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Original Research Article

Prevalence of Post-Partum Depression among Health Care Professionals and Its Risk Factors

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Abstract: *Postpartum depression (PPD) is a prevalent nonpsychotic mood disorder that manifests during the postpartum period, significantly affecting maternal wellbeing, infant development, and family dynamics. Healthcare professionals, owing to their dual burden of occupational stress and maternal responsibilities, are particularly vulnerable to depressive symptoms.* ***Objective****: To determine the prevalence of postpartum depression and identify the associated risk factors among healthcare professionals.* ***Methods:*** *A cross-sectional study was conducted on 149 women who were employed as healthcare workers and had experienced pregnancy at least once in their lives. Participants' scores on the Edinburgh Postnatal Depression Scale were used to screen for PPD. Women were classified as having depressive symptoms if they had an EPDS score of 12 or higher. Information regarding the sociodemographic characteristics, job satisfaction, prenatal mood disturbances, prenatal sleep quality, emotional support from co-workers, prior diagnosis of psychiatric illness, and financial concerns during pregnancy, and perceived family and peer support were considered for bivariate analysis.* ***Results:*** *Out of 149 women, 53% had an EPDS score of 12 or higher, indicating depression. 54.4% of women expressed job satisfaction, while 62% reported overall good health. Prenatal variables associated significantly with EPDS score included mood disturbances, sleep quality, emotional support from co-workers, a prior diagnosis of psychiatric illness, and financial concerns. Postpartum physical difficulties and slow recovery were linked to an increased risk of developing PPD. A higher EPDS score was also linked to caesarean sections and job satisfaction.* ***Conclusion:*** *Prevalence of PPD is slightly higher in women working in healthcare, with implications for both mother and child health. This emphasizes the importance of screening and closely monitoring mothers at high risk of PPD, as well as providing appropriate treatment plans.*

Keywords: Prevalence, healthcare professional, risk factors, post-partum depression

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Introduction

Postpartum Depression PPD is defined as nonpsychotic depression symptoms that begin or worsen during the postpartum period. It can occur as a new-onset condition during the first week after birth or can be followed by baby blues lasting for about 14 months (1). Low mood, lack of energy, lack of interest, disturbed sleep, persistent grief, loss of appetite, low self-esteem, fatigue, and suicidal ideation are some of the symptoms of depression a mother experiences during the postpartum period. Postpartum depression poses very serious adverse effects on mothers, babies, and their families as well. The affected mother cannot interact properly with her newborn baby, cannot carry out her parental responsibilities, and is unable to feel joy in her role as a mother (2, 3). Several studies suggest that estradiol, progesterone, oxytocin, cortisol, and thyroid hormones are involved in postpartum syndromes (4). A study on female rats utilizing hormone manipulators suggests that a postpartum decrease of estrogen and progesterone may contribute to postpartum depression (5). Significantly increased testosterone levels were observed in patients with postpartum depression in some studies (6).

Approximately 20 to 40 % women suffer from depression during and after pregnancy in low-income nations. Prevalence of this psychiatric disorder varies widely, affecting 8 to 50 % of women around the world (7). A study in Saudi Arabia reported an increased risk of post-partum depression in patients with previous depression history, low education status, unemployment, and delivery disposition of C-section (8). While another study concluded that inadequate rest during pregnancy, abortion history, poor relationship with husband, marital dissatisfaction, unwanted pregnancy, and stressful events are important risk factors for the development of post-partum depression (9). A systematic review and meta-analysis reported premenstrual syndrome (PMS) as a risk factor of post-partum depression (10). There is also a significant link between caesarean section and post-partum depression, possibly due to the intensity and duration of pain contributing to psychological and emotional distress during C-section (11). Stigma of depression, cultural beliefs, and lack of awareness are among the major reasons for females that exacerbate the burden of post-partum depression (12). The Edinburgh Postnatal Depression Scale (EPDS) is the most commonly used screening tool for the symptom assessment of Perinatal Common Mental Disorders (PCMDs) of anxiety and depression (13-14).

PPD is a major public health concern in Pakistan, which unfortunately goes unreported. One study reported that 47.27% of women from urban areas of Pakistan experience PPD due to a lack of social support, awareness, and difficulty handling the baby. (15) Due to there being a significant lack of studies available assessing the PPD in women in Pakistan, especially the working majority belonging to the medical profession, our study aimed to analyse the prevalence of postpartum depression among women belonging to the medical profession. The study aims to investigate the common factors that affect postpartum depression among healthcare working women. Identifying the risk factors helps us to closely follow up the mothers who are at risk of developing postpartum depression and to make an early Diagnosis and provide better treatment options for this psychiatric illness.

