

## Prevalence and Predictors of Postpartum Depression among Pregnant Women Referred to Mother-Child Health Care (MCH) Clinics

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**Abstract:** Prevalence and predictors of postpartum depression among pregnant women referred to Mother-Child Health care (MCH) clinics. Women are more vulnerable to psychiatric illness during the postnatal period. To study the prevalence rate of Postpartum Depression (PD) and related factors. A consecutive series of 422 pregnant women was included from 10 antenatal health care centers from February 2001 to August, 2002 and the samples were further follow-up at 6-8 weeks after childbirth with Edinburgh Postpartum Depression Scale (EPDS), Short form scale of Spielberger's State Anxiety Inventory and General Health Questionnaire (GHQ-28). The prevalence rate of PD was 22% (n = 93) by EPDS. Depression, anxiety and psychiatric morbidity were 30.1%, (n = 127), 12.6% (n = 42) and 31.1% (n = 132) at antenatal and 9.4% (n = 31), 37.2% (n = 157) at postpartum, respectively. Significant differences were found on relating postpartum depression to antenatal depression, ante and postpartum anxiety, ante and postpartum psychiatric morbidity (p<0.001). Family support, life stressful events, (health, gestational age) of baby, perceived ability care of the baby were significantly different in mothers who were depressed at postpartum. Although the mean of scores postpartum depression were different and high with vaginal delivery, unwanted pregnancy, non-occupation and low educational level mother's, history of infertility, past psychiatric history, number of children under 12 years, were not significant. The main factors related to predictors of PD are anxiety, depression and psychiatric morbidity during pregnancy. Our result confirms other studies that were done in Iran and revealed depression, anxiety and psychiatric morbidity in pregnant women is high and drops at postpartum period.

**Key words:** Prevalence, predictors, postpartum depression, MCH

### INTRODUCTION

The childbearing years are a time of increased risk for onset of depression in women. Pregnancy, miscarriage or pregnancy loss, infertility and the postpartum period may challenge women's mental health. Virtually no life events rivals the neuroendocrine and psychosocial changes associated with pregnancy and childbirth (Liewellyn *et al.*, 1997).

Special attention to postpartum depression is important for 3 aspects. First, it has a predictable time of onset and association with childbirth second, it causes considerable distress at a critical time in women's life

finally; the affected women may be unresponsive to her infant, which may have an important effect on the infant's development (Cox and Holden, 1996).

Postpartum Depression (PD) is a common and socially disabling disorder, which affects women after giving birth (Murray *et al.*, 1992).

Many studies indicate that PD affects 8-20% of women after delivery (Warner *et al.*, 1996; Zhang and Chen, 1999; Lee *et al.*, 2001; Kumar and Robson, 1984; O'Hara and Swain, 1996; Ghubash and Abou-Saleh, 1997; Nhwatiwa *et al.*, 1998; Yoshida *et al.*, 2001). This figure is more than 20 in some populations (Cooper *et al.*, 1999; Evans *et al.*, 2000; Gaffarinejad *et al.*, 1999; Patel *et al.*, 2002).

It should be noted that occurrence of PD depends on social and cultural conditions also findings from different researches have indicated contraindicating evidences in identifying the causes and prevalence of this disorder.

To the best of our knowledge, this is the prospective, community-based inquiry on the prevalence of and risk factors for the development of the postpartum depression reported from Iran.

## MATERIALS AND METHODS

The study was conducted at 17 mother-child health clinics of Sari, in the convince of Mazandaran in north of Iran, that provide ante and postnatal care for pregnant women, ten clinic was selected by randomized method for recruitment of samples.

The study group consisted of women in their last trimester of pregnancy (28 weeks to up) who were followed up at 6-8 weeks postpartum. A total of 422 mothers were recruited consecutively.

The sample group were administered the following questionnaires:

**The demographic-obstetric questionnaire:** For assessment of risk factors, we constructed a questionnaire based on previously reported risk factors and the factors identified as controversial evidence. We assessed following variables: Age, infertility history, type of delivery, pregnancy and delivery complications, wanted and unwanted pregnancy (women and husband), desired sex of baby, family support, economic satisfaction, experience of stressful life events in past 12 month, feeding method, educational levels (women) employment of women, health of baby, health of women after delivery, baby's hospitalization and family's and women's psychiatric history.

