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Incidence and Risk Factors of Postpartum Depression Among First-Time Mothers: A Prospective Study

Ankur Harjit Kaur[1], Harwinder Kaur Cheema[2], FNU Pawandeep[3], Sanjana Avajigari[4], Ashna Goyal[5], Hamraj Singh[6]

[1,2,3]Punjab Institute of Medical Sciences, Jalandhar, Punjab, India

[4]Government Medical College, Siddipet, Telangana, India

[5,6]Sri Guru Ram Das Institute of Medical Sciences &Research, Amritsar, Punjab, India

Corresponding author:

FNU Pawandeep

Punjab Institute of Medical Sciences, Jalandhar, Punjab, India

Email ID : pawandeepsingh2121@gmail.com

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ABSTRACT

Background: Postpartum depression (PPD) is a common but underdiagnosed mental health disorder affecting women during the postnatal period. First-time mothers may be particularly vulnerable due to the emotional and physical adjustments required during this transition. This study aimed to determine the incidence of PPD and to identify associated risk factors among primiparous women.

Methods: A prospective observational study was conducted on 130 first-time mothers at two tertiary care hospitals over a 12-month period. Participants were assessed using the Edinburgh Postnatal Depression Scale (EPDS) at 6 and 12 weeks postpartum. A score of ≥13 was indicative of PPD. Sociodemographic, obstetric, and psychosocial data were collected, and multivariate logistic regression was used to identify significant predictors.

Results: The incidence of PPD in the cohort was 16.2%, with most cases (71.4%) detected at the 6-week follow-up. Significant independent risk factors included lack of family support (OR = 5.4, $p < 0.001$), low marital satisfaction (OR = 4.6, $p = 0.003$), unplanned pregnancy (OR = 2.8, $p = 0.02$), and a history of antenatal anxiety or depression (OR = 6.3, $p = 0.006$).

Conclusion: PPD is a significant concern among first-time mothers, with psychosocial factors playing a critical role in its development. Routine screening, early identification, and targeted psychosocial interventions are essential for reducing the burden of PPD and improving maternal well-being..

Keywords: *Postpartum depression, Primiparous women, Edinburgh Postnatal Depression Scale, Risk factors, Maternal mental health, Unplanned pregnancy, Social support,*

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1. INTRODUCTION

A serious public health issue that affects women worldwide throughout the puerperium is postpartum depression (PPD). PPD, which usually appears in the first few weeks after childbirth and is characterized by persistently low mood, exhaustion, anxiety, irritability, and feelings of hopelessness, can affect child development, family functioning, and mother-infant attachment (O'Hara & McCabe, 2013). According to estimates from around the world, between 10% and 20% of women suffer with PPD; however, this incidence varies depending on cultural views, diagnostic standards, and access to healthcare (Halbreich &Karkun, 2006). Due to their abrupt life changes, inexperience as parents, physical recuperation

after childbirth, and psychological adaptations to parenthood, first-time moms, often known as primiparous women, are more at risk (Beck, 2001).

PPD risk is influenced by a number of demographic, obstetric, and psychological factors. These include stressful life events that occur during or soon after pregnancy, low socioeconomic position, history of mental health disorders, unexpected pregnancy, and a lack of social or relationship support (Robertson et al., 2004; Yelland et al., 2010). The stigma attached to mental illness and the dearth of prenatal mental health treatments in low- and middle-income nations contribute to the high prevalence of misdiagnosed and untreated PPD. To facilitate early intervention, enhance maternal mental health outcomes, and avoid detrimental developmental effects on children, it is imperative to identify risk factors in first-time moms (Gavin et al., 2005). This study aims to assess the incidence of PPD and investigate associated risk factors among primiparous women in a prospective design.

