Evaluating Maternal Mental Health as a Determinant of Child Behavioral Outcomes

Dr Sunita Mor[1], , Dr Rajesh Rathi[2], Dr Savita Pannu Rathi[3], Dr Pooja Rathee[4]

1. Dr Sunita Mor, Associate Professor, Department of Obstetrics and Gyaecology. World College of Medical Science and Research, Girawar, Jhajjar, Haryana, drsunita.mor@gmail.com
2. Dr Rajesh Rathi, Assistant professor, Deptment of Pediatric, NC Medical College and Hospital, Israna, Panipat, Haryana, drrajeshrathi88@gmail.com
3. Dr Savita Pannu Rathi, Assistant Professor, Department of Obstetrics and Gynecology, NC Medical College and Hospital, Israna, Panipat, Haryana, drsavitarathi1989@gmail.com
4. Dr Pooja Rathee, Senior Resident, Department of Pathology, PT B.D. Sharma, Pgims Rohtak, poojarathee1389@gmail.com

Corresponding author:
Dr Savita Pannu Rathi, Assistant Professor, Department of Obstetrics and Gynecology, NC Medical College and Hospital, Israna, Panipat, Haryana, drsavitarathi1989@gmail.com

Abstract

Background: Postpartum mental illness has gained increasing attention from researchers, clinicians, and public health professionals. Early detection allows timely intervention, reducing adverse consequences for the mother, her newborn, other children, and spouse. **Aim:** To estimate the prevalence of psychiatric disorders among postpartum women in India. **Materials and Methods:** This prospective, hospital-based observational study was conducted from 2024 to 2025 at NC Medical College and Hospital, Israna, Panipat. A total of 120 postpartum women were included. Psychiatric evaluation was performed using the Edinburgh Postnatal Depression Scale (EPDS) and the General Health Questionnaire-12 (GHQ-12). **Results:** The prevalence of postpartum depression (PPD) was higher among women who had given birth to a girl child. Women with multiple births exhibited higher rates of depression compared to those with single births, and vaginal delivery was associated with a higher prevalence of depression than caesarean section (p < 0.05). Among 23 women with ≥1 stillbirth or neonatal death, 3 were depressed based on EPDS scores; this association was not statistically significant (p = 0.528). Similarly, GHQ-12 scores identified 3 depressed patients in the same subgroup, with no significant association (p = 0.638). **Conclusion:** This study highlights a notable prevalence of postpartum depression and its association with specific obstetric and demographic factors. Given the potential for adverse maternal and neonatal outcomes, routine screening and management of maternal mental health should be integrated into antenatal and postnatal care. Most postpartum women benefit significantly from reassurance and psychosocial support.

Keyword: Maternal Mental Health, Postpartum Anxiety, Maternal Wellbeing and Risk Factors

Introduction

With the global decline in maternal mortality, attention has shifted towards addressing maternal morbidity, including the often-overlooked impact of mental health. Maternal mental health problems contribute significantly to morbidity, yet their burden remains inadequately recognized. Over recent decades, psychological morbidity among women during the childbearing period has gained increasing research attention due to its adverse effects on both mother and child.[1]

Pregnancy, once considered a period of emotional well-being and "protection" against psychiatric illness, is now known to be associated with several mental health disorders, with depression being the most common. Violence during pregnancy, particularly intimate partner violence, has also emerged as an important determinant of poor maternal mental health. Societal glorification of motherhood can exacerbate guilt and stigma in women who experience negative emotions during this period. [2]

This review focuses on common mental disorders such as depression, anxiety, and general psychological distress during pregnancy and the postpartum period. Risk factors include a personal or family history of psychiatric illness or substance abuse, history of abuse (sexual, physical, or emotional), current exposure to intimate partner violence, social adversity, and recent adverse life events. These psychological disturbances have been linked to inadequate antenatal care, low birth weight, preterm delivery, reduced maternal-infant bonding, neglect, and hostility towards the newborn. While much of the literature comes from high-income countries, recent studies from developing nations highlight the additional challenges posed by gender inequality, poverty, and limited healthcare access. [3]

Pregnancy and early parenthood involve profound biological, psychological, and sociocultural changes, often accompanied by stress. Hormonal and neurotransmitter fluctuations can affect mood, and postpartum illnesses range from mild "baby blues" to severe postpartum psychosis.[3] Postpartum depression affects approximately 10–15% of new mothers, most often within the first year after childbirth. Major predictors include prenatal depression, low self-esteem, childcare stress, prenatal anxiety, life stress, lack of social support, poor marital relationship, previous depression, difficult infant temperament, maternity blues, low socioeconomic status, and unplanned pregnancy.[4]

