The association between social support and postpartum depression in women: A cross sectional study

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ABSTRACT

Background: Prevalence of postpartum depression is estimated to be about 10–15% worldwide. Many risk factors are supposed to play a role leading a new mother to maternal postpartum depression which can considerably affect the baby, mother, family and also the society.
Objective: To investigate the prevalence of maternal postpartum depression and its association with social support.
Methods: Using a cross-sectional study, 200 new mothers who attended three teaching hospitals in Tehran, Iran were selected with a convenience sampling. Postpartum depression was assessed using the Iranian version of Edinburgh Postpartum Depression Scale and women's levels of social support were measured using the Iranian version of Social Support Questionnaire.
Results: Prevalence of postpartum depression was 43.5% in new mothers. The mean (±Standard Deviation) score of social support network was 2.09 ± 0.99; which is lower in depressed mothers in comparison to non-depressed mothers (1.78 ± 0.87 vs. 2.33 ± 1.00 respectively, $P < 0.001$). A reverse significant association was found between social support and postpartum depression after adjusting for confounding variables such as past history of depression, illness of baby and medication consumption during pregnancy (Odds Ratio = 0.47, 95% Confidence Interval = 0.33–0.67).
Conclusion: The bigger the social network of a mother, the less postpartum depression occurs. It is suggested to educate the family about the very important role of social support and improve it in every aspect of health care in order to prevent postpartum depression.

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Statement of significance

Problem or issue

Postpartum depression is a significant mental health problem in mothers after giving birth to a baby.

What is already known

Some demographic, biologic, psychological, obstetric/pediatric and sociocultural factors are known as risk/protective factors in developing postpartum depression.

What this paper adds

Social support is a protective factor independent of other factors and we can prevent developing postpartum depression by promoting social support in prenatal and during postpartum period.

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1. Introduction

Postpartum depression (PPD) is the most prevalent mental health problem in women after giving birth to a baby.[1] PPD is an

important public health concern and without diagnosis and treatment it can cause adverse health problems for the mother, the baby and the family.[2] It is estimated to affect 10–15% of women[3] but it differs based on region and social determinants as common mental health problems are more prevalent in low-income countries than high-incomes among pregnant women and new mothers.[4] The prevalence of PPD is 50% in rural community of Africa[5] 42% in Taiwanese women[6] and a wide range of 3.5–63.3% in different Asian countries.[7] The prevalence of PPD in Iranian women is varied between 6.4% and 48.7% and the pooled prevalence was 24.3% with an upward trend from 1995 through 2012.[8]

A combination of demographic, psychologic and cultural risk factors are considered to play an important role in women developing PPD. These risk factors include antenatal depression,[9] postnatal anxiety,[10] being unsatisfied with marital relationships,[11] unplanned pregnancy[12] and stressful life events.[13] There are also some protective factors including high self-efficacy for mothering and having sufficient parenting skills.[14,15] Social support is defined as the availability of helping people in time of need, people whom one can rely on.[16] The role of social support as a determinant of health is studied in different diseases and conditions.[17–20] In some studies, the protective role of social support for PPD was shown.[21,22] In Iranian women, the protective role of social support for depression during pregnancy was demonstrated.[23]

In the current study, the prevalence of PPD and the effect of social support on developing PPD was investigated in a clinical setting.

2. Methods

This study is a cross-sectional study conducted in Akbarabadi, Aliasghar and Rasoulakram hospitals, 3 large teaching gynecology and children hospitals in Tehran, Iran.

2.1. Participants

Two hundred new mothers with a baby under 6 months old who came to the pediatric or gynecologic outpatient unit for any health care for themselves or the baby, from July 2015 to December 2015 were recruited by convenience sampling.

2.2. Ethical consideration

This study was conducted in accordance with the Declaration of Helsinki.[24] The Ethics committee of University of Medical Sciences approved this project. Prior to participating in the study, women were given information about the study's aims, voluntary participation and their ability to withdraw at any time during the study. The participants provided written consent to participate in the study before accessing the questionnaire. The data were handled anonymously.

