



## Original Article

*Postpartum* mental health in relation to sociocultural practicesFatemeh Abdollahi <sup>a</sup>, Sivosh Etemadinezhad <sup>b</sup>, Munn-Sann Lye <sup>c,\*</sup><sup>a</sup> Department of Public Health, Faculty of Health, Mazandaran University of Medical Sciences, Sari, Iran<sup>b</sup> Department of Occupational Health, Faculty of Health, Mazandaran University of Medical Sciences, Sari, Iran<sup>c</sup> Department of Community Health, Faculty of Medicine and Health Sciences, University Putra Malaysia, Serdang, Malaysia

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## ABSTRACT

**Objectives:** Cultural practices have been found to positively impact the mothering experience. This study sought to identify the relationship between sociocultural practices and *postpartum* depression (PPD) in a cohort of Iranian women for the first time.

**Materials and methods:** In a longitudinal cohort design, 2279 pregnant women attending primary health centers of Mazandaran province in Iran were recruited using stratified random sampling method. Data were collected using the Edinburgh Postnatal Depression Scale and researchers developed validated cultural practices questionnaire at 3 months after delivery. Data were analyzed using Chi-square test and multiple logistic regression models.

**Results:** The prevalence of PPD was 19% among 1910 women who were followed postdelivery in this study. Cultural practices were not associated with lower odds of PPD in multiple logistic regression model after adjustment for all sociodemographic factors. The results of this study do not also provide any evidence to support that sex of baby is associated with the greater risk of PPD.

**Conclusions:** Cultural practices could not be perceived as protective mechanisms that protect women from PPD in this traditional society. However, health professionals should be familiar with *postpartum* beliefs and practices that could support mothers in the *postpartum* period.

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## Introduction

Over recent years, research has been conducted to understand the universal risk factors for *postpartum* depression (PPD). Culture plays an important role in the pregnancy evaluation and *postpartum* adjustment [1]. In some traditional cultural settings, due to the traditional practices that encourage maternal role transition, the physical and psychological pain of women are decreased [1]. PPD may occur as a result of the absence of rituals in several ways; decreasing the women's self-confidence, uncertainty of access to social support, and increasing the probability of physical activities leading to fatigue and stress [2,3].

The idea that postnatal rituals act as supportive mechanisms comes from studies by Chien et al [4] among Vietnamese women, Lee et al [5] among Chinese women in Hong Kong, and Fisher et al [6] among women in Ho Chi Minh City in Vietnam [4–6]. However

the findings of studies done to evaluate such assumptions are contradictory [3,7]. A review among Asian societies did not show evidence that cultural practices provide significant psychological benefits for the women [8]. However, studies in some other countries such as Japan revealed higher occurrence of this disorder (17%) in women who adhered to traditional practices [9].

Cultural dimensions play a significant role in the perception and experience of motherhood in a variety of cultures. The diversity of manifestations of PPD across different cultures could suggest whether this disorder primarily has psychological or biological factors [10]. While there are well documented systems of rituals and practices during *postpartum* period by Iranian culture, no research has been carried out on the impact of these practices on PPD in this country. Thus, it was important to study the impact of Iranian women's cultural practices on PPD.

## Materials and methods

This paper is based on the findings of a large cohort study which examined risk factors of PPD. Eligibility criteria for selection of

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samples were: pregnant women at gestational age of 32–42 weeks, literate in Persian, attended prenatal care at urban and rural primary health centers (PHCs) in Mazandran province in the north of Iran, from January to June 2009. The exclusion criterion was pharmacological treatment for psychiatric problems. Using G-power software for logistic regression [11], the minimum sample size was 1938 women. Medical Research Ethics Committee in the Faculty of Medicine and Health Sciences, Medical Research Ethics Committee, University Putra Malaysia and Ethics Committee of Mazandaran University of Medical Sciences in Iran gave approval to conduct the research. Participants gave written consent in the time of entry to the study. Women were recruited during the third trimester of pregnancy and were followed-up to 12 weeks after delivery. The researchers were able to approach 2626 pregnant women who attended to the PHCs. Of 2359 (89.8%) eligible women who consented to participate in this study, 2279 (96.6%) completed the first Edinburgh Postnatal Depression Scale (EPDS) during the 32–42 weeks of pregnancy and of those, 1910 women (84.13%) participated on both occasions and completed the EPDS and cultural questionnaires.