Screening tools such as the Edinburgh Postnatal Depression Scale (EPDS) and General Health Questionnaire (GHQ) are widely used to detect depression and related disorders. [5] In India, despite the high prevalence of mental health issues—particularly in rural areas—stigma and lack of awareness delay help-seeking, allowing treatable conditions to progress to severe illness.[6] The National Mental Health Survey (2016) reported that one in ten Indians suffers from depression or anxiety, and 20% of these are pregnant women or new mothers.[7] Both GHQ-12 and EPDS have demonstrated strong validity for detecting postnatal depression, with EPDS showing slightly superior diagnostic performance (AUC = 0.933).[8] Given these findings, this study was designed to evaluate the prevalence and risk factors for maternal depression in an Indian setting, with a focus on women delivering at a tertiary care center.

Materials and Methods

Study Area:

This study was conducted in the Department of Obstetrics and Gynecology, NC Medical College and Hospital (TMH), Israna, Panipat, Haryana. TMH is a tertiary care center catering to both rural and urban populations.

Study Population:

The study included married women delivering at TMH, belonging to the reproductive age group, and attending the outpatient clinic, who were willing to participate and provided informed consent. Participants were selected based on the inclusion and exclusion criteria described below.

Inclusion Criteria:

- Married women delivering at TMH within the reproductive age group.
- All deliveries occurring at TMH during the study period.
- Women delivering between 2024 and 2025.

Exclusion Criteria:

- Critically ill women
- Women with a past history of depression
- Women with comorbid medical or psychiatric illnesses.

Study Design and Duration:

This was a prospective, hospital-based observational study conducted over a period of one year (December 2024 – November 2025).

Sample Size:

A total of 120 participants were included in the study.

Statically Analysis

After completion of interviews and the referrals for appropriate participants, the data were entered in the excel sheets and analyzed with IBM SPSS software (version 25.0). The demographic variables and the clinical variables were cross-tabulated with the EPDS score. The Chi-square test and Fisher Exact tests were used wherever appropriate and the p value ≥0.05 was considered as a test of significance

Result

Table 1: Clinical Profile of Study Population

Clinical data	Variable	Total number	Depressed	n% of depressed
ANC	Booked	96	8	8.33
	Unbooked	24	4	16.67
Term of delivery	Preterm	10	3	30
	Term	110	7	6.4
Mode of delivery	Normal VD	100	12	12
	Cs	20	4	20
	Male	68	3	4.41

Sex of the baby	Female	52	9	17.3
Birth order	Primigravida	10	2	20
	Multigravida	110	6	5.5

Table 2: Association between postpartum depression and number of children dead (still birth+ neonatal death) prior to present delivery

	Still/ neonatal death	Total patient	Depressed	P-value
EPDS score	Nil	98	9	**0.528**
	>/= 1	22	3	
	Total	120	12	
GHQ 12 score	Nil	98	10	**0.638**
	>/= 1	22	3	
	Total	120	13	

Table 3: Distribution of EPDS SCORE and GHQ 12 SCORE with SES STATUS and ANC

		Patients	Depressed	n% of depressed	P-value
EPDS SCORE	**LW**	25	3	12	0.96
	MD-HG	95	6	6.3	
	Total	120	9	7.5	
GHQ 12 SCORE	**LW**	25	4	16	0.011
	MD-HG	95	6	6.3	
	Total	120	10	9.2	
EPDS SCORE	**Unbkd**	20	2	10	0.88
	Bkd	100	9	9	
	Total	120	11	19	
GHQ 12 SCORE	**Unbkd**	20	3	15	0.0412
	Bkd	100	9	9	
	Total	120	12	10	

Prevalence of PPD was higher among women who had given birth to a girl baby. A higher proportion of women with multiple birth had depression postpartum compared to women who had single birth and women who had delivered by vaginal route had a higher prevalence of depression compared to women delivered by caesarian section(p<.05). In EPDS score, 3 patients had Depressed out of 22 total patients in >/= 1 Still/ neonatal death. Association of postpartum depression with number of children dead (still birth+ neonatal death) prior to present delivery was not statistically significant (p=0.528). In GHQ 12 score, 3 patients had Depressed out of 22 total

patients in >/= 1 Still/ neonatal death. Association of postpartum depression with number of children dead (still birth+ neonatal death) prior to present delivery was not statistically significant (p=0.638).