Methodology

A cross-sectional study was conducted among female healthcare professionals in Karachi, Pakistan, from 04-September-2024 to 25-February-2025, following approval from the Institutional Review Board of Jinnah Postgraduate Medical Centre. (Reference no: F2-81/2024 GENI/67/JPMC). The sample size of 149 was calculated using the OpenEpi sample size calculator, with a prevalence of 50%, a confidence level of 95%, and a margin of error of 8% (15). A total of 149 females

participated in the study. These consenting women, employed as healthcare professionals and who have been pregnant at least once in their lives, not specifically during the postpartum period, were included. Women who were pregnant at any time from August 2024 to February 2025 were excluded. Data was collected via a well-structured questionnaire administered by the researchers. The questionnaire was based on a comprehensive literature review on postpartum depression and consisted of four sections: sociodemographic, pre- and postpartum factors, job satisfaction, EPDS score, and postpartum symptoms. The sociodemographic section gathered information related to age, ethnicity, income, educational status, and occupation. The pre- and postpartum factors section evaluated factors before and after childbirth, including perceived job satisfaction, perceived family and peer support, perceived control during pregnancy, health status, and mood disturbances. It also assessed delivery mode, complications, and breastfeeding status. The next section employed the English and Urdu versions of the EPDS scale. Urdu version of EPDS is available and has been validated in Pakistan using the Schedule for Clinical Assessment in Neuropsychiatry (SCAN). The Urdu translated version was used specifically for women who are unable to read and understand English (16).

Finally, the last section evaluated postpartum physical symptoms. Researchers approached participants in the tertiary care hospital, where they were briefed on the nature, objectives, and methods of the study. Women with an EPDS score of 12 or higher were categorized as having depressive symptoms. Data collected was analysed using either SPSS software version 26.0. The statistical analysis was conducted with a 95% confidence interval and a p-value of <0.05 as the level of significance. Univariate analysis using Pearson's chi-squared test and Kruskal-Wallis test was performed.

Results

Table 1 presents the descriptive characteristics of the study population (n = 149), covering sociodemographic data, prenatal and postpartum variables, and postpartum symptoms. The mean age of participants was 31.25 ± 5.3 years, with the majority aged between 25 and 34 years (72.5%). Most participants belonged to the upper middle class (67.1%) and held at least a bachelor's degree (76.5%). A large proportion reported a monthly household income exceeding PKR 90,000 (83.2%) and were predominantly employed as doctors (74.5%).

Ethnically, the sample was diverse, with Urdu-speaking individuals constituting the largest group (43.6%), followed by Sindhi (34.9%) and Punjabi (11.4%). Regarding job satisfaction and self-perceived health status, 54.4% rated their job satisfaction as good/excellent, while 41.6% were satisfied with their health. More than half of the participants (53%) screened positive for postpartum depression using the EPDS.

Regarding obstetric data, cesarean section was the most common mode of delivery (40.2%). A majority reported emotional support during pregnancy from family and friends (93.3%) and coworkers (76.5%). However, 59.7% experienced mood disturbances during pregnancy, and 14.8% had chronic health issues. Financial concerns were reported by 20.1% of participants. In terms of postpartum symptoms, fatigue (85.9%), hair loss (67.1%), and back or neck pain (59.7%) were the most frequently reported complaints. Other notable symptoms included decreased desire for sex (40.9%), constipation (35.6%), and nipple irritation (32.2%).

Table 2 summarizes the association between sociodemographic characteristics and Edinburgh Postnatal Depression Scale (EPDS) scores among the study participants (n = 149). The mean EPDS scores and frequencies were compared across different groups using appropriate statistical tests. Socioeconomic status showed a statistically significant association with EPDS scores ($H = 8.094$, $p = 0.044$), with participants classified as upper class exhibiting the highest mean EPDS score (15.08 ± 5.7). However, post hoc analysis revealed no significant pairwise differences between socioeconomic groups. Highest educational attainment was not significantly associated with EPDS scores ($H = 4.481$, $p = 0.106$), although those with a diploma had lower mean EPDS scores (7.4 ± 4.7) compared to those with bachelor's or postgraduate degrees. Monthly household income did not show a significant relationship with depression scores ($H = 6.232$, $p = 0.183$), despite some variation in mean EPDS scores among income brackets. Occupation was significantly associated with EPDS scores ($H = 21.020$, $p < 0.001$). Doctors reported higher mean EPDS scores (13.3 ± 5.2) compared to nurses (9.2 ± 5.3), medical technologists (7 ± 4.3), pharmacists (13.33 ± 8.5), and midwives (5 ± 1.4). Age group was not significantly related to EPDS scores ($H = 4.403$, $p = 0.354$), with mean scores varying modestly across age categories.

