ORIGINAL PAPERS

Adv Clin Exp Med 2015, **24**, 6, 1051–1057 DOI: 10.17219/acem/27452

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Analysis of Chosen Variables Psychological Determining the Occurrence of Mood Disorders After Childbirth

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A - research concept and design; B - collection and/or assembly of data; C - data analysis and interpretation;

D – writing the article; E – critical revision of the article; F – final approval of article

Abstract

Background. Psychological factors are one of many that contribute to the increased risk of a psychiatric disorder's occurrence after childbirth.

Objectives. The aim of this work was to determine the relation between psychological variables, such as sense of self-efficacy and dispositional optimism, and the risk of mood disorder's occurrence in women after childbirth.

Material and Methods. Two hundred eighty five women, who gave birth in the University Hospital no. 2 in Bydgoszcz, took part in the study. To measure the risk occurrence of mood disorder symptoms after childbirth the Edinburgh Postnatal Depression Scale (EDPS) was used. Obtaining a score of 12 or more points out of 30 on the Edinburgh Postnatal Depression Scale was an indicator of mood disorders. To study psychological variables the General Self-Efficacy Scale (GSES) and Life Orientation Test (LOT-R) were used.

Results. Twenty three point two percent of women obtained 12 or more points in the EDPS scale. The average result in GSES scale for all women who took part in the study was 30.80 and indicated a high estimation of women's own capabilities in dealing with new situations. Obtained results indicated a surprisingly small group of women with low estimation of their own capabilities (n = 15). However, negative correlation between EDPS and GSES parameters, on a statistically significant level (p < 0.0001) was found (p = 0.27). In the course of analysis of the results concerning optimism-pessimism dimension rated with LOT-R, the average result was calculated to be 15.6. In the same group, 61 women showed pessimistic tendencies, and 23 (34.8%) suffered from mood disorders. Scores obtained in EDPS negatively correlated with the results in LOT-R (p = 0.0001).

Conclusions. In the first week after childbirth, one-fourth of women are in danger of the occurrence of mood disorders. There is a negative correlation between the sense of self-efficacy and dispositional optimism and risk of occurrence of mood disorders after childbirth (Adv Clin Exp Med 2015, 24, 6, 1051–1057).

Key words: mood disorders, Edinburgh Postnatal Depression Scale, sense of self-efficacy, dispositional optimism.

Epidemiological research shows that there is a two times higher increase in depression cases in women than in men. A woman's childbearing period is an additional factor that increases the risk of occurrence of mood disorders. Factors, such as pregnancy, miscarriage, abortion, infertility, and postpartum period are a threat to mental health [1].

Psychiatric disorders connected to childbirth are mainly understood as commonly occurring depression in women after childbirth. According to Brockington [2], mood changes in regular reactions to stress and various failures differ from depressive disorders only in the intensity of

symptoms. Most frequently, they manifest themselves in a form of affective symptoms that occur for the first time after childbirth. Brockington [3] mentions over 30 different *postpartum* psychiatric disorders and he divides them into six groups: *postpartum* psychosis, *postpartum* depression, psychopathology of childbirth, bipolar disorder during menstruation and after childbirth, disruption in mother-child relation, and obsessive anxiety disorders (or related to stress). Hopkins et al. [4] distinguished three forms of clinical depressive states that occur after childbirth: *postpartum* blues, *postpartum* depression, and *postpartum* psychosis.

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Aforementioned disorders differ in types and intensity of symptoms, as well as in time of occurrence and duration.

Frequently, a woman's mood worsens after childbirth. This state is called baby blues. Unfortunately, there is no definition of baby blues in Polish language as there is in English. Closest definitions are: third day syndrome, *postpartum* sadness, and *postpartum* gloom. Baby blues is the least severe form of mood disorders that occur after childbirth.

Research indicates that the frequency of *post-partum* blues depression occurrence is almost 85% [5]. *Postpartum* sadness manifests itself in many ways, such as: moderately low mood, emotional lability, tearfulness, tension, irritability, excessive sensitivity, feelings of exhaustion, hypochondriacal attitude, and attention deficit [6]. According to Cox et al. [7], supporting a mother right after childbirth and even later, and treating her with patience will make the symptoms of *post-partum* sadness gradually fade away. However, as *postpartum* blues' occurrence is a factor in *post-partum* depression development, the legitimacy of treating this syndrome as a physiological phenomenon is questionable.

