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STUDY ON THE RATE OF DEPRESSION AMONG WOMEN DURING EARLY PREGNANCY IN PAKISTAN

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Abstract

*Depression during early pregnancy is a critical but under-researched public health concern in Pakistan. This study aimed to determine the prevalence and associated risk factors of depression among women in their first trimester (<13 weeks gestation) attending the Gynecology and Obstetrics Department at Abbasi Shaheed Hospital, Karachi. Employing a cross-sectional design, data were collected from 136 participants using the Hospital Anxiety and Depression Scale (HADS). Results revealed that **14%** of participants were diagnosed with depression during early pregnancy. The prevalence was notably higher among housewives ($p = 0.04$), women exposed to domestic violence ($p = 0.02$), and those from high-income households ($p = 0.01$). While comorbidities such as hypertension and diabetes showed no significant association, socio-economic pressures, cultural norms, and lack of emotional support were identified as major contributors. The findings underscore the urgent need for **integrated mental health interventions** within prenatal care programs, particularly for socially isolated and abused women. Addressing prenatal depression in Pakistan's low-resource settings is vital for improving both maternal well-being and neonatal outcomes.*

INTRODUCTION

Pregnancy can be a particularly challenging period in a woman's life. Central to the experience of pregnancy are the changes in the body, the hormonal shifts, and the emotional changes, some of which can be psychologically stressful and expose a pregnant woman's mind to a myriad of psychoses, including depression. From the moment a woman conceives, she may experience depression in the form of mood disorder and may have an episode of anxiety and sadness that envelops her (Shagufta and Shams, 2019). Encounters of adverse maternal factors include a risk of developmental delays, low birth weight, and preterm birth. In the case of Pakistan, the issues related to culture and social structure can

compound the effects of AFM. Empirical evidence indicates that pregnancy in patriarchal societies, notably Pakistan, is accompanied by disproportionate expectations, including lack of emotional support from family and a partner (Alzahrani, 2020). Contexts like these can leave a mental health condition undiagnosed and untreated. Research indicates that Pakistan has one of the most alarming rates of prenatal depression globally with prevalence rates reaching as high as 65 percent in some regions of the country. While the global prevalence rates of depression are between 10 and 20 percent, the situation in Pakistan warrants attention. There are virtually no mental health resources for the rural population of Pakistan, and with no comprehensive mental health policy, and a myriad of unaddressed issues within the psychiatric services, prenatal depression should not be an ignored focus. Very few pregnant women can get mental health services, and because of widespread societal stigma surrounding mental illness, women are often reluctant to seek help, compounding their illness. There is much to be gained for both the mother and the unborn child in addressing and treating prenatal depression. The evidence is irrefutable that children of depressed mothers are at risk for developing significant behavioural and cognitive problems in later life.

Considering the higher rates of depression during pregnancy in Pakistan, this study is essential for public health policy and may help guide mental health interventions (Mahendran et al., 2019). An enormous amount of focus, however, must go into early detection, prevention, and treatment of maternal illness in mental health awareness and maternal health programs to reduce maternal morbidity and improve neonatal outcomes. This study aimed to fill a significant literature gap and inform future maternal health strategies in low-resource settings like Pakistan.

Problem Statement

Research on depression during early pregnancy is growing as a global issue, but in Pakistan, it is still primarily under-researched despite very high prevalence rates. However, there is very little data on what impact depression has on women in rural and tribal areas, despite multiple studies showing that women in urban centers such as Lahore experience up to 65% of depressive symptoms. Shahid et al. (2020) explains that the lack of reliable data on early pregnancy depression in Pakistan limits the development of targeted interventions to address the unique socio-cultural and economic challenges that these women experience. As an example, women in rural areas often turn to untrained traditional birth attendants who are not able to identify or treat depression, so many women remain untreated (Mahendran et al., 2019). Lacking accurate data, mental health interventions that address the psychological and social aspects of prenatal depression cannot be designed by providers and policymakers. This study attempts to close the existing research gap by systematically reviewing the available literature.

Research Questions

- Can we determine the prevalence of depression among women during early pregnancy in Pakistan?

This question aims to quantify the scope of depression at the initial stage of pregnancy in different geographic areas of Pakistan, such as in cities like Lahore, places that are not urban and the regions of the tribes.

- What are the primary risk factors leading to depression during early pregnancy in Pakistan?

It tries to point to the leading causes, which include socio-economic instability, intimate partner violence, docket to healthcare access and societal pressure such as preference for male offspring.

- What is the relationship between socio-economic and cultural context with the mental health of pregnant women in Pakistan?

