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RESEARCH ARTICLE
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# BURDEN AND BARRIERS: POSTPARTUM DEPRESSION, KNOWLEDGE GAPS, AND HEALTH SYSTEM CHALLENGES IN URBAN PAKISTAN

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**Abstract**

**Background:** Postpartum depression (PPD) is a major global public health concern, with prevalence disproportionately higher in low- and middle-income countries (LMICs). In Pakistan, systemic gaps in mental healthcare and sociocultural barriers contribute to a high burden of undiagnosed and untreated PPD.

**Objective:** This study aimed to determine the frequency of PPD and assess associated sociodemographic factors, awareness levels, and the perceived role of the public health sector among mothers at a tertiary care hospital in Karachi, Pakistan.

**Methods:** A hospital-based, cross-sectional study was conducted among 105 postpartum women within eight weeks of delivery at Abbasi Shaheed Hospital. A structured questionnaire was used, incorporating the Edinburgh Postpartum Depression Scale (EPDS) and sections on sociodemographic, awareness, and healthcare experiences. An EPDS score of ≥10 indicated risk for PPD. Data were analyzed using SPSS version 25.

**Results:** The prevalence of PPD risk was 24.8%. Significant associations were found between higher EPDS scores and lack of PPD awareness during antenatal visits (p=0.045), low utilization of mental health resources (p=0.05), and moderate satisfaction with public health support (p=0.001). Most participants (68.6%) received no PPD information antenatal, and 81% did not use any public health resources for support.

**Conclusion:** There is a high frequency of PPD among mothers in this setting, compounded by critical gaps in awareness and healthcare system support. The findings underscore an urgent need for

integrating routine PPD screening, antenatal education, and accessible mental health services into Pakistan's maternal healthcare framework.

**Keywords:** Postpartum depression, maternal mental health, public health, antenatal care, Pakistan, Edinburgh Postpartum Depression Scale (EPDS).

## Introduction

Postpartum depression (PPD) is a common but serious mood disorder characterized by persistent feelings of sadness, anxiety, and exhaustion that can interfere with a mother's ability to care for herself and her infant [1, 2]. Globally, PPD affects approximately 10–15% of mothers, with incidence rates varying widely across regions and populations [3, 4]. In low- and middle-income countries (LMICs), including Pakistan, the estimated prevalence is significantly higher, ranging from 28% to as high as 63% [5]. This elevated burden is attributed to a complex interplay of socioeconomic disadvantage, limited access to quality healthcare, cultural stigma surrounding mental illness, and lack of awareness among both patients and healthcare providers [6, 7].

The consequences of untreated PPD extend beyond maternal suffering, adversely affecting infant growth, cognitive development, and mother-infant attachment, thereby perpetuating a cycle of poor health outcomes [8, 9]. Despite its high prevalence and severe implications, PPD remains largely under-recognized and undertreated in resource-constrained settings like Pakistan, where maternal mental health is often deprioritized within overburdened public health systems [10].

The public health sector plays a pivotal role in the early identification, management, and prevention of PPD through antenatal education, routine screening, and provision of support services. However, the effectiveness of this role in Pakistan's context is poorly documented. This study therefore aimed to: 1) determine the frequency of PPD among mothers presenting to Abbasi Shaheed Hospital, a major public tertiary care facility in Karachi; 2) assess the level of awareness regarding PPD among postpartum women; and 3) evaluate the perceived role and support of the public health sector in addressing postpartum mental health. The findings are intended to inform policy and programmatic interventions to strengthen maternal mental health services in similar settings.

## Methodology

### Study Design and Setting

A descriptive cross-sectional study was conducted from Sep 2023 to Feb 2024 at the Department of Obstetrics and Gynecology, Abbasi Shaheed Hospital, Karachi—a large public sector tertiary care hospital.