Postpartum depression occurs in 10-20% of young mothers. Symptoms can be divided into four groups: emotional symptoms with dominating sadness and anhedonia, cognitive symptoms with low self-esteem and pessimistic visions of the future, and motivational symptoms with extreme apathy and difficulties in making decisions [9]. In the fourth edition of classification of psychiatric disorders by the American Psychiatric Association appears a quite precise term "postpartum". It is used to describe symptoms of major depressive disorder, affective disorder, or a short psychotic episode that begins during first four weeks after childbirth [10]. In ICD-10 classification, postpartum depression develops during the first six weeks after childbirth [6]. Symptoms of postpartum depression resemble that of an episode of major depression in other periods of life. According to the diagnostic criteria of major depression, a person has to manifest at least five out of nine possible symptoms for it to be diagnosed, with at least one of them being low mood or decrease in interest and pleasure. To recognize a severe or mild depressive episode, symptoms have to last for at least two weeks. Each of these disorders lasts usually for one to a few months. In women suffering from one of these disorders, many symptoms occur almost on a daily basis, and last for almost an entire day, which fits DSM-IV criteria [11]. In 1-2 out of 1000 mothers who manifest symptoms of postpartum psychosis, hospitalization is inevitable. It is a severe psychiatric disorder that is considered a state of emergency in psychiatry. It often appears during the first couple of days after childbirth, frequently in women from families that are genetically burdened with psychiatric disorders. Untreated psychosis lasts for 6-8 months. However, relapses may occur [1]. This disorder manifests itself in such symptoms as: disorganized thinking, delusions of reference of oppressive or bizarre nature, visual and olfactory hallucinations, lack of insight, cognitive disability, and tendencies and thoughts of infanticide [8]. Some authors suggest that psychosis occurs more frequently in women who, in the past, received a steroid or bromocriptine treatment. That is the reason why the usage of bromocriptine is not advisable in women who, in the past, suffered from severe psychiatric disorders [1].

Results of epidemiological research and metaanalyses allow us to state that postpartum psychiatric disorders are not caused by only one specific cause [1]. Kumar and Robson pointed out that the specificity of the biochemical composition of a woman's organism plays a key role in their vulnerability to mood disorders after childbirth [12]. Levels of estrogens, progesterone, and cortisol decrease after childbirth. Ovary hormones easily enter the brain and work as external neuromodulators of neural activity. Receptors of hormones of the ovaries occur not only in parts of the brain responsible for reproductive functions, but also in these responsible for mood regulation and higher mental functions [1]. Bloch et al. [13] suspect that the rapid decrease in estrogen level after childbirth has a significant impact on the occurrence of postpartum depression. Fink et al. [14] found that estrogen strongly affects mood, general mental health, and memory functions. However, research conducted on Greek women does not confirm the existence of relations between hormone concentration and low mood in women in the first and sixth week after childbirth [15]. For almost 50 years now it is known, on the basis of scientific research, that in puerperium period thyroid dysfunction may occur. There seems to be a relation between lower values in FT3 and FT4 serum and the occurrence of a low mood in women in the first week after childbirth [16].

According to Silva et al. [17], low socioeconomic status, single motherhood, and stressful life events are crucial sociodemographic and psychosocial risk factors in the occurrence of mood disorders after childbirth. Preeclampsia, hospitalization during pregnancy, urgent Cesarean section, suspicion of fetus's life being endangered, and hospitalization of an infant results in roughly twice the risk of *postpartum* depression occurrence, which is proven by research conducted by Bloom et al. [18].

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Fisher et al. [19] made a systematic review of 17 countries and found out that low socioeconomic status, unwanted pregnancy, young age of the mother, single motherhood, lack of support from husband and domestic violence, bad relations with mother-in-law, and psychiatry history are crucial risk factors in the occurrence of psychiatric disorders in women during perinatal period. Many scientists closely examined the hypothesis concerning the relation of premenstrual syndrome and *post-partum* mood disorders [20].

Postpartum psychiatric disorders more frequently occur in women with low self-esteem, higher vulnerability to mental harm, exhibit signs of apprehensiveness and hostility, inability to deal with stress, exhibit introspective tendencies, and those who frequently complain about diseases of psychosomatic nature [5].

