

Available online at www.sciencedirect.com

ScienceDirect

journal homepage: <http://www.elsevier.com/locate/poamed>

Original research article

Mood disorders after childbirth



Marzena Kaźmierczak*, Grażyna Gebuza, Mariola Banaszekiewicz,
Estera Mieczkowska, Małgorzata Gierszewska

Faculty of Health Sciences, Nicolaus Copernicus University in Torun, Poland

ARTICLE INFO

Article history:

Received 14 January 2016

Received in revised form

23 January 2016

Accepted 8 February 2016

Available online 5 May 2016

Keywords:

Mood disorders

Baby blues

Postpartum depression

Edinburgh postnatal depression
scale (EPDS)

ABSTRACT

Introduction: The most frequent mood disorder to appear after childbirth is baby blues syndrome.

Aim: The assessment of mood disorder intensification in women, one week after childbirth, as well as determining whether or not there is a connection between chosen sociodemographic variables and occurrence of postpartum blues.

Material and methods: 285 women took part in the study. The study was conducted, on average, on the third day after childbirth. The research was conducted with the use of a diagnostic survey, and the main research tool was the Edinburgh Postnatal Depression Scale which was used to assess the occurrence of the risk of mood disorders after childbirth. A score of 12 or more on a 30-point scale was an indicator of mood disorders.

Results and discussion: 23.2% of women obtained a score of 12 or more points on the Edinburgh Postnatal Depression Scale. The average level of mood disorders was significantly higher in single women. A correlation between an unfavourable financial situation and the occurrence of postpartum blues in women was found. No significant difference was found in the occurrence of mood disorders in respect of age, education, professional activity, and place of residence.

Conclusions: In first week after childbirth, every fourth woman was at risk for the occurrence of postpartum blues. Single women and those in an unfavourable financial situation experienced postpartum blues more frequently.

© 2016 Warmińsko-Mazurska Izba Lekarska w Olsztynie. Published by Elsevier Sp. z o.o. All rights reserved.

1. Introduction

One of the most important moments in a woman's life is the time of pregnancy and childbirth. It is a period of difficult or

even critical situations. Scientific research suggest that psychiatric disorders in that time appear more frequently than in any other period of woman's life.¹ Brockington distinguish 30 different disorders of the period, which then divided into several groups. These groups were postpartum

* Correspondence to: Collegium Medicum in Bydgoszcz, Nicolaus Copernicus in Torun, Łukasiewicza 1, 85-821 Bydgoszcz, Poland. Tel.: +48 52 585 59 04/506 023 541.

E-mail address: marzena.kazmierczak@cm.umk.pl (M. Kaźmierczak).

psychosis, postpartum depression, childbirth psychopathology, bipolar disorder, mother-child relation disorder, anxiety disorders, obsessive disorders and ones connected to stress.²

The most frequent mood disorder, which appears in 80% of women after childbirth, is baby blues syndrome.^{1,3-5} It is a mild disorder of short duration. Despite the fact that it is frequently referred to as 'sadness after childbirth' it can also manifest itself as postpartum hypomania – a state of moderate euphoria, which can be incorrectly recognized as a first episode of bipolar disorder or an episode of postpartum psychosis. Baby blues develops between 1st and 14th day after childbirth, reaching its maximum between 3rd and 5th day,^{6,7} which is when the biggest hormonal changes (decrease in the levels of progesterone, cortisol, and estrogens and increase in the level of prolactin) take place.^{6,7} Due to the current tendency to release the patients earlier, baby blues may be left unnoticed.⁸

A phenomenon that can be observed worldwide is postpartum depression, which occurs in 10%–20% of cases.^{9,10} Both, in DSM-IV and ICD-10 classifications, postpartum depression appears in the first few weeks after childbirth.¹¹ Basic symptoms of depression according to ICD-10 are depressed mood, loss of interests and satisfaction, and lack of energy. Additional symptoms include anxiety of a significant intensification, feeling guilty and remorse, and suicidal thoughts and behavior.¹² After feeding a child at night, difficulty in falling asleep, excessive concern for child's health, inadequate feeling of guilt, recurring thoughts of death, and thoughts, plans or suicide attempts can also appear.³ The clinical picture of postpartum depression comprises symptoms of severe depression, neurotic depression, and reactive depression.¹³