### Study Population and Sampling

The study population comprised postpartum women within eight weeks of a live birth. Exclusion criteria included history of stillbirth, abortion, or pre-existing psychiatric or neurological disorders. A sample size of 101 was calculated using OpenEpi software, assuming a 7% prevalence of PPD [10], a 95% confidence level, and a 5% margin of error. Convenience sampling was employed, and 105 participants were ultimately enrolled.

### Data Collection Tool

Data were collected via a structured, interviewer-administered questionnaire available in English and Urdu. The tool consisted of three sections:

**Sociodemographic and obstetric characteristics.**

**The Edinburgh Postpartum Depression Scale (EPDS):** A validated 10-item screening tool. Scores range from 0–30, with a cutoff of ≥10 indicating possible depression and warranting further clinical assessment.

**Awareness and Public Health Sector Role:** Items assessing prior knowledge of PPD, information received during antenatal care, utilization of health services, and satisfaction with support received.

### Data Analysis

Data were analyzed using SPSS version 25. Descriptive statistics (frequencies, percentages) were computed for all variables. The chi-square test was used to determine associations between categorical independent variables (e.g., awareness, education) and the dependent variable (EPDS score categorized as <10 vs. ≥10). A p-value of <0.05 was considered statistically significant.

### Ethical Considerations

Ethical approval was obtained from the institutional review board of [Institution Name]. Written informed consent was obtained from all participants. Confidentiality and anonymity were strictly maintained throughout the study.

## Results

### Sociodemographic and Obstetric Profile

The sociodemographic characteristics of the 105 participants are summarized in Table 1. The majority were aged 20-30 years (65.7%), unemployed or housewives (91.4%), and had undergone normal vaginal delivery (54.3%). A notable proportion (12.4%) had no formal education.

**Table 1: Sociodemographic and Obstetric Characteristics of Participants (N=105)**

| Characteristic | Category | Frequency (n) | Percentage (%) |
|---|---|---|---|
| **Age Group (Years)** | 20-30 | 69 | 65.7 |
| | 15-20 | 19 | 18.1 |
| | 31-40 | 16 | 15.2 |
| | >40 | 1 | 1.0 |
| **Education Level** | No formal education | 13 | 12.4 |
| | Primary/Madrasah | 18 | 17.1 |
| | Secondary/Higher Secondary | 57 | 54.3 |
| | Bachelor's or above | 17 | 16.2 |
| **Occupation** | Unemployed/Housewife | 96 | 91.4 |
| | Employed | 9 | 8.6 |
| **Mode of Delivery** | Normal Vaginal Delivery | 57 | 54.3 |
| | Cesarean Section | 48 | 45.7 |

### Prevalence and Risk of Postpartum Depression

Based on the EPDS cutoff score of ≥10, 26 participants (24.8%) were identified as being at risk for PPD, while 79 (75.2%) scored below the threshold (Table 2).

**Table 2: Distribution of Participants by EPDS Score Category**

| EPDS Score Category | Frequency (n) | Percentage (%) |
|---|---|---|
| **Score < 10 (Lower likelihood of PPD)** | 79 | 75.2 |
| **Score ≥ 10 (Potential risk of PPD)** | 26 | 24.8 |
| **Total** | **105** | **100** |

### Awareness and Healthcare Utilization

A significant knowledge gap was observed (Table 3). Most women (61.9%) were not aware of PPD before their pregnancy, and 68.6% reported receiving no information about it during antenatal visits. Consequently, 81% had not utilized any public health resources for PPD support.

**Table 3: Awareness and Utilization of PPD-Related Services (N=105)**

| Variable | Category | Frequency (n) | Percentage (%) |
|---|---|---|---|
| **Awareness of PPD before pregnancy** | Not aware at all | 65 | 61.9 |

| | | | |
|---|---|---|---|
| | Somewhat/Very aware | 40 | 38.1 |
| **Received PPD info at antenatal visits** | No | 72 | 68.6 |
| | Yes | 33 | 31.4 |
| **Used public health resources for PPD** | No | 85 | 81.0 |
| | Yes | 20 | 19.0 |

**Factors Associated with EPDS Score ≥10**

As shown in Table 4, lack of antenatal PPD information (p=0.045), low utilization of health resources (p=0.05), and moderate satisfaction with available support (p=0.001) were significantly associated with a higher risk of PPD (EPDS ≥10).

