

## The Relation Between Maternity Blues and Postpartum Anxiety Among Iranian Pregnant Women

Nourossadat Kariman<sup>1\*</sup>, Sara Karimi<sup>1</sup>,  
Malihe Nourollahpour Shiadeh<sup>1</sup>, Jamal Shams<sup>2</sup> and Navideh Nasiri<sup>3</sup>

<sup>1</sup> Department of Midwifery and Reproductive Health, Nursing and Midwifery School, Shahid Beheshti University of Medical Sciences, Tehran, IR Iran.

<sup>2</sup> Department of Clinical Psychology, Faculty of Medicine, Shahid Beheshti University of Medical Sciences, Tehran, IR Iran.

<sup>3</sup> Department of Biostatistics, Shahid Beheshti University of Medical Sciences Tehran, Iran.

<http://dx.doi.org/10.13005/bbra/2050>

(Received: 25 December 2015; accepted: 15 February 2016)

Anxiety disorder is one of the most common psychological diseases in postpartum period. This study is designed to assess the relation between maternity blues and postpartum anxiety among Iranian pregnant women. In this prospective study, 310 pregnant women (37-40 weeks of pregnancy) who fitted inclusion criteria and had informed consent were selected using convenience sampling method. Demographic and obstetric characteristics and Spiegelberger anxiety questionnaire was complete for each participant. In the first stage, 3-10 days after labor all cases were screened for maternity blues using Stein maternity blues questionnaire, then divided in to two groups with and without maternity blues. In the second stages, 4-6 weeks after labor the prevalence of postpartum anxiety was assessed using Spiegelberger questionnaire. There were significant relations between maternity blues and postpartum Trait anxiety (RR=6.8, CI= 3.6- 12.5, P<0.001) and maternity blues and postpartum state anxiety (RR=7.5, CI= 4.1 - 13.8, P<0.001). This study confirmed that the incidence of anxiety is more among women with maternity blues at 4-6 weeks postpartum. Given these findings, it is recommended to carefully follow mothers with maternity blues in order to identify women prone to progression of anxiety and their subsequent treatments.

**Key words:** Maternity blues, postpartum anxiety, pregnant women, Iran

Postpartum anxiety has been assessed in some studies as one of the most common psychological disorders in this period<sup>1-3</sup>. There are few studies regarding postpartum anxiety, since anxiety and depression occur simultaneously, women with depression symptoms during postpartum period have clinically experienced anxiety symptoms; moreover, anxiety disorder without depression is also common among women<sup>4</sup>. The average age for beginning of many anxiety disorders is early second decade of life, due to this reason the prevalence of postpartum

anxiety is especially considerable in women in fertility ages<sup>5</sup>. Meanwhile, previous works have been illustrated that labor and having child is accounted as a stressor which is associated with high incidence rate of anxiety disorders<sup>6</sup>. Moreover, it is demonstrated that number of children, depression and social anxiety were associated with postpartum anxiety<sup>6</sup>. Also, it is known that there is a relationship between severity of mother's psychological disorder and having problem in breast feeding<sup>7</sup>. Women with severe anxiety may have aggressive opinion to their child in the first 6 month after labor<sup>3</sup>. In a previous study in Iran, it was well known that the growth index was significantly lower in children whose mothers have severe anxiety compared to those without anxiety.

\* To whom all correspondence should be addressed.  
Fax: +98(21)88 20 25 12;  
Email: n\_kariman@yahoo.com, n\_kariman@sbm.ac.ir

Meanwhile, the psychological health in 3 months of life was significantly lower in neonates whose mothers had anxiety compared to those had not<sup>8</sup>.

Effective screening for postpartum anxiety and depression requires identification of risk factors. Thus, determination of factors which make women prone to postpartum anxiety would help the diagnosis of high risk group and this issue would be helpful in primary stages<sup>1</sup>. The association of maternity blues and postpartum has been assessed in a few studies, suggesting that maternity blues can be as a risk factor for postpartum anxiety<sup>1</sup>. Maternity blues is a transient stage of emotional response which occurs in the first week after labor in about half of the women<sup>9, 10</sup>. These women experienced an instable status of their feelings. They suffer insomnia, crying, depression, anxiety, week concentration and emotional instability<sup>10</sup>. The prevalence of maternity blues has been reported between 50% and 80%<sup>11</sup>. In most of the studies a significant relation has not been found between maternity blues and socioeconomic characteristics. Supportive treatment is indicted and the women should be satisfied that this mood change is transient and is most probably due to chemical changes.