2. MATERIALS AND METHODS

This was a **prospective observational study** conducted in the Department of Obstetrics and Gynaecology, Punjab Institute of Medical Sciences, Jalandhar, Punjab, India over a period of 12 months. The study aimed to determine the incidence and associated risk factors of postpartum depression among primiparous women.Ethical approval was obtained from the Institutional Ethics Committees of hospital. Informed consent was obtained before commencement of the study. A total of **130 first-time mothers** were enrolled consecutively using non-probability purposive sampling. Sample size was calculated based on an expected incidence of postpartum depression of 20%, with a 95% confidence interval and 7% margin of error, adjusted for potential dropout

Inclusion Criteria

Women aged **18 to 35 years**.

Primiparous (first-time) mothers.

Singleton pregnancy with live birth.

Willing to participate and provide informed written consent.

Delivered within the past **7 days** (to allow baseline screening).

Able to understand and respond to the study questionnaire.

Exclusion Criteria

Known history of **psychiatric illness** (e.g., depression, anxiety disorders, bipolar disorder).

Current use of **antidepressant or psychotropic medications**.

Women with **severe obstetric complications** (e.g., eclampsia, postpartum hemorrhage requiring ICU admission).

Neonatal death or congenital anomalies in the newborn.

Inability to complete follow-up assessments due to relocation or loss to follow-up.

Data Collection Tools and Procedures

Participants were recruited during their postpartum hospital stay (within 7 days of delivery). Baseline sociodemographic, obstetric, and psychosocial data were collected using a **structured interview schedule**.Postpartum depression was assessed using the **Edinburgh Postnatal Depression Scale (EPDS)** — a validated 10-item self-reported questionnaire. A score of **≥13** on the EPDS was considered suggestive of postpartum depression (Cox et al., 1987). Follow-up assessments were conducted at **6 weeks** and **12 weeks postpartum** either during outpatient visits or via telephonic interviews.**Demographic factors** such as Age, education, occupation, socioeconomic status, **Obstetric history** and **Psychosocial factors** were reported.

Statistical Analysis

Data were entered into Microsoft Excel and analyzed using **SPSS version 25.0**. Descriptive statistics were used to summarize baseline characteristics. Incidence of PPD was expressed as percentage. **Chi-square test** and **t-test** were used for univariate analysis, and **binary logistic regression** was applied to identify independent risk factors for PPD. A p-value of **<0.05** was considered statistically significant.

3. RESULTS

Out of the 130 first-time mothers enrolled, **21 women (16.2%)** were identified with postpartum depression (PPD) based on EPDS scores ≥13 at either 6 or 12 weeks postpartum. The majority (71.4%) of cases were identified during the 6-week follow-up.

Table 1: Comparison of baseline characteristics and psychosocial factors between PPD and non-PPD groups.

Variable	PPD (n=21)	No PPD (n=109)	p-value
Age (years) (mean ± SD	26.1 ± 3.2	25.8 ± 3.5	0.67
Education ≥10th grade	14 (66.7%)	89 (81.7%)	0.08
Unplanned pregnancy	11 (52.4%)	22 (20.2%)	**0.004**
Cesarean section	12 (57.1%)	49 (45.0%)	0.31
Complications during delivery	6 (28.6%)	15 (13.8%)	0.10
Low family support	13 (61.9%)	18 (16.5%)	**<0.001**
Low marital satisfaction	10 (47.6%)	14 (12.8%)	**<0.001**
History of antenatal anxiety/depression	6 (28.6%)	5 (4.6%)	**<0.001**

Table 2: Incidence of postpartum depression over 12 weeks.

Time of EPDS Assessment	Number of Women with EPDS ≥13	Percentage (%)
At 6 weeks postpartum	15	11.5%
At 12 weeks postpartum	4.6	6%
Total	21	16.2%

Table 3: Multivariate logistic regression identifying significant independent predictors of postpartum depression.