Psychoses of postpartum period constitute a heterogeneous group of disorders comprising mood disorders (depression and mania) with psychotic symptoms, and schizophrenias or somatogenic psychoses.^{8,11} Postpartum psychosis is the most severe form of psychiatric disorders in postpartum period, which occurs in 0.1%–0.2% of cases.¹⁴ Postpartum psychosis develops rapidly. Its early symptoms are sleeplessness, and even lack of sleep for several consecutive days, lack of hunger, high arousal, irritability, dysphoria, avoiding contact with child, and not taking care of child. Psychotic symptoms usually occur in the form of delusions or hallucinations with their content concerning a child or childbirth.⁷

According to certain researchers concerned with the discussed topic, early identification of potential risk of postpartum mood disorders should cover sociodemographic evaluation, personality, woman's psychiatric record and recent events in her life, and old and current obstetric-gynecological factors.¹⁵ The range of sociodemographic factors connected to mood disorders in women after childbirth covers mostly age, education, marital status, place of residence, and social status. The idea that age and experience should make the sense of security increase was not confirmed in research, but many authors have shown the relation between low economic status and the occurrence of mood disorders in women after childbirth.¹⁶⁻¹⁸ Certain research also suggest that there is a relation between lower education and age of women and the occurrence of psychiatric disorders after childbirth.^{17,19} In Jarzabek et al.'s research,²⁰ single women were

more vulnerable to the development of mood disorders when compared to married women, whereas Podolska's research proved that marital status had significant influence on the risk of the occurrence of psychiatric disorder symptoms. This risk was greatly increased in the group of cohabiting women when compared to married and single women.²¹

Mood disorders connected to the postpartum period are of multifactorial nature and have a negative effect on mother's health, and, above all, on health and development of a child. Research conducted thus far does not agree, and there are many analyses to be made to fully comprehend the discussed disorder.

2. Aim

The aim of the work was assessment of the intensification of mood disorders in women a week after childbirth and determining if there is a relation between chosen socio-demographic variables and the occurrence of baby blues.

3. Material and methods

In total, 285 women, who gave birth in the Hospital in Bydgoszcz, took part in the study. Bioethics committee (271/2010) of Nicolaus Copernicus University in Toruń allowed us to perform the study. The women, as well, gave an agreement in writing to perform the research. The main research tools were Edinburgh postnatal depression scale (EPDS), a questionnaire constructed by us, and medical documentation. Women qualified for the study two days after natural childbirth and three days after cesarean section. The women filled the questionnaire on third day after childbirth on average. The questionnaire we prepared was comprised of demographic questions (age, education, marital status, professional activity, place of residence, and financial situation). Basing on the medical documentation, data concerning the course of pregnancy and childbirth was collected.

EPDS was created by John L. Cox, Jenifer M. Holden, and Ruth Sagovsky in 1987 in Livingston and Edinburgh. EPDS is a self-assessment questionnaire whose aim is to detect depressive symptoms. It consists of 10 short questions. Women fill the questionnaire alone and are supposed to pick the answer that characterizes their feelings best through the past 7 days. According to the creators of EDPS, a score of more than 9 points suggests a 'possible depression', and 12 or 13 points in a 30-point scale suggest that women probably suffer from depressive disorders of various severity. Scale validation was based on research diagnostic criteria (RDC) for depression. The score was more than 12 points in the EPDS rating: sensitivity at 86%, specificity at 78% and predictive accuracy at 73%. Authors of the EPDS and the British Journal of Psychiatry holding the copyright to the tool give their consent for the use and replication of the tool on condition of referring to the source.²²

Following independent variables were used in the study: age, education, place of residence, marital status, professional activity, and financial situation. The age of women, who took part in the study, was between 15 and 39 years. Almost 75% of respondents were professionally active. Every fourth woman

was unemployed (23.6%). Every tenth respondent admitted that they were in a difficult financial situation. Therefore, majority of women (90%) declared their financial situation to be at least satisfactory. Out of 285 respondents, the most had higher education (44.6%) or secondary education (36.1%). Minority of women had primary (6.3%) or vocational education (13.0%). Majority of women (90%) declared that they currently were in a relationship. Marriages were the most common (75.1% overall). A noticeable group of women (13% overall) reported that they were in informal relationships. Every tenth respondent (11.9%) declared being single at the time of the study.

The study results were analyzed using statistical methods. The level of statistical significance $P = 0.05$, for which critical values were determined, was established as a reliable criterion for verifying prespecified hypotheses.