2.3. Measures and data collection

PPD was evaluated by the Edinburgh Postnatal Depression Scale (EPDS) which was developed by Cox et al.[25] and validated in Iran by Montazeri et al.[26] EPDS is a 10 item self-reporting screening tool for depression which is based on the severity of symptoms a woman experienced during the last week. The scoring scale for each question is a 4-point Likert scale ranging from 0 to 3; so the minimum and maximum of overall score would be 0 and 30, respectively. A score of more than 12 will be categorized as depressed.

Social support was measured by the Social Support Questionnaire (SSQ) which was designed by Sarason et al.[16] and validated in Iran by Naseh et al.[27] SSQ is a 27-item self-reporting questionnaire.

Each question consists of 2 parts; part 1 evaluates the perception of social support network (SSQN) and asks the participants to list all the people who are available in time of need (up to 9 persons); part 2 evaluates the degree of satisfaction with that support (SSQS) and asks the participant to define it in a 6-point scale from very dissatisfied (=1) to very satisfied (=6). Higher score in dimension one and two means bigger social support network and higher satisfaction with support received, respectively.

Data including age of mother and baby, number of children, education level (primary, high school graduated and higher), past history of depression (yes, no), past history of abortion (yes, no), type of birth (vaginal, caesarean section), employment (employed, not employed), use of any medication during pregnancy (yes, no), illness of baby since birth, and having a planned or unplanned pregnancy were gathered in a checklist.

2.4. Data analysis

Data were analyzed using SPSS version 21.0.1 (SPSS Inc., Chicago, IL, USA). A frequency table was used to present qualitative variables. Mean and standard deviation were used to summarize numeric variables. T-test and chi-square were used for comparing numeric and categorical variables between two groups, respectively. Logistic regression models were used to examine the association between social support and PPD independent of other risk/protective factors. Variables which were found as a risk factor for developing PPD (p-Value of less than 0.05) were considered in the model. The fit of the data in the model was assessed with the Hosmer–Lemeshow test of goodness-of-fit and the generalized R-square measure. Crude and adjusted odds ratio were calculated for each outcome with 95% confidence interval. We considered the level of significance at 0.05.

3. Results

The study population consisted of 200 women. Of these, 54.5% were first-time mothers, 39% and 6.5% had their second and third baby, respectively. The mean ($\pm$SD) age of the study sample was 28 ± 4.38 years old (range: 18–40). The mean ($\pm$SD) age of babies was 85 ± 61.19 days. The majority of women were not employed (83%). Thirteen percent of the women in the sample had primary education, 52% were high school graduates and 35% had higher education. History of depression was recorded for 33% of women and 2 women had some psychological problems other than depression in their past history. Eighty-four percent of pregnancies were planned, about 36% of births were vaginal birth and 23% of women had a history of abortion (Table 1).

The mean score of EPDS was 11.92 ± 5.58 and the prevalence of PPD (score of more than 12 on EPDS) was 43.5%. The mean score of SSQ in the dimension of social network was 2.09 ± 0.99 and in the dimension of satisfaction was 5.01 ± 0.86; which shows that although the social support is low, mothers are satisfied with that. The mean score of social support network was significantly different between depressed and non-depressed mothers (1.78 ± 0.87 vs. 2.33 ± 1.00 respectively, p value = 0.00). Also the mean score of satisfaction with social support in the depressed women was 4.68 ± 0.88 and in non-depressed women was 5.27 ± 0.75 which was statistically significant (p-value 0.000).

There was a statistically significant association between PPD and illness of baby, consumption of medications in pregnancy and past history of depression but the association between education level, employment, past history of abortion, type of childbirth and having a planned or unplanned pregnancy and PPD was not statistically significant (Table 1). Also, the association between the age of new baby and PPD was not statistically significant (mean age ($\pm$SD) of

Table 1
Factors influencing the development of postpartum depression as classified according to the EPDS test.