Data on demographic characteristics and cultural practices after childbirth were collected using questionnaires. Investigators also asked a few experienced elderly women in the state to give them some recommendations to develop the cultural practices questionnaire. Cultural practices were categorized into general, maternal, nutritional, and neonatal practices. General practices included: giving a party, visiting family members, getting help in taking care of other children, and avoiding bad news. Maternal practices included: 40 days rest after childbirth, not being left alone in the house and not leaving the house for 40 days. Nutritional practices included: eating plenty of hot drinks, eating plenty of sweet oily foods, eating traditional foods, and avoiding spicy foods. Neonatal practices included: massaging the baby with warm oil, wrapping or binding the baby, placing a clove of garlic on the infant's chest or dress, and cuddling and rocking the baby. Yes (scored 1) and No (scored 0) answers were summed up to calculate the total score from 0 to 27. The higher scores showed more practices. The reliability of cultural questionnaire that was used for the first time in Iran was tested by test–retest reliability and internal consistency in 60 women 8 weeks after delivery. Intra-rater reliability determined consistency of the questionnaire, completed by the women twice after birth. Consistency was shown to be good in test–retest correlation by  $\kappa = 0.60$  ( $p < 0.05$ ) over the 2-week interval. Internal consistency of the questionnaire was also measured by  $\alpha$  Guttman, which ranged from 0.34 to 0.65. Sociodemographic questionnaire was also used after pretesting by 60 healthy unselected women in PHCs (Cronbach  $\alpha$ , 0.92). Sociodemographic variables included: women's age, age at marriage, marital status, women's and husbands' education, women's and husbands' employment status, family structure, housing condition, family income, parity, and location of the health center. Questions about breast feeding status and sex of children were also asked.

The dependent variable was PPD which was measured by the validated Iranian version of EPDS. The scores  $>12$  was considered as cut-off point for the Iranian population [12]. It consists of 10 items relating to mood that are scored from zero to three (*no*, *not at all to yes*, *quite often*) according to the severity of symptoms during the past week. The total score is calculated by computing the scores of 10 items, with seven of these items (3, 5, 6, 7, 8, 9, 10) being scored reversely [13,14].

Sociodemographic data of the women who participated at both pregnancy and 12-week *postpartum* were analyzed. The women were divided into two groups; one group involved women who scored more than the EPDS cut-off level at 12 weeks *postpartum* and a reference group encompassing women who scored less than

the cut-off level at that time. The frequencies and percentages for PPD status for each level of the categorical variables and Pearson's  $p$  values for Chi-square test were calculated. Simple logistic regression was used to evaluate the relationship between the socio-demographic and cultural factors with PPD. Odds ratio (OR) with 95% confidence limits and  $p$  values were obtained. Association between PPD and number of cultural practices was tested after adjustment for all sociodemographic characteristics of women. Statistical significance was taken at  $p \leq 0.05$ .

There was no guideline to determine cut-off point for the scores of cultural practices variable. Thus, the authors categorized this variable into three levels; high, medium, and low, based on the tertiles of the data.

## Results

This study followed 1910 women from pregnancy to 3 months *postpartum*. Changes in the residence, unwillingness to continue the study and still birth were the causes of dropouts in this prospective study. Using Chi-square or  $t$  test, there were no significant differences between the characteristics of participants who had been seen during 12 weeks *postpartum* ( $n = 1910$ ) and who were not seen during this period ( $n = 369$ ) in terms of the average age (26.07 vs. 25.7 years), women's and their husbands' education, previous PPD as well as total family income.

