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Research Article

Prevalence and Determinants of Postpartum Depression in a Tertiary Care Hospital

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Abstract

Purpose: Postpartum depression is one of the common complication of postpartum period and a major public health issue. It adversely affects the mother, her child, and the family. To determine the prevalence and determinants of postpartum depression in women delivered in a tertiary hospital Karachi.

Methods: This was a cross-sectional study carried out in a private hospital of Karachi, from 1st February 2014 to 31st January 2016. All women having age between 20-49 years between 4-6 weeks postpartum period consented to participate were included. Women with pre-existing co-morbid like diabetes mellitus, hypertension, physical and psychiatric illnesses, having multigestation and had the previous history of perinatal loss were excluded. A pretested research proforma was translated into local (Urdu) language and data on demographic and determinant were collected. PPD was assessed using Edinburgh Post Natal Depression Scale and score of >12 was considered having PPD.

Results: A total of 600 patients were enrolled in this study. The mean age of enrolled participants was 26.2±3.2 years and mean gestational age was 38.5±1.1 weeks. One hundred and thirty-four women had an EPDS score of >12 giving the prevalence of PPD of 22.3%. Multivariable analysis adjusted for age and gestational age showed no family support OR 2.01 (95% CI: 1.07-3.75), primiparity OR 2.28 (95%CI: 1.28-4.07), uneducated women OR 1.78 (95% CI: 1.04-3.05), women experience complications at time of delivery OR 7.55 (95% CI: 2.98-19.12), unintended pregnancy OR 2.82 (95% CI: 1.59-5.02), obesity OR 3.84 (95%CI: 2.3-6.43) and financial issues OR (95% CI: 1.78-11.01) were independent determinants of postpartum depression.

Conclusions: It was concluded from this study that the prevalence of post-partum depression was 22.3%. No family support, parity, educational status, complications during delivery, unintended pregnancy, obesity and financial issues are independent determinants of post-partum depression.

Keywords: Post-partum; Depression; Determinants

Abbreviations

CI: Confidence Interval; EPND: Edinburgh Postnatal Depression; LBW: Low Birth Weight; OR: Odds Ratio; PPD: Postpartum Depression

Introduction

Although motherhood brings happiness, it may cause emotional distress to some women. During pregnancy and postnatal period, mothers are vulnerable to mental illness like depression [1]. Postpartum depression is common between 4-6 weeks after giving birth [2]. Depressive symptoms typically include sad mood, loss of interest in activities, feeling of helplessness and hopelessness, decreased energy, decision-making difficulties, sleep problem, restlessness, irritability, changes in eating pattern, suicidal ideations or attempts and persistent physical symptoms that do not respond to treatment [3]. In a review, 143 studies were included across 40 countries on the prevalence of PPD demonstrated the variability in reported PPD ranged from almost 0% to 60% [4]. This large variation of prevalence of PPD may be attributable to the time period, diagnostic criteria, data collection tool and differences in socioeconomic, environmental and cultural background.

Recently, the reported prevalence of postpartum depression is ranging from 1.9% to 82.1% in Low- middle-income countries and from 5.2% to 74.0% in high income countries [5].

PPD is common among women in Pakistan, with a prevalence rate ranging from 7% to 63%, placing it among the highest in Asia. Several factors contribute to the development of PPD in Pakistan, including environmental, cultural and social factors [6]. Mothers with postpartum depression tend to provide inadequate care to their child, exhibit negative parenting behavior and have poorer mother-infant bonding. Children of depressed mother have poorer sleep patterns, discontinuation of breastfeeding and are more likely to experience behavioral and developmental problem6 as well as malnutrition and stunting [7].

Diagnosis of PPD is difficult due to the variable clinical

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presentation. The Edinburgh Postnatal Depression Scale (EPDS) is a well-recognized screening tool for the PPD. This tool consisted of 10 questions rated each on scale of 0-3, giving a total score ranging from 0-30 [8].