Postpartum anxiety has an undiagnosed position in clinic. Health care giver usually do not follow the patients, thus in most of the cases the disease remains undiagnosed and without treatment. Safe, effective, cheap intervention should be planed for women in fertile ages as preventive goals.

Considering the high prevalence of anxiety and its consequences on mother and child, and this fact that there have been a few numbers of studies about postpartum anxiety, maternity blues and their relation in Iran, this study is designed to assess whether the maternity blues is predictive for postpartum anxiety or not. We hope that this assessment help diagnosis of women who are affected to progression of severe symptoms of psychological disorders in postpartum period, and this makes a chance for treatment intervention and also preventive plans for its consequences.

## MATERIALS AND METHODS

All the study protocols (No. 88-01-86-6468) were approved by the Ethics Committee of

the Shahid Beheshti University of Medical Science (SBMU). This prospective study was conducted on 310 pregnant women (37-40 weeks of pregnancy) who were presented to three treatment centers in Tehran, Iran (Akbarabadi, Taleghani and Nader); among them those fitted inclusion criteria and gave written consent to participate study were selected using convenience sampling, and demographic and obstetrical questionnaires were filled for them. Inclusion criteria were Iranian nationality, singleton pregnancy, term pregnancy weeks 37-40 which lead to a healthy baby and age 15-45 years. Exclusion criteria were previous diagnosed chronic disease before or during pregnancy (Renal and cardiac diseases, diabetes, hyperthyroid, pregnancy complications like preeclampsia and gestational diabetes), diagnosed depression before pregnancy, after previous labor or during this pregnancy, diagnosed anxiety disease before pregnancy, after previous labor and during this pregnancy, anxiety during pregnancy, admission during recent pregnancy and being unsatisfied in relationship with husband. The research objectives were introduced to the women, and were assured of confidentiality of their information. Then a written consent was obtained.

During sampling 43 patients were excluded. Thirty-one were reluctant to participate in the study and twelve were excluded due to exclusion criteria. Finally this study was conducted on 267 patients. In the first stage 3-10 days after labor, screening for maternity blues was performed using Stein maternity blues questionnaire. Based on score of Stein questionnaire, patients were divided in to two groups with maternity blues (score>8) and without it (control). In the second stage, 4-6 weeks after labor anxiety prevalence was assessed using Spiegelberger anxiety questionnaire. Stein maternity blues questionnaire is made by G. Stine in 1980 including 13 questions, first 8 questions have 5 choices from 0-4 scores and last 5 questions should be answered by Yes or No (Yes has 1 score). The total score ranges 0-26. Score more than 8 was considered as maternity blues<sup>12</sup>.

The Spiegelberger anxiety questionnaire includes 40 questions; 20 questions about trait anxiety and 20 other questions are about trait anxiety which have 5 choices ranging 0-4 scores, totally ranges 20-80 scores. Scores 0-20, 21-40, 41-

60, 61-80 are considered as very mild, mild, severe and very severe anxiety; respectively. In this study, scores 0-40 and 41-80 were considered as natural and pathologic anxiety<sup>13</sup>. Validity of demographic and obstetric characteristics questionnaire (pregnancy status) was evaluated using validity of contents.

In order to verify the validity of Persian version of Stein maternity blues questionnaire, first it was translated from English to Persian by two translators and then re-translated to English by two others; after translation it was confirmed by a psychologist, and then finally the validity of questionnaire was confirmed subsequent required revisions and used for data gathering. In order to evaluate reliability of demographic and obstetric characteristics (pregnancy status) questionnaire repeated test was applied. The reliability of Stein maternity blues questionnaire, 10 women during 3-10 days after labor complete Stein maternity blues questionnaire and Edinburgh questionnaire, then the correlation of two questionnaire was evaluated using correlation coefficient ( $r=0.90$ ). Meanwhile this questioner was evaluated using repeated measuring test. The correlation of results were defined ( $r=0.90$ ).

Mahram B (1993) has been assessed the validity and reliability of Spiegelberger anxiety test in Iran. The reliability of Spiegelberger test for trait anxiety is 0.91 and for state anxiety is 0.90 (14). In a

study by simbar M et al in 2009 the reliability of Spiegelberger Test had been reported as 0.89 (15).