**Edinburgh Postnatal Depression Scale (EPDS):** Edinburgh Postnatal Depression Scale constructed by Cox *et al.* (1987) is a self-report questionnaire, especially designed to detect postnatal depression. It consists of 10 items, such as being able to laugh and enjoy, being anxious or scared or worried, self blaming, inability to cope, depressive thoughts, sleeping difficulties based on depression and suicidal thought. The scale rates depressive symptoms that present during the previous 7 days. It has shown a good sensivity and specificity in different countries and cultures: 96 and 49% in Sweden, 86 and 78% in Britain, respectively (Wickberg and Hwang, 1997; Cox *et al.*, 1987; Harris *et al.*, 1989) and 95 to 93% in Iran (Namazi, 1999). The EPDS is proven as valid measurement for detection depressive symptoms in the

prenatal and postnatal periods. It focuses on the cognitive and affective features of depression rather than somatic symptoms (Evans *et al.*, 2001).

**Short form of Spiel Berger's state Anxiety:** To detect Anxiety we used a self-report anxiety inventory. It has 6 items, which derived from 20 items of complete form that was reported as accurate as in detecting of anxiety by complete form (Marteau, 1992). Reliability of short form and complete form was 96% in Iranian society (Behravesht *et al.*, 2002).

**General health questionnaire:** Twenty eight-item was found to detect overall general psychological health with specifying of 97% and sensivity of % 83. Similar validity coefficients have been reported with the use of the GHQ in other Asian cultures.

The items are scored a 2-point scale (0 to 1). (Maximum scores 28). The cut-off point of 6 or more is used to detect psychiatric morbidity. Scores of 5 or less indicates normal mental health. The questionnaire validated in Iranian society and it has been used in several studies in Iran (Palahang and Shahmohammadi, 1998; Hashemzadeh *et al.*, 2001; Shams *et al.*, 2001; Akkasheh, 2000). The items of the GHQ relate to distress, depression, self-esteem and inability to cope in everyday situations, suicide thoughts, hopelessness, helplessness.

Women were asked to complete the study questionnaires at both assessment points (at 3rd trimesters of pregnancy and 6-8 weeks after delivery). Detailed data was collected by trained registered midwives that worked in mother- child health care clinics.

Data are expressed as frequencies or as means (SD), statistical tests included the T-test and ANOVA. Women's EPDS scores were grouped including low through 12 and 13 and higher and used as the depending variable to determine the factors making independent contributions to, or best predictive of postpartum depression at postnatal periods. Analyses were carried on SPSS. PC

## RESULTS

**Characteristics of the sample:** The mean of age the 422 women was 25.40 years (SD = 4.88, range 14 to 40). Only forty-six women (10.6%) worked outside the home. One hundred and seventy-eight women (42.2%) had low education level. The majority of the women (74.9%) were satisfied with owned economic status and eleven women (2.6%) reported unsatisfied of economic status. Fifty-one of the women (12.1%) and 63 of the husbands (14.9%) had unwanted pregnancy. Most (76.5%) of the

Table 1: The rates antenatal and postnatal periods

Postnatal	Non depress (%)	Depress(%)	Missing data only postnatal (%)	Total (%)
Antenatal				
Non depress	177(42%)	28(6.6%)	36(8.5%)	241(57.1%)
Depress	51(12.1%)	58(13.7%)	18(4.3%)	127(30.1%)
Missing data only antenatal period	28(6.6%)	7(1.7%)	19(4.5%)	54(12.8%)
Total	256(60.7%)	93(22%)	73(17.3%)	422(100%)