4. Results

A score of 12 or more points in a 30-point EPDS was assumed as an indicator of mood disorders. Measurements of the dependent variable were performed usually on the third day after childbirth (SD 1.34). Collected data allow us to state that the researched disorder was baby blues, whose intensification occurs between the third and fifth day after childbirth. The analysis of collected data shows that the average score in EPDS was 8.15 (with SD 5.36, and median 8). Lowest score obtained was 0 and the highest was 24. The study shows that 23.2% of women suffered from baby blues. Further analysis was to determine if the occurrence of mood disorders is affected by chosen sociodemographic variables. The age of women in the group was between 15 and 39 years with an average of 29 years (28.55 years) and standard deviation of 5 (SD 4.81). On the basis of the correlation diagram (Fig. 1), we cannot draw any conclusions that there is a relation between the age of women and the occurrence of postpartum depression. It was confirmed by the correlation coefficient (-0.04), which is not significant: $t = 0.67 < 1.97 = t_{kr}$, $P = 0.97$. To determine if there is a relation between mood disorders and education, the average levels of mood disorders in groups of various educations were compared using ANOVA. Application of ANOVA test was justifiable as Shapiro-Wilk test did not reject the hypothesis of

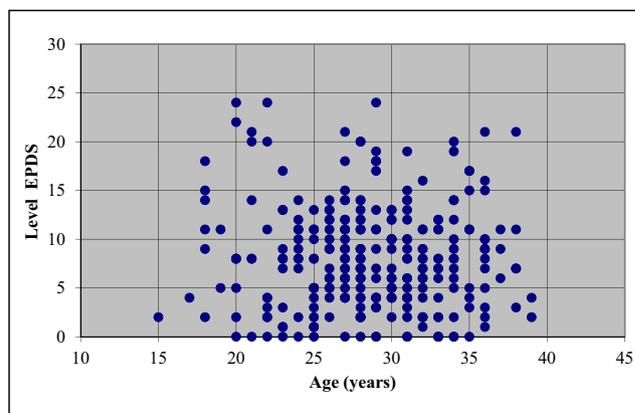


Fig. 1 – Correlation diagram – mood disorder level according to EPDS and age of the sample.

normality of distributions and differences between variances (variance is a square of SD) in compared groups were not found (see Bartlett's test, Table 1). In the following description, the sample was divided into two groups: single women ($n = 34$) and women in a relationship – married ($n = 214$, 75.1%) and cohabiting women ($n = 37$, 13.0%). In Table 2, statistic parameters and results of testing are given. Using Student's t-test allowed us to determine that average level of mood disorders was significantly higher in single women. The data collected using the questionnaire suggest that 71.2% of women were professionally active ($n = 203$). Every fourth woman, on average, was unemployed (23.5%). Statistical parameters and results of testing are given in Table 3.

No correlation dependence between professional activity and mood disorders after childbirth was found using the χ^2 test. As every twentieth woman was a student, they were added to the group of working women (Table 4). However, no correlation dependence between professional activity and the occurrence of mood disorders after childbirth was found. With the help of the χ^2 test, we determined that there is a relation between unfavorable financial situation and the occurrence of mood disorders after childbirth – the value of χ^2 statistic turned out to be higher than critical value ($P < 0.02$). Using the two-fraction test allowed us to confirm that the number of

Table 1 – Average levels of mood disorder in view of education.

Parameters	Education			
	Primary	Vocational	Secondary	Higher
Mood disorder level according to EPDS				
<i>n</i>	18	37	103	127
Average	8.11	9.62	8.43	7.50
SD	5.49	5.79	5.60	4.95
Shapiro-Wilk normality test				
<i>W</i>	0.901	0.953	–	–
<i>W_{kr}</i>	0.897	0.936	–	–
Normality	Yes	Yes	–	–
Bartlett's t test ($\chi^2_{kr} = 7.81$)				
χ^2		2.32		
<i>P</i>		0.51 (ns)		
ANOVA test ($F_{kr} = 2.64$)				
<i>F</i>		1.67		
<i>P</i>		0.17		

Table 2 – Average values of mood disorder levels in view of marital status.

