

**PREVALENCE AND DETERMINANTS OF POSTPARTUM DEPRESSION AMONG  
POSTNATAL MOTHERS IN UNIVERSITY OF BENIN TEACHING HOSPITAL,  
BENIN CITY, NIGERIA**

**BY**

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SCHOOL OF MEDICINE,  
COLLEGE OF MEDICAL SCIENCES  
UNIVERSITY OF BENIN, BENIN CITY, EDO STATE, NIGERIA.**

**APRIL 2026**

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**BEING A ONE-YEAR PROJECT PRESENTED TO THE DEPARTMENT OF PUBLIC  
HEALTH AND COMMUNITY MEDICINE, SCHOOL OF MEDICINE, COLLEGE OF  
MEDICAL SCIENCES, UNIVERSITY OF BENIN, BENIN CITY, EDO STATE,  
NIGERIA.**

**IN PARTIAL FULFILLMENT OF THE REQUIREMENT FOR THE AWARD OF THE  
BACHELOR OF MEDICINE AND BACHELOR OF SURGERY (MBBS) DEGREE IN  
THE UNIVERSITY OF BENIN, BENIN CITY**

**APRIL 2026**

## **DEDICATION**

This project is dedicated to God Our Father, whose divine guidance, abundant grace, and endless mercy made the successful completion of this work possible.

It is also dedicated to our dear families for their steadfast support, encouragement and prayers throughout the course of this study.

## DECLARATION

We hereby declare that this research project titled “Prevalence and determinants of postpartum depression among postnatal mothers in University of Benin Teaching Hospital, Benin City, Nigeria” was conducted under supervision and has not been submitted in part or in full for any purpose.

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## CERTIFICATION

This is to certify that this research study titled “Prevalence and determinants of postpartum depression among postnatal mothers in University of Benin Teaching Hospital, Benin City, Nigeria” was conducted by Teresa Ilekupe Aghomo with matriculation number MED1810355 and Timilehim Praise Ajidahun with matriculation number MED1807363 under the supervision of Prof. Vivian Omuemu in the Department of Public Health and Community Medicine, College of Medical Sciences, University of Benin as part of the requirements for the award of Bachelor of Medicine, Bachelor of Surgery (MBBS) degree.

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## **ACKNOWLEDGEMENTS**

We give all glory, honor, and gratitude to God Almighty, the source of wisdom and strength, for faithfully guiding us from the beginning of this project to its successful completion, and for His divine provision that sustained us through every stage of this work. We sincerely express our profound appreciation to our project supervisor, Prof. Vivian Omuemu, for her exceptional guidance, patience, encouragement, and invaluable contributions throughout the course of this study. Her dedication to excellence, insightful corrections, and support were instrumental to the successful completion of this project. We remain deeply grateful for the privilege of learning under her supervision.

### **TERESA ILEKUPE AGHOMO**

I would like to express my deepest and most heartfelt gratitude to my beloved parents, Dr. Mr. Maurice I. Aghomo and Mrs. Tina O. Aghomo, for their unfailing love, countless prayers, encouragement and unwavering support throughout my academic journey. Your constant belief in me has been the foundation of every milestone I have achieved. Thank you for standing by me through every challenge and celebrating every success with me. I am forever grateful for your immeasurable love and for being my greatest source of strength and inspiration.

### **TIMILEHIN PRAISE AJIDAHUN**

I would like to express my heartfelt appreciation to my parents, ACP Ajidahun A. Lawrence and Mrs. Ajidahun A. Yemisi, for their unwavering support, encouragement, prayers, and unconditional love. There were moments when their support was the very strength that kept me moving forward, and for that, I am deeply grateful.

To my siblings, my dear sister, Dr. Ajidahun F. Bukola, and brother, Ajidahun Damilare, you both have truly been a blessing to me in every way.

To my friends—Donald Osarogiagbon, Stephen Ehimen, Ehitormia Ihenyen, Joseph Ijogi, Chima Perfection, Goddowell Godwin, and many others too numerous to mention who have contributed in one way or another, as well as my amiable project partner, Aghomo Teresa, this journey would have been far more difficult without your support. I sincerely appreciate you all.

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## LIST OF ABBREVIATIONS

<b>BAI</b>	Beck Anxiety Inventory
<b>CBT</b>	Cognitive Behavioral Therapy
<b>COVID-19</b>	Coronavirus Disease 2019
<b>CASP</b>	Critical Appraisal Skills Programme
<b>EPDS</b>	Edinburgh Postnatal Depression Scale
<b>FMOH</b>	Federal Ministry of Health
<b>GPC</b>	General Practice Clinic
<b>HCW</b>	Healthcare Worker
<b>HICs</b>	High-Income Countries
<b>HLE</b>	Healthy Life Expectancy
<b>IPT</b>	Interpersonal Therapy
<b>ILO</b>	International Labour Organization
<b>JBI</b>	Joanna Briggs Institute
<b>KAP</b>	Knowledge, Attitude and Practice
<b>LMICs</b>	Low- and Middle-Income Countries
<b>NIS</b>	National Immunization Schedule
<b>NMHP</b>	National Mental Health Policy
<b>PHQ-9</b>	Patient Health Questionnaire-9
<b>PND</b>	Postnatal Depression
<b>PPD</b>	Postpartum Depression
<b>PSI</b>	Postpartum Support International
<b>SPS</b>	Sensory Processing Sensitivity

