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Association of Depression with Socioeconomic Factors Among Pregnant Women in Peshawar Tertiary Hospitals

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ABSTRACT

Aim: This study aims to examine the relationship between socioeconomic status and prenatal depression among expectant mothers attending tertiary hospitals in Peshawar, Khyber Pakhtunkhwa.

Methods: A descriptive cross-sectional study was conducted, involving 428 pregnant women recruited using convenience sampling. We collected information using the Poverty Score Card to find out socioeconomic status and the Patient Health Questionnaire-9 (PHQ-9) to assess the degree of depression. Descriptive and inferential statistics were applied to analyze the data.

Results: The study found that 56.5% of participants experienced prenatal depression, with 43.5% having mild depression, and 23.6% reported severe depression. The low-income group (50.0%) had the highest rates of moderate to severe depression (56.1%). In comparison, the high-income group (12.1%) had the lowest rates of severe depression (15.4%) and the highest rate of minimal depression (69.2%). The Pearson Chi-Square test ($\chi^2 = 37.243$, $p = 0.000$) revealed a statistically significant association between socioeconomic status and depression severity, with financial instability being a key risk factor.

Conclusion: For the purpose of enhancing maternal well-being outcomes in settings with limited resources, the findings emphasize the necessity of focused mental health strategies and socioeconomic assistance for expectant mothers, especially those from households with fewer resources.

Keywords: Depression, Socioeconomic Factors, Pregnant Women and Hospital

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INTRODUCTION

Depression during pregnancy, along with its associated health conditions, significantly affects maternal well-being and fetal development (Roddy Mitchell et al., 2023). According to the World Health Organization (WHO, 2023), 10% to 20% of pregnant women in low- and middle-income countries experience antenatal depression, which is strongly allied to poor health outcomes for both mothers and their unborn babies.

Prenatal depression is highly prevalent in Pakistan, according to studies. Prenatal depression affects 40.89% of pregnant women in Lahore, according to a 2019 study (Sabir, Nagi, & Kazmi, 2019). In Pakistan, a meta-analysis revealed that antenatal depression affects about 37% of pregnant women (Hussain, D'Souza, & Mazhar, 2021).

These findings underscore the urgent need for addressing maternal mental health on a national scale. Additionally, research from other countries shows varying prevalence rates, such as 18.6% in the USA (Groer et al., 2024) and 6.8% in Brazil (Faisal-Cury et al., 2022), with Pakistan having one of the highest reported rates.

Socioeconomic factors, including financial instability, low literacy rates, unemployment, poor housing conditions, limited access to healthcare, and lack of spousal support, are closely linked to antenatal mental issues (Patel et al., 2018). These socioeconomic challenges increase the risk of psychiatric disorders, leading to long-term health consequences for both mother and child. A research paper in India also emphasized how maternal age and socioeconomic conditions during pregnancy influence both mental health and baby well-being (Kiplagat et al., 2023).

Research consistently shows that low-income status is a significant determinant of antenatal depression. Pregnant women from low-income backgrounds are more susceptible to various mental problems including postpartum depression, gestational hypertension, preterm birth, and low birth weight (Alfayumi-Zeadna et al., 2023; Alfayumi-Zeadna et al., 2023). Furthermore, women experiencing mental health issues during pregnancy are more likely to suffer from miscarriage and delayed fetal growth. These findings highlight the critical need to address both mental health and socioeconomic disparities to improve maternal and fetal outcomes (Moustafa & Elsakka, 2023).

This study aims to investigate the connection between depression and socioeconomic factors among pregnant women attending tertiary hospitals in Peshawar. By identifying key contributors, the research will offer evidence to inform targeted interventions aimed at reducing antenatal depression rates and improving maternal and child health outcomes. It will

enhance mental health prevention strategies and policymaking to advance the health of pregnant women and help them better manage socioeconomic challenges for a healthier life.

METHOD AND METERIALS

Study Design

This descriptive cross-sectional study was carried out from June 1, 2024, to November 28, 2024, at two tertiary hospitals in Peshawar, Khyber Pakhtunkhwa (KPK). It aimed to determine the prevalence of depression and its association with socioeconomic factors among pregnant women attending the Gynecology Outpatient Department (Gynae OPD).

Participation

Participants were pregnant women aged 18 years and above, attending the Gynae OPD, not using antidepressants, and willing to participate. A convenience sampling technique was used. The sample size, calculated via OpenEpi software (Version 3.01) (margin of error 5%, confidence level 95%, depression prevalence 40.89%) (Sabir et al., 2019), was 372, with 428 participants recruited to account for a 10% non-response rate.

Data Collection Tools

The Patient Health Questionnaire-9 (PHQ-9) (Smith et al., 2022), a nine-item Likert scale questionnaire designed to measure depression severity. For this study, Likert scale responses were converted into categorical form with the following cut-off points: minimal depression (1–4), mild depression (5–9), moderate depression (10–14), moderately severe depression (15–19), and severe depression (20–27). The Poverty Score Card was used to determine socioeconomic status with the following cutoff points: low-income group (1–35), middle-income group (36–70), and high-income group (71–100).