Women who provided complete data were mostly younger ( $82.2\% \leq 24$  years) with average age of  $26.07 \pm 5.20$  years, with low family income ( $64.6\% < 3,500,000$  Rials/mo: ~US\$350), low educational level (76.2% under diploma) and had married early ( $85.2\% \leq 24$  years). A higher proportion of the women had husbands with low educational level (42.2%) and engaged in nongovernmental occupations (67.9%). The participants were predominantly from nuclear families (72.2%), owned their own home (60.3%), and have never worked (94.9%). Almost half of the women (53.1%) were nulliparous. Half of women (51.6%) were recruited from urban PHCs. Minority of the participants reported experienced PPD in previous pregnancies (8.1%). Most of the infants (90.1%) were breast feed exclusively by women at 3 months after birth.

The total number of cultural practices ranged from 0 to 27 with a mean of  $14.20 \pm 3.92$ . Maternal behaviors were the most common type of cultural practices in this study with a mean of  $5.55 \pm 1.88$  (Table 1).

The prevalence rate of depression during 32–42 weeks of pregnancy and 12 weeks *postpartum* based on EPDS was 21.3% (406) and 19% (362) with a mean of  $8.60 \pm 4.89\%$  (range, 2–28%) and  $8.29 \pm 4.95\%$  (range, 2–25%) respectively.

Table 2 illustrates prevalence of reported PPD according to sociodemographic characteristics of the women. Prevalence of PPD was more common in women who lived in the rental house compared with women who lived in their own house ( $p < 0.05$ ). The prevalence of PPD in women with low and high number of cultural practices was 21.5% and 19.3%, respectively, which that was

**Table 1**  
The number of cultural practices of women during *postpartum* period ( $n = 1910$ ).

Cultural Practices	Frequency (%)	Mean $\pm$ SD
Low ( $\leq 12$ )	633 (33.1)	
Medium (13–16)	645 (33.8)	14.20 $\pm$ 3.92
High ( $> 16$ )	632 (33.1)	
General		3.78 $\pm$ 1.58
Maternal		5.55 $\pm$ 1.88
Nutritional		2.84 $\pm$ 1.03

SD = standard deviation.

**Table 2**  
Sociodemographic characteristics of participants (n = 1910).

Variables	No PPD (EPDS ≤ 12) n (%)	PPD (EPDS > 12) n (%)	p
Age (y)			0.571
<25	675 (81.8)	150 (18.2)	
25–35	789 (80.2)	195 (19.8)	
≥36	84 (83.2)	17 (16.8)	
Age at marriage (y)			0.252
Younger than 25	1324 (81.3)	304 (18.7)	
25 or older	224 (79.4)	58 (20.6)	
Education (7)			0.361
Lower secondary (≤9)	558 (80.1)	139 (19.9)	
Upper secondary (10–12)	768 (80.8)	182 (19.2)	
Completed high school (>12)	222 (84.4)	41 (15.6)	
Husband education (y)			0.254
lower secondary (≤9)	640 (79.4)	166	
Upper secondary (10–12)	668 (81.9)	148	
Completed high school (>12)	240 (83.3)	48 (16.7)	
Employment			0.237
Housewife + student	1543 (80.1)	344 (19.1)	
Employed	95 (84.1)	18 (15.9)	
Husband employed			0.229
Business	1056 (81.4)	241 (18.6)	
Farmer	163 (76.9)	49 (23.1)	
Government servants	231 (83.7)	45 (16.3)	
Other	98 (78.4)	(21.6)	
Total household income in Tomans (/mo)			0.981
Low (<3,500,000)	1000 (81)	234 (19)	
Medium (3,500,000–4,500,000)	347 (80.9)	82 (19.1)	
High (>4,500,000)	201 (81.4)	46 (18.6)	
Number of children			0.372
Primipara (0)	919 (80.3)	225 (19.7)	
1	489 (81.4)	112 (18.6)	
≥2	140 (84.8)	25 (15.2)	
Sex of baby			0.105
Male	791 (82.3)	170 (17.7)	
Female	257 (79.9)	190 (20.1)	
Family structure			0.070
Extended	419 (78.9)	112 (21.1)	
Nuclear	1129 (81.9)	250 (18.1)	
Housing			0.047
Renting	600 (79.1)	159 (20.9)	
Own house	948 (82.4)	203 (17.6)	
Location of health center			0.580
Rural	762 (82.4)	163 (17.6)	
Urban	786 (79.8)	199 (20.2)	
Breast feeding status			0.191
Mix feeding	147 (78.6)	40 (21.4)	
Exclusive breast feeding	1391 (81.4)	317 (18.6)	
Number of cultural practices			0.044
Low (≤12)	497 (78.5)	136 (21.5)	
Medium (13–16)	541 (83.9)	104 (16.1)	
High(>16)	510 (80.7)	122 (19.3)	