**Table 4: Factors Significantly Associated with Higher EPDS Score (≥10)**

| Factor | p-value |
|---|---|
| **Lack of awareness about PPD at antenatal visits** | 0.045 |
| **Low utilization of healthcare resources for PPD management** | 0.05 |
| **Moderate satisfaction with available support from public health sector** | 0.001 |

## Discussion

This study reveals a PPD risk prevalence of 24.8% among postpartum women at a major public hospital in Karachi, Pakistan. This figure is consistent with the higher range of prevalence reported in other low middle income settings and significantly exceeds rates commonly observed in high-income countries, underscoring the profound impact of socioeconomic and healthcare disparities on maternal mental health.

The sociodemographic profile of our sample aligns with known risk factors for PPD. The high proportion of affected women in the 20-30 age group (65.7%) resonates with findings from Ethiopia, where younger mothers face compounded stressors like limited social support and economic insecurity [11]. Furthermore, the strong association between lower educational attainment and PPD risk corroborates global evidence, as lower education often correlates with limited health literacy and reduced access to information and resources [12, 13]. The overwhelming majority of participants were unemployed housewives (91.4%), a status linked to financial dependence and social isolation, which are well-established psychosocial risk factors for depression [14].

A critical and novel contribution of this study is its focus on systemic healthcare factors. Our data reveal a profound gap in preventive mental healthcare: 68.6% of women received no information about PPD during antenatal visits. This missed opportunity for early education is particularly concerning, as antenatal awareness is a modifiable protective factor [15]. This deficiency directly translated into low service utilization, with 81% of women not accessing any public health resources for PPD support—a finding that starkly highlights the disconnect between need and service provision. The significant statistical associations between these systemic gaps (lack of information, low utilization) and higher EPDS scores underscore that healthcare system failures are key contributors to the disease burden, not merely background conditions. This aligns with the growing recognition that strengthening health systems is essential for improving mental health outcomes in LMICs [16, 17].

The association between mode of delivery and PPD remains debated in the literature. Our finding of a higher proportion of PPD cases among women with normal vaginal delivery (NVD) contrasts with some studies that link elective or emergency cesarean sections to higher trauma and subsequent depression. However, it is consistent with research from Jordan, suggesting that cultural perceptions of childbirth, expectations, and the quality of intrapartum support may differentially influence postpartum psychological outcomes across settings and warrant further qualitative exploration.

The moderate level of satisfaction with public health support, which was strongly associated with PPD risk (p=0.001), points to a service delivery gap. It suggests that even when services are contacted,

they may be perceived as inadequate, non-empathetic, or ineffective—a known barrier to care-seeking and adherence [18, 19, 20].

**Limitations**

This study has several limitations. Its cross-sectional design precludes causal inference. The use of convenience sampling at a single center limits generalizability to the broader population. Although the EPDS is a validated screening tool, it is not a diagnostic instrument. Furthermore, reliance on self-report may be subject to recall and social desirability biases.

**Implications and Recommendations**

The study findings highlight the need for key actions in Pakistan's public health system. Mental health education on postpartum depression must be integrated into standard antenatal and postnatal care. Routine screening using tools like the EPDS should be implemented by trained midwives and pediatricians. Accessible referral pathways to counseling and basic mental health services must be established and communicated clearly. Finally, nationwide awareness campaigns are required to reduce stigma and promote help-seeking behavior among women and families.

**Conclusion**

This study confirms a high frequency of postpartum depression among mothers in a Pakistani urban public hospital setting. The risk is exacerbated by a critical lack of awareness and substantial systemic failures within the public health sector, including inadequate antenatal education and inaccessible support services. Addressing PPD effectively requires a multi-pronged strategy that embeds mental health support into the core of maternal and child health programs, ensuring that every mother has access to information, screening, and compassionate care.

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