

## ORIGINAL ARTICLE

# Burden and Determinants of Postpartum Depression among Rural Mothers of District Abbottabad

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## ABSTRACT

**Background:** Postpartum depression (PPD) is a serious mental health problem that affects women during the first year after giving birth. It can have lasting negative effects on both mothers and their children, impacting breastfeeding, bonding, and child development. Women living in rural areas, especially in low and middle-income countries, face a higher risk because of economic hardship, limited healthcare, and cultural challenges.

**Objective:** This study looked at how common postpartum depression is and what social and health factors are linked to it among rural mothers in District Abbottabad, Pakistan.

**Methods:** The study took place from January to June 2021 and included 320 mothers who had given birth in the past year. Researchers selected participants from local health centers using convenience sampling. They gathered information through interviews and used the Edinburgh Postnatal Depression Scale to assess mental health. The study looked at factors like age, education, income, anemia, intimate partner violence, unplanned pregnancy, social support, and financial stress. Logistic regression helped identify which factors were linked to PPD, with results considered significant if p-values were less than 0.05.

**Results:** The study found that 22.5% of the mothers had postpartum depression. Younger mothers (under 20) and those with less education were more likely to have PPD. The main factors linked to PPD were unplanned pregnancy (OR: 3.2), anemia (OR: 2.5), intimate partner violence (OR: 4.1), low social support (OR: 2.7), and financial stress (OR: 2.1). Even though PPD was common, only 8.4% of affected mothers were referred for mental health care, showing a major gap in support.

**Conclusions:** Postpartum depression is common among rural mothers in District Abbottabad. Unplanned pregnancies, anemia, intimate partner violence, low social support, and financial stress are major factors. These results highlight the urgent need for better mental health screening, referral systems, and culturally sensitive support for postpartum women in rural areas.

**Keywords:** Postpartum Depression, Rural Mothers, Socioeconomic Status, Intimate Partner Violence, Unplanned Pregnancy, Mental Health, Pakistan.

## INTRODUCTION

Postpartum depression (PPD) is a serious public health problem that often goes unnoticed, affecting women during the first year after childbirth. Unlike the transient “baby blues,” PPD is characterized by persistent sadness, fatigue, anxiety, and impaired maternal functioning. Globally, approximately 10%–20% of women experience postpartum depression; however, prevalence rates are substantially higher in low- and middle-income countries (LMICs), sometimes exceeding 30%, due to financial stress, limited access to mental health services, and sociocultural barriers.<sup>6</sup>

<sup>18</sup> PPD adversely affects not only maternal well-being but also infant outcomes, including breastfeeding practices, mother–infant bonding, and long-term child development.<sup>13</sup>

Women living in rural areas of LMICs are particularly vulnerable to postpartum depression due to restricted healthcare access, poverty, food insecurity, and social isolation.<sup>10–22</sup> Additionally, stigma surrounding mental illness and the prioritization of physical symptoms often hinder early detection and management of postpartum mental health disorders.<sup>10</sup> Major risk factors for PPD include unplanned pregnancy, inadequate social support, and exposure to intimate partner violence (IPV).<sup>9–21</sup> IPV is especially prevalent in resource-limited settings and contributes to psychological

trauma and chronic stress, significantly increasing the risk of postpartum depression.<sup>2–15</sup>

Women with a previous history of depression or anxiety, as well as those experiencing hormonal and physiological changes following childbirth, are at increased risk of developing postpartum depression.<sup>3–16</sup> Socioeconomic challenges such as low income, unemployment, and financial insecurity are strongly associated with PPD, particularly in rural populations where healthcare resources are scarce.<sup>5–17</sup> Limited family and community support further exacerbates maternal vulnerability during the postpartum period.<sup>7–19</sup>

