

Association Of Maternal Stressors During Pregnancy With Postpartum Depression (PPD), A Cross-Sectional Analytical Study

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Abstract

Objective: Postpartum depression can negatively impact both the mother's health and the child's development if treatment is not received. This study's goals are to discover different prenatal stressors and ascertain if the mother's stress during pregnancy is linked to postpartum depression.

Methods: Using a consecutive sampling technique, an analytical cross-sectional study was conducted at postnatal wards, EPI centers and Gynae OPD of women aged 20 to 45 during the postpartum period (one week to six months). The study excluded female participants having a history of chronic illness, psychiatric medication, or a diagnosis of psychiatric disorder. The Edinburgh Post-Depression Scale and self-structured pre-partum stressors were included in an interview-based questionnaire.

Results: Of the 313 mothers, 63.3% experienced mild stress, 32.6% experienced moderate anxiety, and 3.8% experienced severe stress. Inflation (82%), husband issues (64%), abuse at the hands of the husband (55%), and housekeeping during pregnancy (52%), were the most frequent sources of stress. Postpartum depression was seven times more likely to occur in those with high stress levels.

Conclusion: Prepartum stress was modest for the majority of participants. The main causes of stress were things like inflation, followed by problems with the spouse, abuse at the hands of the husband, concerns about the children's schooling, and the amount of chores that came with being pregnant. Postpartum depression was more common in those with high stress levels.

Keywords: Post-Partum Depression, Post-Partum dysphoria, Post Natal depression, Prenatal Care, Maternal Health

Introduction

One type of mood illness is postpartum depression that occurs within a few weeks after delivery and lasts up to months or even years.¹ It is characterized by symptoms such as feelings of loss, frequent bouts of crying, uselessness, guilt, anger, low self-esteem, sleep disturbances, lack of confidence, and in severe cases thoughts of self-harm.²⁻⁴ Major maternal risk factors that cause PPD are: being a single mother, unplanned/ unwanted pregnancy, low socioeconomic status, maltreatment from husband and in-laws, poor physical condition before or during pregnancy etc.^{5,6} If left untreated, not only does it have adverse effects on mothers, partners and other family members but also the child; so much so that she may develop violent behavior, emotional maladjustments and other psychiatric disorders in adulthood.^{7,8} It is surprising to have a look at the statistics regarding this issue, as the prevalence of postpartum depression is about 17.7% globally.⁹ The prevalence in developed countries is 10%, and 20% in developing countries.⁶ Unfortunately, in multiethnic areas of Pakistan, researchers have proved that this situation is even worse as PPD was shown to be 41.27% prevalent. Lack of social support from the husband, lack of social support from in-laws, lack of knowledge, difficulty in handling the baby, social conflicts, and lack of postpartum support were some of the causes of PPD.¹⁰ This indicates that one of the most ignored and disregarded aspects of public health is maternal mental health.¹¹ After observing the critical

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S.B, I.S, T.I, F.A, M.M, Z.I.K - Conception of study
S.B, I.S, T.I, F.A, M.M, Z.I.K - Experimentation/Study
Conduction
S.B, I.S, T.I, F.A, M.M, Z.I.K -
Analysis/Interpretation/Discussion
S.B, I.S, T.I, F.A, M.M, Z.I.K - Manuscript Writing
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situation of deteriorating maternal mental health, and how it is considered insignificant, this research has been conducted to address this issue and to bring it to light. It is extremely important to focus on this mental ailment, so that a peaceful life is guaranteed for the mother, child, and the people surrounding her.

Materials And Methods

From October 2023 to March 2024, 313 women who presented in the postnatal ward, EPI Centres, or gynaecological outpatient department (OPD) throughout their postpartum period (from the time of the child's birth to six months) participated in an analytical cross-sectional study. The method of consecutive nonprobability sampling was used. Using the WHO sample size calculator, a sample size was determined with a 95% confidence interval, a 5% margin of error, and a predicted prevalence of 28% of PPD among the impacted population.¹² Women who were diagnosed with a mental illness, were using mental health medication, or had a history of chronic illness were not allowed to participate in the study. The study was open to women aged 20 to 45 years.

Data was gathered using a thorough questionnaire that was translated into Urdu, and informed consent was obtained. This questionnaire was divided into four sections: the first was informed consent; the second asked participant demographics, including the number of children and gender; the third was a self-structured questionnaire with 27 pre-partum stressors; and the fourth was the Edinburgh Postpartum Depression Scale (EPDS), which had 10 questions with four possible answers (Likert response Scale). Every EPDS item was given a score between 0 and 3, with 30 representing the greatest possible score. For depression, a score of 10 or higher was seen as positive. To analyse the statistical data, SPSS version 25 was utilised. This study was conducted by ethical standards and principles. Institutional Review Board (IRB) or Ethics Committee approval was obtained before the commencement of the research (Reference number: *CM-RMU-NTB-174*). Informed consent was acquired from all participants involved in the study. The research was conducted with respect for participant privacy, confidentiality, and autonomy.