Validity and Reliability

The PHQ-9 and the Poverty Score Card were translated from English to Urdu, and the translations were validated by the Urdu and English Departments of Peshawar University. A pilot study was conducted to test the translated versions, which were reviewed by the Advanced Studies and Research Board. The reliability of both questionnaires was assessed using SPSS software, yielding a Cronbach's alpha value of 0.853, representing valuable internal consistency

Data Analysis

Data were analyzed using SPSS Version 26. Means and standard deviations were calculated for continuous variables (e.g., age), while frequencies and percentages were computed for categorical variables (e.g., gender, marital status, family status, employment status, educational level, depression status, and socioeconomic factors). Results were

presented in tables for better visualization. The connection between depression and socioeconomic status among pregnant women was assessed using the Chi-square test.

Ethical Considerations

Ethical approval was obtained from the Advanced Studies and Research Board (ASRB) of Prime Foundation Pakistan and the Heads of Departments (HODs) of the hospitals. Informed consent was secured, and the study purpose was explained to all participants.

RESULTS

The findings of the current study are tabulated in Table-1, which included 428 participants, with an average age of 27.66 years. The ages ranged from 20 to 38 years, with a standard deviation of 5.21, suggesting some variation but overall consistency in the age distribution. Regarding educational attainment, participants were illiterate, while others had completed matriculation, making it the most common education level. Primary education was attained by some, and some had an intermediate level of education. Higher education was less common, with some holding a bachelor's degree and others having completed a master's degree, reflecting varied educational backgrounds. 62.1% of participants lived in joint family systems, while 37.9% were in single-family households. Regarding employment status, some of the participants were employed, while the majority were unemployed, with a small portion retired.

Of the 428 individuals, some experience minor depression, meaning they have few or no symptoms. However, some people were categorized as having severe depression and some suffering from some sort of depression, there is an urgent need for help. Some have moderate depression and mild depression, whilst some experience moderately severe depression. Half of the 428 people are in the lower-income group, indicating financial issues. Only a small number belong to the high-income group. The report emphasizes the need for targeted assistance to alleviate socioeconomic differences and their effect on well-being, with most people in lower- and middle-income groups.

Table-1: Descriptive Statistics Mean and Standard Deviation for Continuous Variables, Frequency and Percentage for Sociodemographic Characteristics

Variable	Mean	SD	Frequency (n) Percentages (%)
Age	27.66	5.21	
Family Status	Single		162 (37.9%)
	Joint		266 (62.1%)
Education	Illiterate		111 (25.9%)
	Primary		81 (18.9%)
	Matric		128(29.9%)
	Intermediate		63 (14.7%)
	Bachelor		22 (5.1%)
	Master		23 (5.4%)
Occupation status	Jobless		274 (64%)
	Employed		154 (36%)
Depression	Minimal Depression		186 (43.5%)
	Mild Depression		52 (12.1%)
	Moderate Depression		59 (13.8%)
	Moderate to Severe Depression		30 (7.0%)
	Severe Depression		101 (23.6%)
Socioeconomic Factors	Low Income group		214 (50.0%)
	Middle Income group		162 (37.9%)
	High Income group		52 (12.1%)

In table-2, Crosstabulation results shows an inverse relationship between income and depression severity: The high-income group had the lowest rate of severe depression and the highest rate of minimal depression. The lower income group had the maximum rates of moderate to severe depression, reported severe depression.

Table: - 2 Association of Socioeconomic factors with depression

Socioeconomic Factors	**Depression**					**Total**
	Minimal Depression	Mild Depression	Moderate Depression	Moderate Severe Depression	Severe Depression	
Low Income Group	**66**	**26**	**42**	**20**	**58**	**214**
Middle Income Group	**84**	**19**	**15**	**09**	**35**	**162**

High Income Group	**36**	**5**	**2**	**1**	**8**	**52**
Total	**186**	**52**	**59**	**30**	**101**	**428**

As shown in table-3, The Pearson Chi-Square test result ($\chi^2 = 37.243$, df = 8, p = 0.000) confirms a statistically significant association between socioeconomic status and depression levels among pregnant women.

Table: -3 Chi-Square Test

	Value	**df**	**Asymp. Sig. (2sided)**
Pearson Chi-Square	**37.243[a]**	**8**	**.000**

DISCUSSION

The findings of this study highlight a strong correlation between socioeconomic status and the degree of prenatal depression experienced by expectant mothers in Peshawar. These findings reflect varied educational backgrounds and indicate that most of the women were in their late twenties. The high rate of depression (56.5%) observed in the sample emphasizes the urgent need for targeted mental health interventions for pregnant women. These findings highlight how urgently public health initiatives that address mental health issues and provide targeted support are needed. The group with the lowest income (50.0%) had the highest percentage of moderate to severe depression (56.1%), suggesting that the lowest socioeconomic status was a significant risk factor. This reveals the close connection between maternal mental health and financial strain. Financial instability, lack of spousal support, unemployment, and limited access to healthcare are likely contributing factors to this high prevalence, consistent with global research indicating the impact of these stressors on maternal psychological wellbeing. These findings highlight a high unemployment rate among the participants. (Aochi et al., 2021; Lancaster et al., 2010).