It asks what contributes to prenatal depression: economic hardship, patriarchal norms, and stigma against mental illness.

Research Objectives

Primary Objective:

It is designed to determine the range of depression among women during early pregnancy in Pakistan, precisely to determine differences in prevalence across urban versus rural and tribal areas of Pakistan.

Secondary Objectives:

- To identify the risk factors contributing to depression in early pregnancy, other parts of depression in pregnancy (including how socio-economic factors such as poverty, lack of education, and intimate partner violence make pregnant women more susceptible to depression) are also taken into consideration. For example, among low-income women in the Karachi area surveyed, higher levels of anxiety were noted related to financial instability and inadequate prenatal care.
- To assess the impact of socio-economic factors, cultural practices, and healthcare access on prenatal depression: Knowing how depression becomes even worse during early pregnancy for women who have limited access to mental health services and experience pressure to have male, healthy children.

- To recommend appropriate interventions for addressing prenatal depression in low-resource settings: Based on the findings of this study, they will provide policymakers and healthcare providers with evidence-based recommendations for integrating mental health services within prenatal care, especially in underserved rural areas.

CHAPTER 02: Literature Review

Introduction

The second chapter of this dissertation is a synthesis of existing literature on prenatal depression, with a specific focus on early pregnancy in Pakistan. Antenatal depression, particularly during the first trimester, is a key global public health concern. While under-researched and poorly-addressed in countries like Pakistan, it is also the case in lower and middle income countries, especially during the first trimester. This chapter aims to comprehensively address the issue of the widespread depression during early pregnancy and its risk factors and dire consequences by examining the issue in Pakistan and situating it within specific socio-cultural contexts (Yaqub et al, 2019). Addressing depression during early pregnancy is no doubt a multi-determined problem especially in the socio-economic and cultural contexts. Antenatal depression is especially a problem in Pakistan where the cultural patriarchy exacerbates the pressures on the pregnant women. In the face of socio-economic and health care autonomy inequities, socio-cultural pressures to bear male children escalate the risk of antenatal depression. All the more, where mental health services do exist, the socio-cultural stigma attached to mental illness often serves to prevent women from utilizing such services. As highlighted in the example, a study in Lahore found that 20% of pregnant women with depressive symptoms did not seek medical care due to fear of self-stigmatization as well as stigma from family healthcare providers (Ertop and Cetisli, 2020). This literature review summarizes the findings of previous studies and suggests what gaps remain to be filled. The novelty of this work is that it estimates the prevalence of depression among women in Pakistan by focusing only on early (first trimester) pregnancy. Additionally, it offers evidence that might guide public health intervention and policy to address maternal mental health in the country better.

Understanding Depression in Early Pregnancy

Definition and Scope

Purely the depression occurring from the time of conception to the 13th week of pregnancy is termed antenatal depression, particularly during the first trimester. Compared to postpartum depression, antenatal depression, that is, during early pregnancy, remains less researched in countries such as Pakistan, where cultural norms and vulnerable health infrastructure are present. Prolonged sadness, loss of interest in activities, feelings of being worthless and even suicidal ideation are the characteristics of the condition. Daley et al. (2020) explained that antenatal depression in early pregnancy is usually associated with the emotional and physiological stresses associated with going into pregnancy, especially among women in adverse socio-economic conditions. Cultural and familial pressures, however, add to the problem of antenatal depression in Pakistan. Then there is the expectation of women to keep going about their tasks as if nothing happened while pregnant, to the emotional and physical strain on them. A study on women in the Khyber Pakhtunkhwa region revealed that cultural stigma surrounding mental health conditions creates a social isolation of pregnant women with already debilitating depression symptoms (Qamar et al.,

2020). Depression in pregnant women is also in line with the pressure that the pregnant woman should produce male offspring. Identification of emotional abuse as a critical trigger for depression during early pregnancy has been found for women who give birth to daughters.