	Parameters	Marital status	
		Single	In a relationship
Mood disorder level according to EPDS	n	34	251
	Min	1	0
	Max	22	24
	Median	10	7
	Average	10.26	7.86
	SD	5.50	5.28
Shapiro-Wilk normality test	W	0.950	–
	W _{kr}	0.933	–
	Normality	Yes	–
Snedecor's F test (F _{kr} = 1.48)	F		1.08
	P		0.36 (ns)
Student's t-test (t _{kr} = 1.97)	t		2.48
	P		<0.02

Table 3 – Relation between professional activity and EPDS results.

	Works		Σ
	Yes	No	
Mood disorders according to EPDS			
No	162 (77.9%)	46 (22.1%)	208 (100%)
Yes	41 (66.1%)	21 (33.9%)	62 (100%)
Σ	203	67	270
Test χ^2 ($\chi^2_{kr} = 3.84$)			
χ^2		3.54	
P		0.06 (ns)	

Table 4 – Relation between professional activity and EPDS results.

	Works/studies		Σ
	Yes	No	
Mood disorders according to EPDS			
No	173 (79.0%)	46 (21.0%)	208 (100%)
Yes	44 (67.7%)	21 (32.3%)	62 (100%)
Σ	217	67	284
Test χ^2 ($\chi^2_{kr} = 3.84$)			
χ^2		3.55	
P		0.06 (ns)	

women in unfavorable financial situation is significantly higher in the group of women, who experienced mood disorders ($P = 0.02$; Table 5).

5. Discussion

The main studied variable was the intensification of mood disorder symptoms in women during the first week after childbirth. It was measured with EPDS. Since the test took place (on average) on third day after childbirth, baby blues probably was the studied disorder, as its intensification occurs between third and fifth after childbirth. Our own study suggests that baby blues in studied sample ($n = 285$) appeared in 23.2% of cases. Such a result fits in the wide range of other researchers' reports.^{4,5,16,23,24} Possible lowering of mood in women after childbirth leads to a question as to what factors cause this disorder. Another intriguing question is how is it that in spite of the occurrence of many stressors there are women who can manage without showing symptoms of mood disorders. Among the scientists, there is no agreement when it comes to this matter. As a result of research, certain groups of factors, which are predictors of this disorder, have been distinguished. The relation between sociodemographic factors and the occurrence of mood disorders after childbirth has become a leading topic of many a research. In our own research, most of the respondents were of similar age (24–34).

Table 5 – Relation between financial situation and EPDS results.

	Financial problems		Σ	Two-fraction test ($u_{kr} = 1.96$)	
	Yes	No		u	P
Mood disorders according to EPDS					
No	17 (7.8%)	202 (92.2%)	219 (100%)	2.35	0.02
Yes	12 (18.2%)	54 (81.8%)	66 (100%)		
Σ	29	256	285		
Test χ^2 ($\chi^2_{kr} = 3.84$)					
χ^2		6.02			
P		<0.02			

However, in view of the analysis of presented research, we cannot conclude that there is a relation between the age of women and the occurrence of mood disorders in the first week after childbirth. Similar conclusions have been brought by other scientists as well.^{25,26} On the other hand, the research of Reroń et al. shows that mood disorder was concerned with mainly older women (above 30 years old).¹⁶ Jarzabek et al. did not find young mothers to be more vulnerable to mood disorders.²⁰ According to American researchers, young mothers have shown major depressive disorder indicators after childbirth.²⁷ This can be explained with greater knowledge of older women, which can be helpful in maintaining a better control over certain situations. Consequently, young mothers usually had poor levels of education, they have financial problems, social difficulties, and more they are at risk of unemployment. Pregnancy, and later childbirth, occurring in such circumstances, can be a cause of mood disorders after childbirth. In previously discussed material, there is an overrepresentation of women with higher education. There was a minority of women with primary, vocational, or secondary education. To verify the hypothesis of a relation between the education and the occurrence of mood disorders in women after childbirth, average levels of disorders (according to EPDS) in groups of different education were compared. No statistically significant difference was found between the averages. Czarnecka and Eastwood's research conclusions are similar. They report that education shows no significant relation with the discussed disorder.^{25,26} Other authors claim that this disorder concerns mainly women with low education.¹⁵ Reroń et al. report that depressive disorders concern mainly women with secondary education.¹⁶ Single women experience a higher level of psychological stress than women who are in a relationship, as they tend to be afraid of upbringing a child alone and have less emotional and financial support. If a woman is not provided with sufficient support, emotional disorders can develop. The results mentioned before are a proof for that, as the average level of disorder was significantly higher in single women. Polish and Australian research provide us with contradictory results, in which there appears to be no relation between the occurrence of mood disorders and marital status.^{16,25} An interesting research of Podolska et al. shows that marital status of the women had significant influence on the appearance of mood disorder symptoms. This risk increases numerous times in cohabiting women in comparison to single women and those in formal relationships. Women who decide to raise their children alone are less at risk of the occurrence of emotional disorders than those who are in a relationship with a partner who does not provide them with sufficient support and sense of security.²¹ No statistically significant dependence was found between place of residence and the occurrence of depressive disorders after childbirth. Jaszczak and Czarnecka's research do not support the existence of such dependence as well.²⁶ According to Reroń et al., the discussed issue concerned women who lived in big cities (more than 50 000 population).¹⁶ Professional activity is a means of providing financial resources, which allow to maintain financial stability, especially when a newborn baby appears. Being unemployed may lead to mood lowering. However, no statistically significant difference was found between professional activity of women