EPDS = Edinburgh Postnatal Depression Scale; PPD = *postpartum* depression.

higher than the prevalence of PPD in women with medium number of cultural practices (16.1%;  $p < 0.05$ ).

There were no significant differences between PPD with cultural practices and also between PPD and sociodemographic characteristics of women in the simple logistic regression model. Moreover, the risk of PPD was not associated with the number of cultural practices after adjustment for confounding factors (all socio-demographic factors) in the multiple logistic regression model (Table 3).

## Discussion

A body of literature examining risk factors for *postpartum* depression with increasing consideration given to the role of sociocultural factors on women's health during the *postpartum* period. According to our results, the prevalence of PPD according to

**Table 3**  
Adjusted odds ratios from multiple logistic regression models for the association of *postpartum* depression with cultural practices (n = 1910).

Variable	Adjusted odds ratio	95% confidence interval	p
Number of cultural practices			
≤12	1.18	0.89–1.56	0.242
13–15	0.84	0.62–1.12	0.244
≥16	1		
Age (y)			
<25	0.88	0.45–1.70	0.700
25–35	1.14	0.63–2.06	0.651
≥36	1.00		
Age at marriage (y)			
<25	0.96	0.66–1.39	0.851
≥25	1.00		
Education (y)			
Lower secondary (≤9)	1.24	0.87–2.32	0.164
Upper secondary (10–12)	1.34	0.86–2.09	0.190
Completed high school (>12)	1.00		
Husband education (y)			
Lower secondary (≤9)	1.22	0.77–1.91	0.381
Upper secondary (10–12)	1.03	0.68–1.57	0.862
Completed high school (>12)	1.00		
Employment			
Housewife + student	1.20	0.65–2.19	0.548
Employed	1.00		
Husband employed			
Government servants	1.18	0.71–2.3	0.390
Business	1.37	0.85–2.23	0.191
Farmer	1.09	0.74–1.61	0.636
Other	1.00		
Number of children			
Primipara (0)	1.63	0.97–2.74	0.062
2	1.35	0.82–2.23	0.239
≥3	1.00		
Sex of baby			
Male	0.88	0.69–1.11	0.291
Female	1.00		
Family structure			
Extended	1.25	0.96–1.63	0.955
Nuclear	1.00		
Housing			
Renting	1.15	0.90–1.48	0.253
Own house	1.00		
Total household income in Tomans (/mo)			
Low (<350,0000)	0.84	0.55–1.27	0.416
Medium (350,000–450,0000)	0.93	0.59–1.44	0.750
High (>450,0000)	1.00		
Location of health center			
Rural	0.79	0.61–1.01	0.073
Urban	1.00		
Breast feeding status			
Mixed feeding	1.18	0.81–1.72	0.372
Exclusive breast feeding	1.00		

EPDS (19%) was comparable with previous reported rates in Iran (20.3–35%) [15–17]. This high prevalence, which is similar to findings in other developing countries (16–36%) highlights the risk of PPD in these populations [18,19]. This rate is obviously higher than the reported rates of PPD in developed countries (7.5–13.1%) [20,21]. However, comparisons are debatable due to the variations in the timing of assessment and using different EPDS cut-off points.

The findings of the current study are at variance with observations by Lee et al [5], and Fisher et al [6], who reported that high level of cultural practices could decrease the risk of PPD. Although the number of women with higher score of EPDS was more than the women with lower EPDS according to cultural practices in Chi-square test, there was no evidence of association between PPD and number of cultural practices in the univariate and the multivariate analysis in this study.