Table 2: The means (SD) of scores postpartum depression in term of risk factors

Variable		Mean (SD)	Test
Antenatal depression	Non depress	7/33(4/43)	T=10/07
	Depress	12/80(4/83)	p<0/001
Antenatal anxiety	Low	7/32(4/79)	
	Moderate	10/05(4/81)	F=24/40
	High	13/47(5/99)	p<0/001
Postpartum anxiety	Low	7/04(4/11)	
	Moderate	10/54(5/03)	F=39/99
	High	14/33(5/85)	p<0/001
General health (antenatal)	Healthy	7/06(4/68)	F=7/29
	Morbidity	11/28(4/97)	p<0/001
General health (postnatal)	Healthy	7/03(4/26)	F=9/64
	Morbidity	12/22(4/99)	p<0/001
Family support	Yes	8/95(5/17)	F=3/42
	No	12/99(4/47)	p<0/001
Past psychiatric	Yes	10/67(5/9)	
	No	9/08(5/12)	NS
Stressful life events	Yes	11/11(4/99)	T=3/97
	No	8/60(5/16)	p<0/001
Planned pregnancy	Yes	9/11(5/33)	
	No	9/16(5/28)	NS
Type of delivery	Vaginal	9/45(5/03)	
	Caesarian	9/16(5/28)	NS
Past infertility	Yes	9/42(5/57)	
	No	9/24(5/20)	NS
Easy to care of baby	Yes	9/04(5/05)	T=2/41
	No	14/16(7/08)	p<0/05
Health status of baby	Healthy	9/05(5/03)	
	Ill	11/50(8/89)	F=12/03
	Died	20/75(5/12)	p<0/001
Mother's health after delivery	Problem	10/74(6/18)	T=2/57
	No problem	8/93(4/89)	p<0/01
Feeding method	Breast	9/14(5/13)	
	Bottle	10/65(5/78)	NS

women were indifferent to baby sex, 62 (14.7%) and 28 (6.6%) of women desired to have boy and girl baby, respectively. Thirty-eight (9%) women reported to have difficulty to manage of baby. In addition, 35 women (8.3%) reported that they have not any supportive person after delivery.

Twenty-six (6.2%) and 46 (10.9%) of women reported past psychiatric history in themselves and her family, respectively. One hundred-two (24.2%) of the women experienced stressful life events in previous 12 month. Fewer than half (48.3% n = 204) were primiparous. Most (n = 226, 53.6%) were delivered by caesarian section. Seventy-one women (16.8%) experienced illness and problems after delivery. Sixty babies (14.2%) had hospitalization history. One hundred and eleven babies (26.3%) had lesser 37 weeks also nineteen babies (4.5%) were low birth weight (lesser 2500 gm). Three hundred and fifty nine (85.9%) babies were healthy, nineteen (4.5%) were ill and 5 (1.2%) baby died.

Suicide idea in the ante and postnatal period were reported by 24 (5.6%), 18 (4.3%) women, respectively.

Table 1 shows the rates of ante and postnatal depression. In Table 1, 93 women (22%) were depress at postpartum, 58 (13.7%) women were depress at both time. Twenty eight (6.6%) women that were not depress at antenatal period, developed depression at postnatal period. In addition, 51(12.1%) women who were depress at antenatal period, were not depress at postnatal.

Fifty four (12.8%) women that did not complete EPDS at antenatal period, 28(6.6%) and 7(1.7%) were non-depress and depress at postnatal period, respectively. nineteen (4.5%) women did not complete the EPDS at both time.

At antenatal period, average score of EPDS was 10.29 (SD = ±5.13) which ranged from 0 to 29. Also at this time, the mean (SD) score of EPDS in depress and non-depress women were 15.71(SD = ±2.99) and 7.42 (SD = ±3.32), respectively.

Mean (SD) score of EPDS was 9.26 (SD =  $\pm 5.2$ ) at postnatal period which range from 0 to 28. The mean (SD) score of EPDS for depress and non-depress women at postnatal period were 15.94 (SD =  $\pm 2.92$ ) and 6.83 (SD =  $\pm 3.80$ ), respectively.

According to the short form of Spiel Berger's State Anxiety Inventory, 44 (10.4%) and 36 (8.5%) women suffered of sever anxiety at ante and postnatal period, respectively. Of 144 (34.2%) women that had low anxiety at antenatal period, 37 (8.8%) and 3 (0.7%) developed to moderate and sever anxiety at postpartum period, respectively.