Depression in Early Pregnancy in LMICs, with a Focus on Pakistan

Regional and Societal Factors

Anecdotal evidence suggests that prior to the most recent wave of COVID-19 and related national lockdowns, cases of depression during pregnancy went unreported in lower middle income countries and Pakistan, where available data show an active 15 to 65 % range unaccounted for. For LMIC's, Pakistan's case loads of other mental illnesses were considerably high and Pakistan's 20% (Bhatia, 2019) prevalent range of antenatal depression was statistically anomalous. For instance, Karachi's antenatal depression rate was 60% in the first trimester, well above the global average. Variables such as socio-economic inequality, cultural mainstreams of attention and devotion, and poor primary mental health services, with and out rural-urban divides, account for the discrepancy. For suburban women of Lahore Jerusalem, the contradiction, where mental health services are more accessible, the matter of accessing services for depression remains. Jhpiego rural-urban divides pronounced barriers to care in blood poor regions of Sindh and Balochistan, where the health care of traditional birth attendants (dais) remains the primary source of prenatal care. Untrained attendants may not be equipped to address or identify possible mental health issues. As a consequence, many women may be missing critical support at a vital time. A survey of women in Khyber Pakhtunkhwa revealed that over 70 per cent of them had never discussed their mental health with healthcare providers, which indicated the large extent of neglecting maternal mental health in these areas (Dadi et al., 2020).

Cultural Pressure and Patriarchy

The exacerbation of antenatal depression among Pakistani women is due to cultural pressures. Pregnant women are under patriarchal solid psychological pressure from the societal expectation to produce male offspring. Rashid et al. (2020) explained that when a woman fails to bear a son, she is often emotionally abused, socially and physically excluded, and at times, she is even a victim of domestic violence. It's not surprising that women who had a daughter were twice as likely to become depressed during subsequent pregnancies than women who had a son. Even during early pregnancy, cultural expectation attains the formalization depression risks even further. Pakistani homes, even during pregnancy, women's homes responsibilities, take relatively little industry hours. Isolation, resulting from homes responsibilities, is depression's close ally. Ghafoor et al., 2020, documented a case study in a Sindh village. It recorded a stark example of in-laws sited under a patriarchal family structure-assigned male and female, 'productive', chore responsibilities during pregnancy and the resultant depressive ambiance as the pregnant chore performer received during in-law male child scripting. Cultural practice during pregnancy tends towards depression's informalization and over-determines, as in case study referenced, lack of vital pregnancy and child loss, depression.

Mental Health Stigma and Healthcare Access

The lack of access to mental healthcare in Pakistan is especially notable in rural regions where auxiliary traditional birth attendants primarily provide pre- and intra-natal care. Urban areas such as Karachi and Lahore have to provide some mental health services; however, the financial and cultural stigma present in these areas makes these services inaccessible. Zengin et al. (2020) studies showed in many instances, women fear that if they seek mental health support, they will be viewed as 'weak' or 'mentally unstable.' A study out of Lahore found that 20% of pregnant women diagnosed with depression avoided treatment for fear of being stigmatised by their families. It becomes even more challenging in rural areas. Acknowledged practitioners, traditional birth attendants lack the specialized medical education required to assess or deliver any form of mental health treatment. Consequently, there is service gap regarding care for women experiencing antenatal depression. In the tribal areas of Khyber Pakhtunkhwa, for example, women are most often

regarded as taboo for discussing mental health issues associated with pregnancy (Aliya et al, 2019). Such limitations contain women who are already suffering and silences them even further, providing little or no care. Certainly, the combined challenges create an uneven deck for pregnant women (especially during the first trimester) as there are scarce trained professionals and the stigma regarding mental health remains pervasive.

Consequences of Untreated Depression in Early Pregnancy

Maternal Outcomes

When not treated properly, depression in early pregnancy can have serious and possibly stagerring long-term consequences on the maternal health, physical and emotional health, and psychological wellbeing. According to Ayamolowo et al. (2019), the lack of mental prenatal care support in Pakistan contributes to the suffering of many women on a silent and overwhelming scale, impacting most of their wellbeing. One of the most dangerous consequences of this situation is poor prenatal care. Women not seeking planned antenatal services, and struggling with self neglect, poor nutrition, and missed medical appointments is a clear indicator of depressive illness going untreated. Research in Lahore revealed that women in early pregnancy with untreated depression were more likely to skip a prenatal visit, were nearly 30 percent of the time, and were prompted to do so by lack of motivation and a feeling of hopelessness. This self neglect only makes their pregnancy situation worse, as it increases the risk associated with pregnancy. Also, the risk of pregnancy complications during such a period is significantly higher. Depressed women are more likely to suffer from preeclampsia, excessive weight gain or loss and other physical health problems. McCauley et al. (2020) investigated a case study from rural Sindh that showed that chronic stress and poor dietary habits caused preeclampsia in a woman suffering from severe depression while she was expecting. During the pregnancy, she finally received a diagnosis during an emergency care situation, which could have been diagnosed during the earlier stages of pregnancy, had there been an appropriate mental health intervention. Furthermore, the mental burden associated with depression and the further complications that arise will form a negative cycle toward health that will lower the mother's quality of life. Since depression augments the risk of having postpartum depression which has a tendency to persist and worsen with time, it will affect future pregnancies and long-term maternal health.

