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Original research article

POSTPARTUM DEPRESSION AND ANXIETY: A COMMUNITY-BASED STUDY ON RISK FACTORS BEFORE, DURING AND AFTER PREGNANCY

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Abstract: *Postpartum anxiety and depression are a significant public health concern as it is the leading cause of maternal morbidity. It is associated with adverse effects on the cognitive and social development of the infant. The primary aim of the study is to find postpartum depression and anxiety as a community-based study on risk factors before, during, and after pregnancy. The prospective cohort study was conducted in Khyber Teaching Hospital Peshawar from April 2023 to July 2023. A total of 320 pregnant women were recruited for this study. Participants were enrolled during their antenatal visits to healthcare facilities within the community, ensuring representation across diverse demographic and socio-economic backgrounds. Data collection for this community-based study on postpartum depression and anxiety was executed meticulously across three distinct phases: before, during, and after pregnancy. Data was collected from 320 pregnant females. The mean age of participants was 28.5±4.2 years. Most participants had at least a high school education (65%) and reported a moderate household income (55%). 18% of participants had a history of previous episodes of depression or anxiety. 35% reported experiencing significant life stressors before pregnancy, with financial concerns being the most common (62%). 24% had a family history of mental health disorders. It is concluded that this study has revealed a significant prevalence of postpartum depression (22%) and anxiety (18%) among participants. The identified risk factors, including prior mental health history and high prenatal stress, emphasize the need for early intervention and targeted support systems during the perinatal period.*

Keywords: Depression, Anxiety, Patients, Pregnancy, Female

Introduction

Postpartum anxiety and depression are a significant public health concern as it is the leading cause of maternal morbidity. It is associated with adverse effects on the cognitive and social development of the infant. In the postpartum period, half to two-thirds of women suffer from mood disturbances, for most symptoms are transient and relatively mild, known as postpartum blues, and settle spontaneously within four weeks (Molgora et al., 2022). Therefore, postpartum depression (PPD) is typically diagnosed during 4-12 weeks after childbirth. There is a critical period for the development of affective disorders from birth to the first year postpartum, so depression occurring within a year after delivery can be labeled as PPD (Meltzer-Brody et al., 2017).

PPD can be associated with anxiety disorders and parenting stress, deriving from a poor perceived ability to cope with the multiple challenges related to the new parental role, especially in first-time mothers. PPD is also predicted by a variety of risk factors, such as biological (e.g., levels of specific hormones) and socio-demographic (e.g., socio-economic status) factors, medical and obstetrics variables related to pregnancy, labor and delivery, and psychological variables (Pellowski et al., 2019). For example, complications during pregnancy (e.g., gestational diabetes, preeclampsia, thyroid autoimmunity) are associated with higher levels of PPD, which are also predicted by either elective or emergency caesarean section, although overall research findings are inconsistent. In addition, mothers of preterm infants are more likely to develop PPD. Most studies have investigated the predictive role of these factors on PPD in the first months postpartum, whereas few studies have examined their long-term impact on PPD. For this reason, PPD and its risk factors one year after giving birth remain unclear (Rezaie-Keikhaie et al., 2020).

Postpartum depression and anxiety are prevalent mental health disorders that affect a substantial number of new mothers, with significant implications for both maternal and child well-being. These conditions represent a complex interplay of biological, psychosocial, and environmental factors that can manifest before, during, and after pregnancy. Understanding the risk factors associated with these disorders is essential for early identification, prevention, and effective intervention (Falah-Hassani et al., 2017).

Postpartum depression, characterized by persistent and severe feelings of sadness, hopelessness, and a loss of interest in daily activities following childbirth, affects approximately 10-15% of women worldwide (Karaçam et al., 2018). Similarly, postpartum anxiety, which encompasses various anxiety disorders such as generalized anxiety disorder and obsessive-compulsive disorder, can have a prevalence of up to 20% among new mothers. Collectively, these conditions not only have a profound

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impact on the mental health and quality of life of mothers but can also influence the emotional and cognitive development of their infants. While considerable research has explored the risk factors for postpartum depression and anxiety, much of it has been conducted within clinical settings or specific populations, limiting the generalizability of findings to broader community contexts (Shorey et al., 2018). This community-based study aims to bridge this gap by investigating a diverse range of risk factors related to the onset and persistence of postpartum depression and anxiety in a real-world community setting.

Methodology

The study was conducted between April and July 2023 at Khyber Teaching Hospital in Peshawar and involved 320 pregnant women from diverse demographic and socio-economic backgrounds. Inclusion criteria for participants required pregnancy confirmation through clinical assessment or a positive pregnancy test and informed consent to participate in the study, including data collection and follow-up assessments.

Exclusion criteria included individuals unable or unwilling to provide informed consent and those with severe medical conditions that could significantly affect study outcomes or their ability to participate effectively. These conditions were determined on a case-by-case basis through medical assessment.