<b>SMI</b>	Severe Mental Illness
<b>UBTH</b>	University of Benin Teaching Hospital
<b>UHC</b>	Universal Health Coverage
<b>WHO</b>	World Health Organization

## DEFINITION OF TERMS

**Baby Blues:** is a temporary and mild emotional disturbance that occurs in the first few days after childbirth.

**Postnatal:** refers to the period immediately following childbirth, specifically relating to the mother or the newborn infant. For the mother, it typically encompasses the first six weeks after delivery, a time of recovery and adjustment.

**Postpartum:** refers to the period after childbirth, starting immediately after delivery and lasting up to six weeks.

**Postpartum Depression:** a mood disorder that affects women after childbirth, characterized by persistent sadness, anxiety, fatigue, and difficulty bonding with the baby, lasting for weeks or months and requiring medical intervention.

**Postpartum Psychosis:** a rare but severe mental health illness that can affect postpartum mothers one to two weeks after childbirth.

## ABSTRACT

**BACKGROUND:** Postpartum depression (PPD) is a common mental health disorder that adversely affects mothers, infants, and family well-being through poor mother–child bonding, reduced infant care, and increased psychosocial stress. Despite its public health importance, PPD remains under-recognized in many low- and middle-income countries due to poor awareness, stigma, and limited access to mental health services. This study assessed the knowledge, attitude, prevalence, factors, role of social support, and barriers to help-seeking related to PPD among postnatal mothers attending the University of Benin Teaching Hospital (UBTH), Benin City.

**METHODOLOGY:** A descriptive cross-sectional study was conducted among 510 postnatal mothers attending postnatal and immunization clinics at the University of Benin Teaching Hospital (UBTH), Benin City. Respondents were selected using a systematic sampling technique. Data were collected using pretested interviewer-administered structured questionnaires, which included the Edinburgh Postnatal Depression Scale (EPDS) for screening postpartum depression. Data analysis was carried out using IBM SPSS version 27. Descriptive statistics were summarized using frequencies, percentages, means, and standard deviation. Associations were tested using Chi-square and Fisher’s exact tests, while binary logistic regression was used to determine independent predictors. Statistical significance was set at  $p < 0.05$  at 95% confidence interval. Results were presented in prose, tables, and bar charts.

**RESULTS:** The mean age of the respondents was  $30.9 \pm 5.6$  years. Majority of the respondents 366 (71.8%) were aged 20–34 years, while most were married 494 (96.8%). Knowledge assessment revealed that 151 (55.5%) had poor knowledge of PPD, while 212 (77.9%) demonstrated a positive attitude towards PPD. Mode of delivery was a significant predictor of

attitude, with mothers who had a caesarean section showing lower odds of positive attitude (OR = 0.33,  $p = 0.005$ ). The prevalence of PPD was 36 (7.1%). Significant associations with PPD were observed for age ( $p = 0.009$ ), parity ( $p = 0.026$ ), and household income ( $p = 0.037$ ), with younger mothers, mothers with lower parity, and those with lower household income being more likely to experience PPD. Respondents with positive attitudes towards PPD were also less likely to screen positive for the condition (OR = 0.27,  $p = 0.007$ ). Most respondents reported having someone to talk to about their feelings 482 (94.5%), while spouses or partners were the major source of support 489 (95.9%). Most respondents 472 (92.5%) reported that they would seek help if they experienced symptoms of PPD. Among those who would not seek help, the commonest reason was cultural beliefs 5 (38.5%) and the commonest facilitator of seeking help was healthcare worker recommendation 483 (94.7%).

**CONCLUSION:** The study revealed that more than half of the respondents had poor knowledge of PPD and slightly over two-thirds demonstrated a positive attitude towards PPD. The prevalence of PPD was less than one-tenth. Younger age, lower parity and lower household income were significantly associated with PPD, while a positive attitude reduced its likelihood. Cultural beliefs and no perceived need were barriers to seeking help, while healthcare worker recommendation was the most common facilitator. Strengthening health education, routine screening, psychosocial support, and integration of maternal mental health services into postnatal care is recommended to promote early detection, timely intervention, and improved maternal well-being.