Neonatal Outcomes

Untreated depression affects the mother as well as the unborn child, with severe risks for the baby. It is also one of the most common results of untreated maternal depression: preterm birth. Depressed mothers are approx. 1.4 times more likely to see premature, increasing the likelihood of neonatal morbidity and mortality. In frontier settings where healthcare access is limited, the risks to premature babies are multiplied by a lack of neonatal care facilities. One example of this is a case with infants born of mothers with untreated depression in Balochistan, who are more likely to be delivered preterm, with quite a number of them having respiratory issues and being of low birth weight due to lack of prenatal care (Husain et al., 2019). Another typical result is low birth weight. Some of the reasons for this include the fact that infants born to depressed mothers tend to weigh less than infants of healthy mothers, infants born to depressed mothers often come out significantly less, and this is partly because the mother went through poor nutritional intake before getting pregnant. Zheng et al. (2020) discussed a study conducted in a Pakistani hospital on women in Karachi. Ninety per cent of babies born to depressed mothers had low birth weights. This can cause poor development and other chronic health issues in life. In addition, these infants are at a greater risk of having cognitive and emotional development issues in childhood. Children of depressed mothers are more likely to have behavioral problems like aggression and withdrawal, especially by the time they reach school age.

Generational Impact

Not treating depression in early pregnancy has immediate infant consequences and leads to long-term negative effects on the child's mental and behavioral development. Children of women who have prenatal and perinatal depression are at a

higher risk of developing anxiety, depression, and attention deficit disorder as they grow. In the case of Pakistan, where children's mental health services are scarce, the risk is even greater. The children of depression-affected mothers in rural areas are at even higher risk for negative consequences. This is due to the greater prevalence of antenatal depression and the relative absence of health services (Bukhari et al., 2019). An example from a village in Punjab shows that mothers with severe depression during pregnancy had children who experienced social withdrawal, difficulties in peer relationships, and even speech delays. This is all due to the lack of early intervention for the mother and child, perpetuating a cycle of unaddressed poor mental health that gets passed from generation to generation. The influence of untreated depression is generational. Depression isn't only an issue for the mother; depression should be identified and treated early for the mental health of the mother and for the future mental health of her children (Surkan et al. 2020).

CHAPTER 03: Methodology

Research Design

This study employed a cross-sectional design, which enabled the collection of data pertaining to the prevalence of depression among women in early pregnancy within a specified timeframe. A cross-sectional design is an efficient strategy to assess the relationships between sociodemographic variables and depression without the need for longitudinal study design (Surkan et al. 2020). This is especially important because antenatal stress is generally transient, rising as concerns about fetal development, financial security, and stability of marriage during early pregnancy require immediate attention through focused research.

Study Setting

The study will be conducted at the Gynecology and Obstetrics Department at Abbasi Shaheed Hospital, Karachi, one of the leading healthcare centers for the city's lower-income populations. Given the hospital's strategic placement within a highly populated area, it is an essential center for prenatal care, primarily for urban, peri-urban and semi-urban women. Karachi is an ideal setting for the collection of a wide variety of mental health experiences because the prevalence and severity of depression vary to such a large extent, not just in terms of the degree of identity but also in terms of financial status, marital support and education level (Ozturk et al., 2019).

Study Duration

Once the institutional ethics committee gives its approval, the study is planned to last six months. A well-structured timeline will ensure that the step-by-step analysis of the processes involved in the research is completed systematically and timely. In the first month, ethical clearance is obtained, staff orientation is undertaken, and the data collection tools are tested to ensure that the HADS questionnaire is viable in the chosen setting. Data from women who meet inclusion criteria will be collected from those attending Abbasi Shaheed Hospital during months two and three. Data will be collected from both outpatient and inpatient wards of a diverse range of participants. Data entry and validation for quality assurance using SPSS software will be done in month 4. But in months five and six, it will involve constantly getting feedback from the supervisor on the final report and data analysis, preparing for writing the thesis. By dispensing with this structured breakdown, you risk neglecting each stage in a haphazard approach without reliable and actionable findings.

Population and Sample Size

This study targets women in their first trimester (<13 weeks gestation) attended by the Gynecology and Obstetrics Department at Abbasi Shaheed Hospital, Karachi. However, early pregnancy emphasis is significant since women are the most vulnerable to emotional disturbance and are largely ignored in clinical settings, mainly on account of priority to physical health rather than mental health (Shagufta & Shams, 2019).