Women with various personality types may suffer from psychiatric disorders. Features like a tendency to think pessimistically, self-criticism, sense of lack of control over one's life, need for a high achievement, perfectionism, secrecy, timidity, strong emotional dependence on other people, dependence on support, care, and acceptance of other people, and fear of change especially draw attention. Neuroticism is a confirmed risk factor that is a predisposition to the occurrence of psychiatric disorders [21].

Sense of self-efficacy is a factor that determines many aspects of human behavior. It is a conviction that one can carry out actions necessary to achieve planned results in a specific life situation. People with high sense of self-efficacy are optimistic and they often pick correct action strategies. On the other hand, in the case of low sense of self-efficacy, emotions such as helplessness, anxiety, and gloom occur [22]. Research conducted by Mohammad et al. [23] informs that low sense of self-efficacy has a relation with the occurrence of *postpartum* depression in women.

Aim of the Work

The aim of the work was to determine the existence of relation between psychological variables such as: sense of self-efficacy, dispositional optimism and the risk of occurrence of mood disorders in women after childbirth.

Material and Methods

Two hundred and eighty five women, who gave birth in the University Hospital no. 2 in Bydgoszcz, took part in the study. Women were qualified for the research only on the second day after

natural childbirth and the third day after Cesarean section. Major criteria of selection were good verbal contact, a physical and mental state that allowed women to fill out the questionnaire without assistance, and lack of other coexisting disorders that hindered life activity. To measure the risk occurrence of mood disorder symptoms after childbirth, the Edinburgh Postnatal Depression Scale (EDPS) was used. Obtaining a score of 12 or more points out of 30 in the Edinburgh Postnatal Depression Scale was an indicator of mood disorders. To study psychological variables, the following tools were used: General Self-Efficacy Scale (GSES) and Life Orientation Test (LOT-R). Aside from that, a self-designed questionnaire and data obtained from medical documentation was used. The self-designed questionnaire comprised of sociodemographic questions (age, education, marital status, economic situation, professional activity, relations with husband/partner) and questions concerning the course of current pregnancy, childbirth and period after childbirth.

Respondent selection was purposeful, and participation was voluntary. Women who took part agreed in writing on conducting the study.

The Edinburgh Postnatal Depression Scale was created by John L. Cox, Jennifer M. Holden, and Ruth Sagovsky in 1987 in Livingston and Edinburgh. It is a self-rating questionnaire whose aim is to detect depressive syndromes. Currently, it consists of 10 short questions. Each question has to be answered by a woman by choosing an option that describes her feelings during the last 7 days. Women who received 12 to 13 points out of 30 "probably" suffer from depressive disorders of various intensity [7]. Cox et al. [7] notice that mothers are able to hide depressive symptoms even for a couple of months, this is why they suggest EDPS to be used a couple of times a year after childbirth. It is important to remember though that a high result is not a definite diagnosis of depression, since the final diagnosis depends, of course, on the medical examination and diagnostic criteria. The Edinburgh Postnatal Depression Scale directs the attention of health care workers to the general health and mood of a mother. It makes further discussions easier and allows for accurate information about the thoughts and behavior of patients to be obtainable [1].

R. Swarzer and M. Jerusalem's Generalized Self-Efficacy Scale was created on Freie Universitat Berlin in 1992. Next year it was translated into English. Up to 1998 GSES has been adopted in 21 countries, with Poland among them (in cooperation with Z. Juczyński). GSES refers to Bandura's conception of expectations and self-efficacy. Perceived efficacy may refer to specific activity

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areas, and may as well express general conviction of a particular role in difficult or new situations. GSES measures the strength of general conviction of one's efficacy in dealing with difficult situations and obstacles. This scale was created to examine adult, healthy, and sick people. It consists of 10 statements. The tested person's task is to encircle a number related to their chosen answer. Each question allows for four different answers: no - 1, rather not – 2, rather yes – 3, or yes – 4. The time to fill out the questionnaire should be approximately 2-3 min. The sum of all points (between 10 and 40) is a general indicator of the sense of self-efficacy. The higher the score, the higher the sense of self-efficacy. The general indicator, when turned into standardized units, can be interpreted according to features that characterize the standard ten scale. Result falling within 1-4 sten score (10-24 points) are treated as low. Results within 7-10 sten score (30-40 points) are considered to be high. Results within 5 and 6 sten score (25–29) are considered to be average [24, 25].