Table 3 presents the association between various prenatal and postpartum variables and the presence of postpartum depression (PPD), as measured by the Edinburgh Postnatal Depression Scale (EPDS), with a cutoff score of >12 indicating depression. Significant differences were observed between the depressed and non-depressed groups for several factors. Mood disturbances during pregnancy were significantly more common in the non-depressed group (82.9%) compared to the depressed group (39.2%) ($p < 0.001$). Similarly, support from coworkers was reported significantly more frequently by the depressed group (87.3%) than the non-depressed group (64.3%) ($p = 0.001$). A history of depression or anxiety prior to pregnancy was less common among those with PPD (8.9%) compared to those without (28.6%) ($p = 0.020$). Financial concerns during pregnancy were significantly more prevalent in the non-depressed group (27.1%) than the depressed group (13.9%) ($p = 0.045$).

Physical difficulties or slow recovery after childbirth were significantly higher in the non-depressed group (52.9%) than the depressed group (24.1%) ($p = 0.005$). Mode of delivery was also significantly associated with depression status ($p < 0.001$), with a higher proportion of C-section deliveries among the non-depressed (78.6%) than depressed (57.8%) participants. Health status differed significantly, with a greater percentage of poor health reported in the non-depressed group (24.3%) compared to the depressed group (3.8%) ($p < 0.001$). Job satisfaction showed a similar trend, with unsatisfied individuals more common among the non-depressed group (45.7%) than the depressed group (6.3%) ($p < 0.001$). Prenatal sleep quality was markedly poorer in the non-depressed group (77.1%) than in the depressed group (29.1%) ($p < 0.001$). No significant differences were found for feelings of control during pregnancy, presence of chronic health issues, complications during childbirth, or breastfeeding complications between the groups.

Table 1: Descriptive Characteristics of the Study Population Including Sociodemographic Profile, Prenatal and Postpartum Variables, and Postpartum Symptoms (n = 149).

Variable	Frequency (n)	Percentage (%)
Age (years) (Mean± SD)	31.25 ± 5.3	
18–24	5	3.4
25–34	108	72.5
35–44	32	21.5
45–54	3	2.0
54 and above	1	0.7
Socioeconomic Status		

Upper middle class	100	67.1
Lower middle class	36	24.2
Upper class	12	8.1
Lower class	1	0.7
Highest Level of Education		
Bachelor's Degree	114	76.5
Master's/Postgraduate	30	20.1
Diploma	5	3.4
Monthly Household Income (PKR)		
> 90,000	124	83.2
70,000–89,999	4	2.7
50,000–69,999	7	4.7
30,000–49,999	7	4.7
< 30,000	7	4.7
Occupation		
Doctor	111	74.5
Nurse	28	18.8
Medical Technologist	5	3.4
Pharmacist	3	2.0
Midwife	2	1.3
Ethnicity		
Urdu speaking	65	43.6
Sindhi	52	34.9
Punjabi	17	11.4
Balochi	11	7.4
Pathan	4	2.7
Job Satisfaction		
Poor	20	13.4
Fair	48	32.2
Good/Excellent	81	54.4
Health Status		
Unsatisfied	37	24.8
Neutral	50	33.6
Satisfied	62	41.6
Postpartum Depression (EPDS)		
Depressed (EPDS > 12)	79	53.0
Not Depressed (EPDS < 12)	70	47.0
Mode of Delivery		
C-section	100	40.2
Vaginal	49	19.7
Prenatal and Postpartum Variables		
Experienced mood disturbances during pregnancy	89	59.7
Felt in control during pregnancy	123	82.6
Chronic health issue during pregnancy	22	14.8
Received emotional support from family/friends	139	93.3
Received support from coworkers/peers	114	76.5
Diagnosed with depression/anxiety before pregnancy	27	18.1
Experienced financial concerns	30	
Physical difficulty or slow recovery after childbirth	56	37.6
Complications during childbirth	67	45.0
Complications during breastfeeding	29	19.5
Prenatal Sleep Quality		
Poor	77	51.7
Fair	31	20.8
Good/Excellent	41	27.5
Postpartum Symptoms		
Fatigue	128	85.9
Hair loss	100	67.1
Back or neck pain	89	59.7
Headache	57	38.3
Decreased desire for sex	61	40.9
Nipple irritation	48	32.2
Constipation	53	35.6