Furthermore, respectively 46 (10.9%) and 21 (5%) of postpartum depressed women, suffered from moderate and sever anxiety at antenatal period and also 55 (13.1%) and 20 (4.8%) of postpartum depressed women had moderate and sever anxiety at postpartum, respectively.

On GHQ, 157(37.2%) and 132(31.3%) women at ante and postnatal period were considered to have psychiatric morbidity, respectively

Also, 56(13.3%) and 55(13%) of postpartum depressed women, suffered psychiatric problems at ante and postnatal period.

Table 2 shows some of significant differences in correlates of postpartum depression by EPDS.

## DISCUSSION

The results of the present study provide prospective data on the prevalence of postpartum depression in a consecutive series of pregnant women at 3rd trimester that administered to mother- child health clinics for prenatal care and followed up to 6-8 weeks after delivery. The findings suggest that antenatal and postnatal depression is common among women. The prevalence of ante and postnatal depression at the last trimester of pregnancy and 6-8 weeks postpartum in this sample were 30.1 and 22%, respectively.

These findings indicate both ante and postpartum depression are significant public health problem in terms of frequency.

The rate of postpartum depression in the current study was two times more than the rate in western samples (Cooper *et al.*, 1988; Chandran and Tharyan, 2002). A recent study in Coa India reported a similar rate of postpartum depression (23%) (Patel *et al.*, 2002). The rate of postpartum depression in our study is not higher than those rate reported in primary care studies in low-income countries (Cooper *et al.*, 1999; Patel *et al.*, 2001; Reichenheim and Harpham, 1991).

The finding that the 13.7% (n = 58) mothers had an onset of antenatal depression is also consistent with other prospective studies (Nhiwatiwa *et al.*, 1998; Mumford *et al.*, 1997) in both western (Kumar and Robson, 1984; Cooper *et al.*, 1988) and non-western societies (Patel *et al.*, 2002; Kitamura *et al.*, 1993).

Studies on the incidence of antenatal depression have revealed that it is higher than had been thought (Mattesau, 1992; Kitamura *et al.*, 1997). The prevalence of depression in this cohort study in the last trimester of pregnancy (30.1%) was higher than postpartum period. Symptoms of depression were not more common or severe at 6-8 weeks after delivery than last trimester of pregnancy. These findings are similar to other studies.

The results revealed 15.9% (N = 67) and 17.9% (n = 55) of the women with postnatal depression suffered from anxiety at both time of the study, respectively. Also 13.3% (n = 56) and 13% (n = 55) of the postpartum depressed women had psychiatric morbidity at the last trimester of pregnancy and 6-8 week after delivery, respectively. The result revealed that anxiety is co-morbidity of postnatal depression.

Of the psychological factors examined, antenatal depression, ante and postnatal anxiety and ante and postnatal psychiatric morbidity were the most important factors that affected on postpartum depression. Poor family support, experience of stressful life events, childcare stress and health status of baby and mother are major predictors of postpartum depression. However some predictors of the postpartum depression were vary in different studies. It is clear that cumulative effects of risk factors are important in detecting postpartum depression.

Our study had some limitations, which need to be discussed. A higher rate of antenatal and postnatal depression in this study and some other studies was for the use of self-rating scales. Higher prevalence rates across some other studies was significantly associated the use of self-reports instruments, whereas lower rates of postnatal depression was associated with the use of interview-based measures (Hara and Swain, 1996). Although many of depressed women were referred to psychiatrist, non-of them had sought help for their symptoms, possibly because they believed that depression is a normal part for pregnancy and postpartum period. Poor health education, practical constrains, denial, helplessness and hopelessness are other reasons.

Preventive measures or early detection and treatment, by a community-oriented follow up service can overcome to dropout rates.

### ACKNOWLEDGMENT

We are grateful to the mothers who participated and the midwives for their cooperation, help in recruitment and for data collection. The study team comprises, research scientists, computer technician, volunteers, who continue to make the study possible. The study was founded by Medical Sciences of Mazandaran University

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