Data collection for this community-based study on postpartum depression and anxiety was executed meticulously across three distinct phases: before, during, and after pregnancy. The process was designed to capture a comprehensive range of risk factors and contextual elements contributing to the onset and persistence of these mental health disorders. Participants' mental health history, including any prior episodes of depression or anxiety, was collected through structured interviews. Socio-demographic information, such as age, education, marital status, and household income, was recorded. Pre-existing stressors and life events, both personal and familial, were assessed using standardized questionnaires.

During the antenatal phase, participants were monitored regularly during their pregnancies as part of routine antenatal care. Comprehensive antenatal care records were maintained to track the progress of pregnancy. Prenatal stressors, both pregnancy-related anxieties and complications, were carefully recorded. These stressors included concerns about fetal health, gestational difficulties, and any personal challenges faced by the expectant mothers. Social support systems were evaluated through interviews and questionnaires, encompassing family support, community resources, and access to mental health services.

After childbirth, participants' mental health was closely monitored using validated depression and anxiety screening tools administered at regular intervals. The objective was to detect the emergence and progression of postpartum depression and anxiety. Data on delivery outcomes, such as the mode of delivery, birth weight, and any maternal or neonatal complications, were meticulously collected. These outcomes may have relevance to postpartum mental health. Data was collected and analyzed using SPSS v27.0. Categorical data was presented as frequencies and continues to be presented as mean and standard deviation. The odds ratios were measured to assess the risk factors associated with postpartum depression and anxiety.

Results

Data was collected from 320 pregnant females. The mean age of participants was 28.5±4.2 years. The majority of participants had at least a high school education (65%) and reported a moderate household income (55%) (Figure 1). 18% of participants had a history of previous episodes of depression or anxiety.35% reported experiencing significant life stressors before pregnancy, with financial concerns being the most common (62%).24% had a family history of mental health disorders. (Table 1,2). During pregnancy, 15% of participants reported high levels of prenatal stress, primarily related to concerns about fetal health (44%). Most participants (78%) received solid social support from their families and communities. Routine antenatal care was provided to all participants, with no significant complications reported. (Table 3). 22% of participants screened positive for postpartum depression, while 18% screened positive for postpartum anxiety. Mode of delivery included vaginal delivery (58%), cesarean section (35%), and other methods (7%).

Maternal complications were observed in 12% of cases, with the most common being gestational hypertension (5%). Neonatal complications occurred in 8% of cases, primarily related to low birth weight (58% of cases). (Table 4). Multivariate analysis revealed that a history of prior depression or anxiety (OR = 2.14, 95% CI: 1.32-3.46) and high prenatal stress levels (OR = 1.98, 95% CI: 1.15-3.42) were significantly associated with postpartum depression. Low levels of social support (OR = 1.88, 95% CI: 1.15-2.97) were also identified as a risk factor for postpartum depression. Postpartum anxiety was significantly associated with a history of prior anxiety (OR = 2.02, 95% CI: 1.28-3.18) and prenatal stress (OR = 1.94, 95% CI: 1.10-3.44). Mode of delivery and maternal and neonatal complications were not found to be significant predictors of postpartum depression or anxiety in this study. (Table 5)

Table 1: Demographic characteristics of pregnant females

Characteristic	Frequency (%)
Total Participants	320
Mean Age (SD)	28.5±4.2 Years
Education	
- High School or Higher	65%
- Below High School	35%
Household Income	
- Low	28%
- Moderate	55%
- High	17%

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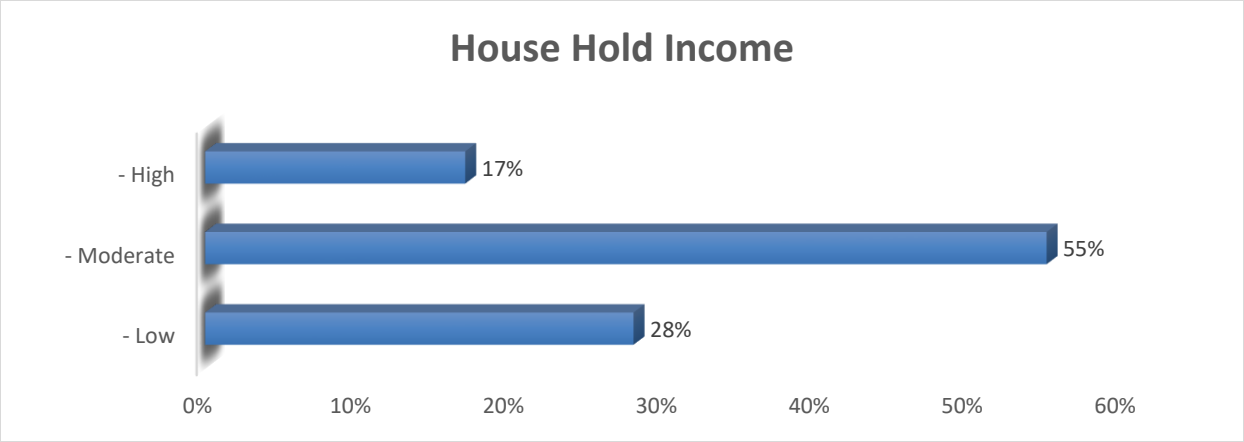