Results were reported as mean  $\pm$  standard deviation (SD) or median for quantitative variables and percentages for categorical variables. The groups were compared using the Student's t- test for continuous variables and the chi-square test (or Fisher's exact test if required) for categorical variables. P values of 0.05 or less were considered statistically significant. All the statistical analyses were performed using SPSS version 16 (SPSS Inc, Chicago, IL, USA) for Windows.

## RESULTS

Thirty nine percent (104) of women had diploma degree; 34.7% and 42.3% women with and without maternity blues had diploma degree, respectively. In total 85% of participants were householder, 85.7% of women with maternity blues and 85.9% of control group were householder. About forty percent (39.3%) of husbands had diploma degree, 33.9% were those whose wives were classified in maternity blues group and 43.6% were in control group. In total 42.6% of husbands had free business; which was equal to 41.6% and 43.6% of women in case and control group.

Sixty one (61%) of families had monthly income between 300 and 500 \$ (58.5% in maternity blues group and 63.1% in control group). Totally

**Table 1.** Patients' demographic and obstetric characteristics

Variables	With maternity blues	Control	Test	P
Age	26.6 $\pm$ 4.8	27.4 $\pm$ 5.1	T	0.15
Husband's age	30.5 $\pm$ 4.7	31.1 $\pm$ 5.4	T	0.27
Marriage duration	5.1 $\pm$ 4.4	5.3 $\pm$ 4.1	T	0.43
Number of children	1.36 $\pm$ 0.55	1.41 $\pm$ 0.62	T	0.19
Number of pregnancies	1.42 $\pm$ 0.67	1.5 $\pm$ 0.72	T	0.25
Number of labors	1.36 $\pm$ 0.55	1.41 $\pm$ 0.62	T	0.23

**Table 2.** The frequency of State anxiety in women with and without maternity blues

Postpartum State anxiety	With maternity blues N (%)	Control N (%)	Total N (%)
Yes	62 (52.5)	19 (12.8)	81 (30.3)
No	56 (47.5)	130 (87.2)	186 (69.7)
Total N (%)	118 (100)	149 (100)	267 (100)
Test results	$X^2= 49.3$ , $P<0.001$ , $RR= 7.5$ , $CI= 4.1 - 13.8$		

29.8% of our participants lived in rent/mortgage house; in case group 29.7% of participants lived in rent/mortgage house while 29.8% of participants in control group had rent/mortgage house. Most of the pregnancies (71.5%) were wanted and 66.7% of women had one child. Most of the women (57.7%) lived in a surface more than 50 m<sup>2</sup>; 54.0% of patients in case group and 59.0% of participants in control group lived in a surface > 50 m<sup>2</sup>.

Most of the pregnancies were the results of cesarean section (61.0%) and most of the babies were boy (52.1%). Some of the demographic factors are presented in table 1.

Demographic and obstetric characteristics did not show a significant difference between two groups ( $P > 0.05$ ). Tables 2 and 3 show the frequency of State and trait anxiety in two studied groups.

**Table 3.** The frequency of trait anxiety in women with and without maternity blues

Postpartum State anxiety	With maternity blues N (%)	Control N (%)	Total N (%)
Yes	57 (48.3)	18 (12.1)	75 (28.1)
No	61 (51.7)	131 (87.9)	192(71.9)
Total N (%)	118 (100)	149 (100)	267 (100)
Test results	$X^2 = 42.7$ , $P < 0.01$ , $RR = 6.8$ , $CI = 3.6 - 12.5$		

## DISCUSSION

In this study 44.2% of women had maternity blues. The prevalence of maternity blues among women has been reported 55.2% in Germany, 31.3% in Nigeria and 44.5% in the Greece (1, 16, 17). The prevalence of maternity blues in Iran has been estimated about 29% in Bushehr and 51.3% in south of Iran (18, 19). The results of both studies differ from our findings. It seems that ethnical distribution is one of the causes of different prevalence of postpartum mood disorders (18). Meanwhile, time of assessment, measuring tool, and scoring and classification were not the same in these studies. Based on our findings, 30.3% and 28.1% of women had obvious and trait anxiety (pathologic) in weeks four to six after labor.