Special rituals and customs are practiced during pregnancy and childbirth in various cultures. Good care of mother and child,

balanced diet, and celebrations after delivery are practiced in many cultures, which are considered to improve women's health [22,23]. The absence of ritual practices indicates the uncertainty of society concerning motherhood status, an ambivalence which aggravates her role conflict and affects her self-esteem [2,3]. Although the earlier published documents indicate that culturally prescribed practices decrease the risk of PPD [5,6], results of the studies during recent decades are inconsistent. Some studies in countries with rich traditions such as Taiwan and China reported that the belief about the effect of rituals in reducing PPD might not be an accurate conclusion [7,24]. The results of a study among Chinese women living abroad showed that *doing the month* decreases the odds of PPD [4], although a review of studies showed less consistent support for this belief in Chinese cultures [7]. A review of studies in Asian societies did not show evidence that cultural practices provide significant psychological benefit for the women [8]. The results of the studies conducted in different parts of the world showed different prevalence of PPD [Australia (13.1%) [20], (7.5%) [21], New Mexico (16%) [18], and India (11%) [25], which suggests that the cultural practices could not protect women from developing PPD. Wong and Fisher (2009) assessed the role of confinement (getting support from family, mandated rest, receiving gifts and other cultural practices after birth) among Chinese women and revealed that confinement not only did not protect them from PPD, but also it might reduce women's freedom and self-independence, which increased the risk of PPD [7] by undermining her autonomy, thereby reducing self-confidence. Thus, it may not afford psychological advantages for the women [8]. Some researchers suggest that *postpartum* rituals can be a double-edged sword in that while it may support a person, at the same time it can be problematical and a source of stress for women [5]. If women find that rituals are abhorrent, these would have a detrimental impact on their *postpartum* mood [26]. Furthermore, to be effective, support that is given must fulfill women's needs. Receiving unnecessary assistance especially, when it is not desirable, would not enable women to attain sufficiency so their stress will not be alleviated [27].

The question of who insists on the practices of rituals is an important one. It is possible that conflict, especially with the mother-in-law, is an important factor in determining *postpartum* emotional adjustment failure, which may lead to depression [5,7,28]. The mother-in-law's conflict is featured prominently in women's negative experiences toward rituals, decreases the potential benefit of these and may contribute to the experiences of PPD [7]. Wan et al (2009) found that Chinese women who were given traditional *postpartum* care by mothers-in-law (*zuoyuezi*) were twice as likely to have PPD compared with women who did not receive it [29]. As a result, health-care providers need to give relevant information and counseling to women and their families (e.g. the role of close relatives and in-laws especially mother-in-law in PPD) and should also take into account the cultural values [23].

Another cultural factor that has been reported as having a possible role in developing PPD is fetal sex. Although, no preference toward male to female babies was observed in the depressed group of the present study, this often happens in traditional societies. Boys are favored in some societies, which is deeply rooted in their culture. Arab countries, Turkey, India, China, Japan, Taiwan, Korea, Hong Kong, and Vietnam are some of these societies [8], but research in western societies did not report correlation between those two variables [30]. Chinese and Indian studies revealed that giving birth to a female baby was strongly correlated with PPD [31,32]. The results of a Pakistani study revealed that the risk of PPD in female-bearing women was twice that of male-bearing women (24.6% for female vs. 12.2% for male) [33]. The justification for preferring boys to girls in traditional societies such as China is that the country does not have an adequate social security system and,

therefore, parents count on their sons for economic support during their old age. Girls reside with their husbands after marriage, and thus cannot support their parents. Also, the family name is a significant symbol of the family, which passes through the male line [31]. Moreover, in some areas such as South Asia, women who gave birth to girls especially those who have already more than two girls are often known to be blamed and the family members provide only minimal support for them [19,34]. This situation could contribute to depression in mothers [30]. Nevertheless, two studies in traditional cultures including Pakistan and Turkey did not show a significant relationship between PPD and fetal sex [35,36]. Thus, other factors may have greater roles in the etiology of PPD. It may be related to Islamic ideology in these nations, which strictly discourages this kind of discrimination [37].