Research indicates that optimism is a vital personal resource which influences one's physical condition and mood. It also helps in achieving successes in life and strengthens the resistance to stressful life events. The Life Orientation Test-Revised (LOT-R) consists of 10 statements. Six of them have a diagnostic value for dispositional optimism. Three statements are positive and three are negative. The four remaining statements are not taken into account when calculating the sum. The general result of the test is a sum of points obtained in the six statements, with three being positive (1, 4, 10), and three negative (3, 7, 9). The latter numbers, before being added up, need to be reversed (0 = 4, 1 = 3, 2 = 2, 3 = 1, 4 = 0). Total score fits between 0 and 24 points. The higher the score, the higher the optimism level. Low sten scores (1-4) suggest that a person may have pessimistic tendencies, whereas high sten scores (7-10) indicate an optimistic approach. Optimism level can modify various actions and behavior. Usually, it correlates with high self-esteem, sense of self-worth and self-efficacy, and internal locus of control. It also negatively correlates with depression, helplessness, and anxiety. What is more, it was shown that high results in LOT-R are connected to weakening of postpartum depression symptoms [24].

The study analysis was conducted using Microsoft Office Excel 2000 and statistical software STATISTICA v. 10. Parametric and non-parametric significance tests were used to verify the stated hypotheses. Two hundred and eighty five correctly filled EDPS and 283 LOT-R questionnaires were analyzed. Obtaining a score of 12 or more points

in the Edinburgh Postnatal Depression Scale was a risk indicator of psychiatric disorders. To determine a possible relation between values obtained using GSES and EDPS, six-field correlation tables were built. These tables contained the number of classes obtained on the basis of the occurrence of mood disorders and sten-based test results. A nonparametric test named the "chi-square" test was used. The general indicator of GSES, after standardization, can be interpreted according to sten scale standards. To find a possible correlation between results obtained using EDPS and results obtained using GSES and LOT-R, correlation diagrams were created. The next step was to calculate and verify the significance of Pearson's linear correlation coefficient using Student's t-test. We assumed p = 0.05 as the authoritative significance level, for which critical values were given.

Results

The age of women who took part in the study varied between 15 and 39. Women with higher education made up 44.6%, whereas women with secondary education slightly less – 36.1%. The majority of women were married and a slight majority of women gave birth for the first time. 48.4% of women gave birth to at least one child before. Almost all women gave birth to only one child (96.8%) (48.4% of women gave birth to at least one child before, whereas 3.2% of women gave birth to twins. 84.5% of pregnancies ended with a timely delivery. As much as 15.5% of pregnancies ended with a Preterm birth. Pregnancy in 98 cases ended with a Cesarean section (35.1%). 64.9% of women gave birth in a natural way.

The study was conducted on third day puerperium. Analysis of gathered data indicates that average result in EDPS scale was 8.15 with SD = 5.357, and a median = 8. The lowest result obtained was 0, and the highest one was 24. On the first week after childbirth, 66 (23.2%) women got 12 or more points in the EPDS scale (Table 1).

In the course of the analysis of our own research concerning generalized sense of self-efficacy (based on data obtained thanks to GSES), the calculated average result of the whole group was 30.80~(SD=4.670, min = 10, max = 40). In the course of the statistical

Table 1. Frequency of mood disorders occurrence according to EDPS

	No mood disorders (EDPS < 12)	Mood disorders (EDPS ≥ 12)	Σ
n	219	66	285
%	76.8	23.2	100

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			GSES level		
		low (1-4)	medium (5-6)	high (7-10)	
Mood disorder	no	8 (3.7%)	53 (24.2%)	158 (72.1%)	219 (100%)
	yes	7 (10.6%)	29 (43.9%)	30 (45.4%)	66 (100%)
Σ		15	82	188	285
$\chi^2 (\chi^2_{\rm kr} = 5.99)$	χ^2	17.0	17.0		
	р	0.0002	0.0002		

Table 2. Relation between GSES indicators and results obtained using EDPS

Table 3. Relation between LOT-R indicators and results obtained using EDPS

		LOT-R level2			Σ
		low (1-4)	medium (5-6)	high (7-10)	
Mood disorder	no	38 (17.5%)	69 (31.8%)	110 (50.7%)	217 (100%)
	yes	23 (34.8%)	28 (42.4%)	15 (22.7%)	66 (100%)
Σ		61	97	125	283
$\chi^2 (\chi^2_{\rm kr} = 5.99)$	χ^2	17.7			
	p	< 0.0002			

analysis, it was determined that there is a relation between parameters in GSES and the occurrence of mood disorders after childbirth (Table 2).