The Edinburgh Postnatal Depression Scale (EPDS) is a widely used and validated screening tool for identifying postpartum depression and facilitating early intervention.<sup>4</sup> In rural LMICs, however, healthcare systems often prioritize physical maternal care while neglecting mental health, resulting in a substantial proportion of PPD cases remaining undiagnosed and untreated.<sup>12–24</sup> Barriers such as stigma, shortage of trained professionals, and poor integration of mental health services into maternal care further limit effective management.<sup>11–23</sup> Understanding the determinants of postpartum depression in rural Pakistan is therefore essential for developing targeted public health strategies aimed at improving maternal and child health outcomes.<sup>8–20</sup>

## METHODOLOGY

This study set out to measure how common postpartum depression (PPD) is and to find out which sociodemographic and health factors contribute to it among rural mothers in District Abbottabad, Pakistan. The research took place over six months, from January 2021 to June 2021, and examined how often PPD occurs and the factors associated with it in rural areas. Researchers selected 320 mothers who had recently given birth from local clinics, hospitals, and community health settings in rural Abbottabad, using convenience sampling. To take part, mothers had to have given birth in the past year, live in rural Abbottabad, and agree to participate. Mothers with existing psychiatric conditions or whose babies needed urgent medical care were not included, as these factors could affect the results. The study focused on new mothers who might be at risk for postpartum depression, especially looking at their backgrounds and health situations. Data were collected through structured interviews with a questionnaire covering three main areas: sociodemographic details (like age, education, and income), health factors (such as anemia, partner violence, unplanned pregnancy, financial stress, and social support), and mental health, using the Edinburgh Postnatal Depression Scale (EPDS). Mothers who scored 13 or higher on the EPDS were considered to have postpartum depression. The analysis included both descriptive and inferential statistics. Descriptive statistics summarized the participants' backgrounds and the rate of PPD. Chi-square tests were used to assess links between factors such as age, education, and income and PPD. Logistic regression was used to identify the main factors associated with PPD, with odds ratios and 95% confidence intervals indicating the strength of these associations. A p-value below 0.05 was considered significant. The study also looked at how mothers diagnosed with PPD were referred and followed up, focusing on the support available for mental health in rural areas. The research received ethical approval from a recognized review board, and all participants gave written consent. Participant data were kept strictly confidential throughout the study.

## RESULTS

This study looked at postpartum depression (PPD) among rural mothers in District Abbottabad, Pakistan. PPD was found in 22.5% of cases, with 72 out of 320 mothers diagnosed (Table 1). Age, education, and socioeconomic status were linked to PPD. Younger mothers under 20 and those with less education had higher rates of depression. For example, 31% of mothers under 20 had PPD (Table 5), and 27.8% of mothers with no formal education were affected (Table 5). The analysis showed that unplanned pregnancy (OR: 3.2), anemia (OR: 2.5), intimate partner violence (OR: 4.1), low social support (OR: 2.7), and financial stress (OR: 2.1) were key factors (Table 3). These issues, made worse by the challenges of rural life, increased the risk for these mothers. Only 8.4% of mothers with PPD were referred to mental health or obstetric services, showing a major gap in care (Table 4). The results show a need for focused support and better referral systems so mothers can get the help they need.

Table 1: Prevalence of Postpartum Depression (PPD)

PPD Status	Frequency (n)	Prevalence (%)	95% Confidence Interval (CI)
Depressed	72	22.5%	18.1% - 27.0%
Not Depressed	248	77.5%	73.0% - 81.9%
Total	320	100%	

Table 2: Sociodemographic Characteristics of Participants

Characteristic	Frequency (n)	Percentage (%)
Age (Years)		
< 20	42	13.1%
20 - 30	157	49.1%
31 - 40	87	27.2%
> 40	34	10.6%
Education Level		
No formal education	54	16.9%
Primary education	127	39.7%
Secondary education	96	30.0%
Higher education	43	13.4%
Socioeconomic Status		
Low-income	212	66.3%
Middle-income	108	33.8%