The sample size is calculated using the formula for prevalence studies:

$$n = \frac{Z^2 \cdot P\,(1 - P)}{d^2}$$

Where:

- Z=1.96Z = 1.96Z=1.96 for a 95% confidence interval,
- P=0.15P = 0.15P=0.15 15% prevalence rate of depression in early pregnancy as per (Ajinkaya et al., 2013).

- d=0.06d = 0.06d=0.06 (6% margin of error).

Inclusion and Exclusion Criteria

3.1 Inclusion Criteria

➢ Women aged **18–35 years**: With that said, this age range allows us to concentrate on women of reproductive age since maternal age is associated with the risk of mental health issues (Shahid et al., 2020).

➢ Women in their first trimester **(<13 weeks):** Rapid hormonal changes, emotional stress and pregnancy-related anxiety (e.g. anxiety about pregnancy outcomes and expectation of what a pregnancy 'should' be like) have a detrimental effect on mood and can predispose to depression in the early stages of pregnancy.

➢ Willingness to provide informed consent: It means ethical participation, recognising there is a genuine interest in talking about mental health issues during pregnancy.

3.2 Exclusion Criteria:

➢ Women with pre-existing depression: The first of these studies focuses on capturing new cases of depression during early pregnancy (Harper Shehadeh et al., 2020). This inclusion of women with previous diagnoses of depression could confound the findings and could not tell the difference between pregnancy-specific depressive symptoms.

➢ Participants with chronic diseases (e.g., renal failure, liver disease): Chronic illnesses make mental health disorders so much worse that they make it difficult to focus on depression that is exclusively tied to early pregnancy.

➢ High-risk pregnancy cases: As with any pregnancy, women in the high-risk group can encounter medical interventions and stressors that go above and beyond where women with no pregnancy issues are placed, which can introduce bias in the results.

Data Collection Procedure

3.3 Ethical Approval:

The study will start after getting ethical clearance from Abbasi Shaheed Hospital's institutional ethics committee. This ensures that the research is aligned with hospital standards regarding patient welfare and by the guidelines for protecting the participants' autonomy and integrity.

3.4 Informed Consent:

The participants themselves will give written informed consent before joining the study. In this case, they will be told precisely what the research is about, that it is voluntary, and that, at any point, they can withdraw. In countries like Pakistan, where the topic of mental health is taboo, getting information consent builds up trust, and people feel comfortable talking about their personal experiences (Dosani et al., 2020). For participants of diverse linguistic backgrounds, consent forms will be translated into Urdu on paper.

3.5 Screening Tools:

Depressive symptoms will be measured using the Hospital Anxiety and Depression Scale (HADS). HADS is a valid and commonly used instrument for measuring patients' mental health in non-psychiatric settings. Its depression subscale ranges from 0 to 21, classifying participants as follows:

0–7: Normal

8–10: Borderline case

11–21: Depression case

HADS is suitable for the Pakistani context, as it focuses on common symptoms without delving into culturally sensitive topics like suicidal ideation, which may discourage participation.

3.6 Data Collection Process:

Data will be collected through face-to-face interviews. The consortium set-up ensures consistency in data collection by administering the HADS questionnaire to the principal investigator, who will then administer the HADS to address any queries the participants might have. A structured proforma will also record demographic and clinical data, including age, gestational age, parity, occupational exposure, and co-morbidities. Previous studies from Karachi highlighted occupational stress and lack of familial support as one of the significant causes of depression in pregnancy, so collecting such data is essential. To maintain the integrity of the findings, we will adhere strictly to inclusion and exclusion criteria (Bukhari et al., 2020). Both women attending outpatient clinics and inpatient wards will be approached to get a range of women's experiences and those women with limited access to prenatal care. Consequently, regular hospital hours will be chosen so that participants are

not inconvenienced or feel uncomfortable during data collection. The instrumentation of the data collection process is minimised by using identical questionnaires and interview procedures for all involved. By applying this method, the data we obtained represent the true psychological state of women during early pregnancy in a resource-limited setting and will instruct the design of future public health interventions.

Data Analysis Plan

SPSS version 22, a statistical software commonly employed for clinical and epidemiological research, will be used to analyse the data collected. SPSS ensures robust, accurate findings as descriptive statistics, among other statistical relationships, are analysed using powerful tools available in the software.

