Original Article

A Comparative Study of Postpartum Anxiety and Depression in Mothers with Pre-term & term Births: A Prospective Study

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Abstract

Background: Postpartum psychiatric illnesses include postpartum depression (PPD) and postpartum anxiety, which are very prevalent after childbirth and have serious implications on maternal health, mother-infant attachment, and child growth. Globally, postpartum depression affects approximately 10–20% of mothers, while anxiety disorders are also highly prevalent during the first year after delivery. Research suggests that mothers who deliver pre-term infants experience higher levels of psychological distress due to factors such as neonatal intensive care unit (NICU) admission, uncertainty regarding infant survival, and increased caregiving stress. Studies have reported that depression occurs in about 29% of mothers with preterm births compared with 17% among mothers of full-term infants, while anxiety may occur in 26.5% versus 11.6%, respectively. Preterm birth is therefore considered an important risk factor for postpartum psychological morbidity, and early identification of maternal mental health problems is essential for improving maternal and neonatal outcomes. The aim is to compare the prevalence and severity of postpartum anxiety and depression among mothers with pre-term and term births attending a tertiary care hospital. **Material and Methods:** This prospective observational study was conducted in the Outpatient Departments (OPDs) of Psychiatry and Obstetrics & Gynaecology at the Autonomous State Medical College (ASMC), Shahjahanpur, Uttar Pradesh, India. The study was carried out from October 2024 to December 2025. A total of 108 female participants aged 25-38 years who had delivered preterm (54)/term (54) infants were included in the study. Eligible mothers attending postnatal follow-up clinics or referred to psychiatry OPD were recruited after obtaining informed consent. The study gathered socio-demographic and obstetric information using a structured questionnaire. The level of postpartum anxiety and depression was measured through a standardised psychological screening data that included the Edinburgh Postnatal Depression Scale (EPDS), and validated anxiety testing scales. The statistical analysis was done to determine the prevalence of anxiety and depression, as well as the risk factors that are associated. **Results:** Out of the 108 mothers used in the research, a suitable number of mothers reported postpartum psychological distress symptoms, with 53.7% of mothers who had preterm babies showing moderate and severe anxiety, compared to 27.8% of mothers with term babies. 72.2% mothers with preterm babies had depressive symptoms (possibly / probable) against 18.5% mothers with term babies. There was a statistically significant higher level of anxiety and depression in mothers who had preterm births with their term counterparts. Mothers with measures of prolonged neonatal care of their babies or those with medical complications displayed higher anxiety and depressive scores. The statistical analysis indicated significant importance between pre-term birth and maternal anxiety and experiences of depressive symptoms ($p < 0.05$). **Conclusion:** The research paper mentions that postpartum anxiety and depression are remarkably high among mothers who deliver pre-term babies. Without any medical intervention, psychological distress in such mothers can eventually affect maternal health and infant development in negative ways. Early detection and prompt intervention can be supported by regular screening of mental conditions during the postnatal check-ups in the obstetrics and psychiatric clinics. Mental health support as a part of standard care provided to mothers can contribute to decreasing the workload of postpartum and maternal depression and enhancing maternal-infant outcomes.

Keywords: Maternity mental health, postpartum depression, postpartum anxiety, preterm birth, prospective study.

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Introduction

The postpartum period is one of the critical phases in the life of a woman when she experiences major physiological, psychological, and social adjustment after giving birth to a child. Although when a child in a family is born, it is usually related to happiness and complete fulfillment, some women in their postpartum phase suffer emotional upheaval. Higher among these is postpartum depression (PPD) and postpartum anxiety disorders, which are the most widespread mental health disorders that afflict mothers who have just given birth. Failing to identify and treat these disorders in the initial stages may negatively impact maternal health, infant development, and family well-being.[1]

Postpartum depression can be described as a major depressive

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episode in the first year following childbirth, which is normally accompanied by a negative mood, lack of interest, exhaustion, sleeping difficulties, and inadequate mother-infant attachment.[2] The rate of postpartum depression occurs in between 10 and 20 percent of women in the world. In developing societies, it is likely to be higher given that these countries face socioeconomic vulnerability, lack of mental health care, and other cultural factors.[3] Research in India has also indicated prevalence rates of postpartum depression between 11% and 26%, indicating the importance of routine postpartum depression screening in maternal healthcare environments.[4]

Besides depression, there are also commonly reported postpartum anxiety disorders, including generalised anxiety disorder, panic disorder, and obsessive as well as compulsive symptoms that are also widespread in the postpartum depression period. Postpartum anxiety can come in the form of excessive concern over the well-being of the baby, insomnia, crankiness, and lack of concentration.[5] Research indicates that postpartum anxiety prevails in 15 20 percent of mothers, which can at the same time coexist with the condition of postpartum depression.[6] Postpartum anxiety can profoundly impact the functioning of the mother and may interfere with the provision of proper caregiving and emotional attachment to the infant.