In the course of the analysis of dispositional optimism, the average result was calculated as 15.64 (SD = 4.093, min = 2, max = 25). Statistical analysis determined that there is a correlational relationship between LOT-R scale parameters and results obtained using EDPS. 61 women manifested pessimistic tendencies, and 34.8% of them showed symptoms of mood disorders (Table 3).

Significant relations were found between the results from EDPS and the results obtained using GSES and LOT-R – values of t-statistics are greater than the critical value (1.97). The coefficients obtained suggest that there is an inversely proportional dependence on EPDS results. Correlation is (and should be) negative. The correlation coefficient between EDPS and GSES results is: r = -0.27 and it is statistically significant (p < 0.0001) (Table 4).

Table 4. Correlation coefficients of results obtained using EDPS and scale results of GSES and LOT-R

EPDS a:	GSES	LOT-R
R _{xy}	-0.27	-0.43
$t (t_{kr} = 1.97)$	4.72	8.00
p	< 0.0001	< 0.0001

Discussion

Women filled out the questionnaire on the third day after childbirth on average (2.87). The standard deviation was calculated to be 1.4 (SD = 1.339). Therefore, we can assume that most of the women filled out the questionnaires between the second and fourth day after childbirth. Thus, it is apparent that *postpartum* blues, whose symptoms are most intense between third and fifth day after childbirth, were responsible for the mood disorders. The authors' own research indicates that postpartum blues affected 23.2% out of 285 women. It is a result that fits in the wide spectrum of other authors' research. Borysewicz estimated the frequency of baby blues occurrence to be 19% [26]. According to Kosińska-Kaczyńska et al. [27], symptoms of postpartum blues occurred in 38.4% of cases between the third and the fifth day after childbirth. The results of authors' own research match those of Reronia et al. [28], since 21% of women obtained a positive result in Edinburgh Postnatal Depression Scale. Łukasik et al. [9] inform that 31% of women experienced a low mood in a form of baby blues. A high level of the occurrence is also present in Sweden (64%) [29].

The frequency of occurrence is different in individual countries. These differences are caused by social, cultural and economic factors [8]. Diagnostic criteria, number of participants, and differences

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in the research process may also be a reason why these results are so far from each other. It seems that along with making the criteria stricter, the number of women who manifest symptoms of mood disorders in a particular country decreases.

Sense of self-efficacy and conviction of being able to deal with new situations (like maternity and taking care of an infant) are significant factors that determine a woman's mental health after childbirth. Women gain a sense of self-efficacy based on many kinds of different pieces of information. This information comes from the environment, and mainly concerns the social sphere and features of a particular situation. Experiencing low levels of emotions like fear and anger is a signal for women that their sense of self-efficacy in a particular situation is high. The results of authors' own research indicate that women after childbirth have a rather high sense of self-efficacy with an average result of 30.80. Women who suffered from or experienced a mastectomy (30.07) [24], endometriosis (30), frequent migraine (28.57), and diabetes (28.34) manifested a strong conviction of being able to deal with new situations. On the other hand, women during the treatment of menopause (26.12) and women with complicated pregnancy (26.9) [24] obtained the lowest results. In authors' own research, there was only a surprisingly small group of women with a low sense of self-efficacy (n = 15). However, a statistically significant correlational relationship was found between EDPS and GSES scale parameters. Therefore, it can be assumed that women with a low sense of self-efficacy are in a risk group of mood disorders occurrence after childbirth. Mohammad et al.'s research [23] provided us with similar results. According to Hall et al. [30], women with low self-esteem are 39 times more likely to suffer from various mood disorders after childbirth.