Descriptive analysis was performed using the mean, standard deviation, and percentages. The link between maternal stress and postpartum depression was investigated using the Chi-Square test, whereas the independent variables were compared by postpartum depression status using an independent t-test. Using the Chi-Square test, a correlation between postpartum depression and the number and gender of children, the female and her husband's literacy levels, the husband's employment, and monthly income was also examined. The analysis also made use of multivariate logistic regression and the odds ratio. A p-value of less than 0.05 indicates a significant link between variables, and an Alpha error of 0.05 was selected as the cut-off for significance in this investigation.

Results

313 mothers participated in the research. Most study participants were between 25 and 29 years of age. Majority of mothers (35%) and their husbands (41%) were educated only till the secondary level, most of the males, 55%, were doing a job, and 92% of the females were housewives. 41% of the study participants had their monthly income below Rs. 20,000 whereas only 37% and 22% had income above Rs. 20,000 and Rs. 40,000 respectively. It was also seen that most of the mothers (90%) only had one child, either boy or girl. A total of 27 possible stressors were identified in the study, and they were accordingly divided into three categories; mild, moderate, and severe, categorized as 0-9, 10-18, and 19-27 stressors respectively. The mean stress score was found to be 8.39. It was found that 63.3% of the total participants had mild pre-partum stress followed by moderate pre-partum stress (33%). (figure 1).

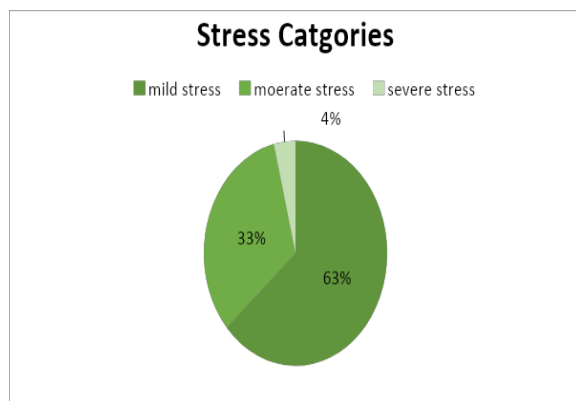


Figure 1: categorization of pre partum stress

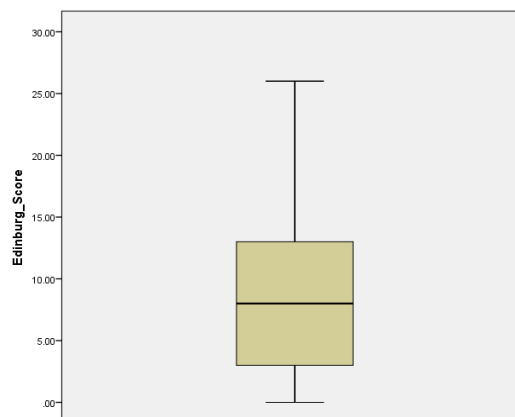


Figure 2: Edinburgh Post-Partum Depression Scale (EPDS) score

5 factors were identified as stressful for more than 50% of the participants. The main among them was inflation (82%). The remaining factors included stress from the husband's issues (64%), abuse at the hands of the spouse (55%), concerns about the children's schooling (53%), and the amount of chores that came with being pregnant (52%). The results showed that the mean EPDS score was 8.92 (Figure 2). Out of the 313 participants, 183 (58.5%) had scores lower than 10 and thus were classified as having no depression. 130 (41.5%) had scores above 10 and were classified as possibly suffering from PPD. The results showed that only 10/313 (3.2%) of the participants had definitive thoughts about harming themselves. A significant association between the total prepartum stress score and EPDS score (p value=0.000) was found. All the participants (12/313) with severe pre-partum stress developed signs of post-partum depression. Out of the total 27 stressors, the Chi-Square test showed 24 to be significantly associated with the post-partum depression score. The most important of these were the stressors related to the in-laws. No significant relationship was found between monthly income and post-partum depression (0.66). Older mothers were more prone to suffer from PPD (p value= 0.002), as well as those who had more girl children (p value=0.010). Those with moderate/high levels of stressors had nearly seven times the likelihood of developing postpartum depression compared to those with mild stress, according to the odds ratio between prepartum stress levels and EPDS score ($OR=7.46$, $CI=4.5-12.5$). PPD was eight times as common in women who had strained relationships with their husbands before giving birth than in those who had positive relationships ($OR=8.421$, 95% CI : 2.4-29.547). Women who did not receive pocket money from their husbands were four times more likely to suffer from PPD than those who did ($OR=4.447$, 95% $CI=2.2-8.68$). Women whose in-laws interfered in their personal lives had five times the prevalence of PPD ($OR=5.709$, $CI=3.3-9.69$). PPD was three times as common in women who did not have the freedom to make decisions at home ($OR= 2.750$, 95 percent 1.6-4.6). Moreover, PPD was three times as common in women who were concerned about having a female child than in those who weren't ($OR= 3.003$, 95 percent $CI=1.6-5.4$). The relationship between the stressors and the Post-Partum Depression Score was examined using logistic regression. The information was dispersed normally. The variables did not exhibit multi-collinearity (P values < 0.7). The Post-Partum Depression Score was significantly predicted by the mother's age, the husband's abuse, the husband's troubles, the in-laws' meddling in personal affairs, the mother's diminished independence to make decisions at home, and the stress brought on by delivery-related issues. (table 1)