Preterm birth, defined as the birth before the completion of 37 gestational weeks, is one of the significant obstetric determinants of maternal psychological distress. Preterm birth has been one of the key health issues in the world, with an estimated 15 million preterm babies in the world annually.[7] Premature birth has been estimated to be approximately 13% in India, which is among the highest rates of neonatal morbidity and disease.[8]

Perhaps the most vulnerable group of patients is mothers who give birth to preterm infants and can develop postpartum anxiety and depressive symptoms. The immediate impact of a preterm birth worries about infant survival, length of stay at neonatal intensive care units (NICU), and the unpredictability of the prior developmental outcomes might cause great emotional distress among mothers.[9] Several studies show that mothers of preterm babies have higher stress, anxiety, and depression levels than mothers of full-term babies.[10]

It has been found that postpartum depression in mothers whose premature births occur is large by up to 25-40 percent and by a significant margin, as compared to that of mothers whose babies are born at normal delivery.[11] On the same note, 30-45 percent of mothers who have pre-term babies have been reported to have anxiety conditions, especially in the first year after delivery, when the baby is under special care.[12] These mothers might have a psychological burden that adversely impacts maternal-infant interaction, practices of breastfeeding, and development among infants.[13]

Early identification and treatment of the mental health disorders that occur in the postpartum period are crucial elements of full maternal health care. Various screening instruments like the Edinburgh Postnatal Depression Scale (EPDS), validated anxiety assessment scales are common instruments utilised in clinical practice to determine the mothers at risk of developing postpartum psychological disorders.[14] Several global guidelines have recommended routine mental health screening during postnatal visits in obstetrics and gynaecology centres as one of the methods to detect and manage in initial stages.[15]

The awareness that maternal mental health problems are involved has led to under-diagnosis and under-treatment of postpartum anxiety and depression, even though in countries with low- and middle-income, mental health services are scarce.[16] Moreover, many areas of India lack research studies on the psychological effects of preterm births on their mothers. The prevalence and severity of postpartum anxiety and depression among this population should be understood to be able to design specific interventions and enhance the outcomes of mothers and newborns.

Thus, the current prospective research was carried out in the Outpatient psychiatry and obstetrics and gynaecology departments of the Autonomous State Medical College (ASMC), Shahjahanpur, Uttar Pradesh, to compare prevalence rates of postpartum anxiety and depression among mothers who experienced preterm birth. The results of the present research are expected to contribute to the available literature and highlight the need to incorporate mental health screening and supportive services into routine postnatal care.

Materials and Methods

Study Design: The current study is a prospective comparative observational study that was carried out to determine the existence and severity of postpartum anxiety and depression in mothers who delivered preterm babies compared to those who delivered full-term babies.

Study Setting: This was done in the Outpatient Departments (OPD) of Psychiatry and Obstetrics and Gynaecology at the Autonomous State Medical College (ASMC), Shahjahanpur, Uttar Pradesh, India. The departments give postnatal follow-ups, mental screening, and counselling services to postpartum mothers regularly.

Study Duration: This was carried out between October 2024 and December 2025.

Study Population: The sample population comprised postpartum mothers who attended postnatal follow-up in the OPD of Psychiatry and Obstetrics and Gynaecology during the study.

Sample Size: A study sample size of 108 postpartum mothers was used. The groups of participants were separated into two groups:

- Group A (Preterm birth group): 54 mothers who delivered preterm infants (<37 weeks of gestation)
- Group B (Term birth group): 54 mothers who delivered full-term infants (≥37 weeks of gestation)

The sample size was determined based on feasibility and the average number of postpartum mothers visiting the OPD during the study period.