Decreased appetite	38	25.5
Breast irritation (mastitis)	33	22.1
Sore throat, cough, cold	34	22.8
Irregular heartbeat	26	17.4
Acne	25	16.8
Excessive sweating	25	16.8
Abdominal pain	25	16.8
Hand numbness or tingling	23	15.4
Rash	16	10.7
Fever	16	10.7
Sinus problems	16	10.7
Haemorrhoids	13	8.7
Diarrhoea	12	8.1

Table 2: Association between Sociodemographic, Prenatal, and Postpartum Variables with Postpartum Depression (EPDS Scores) Among Study Participants (n = 149)

Characteristic	EPDS Mean ± SD / Frequency (n)	Test Statistic (H/χ^2)	p-value
Socioeconomic Status		H = 8.094	0.044[a]
Upper middle class	11.91 ± 5.3		
Lower middle class	11.89 ± 6.0		
Upper class	15.08 ± 5.7		
Lower class	–		
Highest Education		H = 4.481	0.106
Bachelor's Degree	12.55 ± 5.3		
Master's/Postgraduate	11.8 ± 6.5		
Diploma	7.4 ± 4.7		
Monthly Income (PKR)		H = 6.232	0.183
> 90,000	12.42 ± 5.4		
70,000–89,999	14.25 ± 6.1		
50,000–69,999	14.14 ± 7.3		
30,000–49,999	9.4 ± 3.9		
< 30,000	8.57 ± 7.0		
Occupation		H = 21.020	<0.001
Doctor	13.3 ± 5.2		
Nurse	9.2 ± 5.3		
Medical Technologist	7 ± 4.3		
Pharmacist	13.33 ± 8.5		
Midwife	5 ± 1.4		
Age Group (years)		H = 4.403	0.354
18–24	9.6 ± 3.5		
25–34	12.7 ± 5.7		
35–44	11.3 ± 5.3		
45–54	9 ± 6.0		
≥ 55	–		

Table 3: Association between Prenatal and Postpartum Variables and Postnatal Depression Status among Study Participants (EPDS Cut-off >12).

Prenatal/Postpartum Variable	Depressed (EPDS >12)	Not Depressed (EPDS <12)	P-value
Mood disturbances during pregnancy	31 (39.2%)	58 (82.9%)	< 0.001
Felt in control during pregnancy	66 (83.5%)	57 (81.4%)	0.734
Chronic health issue	7 (8.9%)	15 (21.4%)	0.310
Emotional support (family/friends)	75 (94.9%)	64 (91.4%)	-
Support from coworkers	69 (87.3%)	45 (64.3%)	0.001
History of depression/anxiety	7 (8.9%)	20 (28.6%)	0.020
Financial concerns	11 (13.9%)	19 (27.1%)	0.045
Complications during childbirth	31 (39.2%)	36 (51.4%)	0.136
Breastfeeding complications	10 (12.7%)	19 (27.1%)	0.260
Physical difficulty after childbirth	19 (24.1%)	37 (52.9%)	0.005
Mode of Delivery			< 0.001
C-section	45 (57.8%)	55 (78.6%)	
Vaginal	34 (43.0%)	15 (21.4%)	
Health Status			< 0.001
Poor	3 (3.8%)	17 (24.3%)	

Fair	21 (26.3%)	27 (38.6%)	
Good/Excellent	55 (69.6%)	26 (32.1%)	
Job Satisfaction			< 0.001
Unsatisfied	5 (6.3%)	32 (45.7%)	
Neutral	26 (32.9%)	24 (34.3%)	
Satisfied	48 (60.8%)	14 (20.0%)	
Prenatal Sleep Quality			< 0.001
Poor	23 (29.1%)	54 (77.1%)	
Fair	20 (25.3%)	11 (15.7%)	
Good/Excellent	36 (45.6%)	5 (7.1%)	