Table 1: Association of antenatal stressors with postpartum depression using Multivariate Logistic Regression

Hypothesis	Beta Coefficient	R ²	F	P value (significant as less than 0.05)	t value (Significant as greater than 1.96)	Hypothesis Supported
1) Age of the mother significantly predicts PPD.	.116	0.424	5.811	0.05	1.96	Yes
2) Stress due to maltreatment by the husband significantly predicts PPD	.141			0.008	2.655	Yes
3) Stress due to problems of the husband significantly predicts PPD.	.155			0.012	2.540	Yes
4) Stress due to in-laws' interference in private matters significantly predicts PPD.	0.213			0.002	3.206	Yes
5) Stress due to decreased autonomy to take decisions in home significantly predicts PPD.	0.151			0.011	2.546	Yes

Table 2 illustrates the relationship between stress levels and depression risk, showing that **81.9%** of individuals with no depression experience **mild stress**, while **53.1%** of those with possible depression report **moderate stress**. Severe stress is exclusively seen in the possible depression group as interpreted by EPDS.

Table 2: Total Stress Score Categories About EPDS Score

		Interpretation Of EPDS		Total
		No Depression	Possible Depression	
Total Stress Score Categories	Mild Stress	149	49	198
	Moderate Stress	33	69	102
	Severe Stress	0	12	12
Total		182	130	312

Discussion

The postpartum period is a critical period for a mother as it leaves her profoundly vulnerable to psychiatric problems.¹³ Postpartum depression is one of the most common morbidities and affects around 13% to 19% of women worldwide,¹⁴ meanwhile the prevalence of PPD among mothers in Karachi was found to be 63.6%.¹⁵ The grievance of the situation was also reinforced by this study where frequency of PPD was 41.5%.

This high rate of PPD is a consequence of many psychosocial risk factors prevailing in our society, like psychological disturbances during gestation, delivery-related problems, abusive behavior at home, low socioeconomic status, sex of the baby and stress because of workload.¹⁶ Our study also clarified major antenatal stressors contributing to PPD as inflation (82%), maltreatment by husband (55%), and excessive workload (52%).

Other than these problems, psychosocial factors such as unplanned pregnancy, emergency cesarean section, hospital admission of the baby are also some of the triggers for postnatal depression.¹⁷

The probability of getting PPD is statistically significantly correlated with experiences of maternal violence. According to our research, the number of women who suffer from domestic violence or abuse at the hands of their in-laws is five times higher. According to a meta-analysis, women who had any violent experiences were more likely to acquire PPD than those in the reference group.¹⁸ After controlling for a variety of confounding variables, including stressors in the year before delivery, a Canadian study found that women who experienced prenatal and prenatal abuse had a 1.6 times greater chance of developing postpartum depression.¹⁹

According to our study, inflation (82%) and financial problems are significant pre-partum stressors for the development of PPD. Poor socioeconomic status stands as a risk factor not only for adolescent mothers but for adult mothers as well.²⁰

In line with the results of other comparable research conducted in Southeast Asia, this study demonstrated a positive correlation between the onset of PPD and stressors such as in-laws' interference, fear of conflict with them, and mistreatment by them.²¹ One significant indicator of a woman's status and empowerment in the home is her involvement in domestic decision-making. Pregnancy-related autonomy in home decision-making protects against physical symptoms and PPD.²² Additionally, we found that moms who lacked authority over household choices were three times more likely to suffer from PPD. In Ethiopia, moms who lacked autonomy in home decision-making had a 4.2-fold higher chance of experiencing postpartum depression symptoms.²³ Thus, depicting that inability to carry out independent decisions exhibits psychological traits that negatively affect the mother's cognition. While supporting women's empowerment during pregnancy presents a chance to generate long-lasting benefits for both the expectant mother and her child.²⁴

Our data indicated that there was a 3-fold higher risk in mothers who were worried that their daughter wouldn't be accepted by her husband and in-laws. According to a meta-analysis, moms who gave birth to a female newborn had a considerably higher chance of getting PPD than the reference group (OR = 1.15). This conclusion is consistent with that finding.^{25,26}

Conclusion The most frequent stressors were inflation and husband issues, while most participants had mild prepartum stress. Postpartum depression was more common among those with high stress levels. This study's strengths include a reasonable sample size, use of validated tools (EPDS), and multivariate analysis to identify key predictors of postpartum depression. It also benefits from a community-based setting, enhancing its generalizability. However, limitations include its cross-sectional design, reliance on self-reported data, and exclusion of high-risk psychiatric cases which may underestimate the true burden of postpartum depression in the population.

Conclusions

Most participants had mild pre-partum stress while the most common stressors were inflation followed by husband's problems. Those with high levels of stressors were more likely to develop post-partum depression.

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