Risk Factor	Adjusted Odds Ratio (OR)	95% Confidence Interval (CI)	p-value
Unplanned pregnancy	2.8	1.1–6.9	0.02
Low family support	5.4	2.1–13.7	<0.001
Low marital satisfaction	4.6	1.7–12.5	0.003
History of antenatal anxiety/depression	6.3	1.7–23.4	0.006

4. DISCUSSION

The frequency and risk factors of postpartum depression (PPD) among new mothers were evaluated in this prospective study. This cohort's 16.2% PPD incidence is in line with estimates from around the world that range from 10% to 20% (O'Hara & McCabe, 2013; Shorey et al., 2018). Our results demonstrate the importance of early detection and preventive measures, especially for vulnerable groups like primiparous women, and confirm that PPD is a frequent problem in the postpartum phase.The 6-week postpartum interval, which corresponds with the usual peak time for the onset of depressed symptoms, had the greatest number of PPD cases (Gavin et al., 2005). New examples discovered at 12 weeks, however, suggest that some moms have symptoms that start later. According to the American College of Obstetricians and Gynecologists (ACOG, 2018), maternal mental health should be monitored not just at the first postpartum visits but also during the entire fourth trimester.

Low marital satisfaction (OR = 4.6) and a lack of family support (OR = 5.4) were the two most significant independent risk factors among the many predictors examined. These results are in line with other research that has repeatedly demonstrated the protective effect of social and emotional support from spouses and family against PPD (Robertson et al., 2004; Biaggi et al., 2016). Due to shared caregiving responsibilities, family support is essential during the postpartum phase in traditional and collectivist cultures. Lack of this support can exacerbate depression symptoms by causing more stress, loneliness, and a sense of overload.

Another significant predictor of PPD was an unintended pregnancy (OR = 2.8). This result is consistent with research by

Faisal-Cury et al. (2017) and Yelland et al. (2010) that found that women who became pregnant unintentionally had a greater prevalence of depressive symptoms. These women may be more susceptible to mental health issues due to their uncertainty about the pregnancy, unstable relationships or finances, and less readiness for motherhood.

There is ample evidence that antenatal mood disorders are powerful predictors of postpartum psychopathology (Lancaster et al., 2010; Stewart &Vigod, 2016), and a history of antenatal anxiety or depression was also strongly linked to PPD (OR = 6.3). These women can be more susceptible to hormonal and psychological changes during childbirth and have a lower stress threshold.Remarkably, despite controlling for confounders, obstetric factors including delivery method or difficulties did not substantially correlate with PPD. While other studies have identified cesarean delivery and birth difficulties as potential risk factors, this is consistent with some earlier research (Gavin et al., 2005). These disparities could be the result of subjective birth experiences, variations in healthcare support networks, or variations in demographic characteristics.

The study's conclusions highlight the importance of regular mental health screenings during prenatal and postpartum care. Early identification of at-risk women can be facilitated by the use of straightforward instruments like the Edinburgh Postnatal Depression Scale (EPDS) in community or outpatient settings. For women who have risk factors such an unintended pregnancy, limited marital support, or a history of mood disorders, counseling, partner education, and social support interventions should be given priority.Healthcare professionals should also receive training on how to identify mental as well as physical difficulties that arise during the perinatal stage. For complete care, multidisciplinary approaches involving obstetricians, nurses, social workers, and mental health specialists are recommended.

5. STRENGTH AND LIMITATIONS

This study's prospective design, which enabled longitudinal follow-up and prompt detection of depression symptoms, is one of its main strengths. Furthermore, the confounding effect of previous parenting experience was lessened by concentrating only on primiparous women.

The study does have several drawbacks, though. First off, the sample could not be typical of low-resource or rural areas because it was taken from tertiary care hospitals. Second, several risk factors were not evaluated, including personality traits, hormone indicators, and intimate partner violence. Lastly, despite being extensively verified, the EPDS is a screening tool rather than a diagnostic tool. The accuracy of the diagnosis would have increased with clinical interviews.

6. CONCLUSION

The study's findings support the importance of psychosocial variables in the emergence of postpartum depression in new moms. The burden of PPD can be lessened with interventions that focus on early screening, emotional readiness, and social support networks. Maternal mental health services should be incorporated into standard perinatal care by policymakers and healthcare organizations, particularly for new moms who are unfamiliar with this stage of life.

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