The finding that 56.5% of participants suffered from depression represents a significant public health concern. The data suggest that financial hardship, inadequate social support, and related stressors contribute substantially to maternal mental health issues. This finding is consistent with previous evidence showing an inverse association between income and depression severity (O'Connor et al., 2016).

Prenatal depression prevalence

As shown in Table 1, the findings of the current study, 56.5% of participants reported prenatal depression, a rate significantly higher than those found in previous Pakistani studies 40.89% in Lahore (Sabir, Nagi, & Kazmi, 2019) and 37% in Pakistan (Hussain, D'Souza, & Mazhar, 2021). Internationally, lower rates have been reported, including 6.7% in Brazil (Faisal-Cury et al., 2022) and 18.6% in the USA (Groer et al., 2024). Furthermore, in developing countries such as the United Kingdom, depression among prenatal women has a prevalence of 15.5%–20% (Authors, 2013). According to a Sub-Saharan Africa study, the findings indicate a higher level of depression among the population, linked to cultural conflicts and low-income status (Glover, 2014). This discrepancy suggests that higher socioeconomic challenges and inadequate mental health resources in Peshawar contribute to the elevated rates. These results align with international literature indicating that people experience higher mental health issues during pregnancy (WHO, 2021; Smith & Jones, 2019; Lee & Lee, 2017; Murray & Halligan, 2019).

Socioeconomic Factors

The current study found in Table 2 that half (50.0%) of pregnant women fall into the low-income category, demonstrating economic stability for a minority, while 37.9% of people are in the middle-income group, indicating severe financial hardships comparable to those found in rural Pakistan. (Ahmed et al., 2021). Just 12.1% of women are in the high-income group, which is in line with Kumar and Singh's (2019) finding that pregnant women have little financial stability. According to regional data, persistent barriers to healthcare access exist, consistent with the 37.9% middle-income category (WHO, 2020). These results show how persistent economic constraints affect maternal health. This emphasises the necessity of targeted interventions to support pregnant women with limited resources and the crucial role that financial stability plays in maternal mental wellness. In addition, the majority of participants resided with extended family, which can have an impact on their availability of psychosocial support during pregnancy.

Association of depression with socioeconomic factors

This study supports the body of research showing that a poor socioeconomic background is a main uncertainty factor for prenatal depression in the current result (69.2%), minimal depression with the lower-income group, which is illustrated in Table 2.In line with regional data from Lahore (40.89%) and Pakistan (37%) (Hussain, D'Souza, & Mazhar, 2021), participants from low-income households reported significantly higher rates of moderate to severe depression (Ahmed & Fatima, 2019; Khan et al., 2021). International research has also

found that unemployment, low educational attainment, and financial instability are important elements of psychological health disorders among mothers (World Health Organization [WHO], 2020; Smith et al., 2022; Smith & Jones, 2019; Lee & Lee, 2017; Murray & Halligan, 2019). The results of this study not only corroborate this association but also highlight how significant it is to include financial evaluations in prenatal care plans so that vulnerable women can be appropriately recognized and maintained.

Limitations: Despite the comprehensive nature of this research, there are quite a lot of limitations. First, the study employed a convenience selection method, which may not fully represent the broader population. Second, the data were collected from only two hospitals in Peshawar, limiting the generalizability of the findings to other regions. Third, response bias could be created due to the use of self-reported data. Future studies could comprise a larger, more diverse sample, as well as longitudinal data to well understand the causal relationships between socioeconomic factors and prenatal depression.

CONCULSION AND RECOMMODATIONS

This study emphasizes how socioeconomic factors and prenatal depression are significantly correlated in Peshawar. The significant rate of depression among pregnant women from low-income families underlines how urgently combined socioeconomic emotional health treatments are needed. To avoid such negative effects, government initiatives that raise the incomes and overall well-being of low socioeconomic groups are essential. Healthcare providers must also make psychological support easily accessible to expectant mothers, especially those who are experiencing financial problems. Maternal and child health outcomes will improve if financial instability, lack of social assistance, and limited access to healthcare are addressed, especially in low-resource settings. These findings highlight a high unemployment rate among the participants.

Research Statement

Declaration: I hereby declare that this research is my original work, and it has not been previously published or submitted for publication elsewhere. I affirm that the study was conducted ethically, in compliance with the rules set by the Advanced Studies and Research Board (ASRB) of Prime Foundation Pakistan.

Conflict of Interest: The author declares that there is no conflict of interest about the publication of this research paper. There were no individual or financial ties that affected the study results.

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