^2 = 25\%$) (see Table3.).

Tab.3. **Pearson's correlation for depression and styles of coping with stress**

Style of coping with stress (N=27)	Pearson's correlation	Significance (two-sided)
Task-oriented style	-0.064	0.751
Emotions-oriented style	0.507	0.007
Avoidance-oriented style	0.103	0.610
Involving in substitute activities	0.201	0.314
Looking for social contacts	-0.064	0.750

We further examined this result with an analysis of variance (ANOVA), comparing the average scores of women from various groups in terms of scores in BDI (Dunett's

post hoc test $p < 0.05$). It was found that the difference relates to women from two groups – with high and low score in the Beck Depression Inventory.

The third hypothesis assumed that there was a relation between the temperament and the score in depression scale. The expectation was that women with low strength of stimulation processes (SPP) would have medium or high scores in BDI after labor. Conversely, women with high SPP would have low scores in BDI after labor. Using Pearson's correlation (Table 4.) it was found that only the strength of inhibition processes influenced the scores in BDI (for comparison between groups F (2.20) = 3.54; $p < 0.05$).

Tab.4. **Pearson's correlation for depression and temperament**

Temperament (N=23)	Pearson's correlation	Significance (two-sided)
Strength of stimulation processes (SPP)	-0.290	0.179
Strength of inhibition processes (SPH)	-.523*	0.011
Activity of nervous processes (RPP)	-0.019	0.932

* Significance level p≤0.05

The fourth hypothesis concerned the relation between anxiety and temperament. It was expected that mothers with low strength of stimulation processes would have high scores in the anxiety questionnaire both as a state and as a trait. Correspondingly, mothers with high strength of stimulation processes were expected to have low scores in anxiety both as a state and as a trait. Results revealed significant negative relation between the strength of inhibition processes and anxiety as a trait, associated with a lower level of anxiety as a trait (Table 5).

Tab. 5. **Pearson's correlation for anxiety and temperament**

	Anxiety as a trait (N=21)		Anxiety as a state (N=22)	
Temperament	Pearson's correlation	Significance (two-sided)	Pearson's correlation	Significance (two-sided)
Strength of stimulation processes (SPP)	-0.415	0.061	-0.348	0.112
Strength of inhibition processes (SPH)	-.545*	0.011	-0.269	0.180
Activity of nervous processes (RPP)	-0.208	0.364	-0.303	0.170

* Significance level p≤0.05

The last hypothesis stated that there was a relation between the level of anxiety and the scores in BDI. It was specifically expected that the women with a high level of anxiety both as a trait and as a state would have medium or high scores in BDI after the delivery. For both (anxiety as a trait and as a state), statistically significant relation with scores in depression scale was found. Specifically, higher levels for both anxiety as a state and as a trait were associated with higher scores in Beck Depression Inventory (Table 6 – *next page*). However, the difference between the two groups was significant, for both the anxiety as a trait (F (2.25) = 8.07; $p < 0,01$) and as a state (F (2.27) = 3.40; $p < 0.05$).

Tab. 6. **Pearson's correlation for anxiety and depression**

Type of anxiety	Pearson's correlation	Significance (two-sided)
Anxiety as a trait (N=28)	0.670*	<0.001
Anxiety as a state (N=30)	0.523*	0.003

* Significance level $p \leq 0.05$

Discussion

The presented study revealed that 22% of participants had medium and high scores in the Beck Depression Inventory, those findings are consistent with the subject literature [3-6, 24]. Moreover, it was found that women with higher scores in measures of anxiety as a trait were more likely to have a c-section than a spontaneous - vaginal delivery. This is in agreement with the evidence that pregnant women with psychological problems such as anxiety disorder, fear or tokophobia prefer c-section rather than delivering spontaneously [25-27]. Moreover, for both (anxiety as a trait and as a state) significant relations with the score in BDI were also revealed, with higher levels of anxiety associated with higher score in BDI. This results differ in part from some investigations that postulate distinguishing depression and anxiety, as some women with depression did not manifest anxiety and some manifesting anxiety did not experience depression [28]. In this study - an emotion-oriented style of coping with stress was associated with higher scores in the depression scale. An emotions-oriented style is better than task oriented style when the problem is out of individual's control, although it can lead to depression if adopted consistently for all contexts [22]. Finally, it was also observed that higher strength of inhibition processes was associated with BDI and STAI – anxiety as a trait scores. This means that women with a high SPH are better in postponing stimulation in order to adequately and appropriately react to stimuli, allowing themselves to be less aroused and overwhelmed by stimulation [23].

Postpartum depression is considered to be the most frequent post-delivery complication [29]. Results obtained in this study and information reported in other researches indicate the significance of spreading the knowledge, diagnosing methods and treatment of all types of emotions or mood disturbances in the postpartum period. The measure of mental condition so early in postpartum period can have application value for the midwives and obstetricians who are meeting with patients during the control visits. This paper should be taken as preliminary report. The results on bigger sample of women will be a subject of additional paper.

Conclusions

1. Women, who delivered by a c-section, had higher results in anxiety as a trait.
2. The higher score in an emotion-oriented style of coping with stress scale, the higher score in BDI.
3. The higher the strength of inhibition processes in the temperament scale, the lower level of anxiety as a trait.

4. The higher level of anxiety both as a state and as a trait the higher score in Beck Depression Inventory.

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