In our study, 5 (12%) patients had Depressed out of 25 total patients LW of EPDS SCORE and 6 (6.3%) patients had Depressed out of 95 total patients MD-HG of EPDS SCORE. EPDS SCORE with SESTATUS was not statistically significant (p=0.96). In our study, 4 (16%) patients had Depressed out of 25 total patients LW of GHQ 12 SCORE and 6 (6.3%) patient had Depressed out of 95 total patients MD-HG of GHQ 12 SCORE. GHQ 12 SCORE with SESTATUS was statistically significant (p=0.011). In our study, 2 (10%) patients had Depressed out of 20 total patients UNBKD of EPDS SCORE and 9 (9%) patients had Depressed out of 100 total patients BKD of EPDS SCORE. EPDS SCORE with ANC was not statistically significant (p=0.88). In our study, 3 (15%) patients had Depressed out of 20 total patients UNBKD of GHQ 12 SCORE and 9 (9%) patient had Depressed out of 100 total patients BKD of GHQ 12 SCORE. GHQ 12 SCORE with ANC was statistically significant (p=0.0412).

Discussion

The postpartum period is a critical phase in a woman's life, marked by a wide range of emotional and physiological changes. If left undiagnosed and untreated, postpartum depression (PPD) can have serious consequences for both the mother and infant, affecting maternal–infant bonding and impairing the child's developmental outcomes [9–11].

This study was conducted in the Department of Obstetrics and Gynecology, NC Medical College and Hospital, Israna, Panipat, Haryana — a tertiary care centre catering to both rural and urban populations. The prevalence of PPD reported worldwide ranges from 7.6% to 39%, depending on the population studied, screening tools used, and the timing of assessment.

In our study population of 120 women, 25 lacked formal literacy, 92 had completed schooling, and 29 held a degree. PPD prevalence in these groups was 14.28%, 4.5%, and 14.28% respectively, suggesting that both illiterate women and those with higher education levels were similarly affected, while women with only high school education had the lowest prevalence. This differs from a Lebanese study by Chaaya et al. (2020) [12], which found an association between low educational attainment and higher PPD rates.

We also observed a higher prevalence of PPD among women from lower socioeconomic backgrounds, consistent with findings by Chaaya et al. (2020) [7] and Gonidakis et al. (2018) [13]. According to the WHO Bulletin (2017), the overall prevalence of PPD in India is around 22% [3].

In terms of obstetric factors, our data showed a higher prevalence of PPD among women delivering vaginally, those with preterm births, and those giving birth to female infants. While the EPDS scores did not show statistically significant associations for

mode of delivery, the GHQ-12 scores did. Similar to our findings, Josefsson et al. (2020) [14] reported no significant association between delivery mode and PPD.

Regarding perinatal loss, 95 women had no previous losses while 25 had one or more stillbirths or neonatal deaths. PPD prevalence was higher among those with previous losses in both EPDS and GHQ-12 assessments, but the differences were not statistically significant ($p > 0.05$). Perinatal loss is known to be a significant psychological stressor, with some studies (e.g., Giannandrea et al., 2023) [15] showing a stronger association with depression, particularly among women with multiple losses.

In this study, PND prevalence was 10% using GHQ-12 and 9.2% using EPDS. There was a significant positive correlation between EPDS and GHQ-12 scores ($p < 0.0412$), indicating both tools were effective in detecting psychological distress. While EPDS scores did not vary significantly across socioeconomic strata, GHQ-12 scores indicated significantly higher depression rates among lower-income women. Similar trends have been reported by Stewart et al. (2023) [16] and Fisher et al. (2022) [17]. Follow-up at two and six weeks postpartum showed a declining trend in depressive symptoms, reinforcing the need for early screening and intervention.

Conclusion

This prospective study assessed the prevalence of postpartum depression and its associated factors in a hospital-based population. Findings highlight the importance of incorporating mental health screening into routine obstetric care, given the adverse effects of maternal depression on both mother and child. The Edinburgh Postnatal Depression Scale (EPDS) proved to be a simple, validated, and effective screening tool for use in clinical settings, and its routine application can facilitate timely diagnosis and intervention. Early detection, coupled with supportive care, can significantly improve maternal mental health outcomes and promote healthy mother–infant relationships.

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