	All n = 200 (%)	Depressed n = 87 (%)	Not depressed n = 113 (%)	P value
Education level				0.587
Primary	26 (13)	12 (14)	14 (12)	
High school graduated	104 (52)	48 (55)	56 (50)	
Higher	70 (35)	27 (31)	43 (38)	
Employment				0.646
Employed	34 (17)	16 (18)	18 (16)	
Not employed	166 (83)	71 (82)	95 (84)	
Past history of abortion				0.176
Yes	46 (23)	24 (28)	22 (19)	
No	154 (77)	63 (72)	91 (81)	
Past history of depression				0.000
Yes	33 (16.5)	25 (29)	8 (7)	
No	167 (83.5)	62 (71)	105 (93)	
Pregnancy				0.112
Planned	168 (84.0)	69 (79)	99 (88)	
Unplanned	32 (16.0)	18 (21)	14 (12)	
Medication during pregnancy				0.002
Yes	56 (28.0)	34 (39)	22 (19)	
No	144 (72.0)	53 (61)	91 (81)	
Type of childbirth				0.528
Vaginal birth	71 (35.5)	33 (38)	38 (34)	
Caesarean section	129 (64.5)	54 (62)	75 (66)	
Illness of baby				0.011
Yes	51 (25.5)	30 (34)	21 (18)	
No	149 (74.5)	57 (66)	92 (82)	

new baby in the depressed and non-depressed women were 88.72 ± 60.6 and 82.13 ± 61.7 days, respectively; p value 0.45).

A logistic regression was performed to ascertain the effect of social support on the likelihood that participants developing PPD (Table 2). Illness of baby, consumption of medications through pregnancy and past history of depression were associated with an increased likelihood of exhibiting PPD; but increasing social support network (SSQN) was associated with a reduction in the likelihood of exhibiting PPD even after considering above variables (crude OR = 0.52, adjusted OR = 0.474, 95% CI = 0.331–0.679).

4. Discussion

The results of this study show the role of social support in decreasing the risk of developing PPD independent of other risk factors such as taking medications during pregnancy, illness of baby and past history of depression.

The prevalence of PPD in new mothers who came to hospitals for health care in the first six months of postpartum was 43.5% using the Iranian version of EPDS. This is much higher than the worldwide prevalence rate which is about 10–15%,[3] but in the range of reported rates in Asian countries which is 3.5–63.3%[28] and higher than the pooled prevalence of PPD in Iranian women, reported by Veisani et al. which was 25.3%.[8] Different diagnostic tools in studies (e.g. EPDS,[29,30] Beck Depression Inventory Questionnaire[31]), different cut point in a same tool, as the EPDS cutoff for probable PPD could be 12/13[32], and assessment of PPD at different times postpartum[33] are some factors which may account for the difference between the rate of PPD in the present study and previous studies. Moreover, this difference could be explained by different settings and study samples; as the rate of PPD in our study is the same as some other Iranian hospital-based studies[34,35] but in contrary with studies conducted in community setting.[36]

The development of PPD is associated with a set of demographic, biologic, psychological, obstetric/pediatric and sociocultural factors.[7,37] Our results show that factors such as past history of depression, consumption of medication during pregnancy and illness of baby is related to developing PPD.

The difference in the frequency of PPD in mothers who have experienced vaginal birth and those who have experienced caesarean section was not statistically significant in our study (46% vs. 41%, respectively; p-value 0.52). This was in line with other studies.[38,39] In the study of Houston et al. mothers who had caesarean section against their preference of vaginal birth experienced an increased risk for PPD.[40]

In contrast to our expectation, we did not find any association between having an unplanned pregnancy and development of PPD; however, the frequency of PPD in mothers who had planned pregnancy was less than mothers with unplanned pregnancy (41% vs. 56%), but this difference was not statistically significant which could be due to the sample size of our study. Our result is in contrast with the study of Nakku et al. which shows a significant association between an unplanned pregnancy and PPD,[41] but in line with a study conducted in Netherlands in 2010 on 4941 women, which shows no association between unplanned pregnancy and PPD after adjustment for confounding factors, such as psychopathological symptoms and sociodemographic characteristics[42].