Scheier and Carver [31] are the authors of dispositional optimism term. Dispositional optimism is a conviction that good things are more likely to happen in life than bad things. According to the authors, it is a rather constant feature that is unlikely to change under any conditions. Optimism motivates people and makes a positive impact on perseverance and determination. Furthermore, thanks to

optimism, making difficult decisions on the spot is easier. Environmental and biological factors have a crucial impact to the development of this feature. Optimism greatly influences mental and somatic functioning of a woman after childbirth. There is a relation between being an optimist and being healthy, since optimists experience a greater number of positive emotions than pessimists [24]. Women who have positive attitude to the future are satisfied with their life and manifest fewer symptoms of mood disorders. It is suspected that women with pessimistic attitudes are more likely to suffer from mood disorders after childbirth.

In the course of dispositional optimism analysis, the average result was calculated to be 15.64. The average value in Poland is slightly lower (14.55, SD = 4.05). Women who were suffering from carcinoma were the most optimistic group (16.33). However, women suffering from diabetes were the least optimistic (14.49). Women with complicated pregnancies obtained an average result of 16.1 [24]. American research indicates that there was a relation between dispositional optimism and a decrease of postpartum depression symptoms [32]. The results of Grote and Bledsoe's [33] research anticipates that optimists are less likely to develop postpartum depression in the sixth and twelfth months after childbirth than pessimists. Different authors, however, came to different conclusions, as they did not find pessimism to be able to determine the occurrence of depressive disorders [21].

The problem of psychiatric disorders after childbirth is a complicated phenomenon. Review of significant books and articles on this matter shows how important a problem it is. It is necessary to constantly broaden the knowledge of psychological risk factors of mood disorder occurrence in women after childbirth, since this will allow us to better understand the character and the development of this disorder.

The authors concluded that in the first week after childbirth, one-fourth of women are in danger of the occurrence of mood disorders. There is a negative correlation between a sense of self-efficacy and dispositional optimism and risk of occurrence of mood disorders after childbirth.

References

- [1] Hanley J: Zaburzenia psychiczne w ciąży i połogu. Sidorowicz S. (red. wyd. I pol.). Elsevier Urban & Partner, Wrocław 2009.
- [2] Brockington I: Puerperal disorders. Adv Psych Treat 1998, 4, 312–319.
- [3] Brockington I: Psychosis complicating Chorea gravidarum. Arch Womens Ment Health 2006, 9, 113–114.
- [4] Hopkins J, Marcus M, Campbell SB: Postpartum depression: a critical review. Psychol Bull 1984, 95, 498–515.
- [5] Koszewska I: O depresji w ciąży i po porodzie. Wyd. Lek. PZWL, Warszawa 2010.
- [6] Dudek D, Siwek M, Zięba A, Nowak G: Depresja poporodowa. Przegl Lek 2002, 59, 919–923.
- [7] 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.

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[8] Jaeschke R, Siwek M, Dudek D.: Poporodowe zaburzenia nastroju-update 2012. Neuropsychiatr Neuropsychol 2012, 7, 113–121.