The poor marital relationship, prenatal depression, illness of the child, low socioeconomic status, low educational level, unwanted pregnancy, obesity, previous history of postpartum depression, complications during pregnancy are the determinants of PPD [9-11]. Some risk factors are merely seen in eastern communities such as sex of the infant [10].

Early detection of PPD prevents further exaggeration of depressive symptoms, helps the mother to have a better adjustment to motherhood and improves the mother-child relationship.

The purpose of this study is to determine the prevalence of postpartum depression and its determinants. The finding of this study will help to fill the gaps in the literature about PPD in Pakistan. This study will also help the decision makers to ensure better planning, resource allocation and delivery of health services.

Materials and Methods

This was an analytical cross-sectional study conducted from 1st February 2014 to 31st January 2016 in a private tertiary care hospital in Karachi, Pakistan. All women having age between 20-49 years between 4-6 weeks postpartum period consented to participate were included. Women with pre-existing co-morbid like diabetes mellitus, hypertension, physical and known psychiatric illnesses, having multigestation and had the previous history of perinatal loss were excluded. PPD was measured by Edinburgh postnatal depression scale and score >12 were considered as having postpartum depression. The eligible patients were recruited from the outpatient department of the obstetrics and gynecology after informed consent. Trained study personnel conducted face to face interview to collect data on socio-demographic variables (which includes information regarding age, parity, obstetric history, socioeconomic and educational status etc.). Urdu version of Edinburgh postnatal depression questionnaire was used to assess postnatal depression. Women with PPD were referred to a psychiatrist for further psychiatric evaluation.

The study was approved by the ethical review committee of the institute. Written permission was obtained from principal investigator for writing the first draft and primary authorship.

Data analysis

Data was entered and analyzed in Statistical Packages for the Social Sciences (SPSS) version 20. The main variables like mode of delivery, parity, post-partum depression, gestational age, education, fetal outcome, complication during delivery, unwanted pregnancy, obesity and financial issues were presented as frequency and percentages. Continuous variables (age, gestational age, post-partum depression scores) were presented as a mean ± standard deviation.

Logistic regression was applied to assess determinants of post-partum depression. Initially, the univariable analysis was performed and those variables with Wald p-value of 15% were included in the multivariable model which is also adjusted for age and gestational age. Model adequacy was checked using Hosmer-Lameshaw of goodness of the model fit. Fit of the model. Odd's ratios with 95% confidence interval were reported.

Table 1: Demographic characteristics of enrolled participants.

Age *(mean±SD)*	26.2±3.2 years
Gestational age *(mean±SD)*	38.5±1.1 weeks
Parity *n (%)*	
Primiparous	245 (40.8%)
Multipara	355 (59.2%)
Family support *n (%)*	
Yes	185 (30.8%)
No	415 (69.2%)
Mode of delivery *n (%)*	
Vaginal delivery	414 (69%)
C-section	186 (31%)
Education *n (%)*	
Uneducated	255 (42.5%)
Educated	345 (57.5%)
Complications at time of delivery *n (%)*	
Yes	158 (26.3%)
No	442 (73.7%)
Preterm/LBW	159 (26.5%)
Unwanted pregnancy	137 (22.8%)
Obesity	143 (28.3%)
Financial issues	235 (39.2%)
Depression score *(mean±SD)*	9.1±2.2
Post-partum depression *n (%)*	134 (22.3%)

Results

A total of 600 patients were enrolled in this study during the study period. The mean age of enrolled participants was 26.2±3.2 years, mean gestational age was 38.5±1.1 weeks, 245 (40.8%) were primiparous, 185 (30.8%) had no family support, 414 (69%) delivered vaginally, 255 (42.5%) had no education, 158 (26.3%) women experience complications at the time of delivery, 159 (26.5%) had preterm/LBW babies, 137 (22.8%) women with unwanted pregnancy, 143 (28.3%) were obese and 235 (39.2%) had financial problems. The mean post-partum depression score was 9.1±2.2 and the frequency of post-partum depression was 134 (22.3%) (Table 1).