Discussion

According to the World Health Organization (WHO), a woman experiences several psychological problems, such as depression and anxiety, before and after the delivery of a newborn, especially in the postpartum period (17). The purpose of conducting this study is to investigate the possible risk factors associated with postpartum depression. Our findings indicated that postpartum depression is significantly correlated with poor sleep quality, previous mental health issues, emotional and financial support, job satisfaction, and mode of delivery, with a p-value of less than 0.05. Our study aimed to assess the prevalence of postpartum depression (PPD) among healthcare professionals. According to our findings, 53% of the participants had an Edinburgh Postnatal Depression Scale (EPDS) score higher than 12, which meets the criteria for depression. This Figure represents a significantly higher prevalence than that observed in other studies, likely due to the stressful nature of healthcare professionals' stressful lives. In comparison to the global prevalence of postpartum depression, which ranges from 2.1% to 31.6%, our study's results are notably high (18-19). Moreover, our study reported that a considerable portion of the population experiences mood changes such as anxiety and depression during pregnancy, with 16.8% of individuals having a history of mental illness. These findings are consistent with previous research in the field (20). A prior study highlighted the significant impact of chronic illnesses on postpartum depression, and our results aligned with this, as approximately 85.2% of healthcare professionals in our study reported being affected by chronic conditions during or after pregnancy (21). Our study also explored the relationship between emotional support from friends, family, and coworkers and postpartum depression. The findings were consistent with other research, indicating that emotional and social support play an important role in alleviating the risk of PPD (17, 22-23). Moreover, we found a statistically significant p-value of 0.045, suggesting that financial concerns are also a contributing factor to the incidence of postpartum depression, like other studies (24-25). Furthermore, like previous research, our study indicated that job satisfaction had a significant influence on the development of postpartum depression, with job satisfaction being negatively correlated with depressive symptoms (3-4). This relationship further emphasizes the importance of workplace wellbeing in preventing PPD. Consistent with previous studies, our research also found that women who underwent caesarean sections were at a higher risk of developing postpartum depression compared to those who had forceps-assisted deliveries or spontaneous vaginal deliveries (8-9). These results further support the idea that the type of delivery can influence the likelihood of experiencing postpartum depression. When talking about the impact of postpartum depression, our study found that postpartum depression was impacting breastfeeding, suggesting an inverse relationship between PPD and successful breastfeeding. This finding aligns with other research, which similarly reports challenges in breastfeeding due to postpartum depression (4). The mental health of a mother is greatly impacted by the physical health status of a woman after the delivery of a newborn. Our study showed that the poor health status of a woman and slow recovery after delivery of a baby were significantly associated with the development of postpartum depression. Moreover, our research has found a negative correlation between the prenatal health status of a pregnant woman and the onset of postpartum depression. This finding is consistent with other studies that also showed the inverse relation between the health status of a woman and PPD.[34]Some studies proved that women who are physically active before and after pregnancy are associated with a low risk of developing postpartum depression (3). This study identified several risk factors associated with the development of postpartum depression and offers insights into the cause-and-effect relationship. We used the EPDS scale in our research, which is a valid and reliable screening tool for the assessment of PPD. Our study has several limitations. Firstly, when discussing demographic factors, specifically occupation, we found that doctors were part of the group that contributed to a statistically significant difference and had a higher mean value compared to nurses and other healthcare workers. This is because we had more physicians in our participants' pool compared to nurses and other health care workers. If we had an equal number of nurses and doctors, then the result might be significant for nurses, too. Secondly, our study has a language bias; we included only articles published in English and omitted those in other languages. Furthermore, we did not collect data from those mothers whose child died just after delivery, mothers of stillbirths, or women who underwent miscarriage. In addition to that, the EPDS questions we asked the participants, based on their experience over the previous seven days, led to recall bias. Another limitation of our study was that the postpartum women we considered to be suffering from depression were identified without a psychiatrist's Diagnosis. The practical implication of our research is that by reducing all these risk factors, we can minimize the proportion of women who experience postpartum depression. Hospitals and health care facilities should implement routine mental health screenings during the postpartum period, promote peer support groups, and introduce flexible work schedules for health care professionals. Extensive future research is needed, including a large sample size across multiple health care settings, to identify other significant risk factors and the prevalence of PPD among health care professionals.

Conclusion

This study examined the prevalence of post-partum depression and its associated risk factors among healthcare professionals. Our findings align with previous research, confirming that stress, sleep disturbances, psychiatric illness, emotional and financial support, unsatisfactory working environment, and postpartum factors such as caesarean section are significant contributors. The risk factors, which, if we decrease over time, can notably decrease the prevalence of postpartum depression. Notably, we observed a higher vulnerability to post-partum depression among healthcare professionals, likely due to occupational stress and irregular sleep patterns because of their medical training. These results underscore the need for early screening and follow-up, particularly for high-risk healthcare professionals, for early Diagnosis and timely management. Although our study was limited to a single hospital setting, which may affect generalizability, it provides a valuable foundation for further research and targeted interventions. Future studies with larger and more diverse populations are recommended to deepen understanding and guide effective preventive strategies.

Declarations

Data Availability statement
All data generated or analysed during the study are included in the manuscript.
Ethics approval and consent to participate
Approved by the department concerned. (F2-81/2024 GENI/67/JPMC)
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Conflict of interest

The authors declared the absence of a conflict of interest.

Author Contribution

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MIK (Associate Professor)
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All authors reviewed the results and approved the final version of the manuscript. They are also accountable for the integrity of the study.

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