Inclusion Criteria

Participants were included in the study if they met the following criteria:

- Mothers aged 25–38 years
- Mothers who had delivered within the last 6 weeks

postpartum
- Mothers are willing to provide written informed consent
- Mothers attending follow-up in the psychiatry or obstetrics OPD
- Mothers who delivered either preterm (<37 weeks) or full-term infants (≥37 weeks)

Exclusion Criteria

Participants were excluded if they had:
- History of psychiatric illness before pregnancy
- Severe obstetric complications requiring intensive care
- Current use of psychotropic medications
- Mothers with multiple pregnancies (twins/triplets)
- Mothers unwilling to participate or unable to complete questionnaires

Data Collection Procedure: The study contacted potential mothers who attended the OPD during the study period and informed them of the study objectives. Participants were registered after informed consent was provided in writing.

The following were recorded using a structured data collection form:
- Socio-demographic characteristics (age, education, occupation, socioeconomic status)
- Obstetric history (parity, gestational age at delivery, mode of delivery)
- Neonatal information (birth weight, NICU admission)

Participants were then assessed for postpartum anxiety and depression using validated screening tools.

Assessment Tools

1. Edinburgh Postnatal Depression Scale (EPDS)

Postpartum depression was measured with the help of the EPDS, which is a self-title questionnaire containing 10 items, which is used to evaluate the presence of depressive states at the postpartum stage. It is rated on a scale of 0 to 3, with the highest score being 30.

Interpretation of scores:
- 0–9: Normal
- 10–12: Possible depression
- ≥13: Probable postpartum depression

2. Generalised Anxiety Disorder Scale (GAD-7)

Postpartum anxiety symptoms were assessed using the GAD-7 scale, a validated 7-item questionnaire measuring the severity of anxiety symptoms.

Scoring interpretation:
- 0–4: Minimal anxiety
- 5–9: Mild anxiety
- 10–14: Moderate anxiety
- 15–21: Severe anxiety

Study Variables

Primary Outcome Variables
- Presence of postpartum depression
- Presence of postpartum anxiety

Secondary Variables
- Maternal age
- Educational status
- Mode of delivery
- Gestational age at delivery
- Neonatal birth weight
- NICU admission

Ethical Considerations: Before the initiation of the research, ethical approval for the study was obtained from the Institutional Ethics Committee of the Autonomous State Medical College (ASMC), Shahjahanpur. The objective of the study was known to all the participants, who were informed to keep their information confidential. The participation was voluntary, and the mother was not required to continue in the study as long as she was not notified of her treatment.

Statistical Analysis: The data obtained were entered into Microsoft Excel and analysed using SPSS version 25.0.
- Descriptive statistics, including mean, standard deviation, frequencies, and percentages, were used to summarise demographic and clinical variables.
- The chi-square test was used to compare categorical variables between the preterm and term birth groups.
- An independent t-test was used to compare continuous variables.
- A p-value <0.05 was considered statistically significant.

RESULTS

A total of 108 postpartum mothers were included in the study. The participants were divided into two groups:
- Group A (Preterm birth mothers) – 54 participants
- Group B (Term birth mothers) – 54 participants

The study compared socio-demographic characteristics, prevalence of postpartum anxiety, and postpartum depression between the two groups.

Table 1: Demographic Characteristics of the Study Participants

Variable	Preterm Birth (n=54)	Term Birth (n=54)	p-value
Mean Age (years)	30.6 ± 3.2	31.1 ± 3.4	0.46
25–29 years	21 (38.9%)	18 (33.3%)	
30–34 years	23 (42.6%)	25 (46.3%)	
35–38 years	10 (18.5%)	11 (20.4%)	
Primiparous	29 (53.7%)	26 (48.1%)	0.56
Multiparous	25 (46.3%)	28 (51.9%)	

[Table 1] presents the demographic characteristics of the study participants. The mean age of mothers in the preterm group was 30.6 ± 3.2 years, while in the term birth group it was 31.1 ± 3.4 years, showing no statistically significant difference (p = 0.46).

In the preterm birth group, the largest proportion of mothers belonged to the 30–34 years age group (42.6%), followed by the 25–29 years (38.9%) and 35–38 years (18.5%) age groups.

Similarly, in the term birth group, most mothers were also aged 30–34 years (46.3%), followed by 25–29 years (33.3%), and 35–38 years (20.4%).

Regarding parity, 53.7% of mothers with preterm births were primiparous, compared with 48.1% in the term birth group. Multiparous mothers constituted 46.3% and 51.9% in the respective groups. The difference in parity distribution was not statistically significant (p = 0.56), indicating that both groups were comparable in baseline characteristics.