and depressive state after childbirth. The occurrence of emotional disorders before and after childbirth was related to unemployment of women in Rubertsson et al.'s research.²⁸ Frequently, a difficult financial situation, which directly affects the sense of security, is a cause of low mood. Being aware of the costs that come with childbirth happens to be a cause of prolonged stress, which may be intensified in case of an unspecified family status. In a situation, when a woman alone is responsible for the upbringing of a child, she lacks both, the emotional and financial support that would normally be provided by a partner.²⁹ It is important to notice that as much as 10.2% of women rated their financial situation as unfavorable. In the research, it was found that the number of cases related to unfavorable financial situation is significantly higher in women, who experienced mood lowering after childbirth. Still, Czarnecka and Jaszczak's research provides us with contradictory conclusions.²⁶

Postpartum depression is the most frequently occurring psychiatric disorder that appears after childbirth. It may be of varying intensity – from severe and psychotic to mild and protracted. In 30% of cases it precedes the maternity blues, which not only passes, but gradually deepens.² As a result of current tendency to release women after childbirth as quickly as possible, baby blues may remain unnoticed. This is why young mothers and their families should be provided with exceptional care in the first few days after childbirth. It is important to remember that mood disorders can also appear in women, who did not show any risk factors, and that not all women who show risk factors are bound to suffer from depressive disorders. Support provided by family is a crucial matter. Young mothers, above all, want someone to understand their situation and provide them with love and care. This will enable them to let go of fears and shame they may feel, since suffering makes it hard to run away from pessimistic thoughts.⁸

6. Conclusions

In the first week after childbirth, every fourth woman was at risk of the occurrence of baby blues. Chosen sociodemographic variables, such as age, education, professional activity, and place of residence, did not have a significant relation to the occurrence of mood disorders after childbirth. Single women and those in unfavorable financial situation experienced baby blues more often.

Conflict of interest

None declared.

REFERENCES

1. Maliszewska K, Preis K. The therapy for postpartum depression – the current state of knowledge. *Ann Acad Med Gedan.* 2014;44:105–111 [in Polish].
2. Hanley J. [Mental Disorders in Pregnancy and Childbirth]. 1st Polish ed. Wrocław: Elsevier Urban & Partner; 2012:35–37 [in Polish].