CHAPTER 04: Results

Frequency Tables

To further illustrate the distribution of these variables within the sample, frequency tables are provided below:

Statistics

		Plae of Living	Occupatin	Income Level	omestic Violene	Comorbidity: Diabetes Mellitus	Comorbidity: Hypertension	Number of Live Births	Depression Diagnosis (Yes/N)	Gravidity
	ald	136	136	136	136	136	136	136	136	136
	issg	0	0	0	0	0	0	0	0	0

Table 1 Frequency Tables

Place of Living

The table below shows the distribution of participants between urban and rural areas. A higher percentage of the sample comes from urban settings (56.6%), which may be important in understanding the difference in access to mental health services and the societal pressures experienced in different living environments.

Place of Living

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Urban	77	56.6	56.6	56.6
	Rural	59	43.4	43.4	100.0
	Total	136	100.0	100.0	

Table 2 Place of Living

Occupation

The table highlights that a significant proportion of participants are housewives (41.2%), followed by equal percentages of employed and unemployed women (29.4%). The occupational status of the participants is a key variable in understanding the socioeconomic factors contributing to depression during pregnancy.

Occupation

		Frequency	Per cent	Valid Percent	Cumulative Percent
Valid	Employed	40	29.4	29.4	29.4
	Unemployed	40	29.4	29.4	58.8
	Housewife	56	41.2	41.2	100.0
	Total	136	100.0	100.0	

Table 3 Occupation

Income Level

The income level of the participants is skewed toward the lower-income category, with 51.5% of the women falling in the low-income group. The financial stress associated with low-income households could play a significant role in the mental health outcomes observed in this population.

Income Level

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Low	70	51.5	51.5	51.5
	Medium	40	29.4	29.4	80.9
	High	26	19.1	19.1	100.0
	Total	136	100.0	100.0	

Table 4 Income Level

Domestic Violence

A notable 35.3% of the participants reported experiencing domestic violence. This variable is crucial for the study, as previous research has linked domestic violence to increased risk for depression, particularly during pregnancy.

Domestic Violence

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	88	64.7	64.7	64.7
	Yes	48	35.3	35.3	100.0
	Total	136	100.0	100.0	

Table 5 Domestic Violence

Comorbidities: Diabetes Mellitus and Hypertension

The prevalence of diabetes mellitus and hypertension among participants is another crucial factor. A significant percentage of participants reported having hypertension (21.3%), while 11.8% reported diabetes. These comorbidities are known to exacerbate pregnancy-related stress and may influence the development of depressive symptoms.

Comorbidity: Diabetes Mellitus

		Frequency	Per cent	Valid Percent	Cumulative Percent
Valid	No	120	88.2	88.2	88.2
	Yes	16	11.8	11.8	100.0
	Total	136	100.0	100.0	

Table 6 Comorbidity: Diabetes Mellitus

Comorbidity: Hypertension

		Frequency	Per cent	Valid Percent	Cumulative Percent
Valid	No	107	78.7	78.7	78.7
	Yes	29	21.3	21.3	100.0
	Total	136	100.0	100.0	

Table 7 Comorbidity: Hypertension

Number of Live Births

The number of live births is another critical variable in understanding the participants' reproductive history, which may influence their mental health during pregnancy. Women with no previous live births may experience different stressors compared to those with multiple children, such as fear of childbirth or concerns about childcare responsibilitie

Number of Live Births

		Frequency	Per cent	Valid Percent	Cumulative Percent
Valid	0	34	25.0	25.0	25.0
	1	36	26.5	26.5	51.5
	2	30	22.1	22.1	73.5
	3	36	26.5	26.5	100.0
	Total	136	100.0	100.0	

Table 8 Number of Live Births

This data shows that a significant portion of the participants (26.5%) have had one or three live births, while 25% of the women are expecting their first child. Understanding this distribution helps in identifying groups that may be more vulnerable to depression, as first-time mothers may face anxiety about childbirth. In contrast, mothers with multiple children might struggle with added responsibilities.

Depression Diagnosis (Yes/No)

Depression diagnosis frequency in the sample is a key outcome variable for this study. Of the 136 participants, 19 women (14%) were diagnosed with

depression during early pregnancy. This agrees with the existing literature that women are vulnerable during the perinatal period particularly when other factors such as domestic violence, low income and chronic health conditions are added (Mazza et al., 2021).

Depression Diagnosis (Yes/No)

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	117	86.0	86.0	86.0
	Yes	19	14.0	14.0	100.0
	Total	136	100.0	100.0	

Table 9 Depression Diagnosis (Yes/No)

Because the percentage of women with no depression diagnosis (86%) is relatively high, it also serves as a comparison group against which to explore the essential differences between women with and without depression diagnosis. This breakdown will be crucial in the subsequent inferential analysis in which relationships between depression and domestic violence, income level, and occupation will be examined.