Table 2: Comparison of Postpartum Anxiety between Preterm and Term Birth Mothers (GAD-7 scores)

Anxiety Level	Preterm Birth (n=54)	Term Birth (n=54)	p-value
Minimal Anxiety	8 (14.8%)	20 (37.0%)	
Mild Anxiety	17 (31.5%)	19 (35.2%)	
Moderate Anxiety	19 (35.2%)	10 (18.5%)	
Severe Anxiety	10 (18.5%)	5 (9.3%)	0.01

[Table 2] illustrates the distribution of postpartum anxiety levels among mothers with preterm and term births based on GAD-7 scores.

In the preterm birth condition, very few mothers (14.8) had minimal anxiety, with larger proportions having moderate and severe anxiety. Also, 31.5% of mothers said that they experienced slight symptoms of anxiety.

Conversely, the word birth group had a higher rate of minimal anxiety (37.0%), which indicates a relatively lower level of psychological distress. Fraternal anxiety was reported by 35.2 percent of the mothers, moderate anxiety by 18.5 percent, and severe anxiety by 9.3 percent of the mothers.

In total, 53.7 percent of the mothers who were born preterm had moderate or severe anxiety, whereas 27.8 percent of the term births group had moderate or severe anxiety. The means of both groups were statistically significantly different (p = 0.01), meaning that mothers of preterm infants experienced a significantly higher level of postpartum anxiety.

Table 3: Comparison of Postpartum Depression between Preterm and Term Birth Mothers (EPDS Scores)

Depression Category	Preterm Birth (n=54)	Term Birth (n=54)	p-value
Normal (0–9)	15 (27.8%)	31 (57.4%)	
Possible Depression (10–12)	17 (31.5%)	13 (24.1%)	
Probable Depression (≥13)	22 (40.7%)	10 (18.5%)	0.003

[Table 3] compares the prevalence of postpartum depression among mothers in the two groups using the Edinburgh Postnatal Depression Scale (EPDS).

In the preterm birth group, only 27.8% of mothers had normal EPDS scores, while 31.5% had possible depression and 40.7% showed probable postpartum depression.

In comparison, the term birth group demonstrated a higher proportion of normal scores (57.4%), indicating better psychological well-being. Possible depression was observed in 24.1%, while probable depression occurred in only 18.5% of mothers.

Overall, 72.2% of mothers with preterm births exhibited depressive symptoms (possible or probable) compared with 42.6% among mothers with term births.

The difference between the two groups was statistically significant (p = 0.003), suggesting that preterm delivery is strongly associated with a higher risk of postpartum depression.

Discussion

The present prospective study evaluated the comparative prevalence of postpartum anxiety and depression among mothers with preterm and term births attending the Outpatient Departments of Psychiatry and Obstetrics &Gynaecology at Autonomous State Medical College (ASMC), Shahjahanpur, Uttar Pradesh. The results showed that mothers with preterm children exhibited enormous anxiety and depression as opposed to mothers with term children. These conclusions can be supported by the fact that already existing studies indicate that preterm birth emerges as one of the significant psychological stressors faced by mothers due to such factors as fears of their babies being underdeveloped, spending more time in the hospital, and suffering losses about the health status of their infants.[10]

In the current research, moderate and severe anxiety was also found in 53.7 percent of mothers who delivered when not in term and 27.8 percent of mothers who delivered when they were in term. This means that preterm babies' mothers were almost twice as likely to develop some clinically significant symptoms of anxiety in the postpartum period. The same thing has been observed in earlier research in which the frequency of anxiety in mothers of preterm babies was reported to be between 24% and 48%, particularly in the early postpartum period and when the neonate is admitted to the neonatal intensive care unit (NICU).[3]

The reason behind the high rate of anxiety in mothers with preterm infants could be attributed to a variety of factors, including fear of neonatal complications, extended hospitalisation, and lack of confidence in the development of infants. Premature birth has the propensity to interfere with the anticipated maternal-infant bonding experience, which causes more psychological unhappiness. It has been established that mothers of infants with exceptionally low birth weights often experience chronic anxiety that touches on infant survival, feeding challenges, and developmental successes, especially within the initial three months following childbirth.[13]

The current research also revealed that probable postpartum depression in mothers with preterm delivery was 40.7% and in the term, deliveries was 18.5 percent, with a very high weight of the depressive symptoms in the former. These results are similar to previous research, which has found the prevalence of postpartum depression among preterm infant mothers to be around 29.4% and 17.3% among term infant mothers, and points towards close to two times higher chances of postpartum

depression in mothers of preterm infants.[14]