- [9] Łukasik A, Błaszczyk K, Wojcieszyn M, Belowska A: Charakterystyka zaburzeń afektywnych u położnic w 1 tygodniu połogu. Ginekol Pol 2003, 74, 1194–1199.
- [10] Klimaszewska K, Bondaruk I, Rolka H, Krajewska-Kułak E, Kowalczuk K, Jankowiak B, Kondzior B, Baranowska A: Rola edukacyjna pielęgniarki w zakresie postępowania z chorym na depresję. Probl Hig Epidemiol 2007, 88, 408–416.
- [11] Yonkers KA, Smith MV, Brunetto WL, MPH, Cavaleri MA, LCSW: Rozpoznawanie depresji u kobiet zgłaszających sie do ginekologa. Ginekol Dypl 2005, 6, 14–27.
- [12] Kumar R, Robson KM: A prospective study of emotional disorders in childbearing women. Br J Psychiatry 1984, 144, 35–47.
- [13] Bloch M, Daly RC, Rubinow DR: Endocrine factors in the etiology of *postpartum* depression. Compr Psychiatry 2003, 44, 234–246.
- [14] Fink G, Sumner BE, Rosie R, Grace O, Quinne JP: Estrogen control of central neurotransmission: effect on mood, mental state, and memory. Cell Mol Neurobiol 1996, 16, 325–344.
- [15] Chatzicharalampous C, Rizos D, Pliatsika P, Leonardou A, Hasiakos P, Zervas I, Alexandrou A, Creatsa M, Konidaris S, Lambrinoudaki I: Reproductive hormones and *postpartum* mood disturbances in Greek women. Gynecol Endocrinol 2011, 27, 543–550.
- [16] Lambrinoudaki I, Rizos D, Armeni E, Pliatsika P, Leonardou A, Sygelov A, Argeitis J, Spentzou G, Hasiakos P, Zervas I, Papadias C: Thyroid function and *postpartum* mood disturbances in Greek women. J Affect Disord 2010, 121, 278–282.
- [17] Silva R, Jansen K, Souza L, Quevedo L, Barbosa L, Moraes I, Horta B, Pinheiro R: Sociodemographic risk factors of perinatal depression: a cohort study in the public health care system. Rev Bras Psiquiatr 2012, 34, 143–148.
- [18] Bloom EA, Jansen PW, Verhulst FC, Hofman A, Raat H, Jaddoe VW, Coolman M, Steegers EA, Tiemeier H: Perinatal complications increase the risk of *postpartum* depression. The Generation R Study. BJOG 2010, 117, 1390–1398.
- [19] Fisher J, Cabral de Mello M, Patel V, Rahman A, Tran T, Holton S, Holmes W: Prevalence and determinants of common perinatal mental disorders in women in low-and lower-middle-income countries: a systematic review. Bull Word Health Organ 2012, 90, 139–149.
- [20] Garcia-Esteve L, Navarro P, Ascaso C, Torres A, Aquado J, Gelabert E, Martin-Santos R: Family caregiver role and premenstrual syndrome as associated factors for postnatal depression. Arch Womens Ment Health 2008, 11, 193–200.
- [21] Michalska-Leśniewicz M, Gruszczyński W: Czynniki psychologiczne w depresji. Psychiatry 2010, 7, 95–103.
- [22] Jachimowicz V, Kostka T: Ocena poczucia własnej skuteczności u pensjonariuszy Domu Pomocy Społecznej. Gerontol Pol 2009, 17, 23–31.
- [23] Mohammad KJ, Gamble J, Creedy DK: Prevalence and factors associated with the development of antenatal and postnatal depression among Jordanian women. Midwifery 2011, 27, 238–245.
- [24] Juczyński Z: Narzędzia pomiaru w promocji i psychologii zdrowia. Pracownia Testów Psychologicznych Polskiego Towarzystwa Psychologicznego, Warszawa 2001.
- [25] Gromulska L, Piotrowicz M, Cianciara D: Własna skuteczność w modelach zachowań zdrowotnych oraz edukacji zdrowotnej. Przegl Epidemiol 2009, 63, 427–432.
- [26] Borysewicz K: Edynburska Skala Depresji Poporodowej zastosowanie w badaniach polskiej populacji doniesienie wstępne. Wiad Psychiat 2001, 4, 101–104.
- [27] Kosińska-Kaczyńska K, Horosz E, Wielgoś M, Szymusik I: Zaburzenia afektywne u położnic w pierwszym tygodniu po porodzie analiza rozpowszechnienia i czynników ryzyka. Ginekol Pol 2008, 79, 182–185.
- [28] Reroń A, Gierat B, Huras H: Ocena częstotliwości występowania depresji poporodowej. Gin Prakt 2004, 12, 32–35.
- [29] Edhborg M: Comparisons of different instruments to measure blues and to predict depressive symptoms 2 months *postpartum*: a study of new mothers and fathers. Scand J Caring Sci 2008, 22, 186–195.
- [30] Hall LA, Kotch JB, Browne D, Rayens MK: Self-esteem as a mediator of the effects of stressors and social resources on depressive symptoms in *postpartum* mothers. Nurs Res 1996, 45, 231–238.
- [31] Scheier MF, Carver ChS: Effects of optimism on psychological and physical well-being: Theoretical overview and empirical update. Cognitive Ther Res 1992, 16–20.
- [32] Fontaine KR, Jones LC: Self-esteem, optimism, and postpartum depression. J Clin Psychol 1997, 53, 59-63.
- [33] Grote NK, Bledsoe SE: Predicting *postpartum* depressive symptoms in new mothers: the role of optimism and stress frequency during pregnancy. Health Soc Work 2007, 32, 107–118.

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Conflict of interest: None declared

Received: 5.06.2014 Revised: 2.07.2014 Accepted: 6.08.2014