Being a housewife was not a risk factor for developing PPD in our study which is the same as the results of a study by Schwab-Reese et al.[43] Some other studies have different results and demonstrated that having a job is a protective factor due to the network of social life.[39] The different result of our study could be due to the availability of maternity leave, which makes the social life of employed mothers the same as housewives during postpartum. Returning to work and confronting the conflicts between the new role as a mother and previous role as an employee could also be a risk factor and could have an adverse effect on PPD.[44] Although the results of these studies are diverse they have one thing in common; whenever a mother experiences an emotional pressure with no chance to moderate that, she could develop PPD.

Although more than 50% of mothers who had a history of abortion had developed PPD, it was not statistically significant in comparison to the frequency of PPD in mothers without a history of

Table 2
Logistic regression analysis for variables predicting PPD.

	Crude			Adjusted					
	OR	95% CI		Beta coefficient		Sig.	OR	95% CI	
		Lower	Upper	B	Std. error			Lower	Upper
SSQN	0.524	0.375	0.733	−0.746	0.183	0.000	0.474	0.331	0.679
Medication in pregnancy	2.654	1.407	5.004	0.754	0.373	0.043	2.126	1.023	4.418
Illness of baby	2.306	1.206	4.409	0.921	0.375	0.014	2.513	1.205	5.238
Past medical history of depression	5.292	2.249	12.454	1.624	0.482	0.001	5.074	1.972	13.055
Constant				0.555	0.393	0.158	1.742		

abortion. This is in contrast to previous studies which show that past history of pregnancy loss could be a risk factor for PPD.[45,46] One explanation may be the time of evaluation and diagnosis of PPD in our study, which was through the first six months postpartum and not divided into different categories. Bicking Kinsey et al. in a study on 2800 mother concluded that the previous history of miscarriage could be a risk factor for PPD in the first month postpartum but not after that time.[47]

Although only one-third of women with higher education had developed PPD in comparison to half of those without higher education, we did not find any association between mothers' education level and developing PPD. Lower educational status had been demonstrated to decrease help-seeking behaviors in individuals with major depression.[48] The study by Dennis and Chung-Lee also suggests that education about PPD is important for seeking help.[49] As we had conducted our study in a hospital setting, mothers in our sample are those who overcome this barrier and that could be a reason for not finding educational level as a risk factor. Results of previous studies are different; while some studies show that higher education would lead to better psychological outcome after pregnancy[50,51] others did not find any association between maternal education and PPD.[52,53]

As expected, taking medications during pregnancy, illness of baby and history of depression were found to be associated with PPD (crude OR; 2.6, 2.3 and 5.2, respectively). This is in line with previous studies on risk factors of developing PPD.[54,55]

We found that in mothers with higher levels of social support the risk of developing PPD would be less. This association was independent of other risk factors such as taking medications during pregnancy, illness of baby and history of depression (crude OR = 0.5, adjusted OR = 0.4). Social support moderates the stress of pregnancy, childbirth and other stressful life events[23,56,57] and increases maternal self-efficacy,[58] which is defined as a belief in one's own ability to perform specific behaviours.[59]

5. Conclusion

Our study showed that the prevalence of PPD in women who attend hospital setting is high and social support is a protective factor for PPD independent of other risk factors. According to the findings of our study, we recommend first, screening women for PPD in order to have chance of intervention; second, promotion of social welfare system specially for those with predictive factors such as history of depression; and third, enhancing educational programs for couples on promotion of social support during the pregnancy period and afterward, in order to decrease the incidence of PPD.

Limitations

For evaluating the level of social support we used SSQ which is a long scale and mothers were not satisfied with the time needed to fill the questionnaire. As this study was a cross-sectional study, conclusion about the causal relationship between social support and developing PPD in women is not possible. We conducted our study in hospital setting and generalizability of the results to the community may be limited.

Disclosure

The authors have no financial or other relationships to declare which might lead to a conflict of interest.

Ethical statement

This study was ethically approved by the Ethics committee of Iran University of Medical Sciences (approval number: 1633).

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