Univariable analysis showed No family support, primiparity, no education, preterm/LBW babies, unwanted pregnancy, obesity, financial issues and women who experience a complication during delivery are significant determinants (Table 2). Multivariable analysis adjusted for age and gestational age showed no family support OR 2.01 (95% CI: 1.07-3.75), primiparity OR 2.28 (95%CI: 1.28-4.07), uneducated women OR 1.78 (95% CI: 1.04-3.05),women experience complications at time of delivery OR 7.55 (95% CI: 2.98-19.12), Preterm/LBW OR 2.09 (95%CI: 1.02-4.28, Unwanted pregnancy OR 2.82 (159-5.02), obesity OR 3.84 (95%CI: 2.3-6.43) and financial issues OR 4.42 (1.78-11.01) were independent determinants of postpartum depression (Table 3).

Discussion

PPD is a far more serious disorder. Most investigators agree that

Table 2: Comparison of baseline characteristics in patients with postpartum depression *vs.* no depression.

Variables	Post-partum depression (n=134)	No postpartum depression (n=466)	Crude OR	95% CI
Age	26.36±3.6	26.25±3.1	0.90	(0.84 - 1.01)
Gestational age	38.51±1.1	38.48±1.1	0.92	(0.78 - 1.09)
No family support	72 (53.7%)	105 (22.5%)	3.99	(2.67 - 5.97)
Vaginal Delivery	89 (66.4%)	325 (69.7%)	0.86	(0.57 - 1.29)
Primiparous	73 (54.5%)	157 (33.7%)	2.35	(1.59 - 3.48)
Not educated	94 (70.1%)	270 (57.9%)	1.71	(1.13 - 2.57)
Delivery complications	52 (38.8%)	83 (17.8%)	2.96	(1.92 - 4.46)
Preterm/LBW	61 (45.5%)	69 (14.8%)	4.81	(3.14 - 7.36)
Unwanted pregnancy	82 (61.2%)	161 (34.5%)	2.98	(2.01 - 4.44)
Obesity	73 (45.5%)	79 (17%)	5.86	(3.86 - 8.89)
Financial issues	52 (38.8%)	103 (22.1%)	2.24	(1.48 - 3.37)

Table 3: Multivariable analysis showing determinants of postpartum depression.

	***Adjusted OR**	**95% CI**
No family support	2.01	†(1.07 - 3.75)
Parity	2.28	†(1.28 - 4.07)
No education	1.78	†(1.04 - 3.05)
Delivery complications	7.55	†(2.98 - 19.12)
Preterm/LBW	2.09	†(1.02 - 4.28)
Unintended pregnancy	2.82	†(1.59 - 5.02)
Obesity	3.84	†(2.3 - 6.43)
Financial issues	4.42	†(1.78 - 11.01)

**Adjusted for age and gestational age.*
†P-value: <0.05.

around 10–15% of women who give birth will suffer from PPD in the first months after delivery [12]. Although it has been suggested that PPD might be more frequent in urban societies, recent studies in non-Western countries showed that PPD has similar prevalence rates in different societies worldwide [13]. It is interesting, though, that the factors that predict PPD in these environments are somehow different from those have been found to predict PPD in Western societies. Two examples are the infant's sex and poor accommodation [14].

Transitioning into motherhood is a difficult task, and this role shift may be particularly challenging for employed women. It is estimated that 50% of women with infants 1 year of age are employed [15]. Employed women may have better mental health outcomes when they take longer maternity leaves and work fewer hours per week [13]. Returning to work has been found to contribute to improved mood in the postpartum period [16].