3. Piotrowski T, Kaczyński J. [Psychiatric disorders in pregnancy and the puerperium]. In: Dębski R, ed. [Emergencies. Obstetrics and Gynecology]. Warszawa: Medical Tribune Polska; 2012:262–269 [in Polish].
4. Gonidakis F, Rabavilas AD, Varsou E, Kreatsas G, Christodoulou GN. Maternity blues in Athens, Greece: a study during the first 3 days after delivery. *J Affect Disord.* 2007;99(1–3):107–115.
5. Reck C, Stehle E, Reinig K, Mundt C. Maternity blues as a predictor of DSM-IV depression and anxiety disorders in the first three months postpartum. *J Affect Disord.* 2009;113(1–2):77–87.
6. Dudek D, Siwek M, Zięba A, Nowak G. Postpartum depression. *Przegl Lek.* 2002;59(11):919–923 [in Polish].
7. Kaźmierczak M, Gebuza G, Gierszewska M. Emotional disorders after the delivery. *Probl Piel.* 2010;18(4):503–511 [in Polish].
8. Koszewska I. [The Depression in Pregnancy and after Childbirth]. Warszawa: PZWL; 2010 [in Polish].
9. Banti S, Mauri M, Oppo A, et al. From the third month of pregnancy to 1 year postpartum. Prevalence, incidence, recurrence, and new onset of depression. Results from the perinatal depression – research & screening unit study. *Compr Psychiatri.* 2011;52(4):343–351.
10. Dubey C, Gupta N, Bhasin S, Muthal RA, Arora R. Prevalence and associated risk factors for postpartum depression in women attending a tertiary hospital, Delhi, India. *Int J Soc Psychiatry.* 2011;58(6):577–580.
11. Chrzan-Dętkoś M, Dyduch-Maroszek A, Humięcka A, Karasiewicz K. Psychological background of postpartum depression and its consequences. *Psychoterapia.* 2012;2(161):55–63 [in Polish].
12. Białkowska J, Idźkowska B. [Evaluation of the incidence of depression syndromes in patients after cerebral stroke hospitalized in the rehabilitation ward]. *Rocz Med.* 2007;14(1):49–52 [in Polish].
13. Pużyński S. [Depressions]. Warszawa: PZWL; 1988 [in Polish].
14. Sit D, Rothschild AJ, Wisner KL. A review of postpartum psychosis. *J Womens Health (Larchmt).* 2006;15(4):352–368.
15. Johnstone SJ, Boyce PM, Hickey AR, Morris-Yatees AD, Harris MG. Obstetric risk factors for postnatal depression in urban and rural community samples. *Aust N Z J Psychiatry.* 2001;35(1):69–74.
16. Reroń A, Gierat B, Huras H. [Rating incidence of postpartum depression]. *Ginekol Prakt.* 2004;12(3):32–35 [in Polish].
17. Wang L, Wu T, Anderson JL, Florence JE. Prevalence and risk factors of maternal depression during the first three years of child rearing. *J Womens Health (Larchmt).* 2011;20(5):711–718.
18. Dindar I, Erdogan S. Screening of Turkish women for postpartum depression within the first postpartum year: the risk profile of a community sample. *Public Health Nurs.* 2007;24(2):176–183.
19. Mori T, Tsuchiya KJ, Matsumoto K, Suzuki K, Mori N, Takei N. Psychosocial risk factors for postpartum depression and their relation to timing of onset: the Hamamatsu Birth Cohort (HBC) Study. *J Affect Disord.* 2011;135(1–3):341–346.
20. Jarzabek G, Wybrańczyk K, Szafińska A, Rzeczycki J, Friebe Z. [Adolescent pregnancy and postpartum depression]. *Now Lek.* 2002;71:277–282 [in Polish].
21. Podolska MZ, Majkovicz M, Sipak-Szmigiel O, Ronin-Walknowska E. Cohabitation as a strong predicting factor of perinatal depression. *Ginekol Pol.* 2009;80(4):280–284 [in Polish].
22. Cox JL, Holden JM, Sagovsky R. Detection of postnatal depression. Development of the 10-item Edinburgh Postnatal Depression Scale. *Br J Psychiatry.* 1987;150:782–786.
23. Borysewicz K. Edinburgh Postnatal Depression Scale in studies of the Polish population – preliminary report. *Wiad Psychiatr.* 2001;4(2):101–104 [in Polish].
24. Ishikawa N, Goto S, Murase S, et al. Prospective study of maternal depressive symptomatology among Japanese women. *J Psychosom Res.* 2011;71(4):264–269.
25. Eastwood JG, Phung H, Barnett B. Postnatal depression and socio-demographic risk: factors associated with Edinburgh Depression Scale scores in a metropolitan area of New South Wales, Australia. *Aust N Z J Psychiatry.* 2011;45(12):1040–1046.
26. Czarnecka M, Jaszczak M. The prevalence and risk factors of depression in women postpartum. *Arch Perinat Med.* 2006;12(3):7–10.
27. Reid V, Meadows-Oliver M. Postpartum depression in adolescent mothers: an integrative review of the literature. *J Pediatr Health Care.* 2007;21(5):289–298.
28. Rubertsson C, Wickberg B, Gustavsson P, Rådestad I. Depressive symptoms in early pregnancy, two months and one year postpartum – prevalence and psychosocial risk factors in a national Swedish sample. *Arch Womens Ment Health.* 2005;8(2):97–104.
29. Gracka-Tomaszewska M. Psychological factors during pregnancy correlated with infant low birth weight. *Pediatr Endocrinol Diabetes Metab.* 2010;16(3):216–219 [in Polish].