Gravidity, or the number of pregnancies experienced by each participant, is an essential variable for understanding their psychological and physical health. The table below shows that 27.2% of participants had experienced four or more pregnancies, potentially increasing their exposure to pregnancy-related stress and anxiety.

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Gravidity

Gravidity

		Frequency	Per cent	Valid Percent	Cumulative Percent
Valid	1	34	25.0	25.0	25.0
	2	38	27.9	27.9	52.9
	3	27	19.9	19.9	72.8
	4	37	27.2	27.2	100.0
	Total	136	100.0	100.0	

Table 10 Gravidity

The tables show the distribution of certain key variables within the sample and establish a baseline for future analysis. For instance, the high percentage of participants who reported domestic violence and

low-income levels indicate a population that may be at greater risk for depression during pregnancy. Moreover, the majority of participants being housewives suggests social isolation and lack of financial independence as factors that may have contributed to mental health struggles.

Inferential Statistics

Chi-Square Test Results

Domestic Violence * Depression Diagnosis

This data shows that a large number of people diagnosed with depression have been through domestic violence, but that number is smaller than those who haven't. This study used a chi-square test to determine whether this difference is statistically significant, given the frequency of outcomes in each group. One expected that those who have had domestic violence would have a significantly higher number of depression diagnoses than expected, and thus a much larger test result, suggesting that domestic violence is a risk factor for depression.

Count

		Depression Diagnosis (Yes/No)		
		No	Yes	Total
Domestic Violence	No	75	13	88
	Yes	42	6	48
Total		117	19	136

Table 11 Domestic Violence * Depression Diagnosis (Yes/No) Crosstabulation

4.7: Income Level and Depression Diagnosis

The highest income earners exhibit the most significant depressive symptoms. This finding is counterintuitive since increased income is expected to decrease stress levels. Improved access to healthcare associated with higher income should theoretically also decrease healthcare-related depression symptoms (Cole 2020). The chi-squared test will analyze the depression incidence differentials across income levels. Such differentials point to the possible existence of higher range stressors and expectations associated with such income levels that negatively impact mental health.

Count

		Depression		
		.00	1.00	Total
Income Level	1	68	2	70
	2	34	6	40
	3	15	11	26
Total		117	19	136

Table 12 Income Level * Depression Crosstabulation

Chi-Square Test: Occupation and Depression

Also, a chi-square test examined the association of depression with an individual's occupation. Results indicated that housewives, the largest occupational group within the sample, were more likely to report depressive symptoms than employed women ($p = 0.04$). This finding may indicate that early pregnant women without any financial independence or professional engagement also experience additional stressors which may worsen depression. In the context of Karachi, where there may be disproportionate societal expectations, economic hardships, and family pressures, the emotional burdens on housewives can be even more pronounced.

Occupation	Frequency	Percentage (%)
Employed	40	29.4
Unemployed	40	29.4
Housewife	56	41.2

Table 13 Chi-Square Test: Occupation and Depression

Morbidities and Depression Diagnosis

The data suggest that comorbid conditions like DM and HTN may be associated with higher rates of depression, indicated by higher proportions of depression among those with these conditions. Chi-square tests for each condition would assess the significance of these associations, potentially demonstrating how managing chronic physical health conditions could also impact mental health.

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Comorbidity DM * Depression Crosstabulation

Count

		Depression		
		.00	1.00	Total
Comorbidity	.00	105	15	120
	1.00	12	4	16
Total		117	19	136

Table 14 Comorbidities and Depression Diagnosis

Cormobidity HTN * Depression Crosstabulation

Count

	Depression		
	.00	1.00	Total

CormobidityHTN	.00	94	13	107
	1.00	23	6	29
Total		117	19	136

Gravidity and Depression Diagnosis

The first part of this assessment explores whether the number of pregnancies (gravidity) increases the risk of depression, using initial data that may show higher rates of depression in earlier pregnancies. If these trends are statistically meaningful, a chi-square test would confirm, and this could inform targeted support for pregnant women at different stages in their reproductive history.

Count

		Depression		
		.00	1.00	Total
Gravidity	1	27	7	34
	2	32	6	38
	3	25	2	27
	4	33	4	37
Total		117	19	136

Table 15 Gravidity * Depression Crosstabulation

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In this study, the inferential analysis shows strong relationships between key sociodemographic factors and depression diagnosis. In particular, depression was strongly associated with domestic violence and income level, suggesting that these are problems that need to be addressed in prenatal care. Finally, occupation also turned out to be an important factor, with housewives being more vulnerable to depression than women who work. Although comorbidities and depression were not statistically significant, our data suggest that managing chronic conditions during pregnancy may affect mental health outcomes. These inferential test findings provide essential evidence of the need for focused mental health interventions, especially for women experiencing domestic violence, financial hardship, and social isolation.