Although cultural practices was not a significant risk factor for developing PPD in this study, women involved a mild and high cultural practices were more prone to developing depression. Thus, the health care providers should be familiar with symptoms of PPD, its related sociocultural factors, local ethnic practices and the cultural barriers of screening. Although the current study investigated the relationship between sociocultural factors and PPD for the first time in Iran more in-depth qualitative research in this area is needed to detect how and which practices may make women more prone to PPD in the Iranian population. Combined objective and subjective standard measures are needed for comparison of the relationship between the traditions and beliefs with PPD in different cultures.

This study provided a profile of the cultural practices among women. To the researchers' knowledge, this was the first study that longitudinally examined the role of cultural practices as a risk factor for development PPD in the community recruited from PHCs in Iran. The limitations of the present study were measuring PPD using EPDS without confirmation with diagnostic criteria and excluding illiterate women from the study. Also, the women' personality characteristics and other risk factors that may contribute to PPD were not evaluated in this study.

### Conflicts of interest

The authors declare that there is no conflicting interest.

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### References

- [1] Dankner R, Goldberg RP, Fisch RZ, Crum RM. Cultural elements of *postpartum* depression: a study of 327 Jewish Jerusalem women. *J Reprod Med* 2000;45:97–104.
- [2] Hung CH, Chung HH. The effects of *postpartum* stress and social support on *postpartum* women's health status. *J Adv Nurs* 2001;36:676–84.
- [3] Huang YC, Mathers N. Postnatal depression—biological or cultural? A comparative study of postnatal women in the UK and Taiwan. *J Adv Nurs* 2001;33:279–87.
- [4] Chien LY, Tai CJ, Ko YL, Huang CH, Sheu SJ. Adherence to "Doing the month" practices is associated with fewer physical and depressive symptoms among *postpartum* women in Taiwan. *Res Nurs Health* 2006;29:374–83.
- [5] Lee DTS, Yip ASK, Leung T, Chung TKH. Ethnoepidemiology of postnatal depression: prospective multivariate study of sociocultural risk factors in a Chinese population in Hong Kong. *Br J Psychiatry* 2004;184:34–40.
- [6] Fisher JRW, Morrow MM, Nhu Ngoc NT, Hoang Anh LT. Prevalence, nature, severity and correlates of *postpartum* depressive symptoms in Vietnam. *BJOG* 2004;111:1353–60.
- [7] Wong J, Fisher J. The role of traditional confinement practices in determining *postpartum* depression in women in Chinese cultures: a systematic review of the English language evidence. *J Affect Disord* 2009;116:161–9.