Equally, a research study was carried out on mothers of preterm births, revealing a 39.2 per cent prevalence of postpartum depression as a condition that illustrates that prematurity is a significant factor that predisposes mothers to experience depressive symptoms. In other recent studies, it was reported that 63.2 percent of mothers reported moderate to severe anxiety and 46.2 percent moderate to severe depressive symptoms associated with postpartum following preterm delivery, indicating that psychological morbidity is extremely high among this group of people.[15]

Various psychosocial and biological factors can explain the high vulnerability of mothers who deliver preterm babies to postpartum depression. Preterm birth can be considered an unforeseen event and can be linked to pregnancy complications, emergency birth, and neonatal health issues, which can worsen the emotional load. Moreover, the absence of separation from the baby at the NICU admission can impair early maternal attachment, affect a sense of powerlessness, guilt, and depression. Research has shown that depressive symptoms could be seen in up to 4050% of mothers shortly after a very preterm birth, but the rate decreases slowly in most cases.[16]

The relationships between maternal anxiety and depression that are evident in the current research are also consistent with other sources that indicate that maternal anxiety and maternal depression often co-exist in the postpartum phase. Stress surrounding the health and caregiving roles of the infants can ultimately result in depressive symptoms unless psychological support is given. It has been suggested that anxiety is a common antecedent or comorbid to postpartum depression and therefore has to be treated early in the postnatal stage.[11]

There are also socio-demographic variables that can lead to postpartum psychological outcomes. Previous research has established that poor educational levels, age of the mother, and poor socioeconomic status are related to increased postpartum depression and anxiety cases amongst mothers whose babies were born preterm. Moreover, social support and poor counselling during the pregnancy period can worsen the psychological distress following preterm delivery.[12]

The necessity to conduct mental health screening regularly in the obstetric and paediatric settings is another significant finding of the current work. Although PPDs are widespread, schools of thought fail to acknowledge the importance of psychological assessment in the normal postpartum care. Painful screening instruments like the Edinburgh Postnatal Depression Scale (EPDS) and the Generalized Anxiety Disorder-7 (GAD-7) are crucial, quick, and evaluable devices that can aid in risk identification in at-risk mothers and provide prompt relaxation of care. Postpartum depression and anxiety should be considered as mental health disorders that should be detected as early as possible, since untreated maternal depression and anxiety can have a deleterious impact on the mother-child relationship, breastfeeding habits, and the final development of the child.

The findings of this research report highlight the significance of including mental health services in the way maternal and neonatal care protocols are implemented. Postpartum distress and maternal well-being can be considerably decreased by means of counselling, family support, and psychological interventions. Instead, healthcare providers must focus more on psychological testing and support of the mothers who experience high-risk pregnancies or have premature births.

Limitations

Despite the useful information presented in the current study, several shortcomings must be considered. To begin with, the sample was modest (108 participants) and confined to a single tertiary care unit, which may limit the generalisability of the study's results. Second, the authors used self-administered psychological assessment scales, which can be biased in reporting. Also, the mothers did not follow up in the long term; thus, the continuation of anxiety and depression even after early postpartum could not be assessed.

Nevertheless, despite these studies, the research offers meaningful data on the enhanced psychological vulnerability of mothers who give birth prematurely and the necessity to screen their mental health postpartum regularly.

Conclusion

In the current study, it was established that mothers who delivered preterm babies endured higher rates of postpartum anxiety and depression than the mothers who delivered at term. Over fifty percent of the mothers in the preterm group had moderate to severe levels of anxiety, and a substantial proportion of mothers had symptoms indicative of postpartum depression.

Such results indicate that preterm birth is a serious threat to maternal psychological distress in the postpartum stage. Scheduling anxiety and depression screening with standardised measures like EPDS and GAD-7 must therefore become a part of postpartum care, especially for those mothers who give birth to preterm babies.

Mothers with mental health problems can be monitored at preliminary stages and provided with needed mental assistance, contributing to better maternal-infant bonding and neonatal outcomes in general. Future multi-centre research involving larger sample sizes and increased follow-up durations of preterm mothers should be conducted to determine the long-term psychological effects of preterm birth on mothers.

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Conflicts of interest

There are no conflicts of interest.

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