The prevalence of State anxiety among women with maternity blues was 52.5% while it was as less as 12.8% in control group which shows a significant difference ( $RR = 7.5$ ,  $P < 0.001$ ). Trait anxiety was detected in 48.3% of women with maternity blues while it was found in 12.1% of healthy group; this difference was statistically significant ( $RR = 6.8$ ,  $P < 0.05$ ). Sato Y *et al* estimated the prevalence of anxiety symptoms 26.1% among Japanese women during 3-4 months after labor. Based on what Sedaghat S *et al* (2000) found, 44% of women in the first pregnancy will experience anxiety in the 8<sup>th</sup> week after labor<sup>20</sup>. One of the

reason explaining the observed difference between our findings and study by Sedaghat S *et al* is that they only assessed nulliparous women<sup>20</sup>.

A few numbers of studies have been conducted about relation between maternity blues and anxiety. A significant relation was found between maternity blues and postpartum anxiety in a study by Rek C *et al* in 2009 ( $OR = 3.9$ ,  $P < 0.05$ ). In this study 81.2% of mothers with postpartum anxiety suffered maternity blues. In another study by Rek C *et al* in 2009, 29.9% and 27.7% of women with maternity blues had postpartum anxiety during 2 and 6 weeks after labor, respectively<sup>1</sup>. Results of these two studies are in consistence with our findings about relation between maternity blues and anxiety. Given these findings and what found in related studies, it seems there is a relation between maternity blues and postpartum anxiety. In present study, it has been tried to restrict confounder variables which have been proven to effect on postpartum anxiety such as women and her husband's age, couples' educational level and job, economic status, number of pregnancies and labors, wanted or unwanted pregnancy, desirability neonate's gender based on woman and husband's opinion, type of pregnancy, exclusive breast feeding, medical disease in the past and during pregnancy and satisfaction in relation with husband. Rek C *et al* in their study in 2009 were not able to detect any significant relation between

maternity blues and socioeconomic characteristics such as age, literacy, plan for pregnancy, single mothers and neonate's gender<sup>1</sup>. In consistence with our findings, in a study by Nematbakhsh *et al* in Iran in 2009, a significant relation was not found between maternity blues and age, age of marriage, literacy, job, satisfaction with matrimony status, numbers of pregnancies and labors, gynecologic disease, monthly family income, parents' feeling toward pregnancy and satisfaction with neonate's gender<sup>16, 21</sup>. However, Gindakis F *et al* found a significant relation between maternity blues in the first 3 days after labor with cesarean section<sup>17</sup>. In contrast to our results, Mosalanejad *et al* illustrated a relation between lower numbers of pregnancies and maternity blues<sup>19</sup>.

There have been some studies regarding hormonal changes and its effects on postpartum mood disorders. Some of these investigations believe that change in hormone levels like decline in estrogen and progesterone after labor is one of the causes of postpartum anxiety. Estrogen and progesterone affect postpartum mood changes through their direct effects on activity and function of brain cells (steroid hormones enter easily into the brain) and also indirect effects on neurotransmitters like GABA, serotonin, dopamine and norepinephrine. Some studies revealed that exertion of prolactin and oxytocin after labor leads to decrease anxiety in mothers who have close contact (skin to skin) with their babies. Maybe, hormonal change cause postpartum anxiety with the same mechanism of maternity blues, but there is no evidence for confirmation of this opinion<sup>22,23</sup>.

Finally, this study showed that there is a significant relation between maternity blues and postpartum anxiety. In this study, 42.2% of women with maternity blues had postpartum anxiety which was significant ( $P < 0.001$ ).

Based on our findings, 30.3% and 28.1% of women had State and trait anxiety (pathologic) in weeks 4-6 after labor. Women with maternity blues suffered postpartum anxiety 7.5 times more than control group (RR=7.5, CI= 4.1-13.8). There are some risk factors during pregnancy and in a short time after labor, thus when these risk factors found in a mothers in first days after labor a schedule should be considered for frequent follow up in order to prevent postpartum anxiety. In this study, social support was not assessed. In some

studies social support especially husband's support is mentioned as an effective factors on postpartum anxiety.

## ACKNOWLEDGMENTS

The authors would like to thank research Deputy of Nursing and Midwifery faculty of Shahid Beheshti University of Medical sciences for approval of this project, and also staffs and participants at health-treatment centers of Shahid Beheshti University of Medical sciences; without their favorable help this project would not possible.