- [8] Klamain P, Arthur DG. *Postpartum* depression in Asian cultures: a literature review. *Int J Nurs Stud* 2009;46:1355–73.
- [9] Yamashita H, Yoshida K. Screening and intervention for depressive mothers of new-born infants. *Seishin Shinkeigaku Zasshi* 2003;105:1129–35 [Article in Japanese].
- [10] Hoefliger K. *Postpartum* depression: the need for prevention, early diagnosis and treatment. Geneva: University of Geneva; 2003.
- [11] Demidenko E. Sample size determination for logistic regression revisited. *Stat Med* 2007;26:3385–97.
- [12] Namazi S. Risk factors of *postpartum* depression. *J Hormozgan Med* 2000;3:17–24 [Article in Persian].
- [13] Cox JL, Holden JM, Sagovsky R. Detection of postnatal depression. Development of the 10-item Edinburgh Postnatal Depression Scale. *Br J Psychiatry* 1987;150:782–6.
- [14] Rychnovsky JD, Brady MA. Choosing a *postpartum* depression screening instrument for your pediatric practice. *J Pediatr Health Care* 2008;22:64–7.
- [15] Najafi K, Avakh F, Nazifi F, Sabrkonandeh S. Prevalence of *postpartum* depression in Alzahra Hospital in Rasht in 2004. *Guilan Univ Med Sci J* 2006;15:97–105 [Article in Persian].
- [16] Ghafarinezhad A, Joybari F, Poya F. Prevalence of *postpartum* depression in Kerman. *J Think Behav* 2000;5:24–9 [Article in Persian].
- [17] Azimi-Lolaty H, Danesh M, Hosaini S, Khalilian A, Zarghami M. Prevalence and predictors of *postpartum* depression among pregnant women referred to mother-child health care clinics (MCH). *Res J Biol Sci* 2007;2:285–90.
- [18] Mancini F, Carlson C, Albers L. Use of the Postpartum Depression Screening Scale in a collaborative obstetric practice. *J Midwifery Womens Health* 2007;52:429–34.
- [19] Rahman A, Iqbal Z, Harrington R. Life events, social support and depression in childbirth: perspectives from a rural community in the developing world. *Psychol Med* 2003;33:1161–7.
- [20] Boyce PM. Risk factors for postnatal depression: a review and risk factors in Australian populations. *Arch Womens Mental Health* 2003;6:43–50.
- [21] Milgrom J, Gemmill AW, Bilszta JL, Hayes B, Barnett B, Brooks J, et al. Antenatal risk factors for postnatal depression: a large prospective study. *J Affect Disord* 2008;108:147–57.
- [22] Amankwaa LCC. *Postpartum* depression, culture and African-American women. *J Cult Divers* 2003;10:23–9.
- [23] Lundberg PC, Trieu TN. Vietnamese women's cultural beliefs and practices related to the *postpartum* period. *Midwifery* 2010;27:731–6.
- [24] Wang SY, Jiang XY, Jan WC, Chen CH. A comparative study of postnatal depression and its predictors in Taiwan and mainland China. *Am J Obstet Gynecol* 2003;189:1407–12.
- [25] Chandran M, Tharyan P, Muliyl J, Abraham S. *Post-partum* depression in a cohort of women from a rural area of Tamil Nadu, India: incidence and risk factors. *Br J Psychiatry* 2002;181:499–504.
- [26] Bina R. The impact of cultural factors upon *postpartum* depression: a literature review. *Health Care Women Int* 2008;29:568–92.
- [27] Martinez-Schallmoser L, Telleen S, Macmullen NJ. The effect of social support and acculturation on *postpartum* depression in Mexican American women. *J Transcult Nurs* 2003;14:329–38.
- [28] Goldbort J. Transcultural analysis of *postpartum* depression. *MCN: Am J Matern Child Nurs* 2006;31:121–6.
- [29] Wan EY, Moyer CA, Harlow SD, Fan Z, Jie Y, Yang H. *Postpartum* depression and traditional *postpartum* care in China: role of *zuoyuezi*. *Int J Gynecol Obstet* 2009;104:209–13.
- [30] Robertson E, Grace S, Wallington T, Stewart DE. Antenatal risk factors for *postpartum* depression: a synthesis of recent literature. *Gen Hosp Psychiatry* 2004;26:289–95.
- [31] Xie R, He G, Liu A, Bradwejn J, Walker M, Wen SW. Fetal gender and *postpartum* depression in a cohort of Chinese women. *Soc Sci Med* 2007;65:680–4.
- [32] Patel V, Rodrigues M, DeSouza N. Gender, poverty, and postnatal depression: a study of mothers in Goa, India. *Am J Psychiatry* 2002;159:43–7.
- [33] Rahman A, Iqbal Z, Bunn J, Lovel H, Harrington R. Impact of maternal depression on infant nutritional status and illness: a cohort study. *Arch Gen Psychiatry* 2004;61:946–52.
- [34] Rahman A, Creed F. Outcome of prenatal depression and risk factors associated with persistence in the first postnatal year: prospective study from Rawalpindi, Pakistan. *J Affect Disord* 2007;100:115–21.
- [35] Husain N, Bevc I, Husain M, Chaudhry IB, Atif N, Rahman A. Prevalence and social correlates of postnatal depression in a low income country. *Arch Womens Mental Health* 2006;9:197–202.
- [36] Akman C, Uguz F, Kaya N. *Postpartum*-onset major depression is associated with personality disorders. *Compr Psychiatry* 2007;48:343–7.
- [37] Mahmud WMRW, Shariff S, Yaacob MJ. *Postpartum* depression: a survey of the incidence and associated risk factors among Malay women in Beris Kubor Besar, Bachok, Kelantan. *Malays J Med Sci* 2002;9:41–8.