Table 3: Logistic Regression Analysis - Determinants of Postpartum Depression

Determinant	Odds Ratio (OR)	95% Confidence Interval (CI)
Unplanned Pregnancy	3.2	2.1 - 4.8
Anemia	2.5	1.7 - 3.8
Intimate Partner Violence	4.1	2.9 - 5.8
Low Social Support	2.7	1.9 - 3.9
Financial Stress	2.1	1.5 - 3.0

Table 4: Referral and Follow-up for Postpartum Depression

Referral Status	Frequency (n)	Percentage (%)
Referred to Mental Health/OB Services	27	8.4%
Not Referred	293	91.6%
Total	320	100%

Table 5: Demographic Characteristics and PPD Prevalence

Characteristic	PPD Positive (%)	PPD Negative (%)	p-value
Age			
< 20	31.0%	69.0%	0.03
20 - 30	21.0%	79.0%	
31 - 40	24.1%	75.9%	0.12
> 40	17.6%	82.4%	
Education Level			0.05
No formal education	27.8%	72.2%	
Primary education	20.5%	79.5%	
Secondary education	21.9%	78.1%	
Higher education	16.3%	83.7%	
Socioeconomic Status			0.02
Low-income	24.1%	75.9%	
Middle-income	17.6%	82.4%	

Fig. 1: Prevalence of Postpartum Depression (PPD)

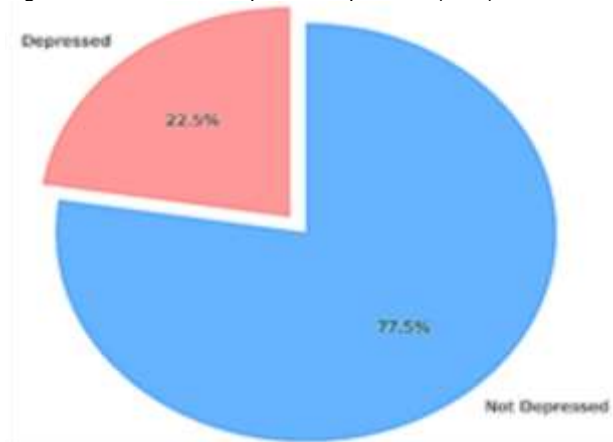


Fig. 2: Sociodemographic Characteristics of Participants (Age)

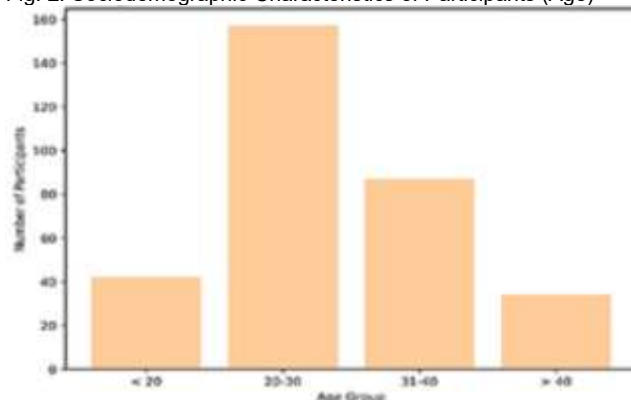
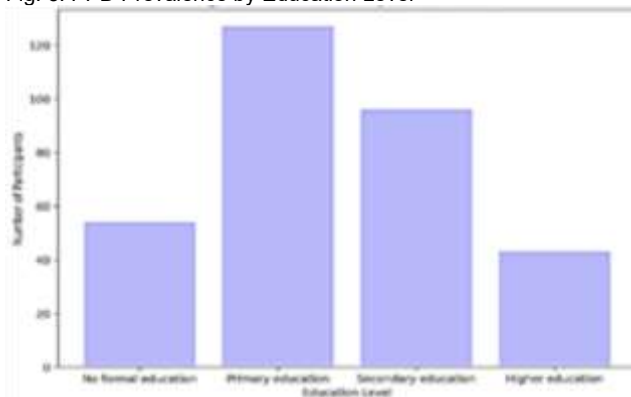