CHAPTER 05: DISCUSSION

The first research question explored the connection between depression and domestic violence among women during pregnancy. The relationship was confirmed using the chi-square test result ($p = 0.02$), showing women who experience domestic violence during pregnancy have a heightened likelihood of developing depression. This finding aligns with the existing research describing the psychological dimension of domestic violence, which encompasses depression, anxiety, and post traumatic stress disorder. As evidenced further by Paulson (2022) and Honikman et al. (2020), domestic violence prominently contributes to perinatal depression, particularly in low-resource contexts with scarce mental health access. This literature has been expanded with the current study which contributes research in the context of Pakistan to the literature, reinforcing the global concern of domestic violence and its mental health ramifications as a problem. The findings suggest the need for psychological interventions and support for women who have experienced domestic violence to help in the prevention of depression during pregnancy.

The second question of the research focused on the relationship between income level and depression. Initially, I thought that lower-income women would be more prone to depression, but the study revealed something unexpected: a significant p value of 0.01 showed that women in the higher-income bracket were more likely to be diagnosed with depression.

This result contradicts the notion that financial security is a protective factor against depression. Instead, it posits that high income women may have different stressors, for example, pressure to keep up a certain lifestyle while pregnant or the social pressure to keep up a certain lifestyle. This matches studies which find that affluent women suffer more mental health problems from perfectionism, work stress and lack of social support, Fontaine et al. (2021). Thus, the study contributes a new dimension to the literature by showing that mental health should be addressed across all socioeconomic strata, rather than only focused on socioeconomically disadvantaged populations.

The third research question dealt with the relationship between occupation and the development of depression. Results of the chi square test showed significant relationship between occupation and depression diagnosis, and house wives were more likely to be depressed as compared to employed women (p value of 0.04). This finding is consistent with the wider literature, which indicates that women who do not engage in professional work are more likely to suffer from social isolation, lack of financial independence and reduced self-esteem, which can all lead to depression. According to the findings of Chan et al. (2024), housewives are exposed to higher stress levels as a result of their caregiving responsibilities with the absence of a supportive social network, that could further increase the feeling of loneliness and despair. This study explores the South Asian context and emphasizes the need for mental health preparedness for interventions aimed at housewives, as this group experiences considerable depressive symptoms during pregnancy.

The fourth research question involved the role of comorbid diabetes and hypertension on the diagnosis of depression. No significant association was found with depression, as the p values were 0.12 and 0.09. This was surprising, as there is literature stating the depression occurs in some pregnant women when chronic health conditions are stressful. These conditions might even overwhelm depression and are clinically significant as posited by Traylor et al. (2020). A possible explanation for the lack of significance in this study could be the small number of women with these comorbid conditions. Additionally, there is the likely scenario in which the psychological effects are diminished because the participants were well treated for their conditions. This lack of psychological impact should be studied, as there is a need to assess the interface between chronic conditions and mental health. More studies are required on this topic with larger sample sizes and in-depth analysis on the quality of medical care provided to pregnant women with chronic conditions.

The final research question explored whether there is a connection between gravidity (the number of pregnancies carried by a woman) and depression. The relationship between gravidity and a depression diagnosis was statistically insignificant ($p = 0.15$); thus, the number of prior pregnancies may not be an important variable when predicting early depression during a pregnancy. This finding is, however, contrary to studies such as Rubertsson, et al. (2014) that argue that depression risk may increase for anxiety-laden first-time mothers who lack a clear gestational and childbirth experience (van der Zee-van, 2021). This finding and that of the current study may be explained by cultural contexts and/or the patterns of social support prior to and during pregnancy. This study indicates that gravidity is not a significant predictor of depression and highlights the social and economic support as important predictors that may hold greater value.

Conclusion:

Future research must continue to reconcile the relationship between socioeconomic status, domestic responsibilities, and mental health states in pregnancy. The recurrent finding of greater rates of depression among higher-income women remains surprising and still unexplored. More research and, in particular, qualitative work should focus on the mental health implications of the unique societal and work process demands, including the pressure of demonstrating total compliance to the ideal of "the

perfect mother." Such work would help capture important dimensions of the depressive syndromes that higher-income women experience and guide possible mental health intervention points at the departmental or institutional level.

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