In this study, the prevalence of post-partum depression was 135 (22.3%). This result corresponds to the studies conducted in Arab countries. The prevalence of PPD in Lebanon was 21%, [17] United Arab Emirates (UAE) 22% [18] and Jordon 22% [19]. Studies from Pakistan reported higher prevalence of PPD ranging from 30-40% [20-22]. In the western countries prevalence of PPD ranges from 12-15% [23,24]. However, some of the studies have demonstrated PPD in up to 60% [25]. The wide variation in the prevalence of PPD is attributable to different cut-offs of a score of EPND, rapid urbanization, the environment at home and relation with spouse and in-laws.

Postpartum depression has generally found a higher likelihood of postpartum depression among mothers with unintended and unwanted births. This is likely due to the fact that characteristics that were associated with higher rates of unintended pregnancies (younger age, unmarried, pre-pregnancy anxiety/depression) were also associated with postpartum depression. In this study, we found that unwanted pregnancy is associated with PPD. Studies have shown association between unwanted pregnancies and PPD [26,27].

In this study, there is no association between prevalence of PPD and mode of delivery. The available recent literature is equivocal regarding the postnatal complications after cesarean delivery [19]. Further, In a study, there is no significant difference between the prevalence of PPD in women delivered normally (16%) compared to C-section (20%) [23,28,29].

Studies have shown significant association between PPD and family support [30-31]. In Pakistan, most of the people are living in a joint family system. The results of this study suggest that no family support is associated with PPD. In our opinion, disharmony between mother and daughter-in-law is one of the most common conflicts in Pakistani society. This conflict has arisen when both struggle to achieve a dominant position in the family [32].

In this study, we examined biological factors like parity, complication during pregnancy or at the time of delivery, mode of delivery and preterm or low birth weight baby. Though C-section was not significantly associated with PPD but some women perceive C-section as a source of fear and stress especially when women is a primiparous and experiencing complication.11 Primiparity is a significant risk factor for experiencing the first-time episode with a psychiatric disorder like PPD [33]. We found a positive association between Primiparity and PPD. We also found an association between education and financial issues with PPD.

In order to prevent PPD screening should be done. The validity of the screening approach described here was further supported by the rate of positive EPDS screens obtained (13%), which is consistent with previously reported PPD prevalence [34]. Although other researchers have identified specific demographic and situational risk factors for PPD, such as very young maternal age, low education and income, race/ethnicity (i.e., African American race), very low infant birth weight, prior depression history and onset of depression during

pregnancy data from this study support only two of these risk factors [35]. While ethnicity and race have not been consistent significant predictors of PPD in studies conducted in the United States, in this study, significantly fewer than expected White women met criteria for a positive EPDS screen than did Hispanic, Asian American, women in the other category, and African American women [30]. These outcomes partially confirm some of the findings of other investigators who found that, in the United States, race/ethnicity, specifically being African/American, increases PPD risk. Nonetheless, it is important to note our finding that Hispanic women in the screening sample had higher percentages of elevated PPD symptom scores than did White women. This finding contradicts previous research outcomes that suggested that Hispanic women have lower PPD prevalence than other mothers [29].

There are certain strengths of this study. First, this study has large sample size; second, this is a cross-sectional study that did not require attrition adjustments; third, we did face to face interview with participants, although EPDS is a self-administered questionnaire.

There are some limitations to the study. First, this is a single-center study so results cannot be generalized; second, this is a hospital-based study that may not reflect representative sample. Also, 40% of the deliveries still occurred at home; third, women might not give correct answers due to lack of family support and pressure from mother-in-law; fourth, we did not include other possible predictors of prenatal depression, breastfeeding, self-esteem, lack of social support etc.

It was concluded from this study that the prevalence of postpartum depression is low compared to other studies in Pakistan. Major determinants are no family support, parity, education status, and preterm/LBW, complications during delivery, obesity, and unwanted pregnancy. It's of great importance that healthcare professionals become aware of PPD and develop health promotion program in order to enhance the well-being of delivery women.

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