Fig. 3: PPD Prevalence by Education Level



## DISCUSSION

This study demonstrates a substantial burden of postpartum depression among rural mothers in District Abbottabad, with a prevalence of 22.5%, which is higher than typically reported in urban populations. This finding is consistent with evidence from rural settings globally, where limited healthcare access, economic hardship, and inadequate mental health support contribute to increased risk of postpartum depression.<sup>13 12 24</sup> Similar patterns have been reported across LMICs, highlighting the disproportionate impact of rural living on maternal mental health.<sup>10 22</sup>

Younger maternal age was significantly associated with postpartum depression in this study, with mothers under 20 years being particularly vulnerable. This aligns with previous research suggesting that younger mothers often experience greater emotional stress, financial instability, and limited coping skills during the postpartum period.<sup>7 19</sup> Lower educational attainment was also associated with higher rates of PPD, supporting earlier findings that link limited education to reduced health literacy, poor access to healthcare, and increased psychosocial stress.<sup>1 14</sup> Socioeconomic disadvantage further contributed to the burden of postpartum depression, as financial hardship, food insecurity, and poor living conditions are well-established determinants of maternal mental health disorders.<sup>9 17</sup>

Several key determinants of postpartum depression were identified, including unplanned pregnancy, anemia, intimate partner violence, low social support, and financial stress. These findings are consistent with existing literature emphasizing the multifactorial etiology of postpartum depression involving biological, psychological, and social stressors.<sup>2 11</sup> Unplanned pregnancy was strongly associated with PPD, reflecting emotional distress, lack of preparedness, and increased caregiving burden among affected women.<sup>1 14</sup> Anemia was also a significant contributor, highlighting the role of physical fatigue, reduced energy levels, and impaired cognitive function in the development of depressive symptoms.<sup>3 16</sup>

Intimate partner violence showed the strongest association with postpartum depression, reinforcing prior evidence that exposure to physical or emotional abuse markedly increases the risk of maternal mental health disorders.<sup>2 15</sup> IPV can lead to sustained psychological trauma, impair maternal-infant bonding, and negatively affect caregiving practices during the postpartum period.<sup>9 21</sup> Low social support emerged as another important determinant, underscoring the protective role of emotional, familial, and community support for new mothers.<sup>7 19</sup> Financial stress further increased the likelihood of postpartum depression, particularly in rural households where economic instability and limited access to social protection are common.<sup>5 17</sup>

Despite the high prevalence of postpartum depression and the presence of multiple risk factors, referral to mental health or obstetric services was notably low. Only a small proportion of affected mothers received appropriate follow-up care, indicating a critical gap in maternal healthcare services. Similar deficiencies have been reported in other rural and resource-limited settings, where mental health services remain poorly integrated into routine maternal care.<sup>8 10 24</sup> This finding highlights the urgent need to strengthen screening practices, referral systems, and integration of mental health services within existing maternal and child healthcare programs.

## CONCLUSION

This study shows that postpartum depression is a serious issue for rural mothers in District Abbottabad and points out several key social and health factors that contribute to it. The results show that there is a need for focused support to help rural mothers, especially with issues like unplanned pregnancies, anemia, intimate partner violence, low social support, and financial stress. The study also stresses the

need to improve referral systems and postpartum follow-up care, especially in areas with limited resources. Improving maternal mental health care through community education, better screening, and including mental health services in regular maternal care is essential for the well-being of mothers and their children.

**Author Contributions:** Imran Ullah: Contributed to the study design, data collection, analysis, and interpretation of results. Drafted the manuscript and revised it critically for intellectual content. Abid Nisar Khan: Assisted in study conception, data collection, analysis, and interpretation. Contributed to the drafting and revision of the manuscript. Muhammad Suleman: Contributed to data collection and analysis. Helped in revising the manuscript for intellectual content. Syed Iftikhar Ahmad: Provided guidance on study design, participated in data analysis, and assisted in manuscript drafting and revision.

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