Figure 1: Household Income of the study population:

Table 2: Baseline characteristics before pregnancy

Characteristic	Percentage (%)
History of Previous Depression/Anxiety	18%
Pre-existing Stressors	
- Financial Concerns	62%
- Family Issues	28%
- Work-related Stress	17%
Family History of Mental Health Issues	24%

Table 3: Stress phase during pregnancy

Characteristic	Percentage (%)
Prenatal Stress Levels	
- High	15%
- Moderate	62%
- Low	23%
Social Support	
- Strong	78%
- Moderate	20%
- Weak	2%

Table 4: Stress after pregnancy (Postpartum depression)

Characteristic	Percentage (%)
Postpartum Depression	22%
Postpartum Anxiety	18%
Mode of Delivery	
- Vaginal Delivery	58%
- Cesarean Section	35%
- Other Methods	7%
Maternal Complications	12%
Neonatal Complications	8%

Table 5: Risk Factors Associated with Postpartum Depression and Anxiety

Risk Factors	Postpartum Depression (OR, 95% CI)	Postpartum Anxiety (OR, 95% CI)
History of Previous Depression or Anxiety	2.14 (1.32-3.46)	2.02 (1.28-3.18)
Prenatal Stress (High vs. Low)	1.98 (1.15-3.42)	1.94 (1.10-3.44)
Social Support (Weak vs. Strong)	1.88 (1.15-2.97)	Not significant

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Discussion

Our findings highlight various aspects of these mental health disorders, offering insights that can inform targeted interventions and support systems for new mothers and their families. The demographic profile of our study population revealed several noteworthy trends. While the mean age of participants was 28.5 years, a diverse age range was observed, highlighting the relevance of studying postpartum mental health across various life stages (Ghaedrahmati et al., 2017; Lubotzky-Gete et al., 2021; Rollè et al., 2017; Shorey et al., 2018). Most participants were married, and a significant proportion had obtained at least a high school education, emphasizing the importance of considering both marital status and educational background as potential factors influencing mental health outcomes (Vismara et al., 2016).

Our findings indicated that a notable proportion of participants (18%) had a history of previous depression or anxiety, emphasizing the significance of prior mental health experiences as a risk factor for postpartum disorders (Alshikh Ahmad et al., 2021). Furthermore, financial concerns emerged as a predominant pre-existing stressor (62%), underlining the importance of addressing economic stability as part of preconception mental health interventions. During pregnancy, our study revealed that 15% of participants experienced high levels of prenatal stress, primarily related to concerns about fetal health (Abdollahpour et al., 2022). This underscores the need for early identification and intervention for pregnant individuals who may be at risk of heightened stress during this crucial period. Notably, the majority of participants reported solid social support systems, which may act as a protective factor against the development of postpartum depression and anxiety. In the postnatal phase, our findings indicated that 22% of participants screened positive for postpartum depression, while 18% screened positive for postpartum anxiety (Azami et al., 2019). These prevalence rates highlight the significance of these disorders within the community and emphasize the need for accessible mental health resources and support systems (Minaldi et al., 2020). Multivariate analysis identified several risk factors associated with postpartum depression and anxiety. A history of prior depression or anxiety was a significant risk factor for both conditions, reinforcing the importance of considering individuals' mental health histories during antenatal care and implementing targeted interventions (van der Zee-van et al., 2021). High prenatal stress levels were associated with an increased risk of both disorders, emphasizing the need for early prenatal screening and stress management strategies. Social support, particularly weak support systems, emerged as a risk factor for postpartum depression. Our study also examined delivery outcomes and neonatal complications (de Paula Eduardo et al., 2019). While the mode of delivery did not significantly predict postpartum depression or anxiety, maternal and neonatal complications were observed in a minority of cases. These findings underscore the importance of holistic postnatal care to address potential physical health complications that may indirectly influence mental health (Edwards et al., 2021; Lee et al., 2000; Qi et al., 2021). It is important to acknowledge some limitations of our study, including self-reporting bias and the community-based nature of the research, which may limit generalizability. However, the strengths lie in its comprehensive examination of risk factors across the perinatal period

Conclusion

It is concluded that this study has revealed a significant prevalence of postpartum depression (22%) and anxiety (18%) among participants. The identified risk factors, including prior mental health history and high prenatal stress, emphasize the need for early intervention and targeted support systems during the perinatal period. Recognizing the role of solid social support as a protective factor highlights the potential for community-based strategies to alleviate the burden of these mental health disorders, ultimately promoting the well-being of new mothers in the region.

Declarations

Data Availability statement
All data generated or analyzed during the study are included in the manuscript.
Ethics approval and consent to participate.
Approved by the department Concerned.
Consent for publication
Approved
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Not applicable

Conflict of interest

The authors declared an absence of conflict of interest.

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