## REFERENCES

1. 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. *Journal of Affective Disorders*. 2009; **113**(1): 77-87.
2. Ross LE, McLean LM, Psych C. Anxiety disorders during pregnancy and the postpartum period: a systematic review. *depression*. 2006; **6**(9).
3. Goodman JH, Chenausky KL, Freeman MP. Anxiety disorders during pregnancy: a systematic review. *The Journal of clinical psychiatry*. 2014; **75**(10): e1153-84.
4. Yoon KL, Joormann J. Stress reactivity in social anxiety disorder with and without comorbid depression. *Journal of abnormal psychology*. 2012; **121**(1): 250.
5. Anniverno R, Bramante A, Mencacci C, Durbano F. Anxiety disorders in pregnancy and the postpartum period. INTECH Open Access Publisher, 2013.
6. Wenzel A, Haugen EN, Jackson LC, Brendle JR. Anxiety symptoms and disorders at eight weeks postpartum. *Journal of anxiety disorders*. 2005; **19**(3): 295-311.
7. Yasemi M, Razjooyan K. Relationship of mental disorders anxiety and depression with cessation of breast feeding. *J Med Facul Guilan Univ Med Sci*. 2001; **10**: 1-7.
8. Shayeghian Z RtK, Sedighi loueeh S. Effect of anxiety mothers in tree trimester on labor and psychological health infant *Journal of Faculty of Nursing and Midwifery Tehran University of Medical Sciences*. 2008; **14**(3): 57-64.
9. Pop VJ, Truijens SE, Spek V, Wijnen HA, van Son MJ, Bergink V. A new concept of maternity blues: Is there a subgroup of women with rapid cycling mood symptoms? *Journal of affective*

- disorders. 2015; **177**: 74-9.
10. O'Hara MW, McCabe JE. Postpartum depression: current status and future directions. *Annual review of clinical psychology*. 2013; **9**: 379-407.
  11. Earls MF. Incorporating recognition and management of perinatal and postpartum depression into pediatric practice. *Pediatrics*. 2010; **126**(5): 1032-9.
  12. Nagata M, Nagai S, Sobajima H, Ando T, Nishide Y, Honjo S. Maternity blues and attachment to children in mothers of full term normal infants. *Acta Psychiatrica Scandinavica*. 2000; **101**(3): 209-17.
  13. Stein GS. The pattern of mental change and body weight change in the first post-partum week. *Journal of psychosomatic research*. 1980; **24**(3): 165-71.
  14. Mahram B. Spielberger anxiety norm in Mashhad. Thesis, Tehran, Allameh Tabatabai University. 1994.
  15. Haglund L, Britton JR. The perinatal assessment of psychosocial risk. *Clinics in perinatology*. 1998; **25**(2): 417-52.
  16. Adewuya AO. The maternity blues in Western Nigerian women: prevalence and risk factors. *American journal of obstetrics and gynecology*. 2005; **193**(4): 1522-5.
  17. Gonidakis F, Rabavilas A, Varsou E, Kreatsas G, Christodoulou G. Maternity blues in Athens, Greece:: A study during the first 3 days after delivery. *Journal of affective disorders*. 2007; **99**(1): 107-15.
  18. Bagherzadeh R, Zahmatkeshan N, Moatamed N, Khorramroudi R, Ganjoo M. Prevalence of maternal blues, postpartum depression and their correlation with premenstrual syndrome in women referred to health centers affiliated to Bushehr University of Medical Sciences. *Iranian Journal of Obstetrics, Gynecology and Infertility*. 2009; **12**(3): 9-15.
  19. Moslanejad L, Jahanmiri S, Ashkani H. Study sadness postpartum women attending gynecology clinics of Shiraz in 2002. *Journal of Jahrom University of Medical Sciences*, 2003; **2**: 22-28
  20. Sedaghat S., Exploring the Risk Factors of Prenatal & Postnatal Anxiety in Primiparousre. Faculty of Mid wifery M.S Degree .Shahid Beheshti University of Medical Science and Health care Services, 2000.
  21. Adewuya AO. Early postpartum mood as a risk factor for postnatal depression in Nigerian women. *The American journal of psychiatry*. 2006; **163**(8): 1435-7.
  22. Bigelow A, Power M, MacLellan Peters J, Alex M, McDonald C. Effect of Mother/Infant Skin to Skin Contact on Postpartum Depressive Symptoms and Maternal Physiological Stress. *Journal of Obstetric, Gynecologic, & Neonatal Nursing*. 2012; **41**(3): 369-82.
  23. Lonstein JS. Regulation of anxiety during the postpartum period. *Frontiers in neuroendocrinology*. 2007; **28**(2): 115-41.