**KEYWORDS:** Postpartum depression (PPD); Postnatal mothers; Knowledge; Attitude; Prevalence; Factors; Help-seeking behaviour

# CHAPTER ONE

## INTRODUCTION

### 1.1 BACKGROUND

Postpartum depression (PPD) is a global public health concern affecting mothers following childbirth, characterized by fatigue, irritability, loss of interest in daily activities, and persistent sadness. <sup>1</sup> Postpartum affective illnesses are commonly classified into three types: baby blues, postpartum depression, and postpartum psychosis. Postpartum depression occupies a middle position on this spectrum and manifests with symptoms that range from mild to severe depression. Different from transient and mild “baby blues” and the more severe “postpartum psychosis” that many mothers experience, PPD remains for a longer duration of time and can impair the mother’s ability to care for herself and the baby. The condition not only affects maternal health but also disrupts infant bonding, development, and growth, making children more prone to behavioral and emotional challenges. <sup>2</sup>

The World Health Organization (WHO) highlights the critical need to address maternal mental health, noting that globally, about 10% of pregnant women and 13% of postpartum women experience mental disorders, primarily depression. In low- and middle-income countries (LMICs), these figures rise to 15.6% during pregnancy and 19.8% after childbirth. Severe cases can lead to significant suffering, including suicide, which is a notable cause of death among pregnant and postpartum women. The WHO emphasizes integrating mental health care into maternal and child health services to promote well-being, identify issues early, and provide culturally sensitive interventions. By addressing maternal mental health, the WHO aims to improve outcomes for mothers and their children worldwide. <sup>3</sup>

While maternal mortality remains a core health indicator, the WHO's post-2015 agenda emphasizes Universal Health Coverage (UHC) and Healthy Life Expectancy (HLE), underlining the need for integrated services addressing both physical and mental health in maternal care. Mental health challenges during pregnancy and postpartum affect women globally, especially in low- and middle-income countries. These challenges are increased by factors such as poverty, migration, stress, violence, conflict, and low social support. Encouragingly, integrated maternal mental health programs in these regions, often involving community health providers and low-cost interventions, have shown positive impacts on both mothers and their children's growth and development. The WHO advocates for culturally sensitive and stigma-free mental health services to improve maternal and child well-being worldwide.<sup>3</sup>

Postpartum depression is influenced by a range of predisposing factors that interact to increase vulnerability in new mothers. A significant factor is a personal or family history of mental health conditions, such as depression, anxiety, or bipolar disorder, which heightens susceptibility. Hormonal changes after childbirth, particularly the rapid drop in estrogen and progesterone levels, can trigger emotional instability.<sup>4</sup> Sleep deprivation, a common challenge for new mothers, and stressful life events, such as financial difficulties, relationship problems, or the loss of a loved one, can also play a critical role. Additionally, unplanned or unwanted pregnancies, lack of social support, and feelings of isolation intensify the likelihood of postpartum depression. Mothers of babies with special needs, medical complications, or challenging temperaments face added pressures that may increase their risk. Physical changes during and after pregnancy, including body image concerns, can also contribute to emotional distress.<sup>4</sup>

Psychoeducation plays a vital role in safeguarding against postpartum depression by helping individuals cultivate positive coping mechanisms, manage stress effectively, and establish strong

support networks. It focuses on promoting awareness and understanding of mental health and well-being and applies principles to the mind, equipping individuals with the knowledge and tools needed to navigate mental health challenges.<sup>5</sup>

PPD, if left untreated, can have profound consequences for mothers, their children, and families. It can disrupt the mother-infant bond, leading to difficulties in emotional attachment and caregiving. This may result in developmental delays, behavioral issues, and emotional challenges in children. Mothers may experience prolonged emotional distress, social withdrawal, and impaired functioning in daily life. In severe cases, untreated postpartum depression can lead to substance abuse or self-harm, further exacerbating the situation.<sup>6,7</sup>

The impact of postpartum depression extends beyond the individual, affecting family dynamics and relationships. Partners and other family members may struggle with the emotional toll, leading to increased stress and potential conflicts. The stigma surrounding mental health often prevents mothers from seeking help, leaving them isolated and vulnerable. Addressing postpartum depression through early intervention and support is crucial to mitigating these effects and fostering healthier outcomes for both mothers and their families.<sup>7,8</sup>

Global intervention programs such as Postpartum Support International (PSI) play a crucial role in addressing postpartum depression by offering resources and support to individuals worldwide. PSI focuses on promoting awareness, providing education, and creating access to mental health care for mothers experiencing perinatal mental health challenges. It offers a range of services, including a helpline, local support groups, and professional training for healthcare providers. By fostering a global community of support, PSI empowers mothers to seek help and improves outcomes for both mothers and their families.<sup>9</sup>

Additionally, a systematic review of interventions to treat and prevent postpartum depression explores both pharmacological and non-pharmacological strategies. These include Cognitive Behavioral Therapy (CBT), Interpersonal Therapy (IPT), and community-based programs involving trained lay counselors or peer support. The review underscores the effectiveness of culturally sensitive, low-cost interventions, particularly in low-resource settings, in reducing the burden of postpartum depression and improving outcomes for mothers and their families. <sup>10</sup>

The Maternal Mental Health Policy Roadmap serves as a strategic guide to addressing maternal mental health challenges at both national and local levels. It emphasizes the need for comprehensive screening programs to identify mental health conditions early and advocates for policy reforms to integrate mental health care into maternal and child health services. The roadmap also focuses on fostering collaboration across government agencies, healthcare institutions, and community organizations to create a robust support system for mothers. Additionally, it highlights the importance of public awareness campaigns to reduce stigma and encourage help-seeking behavior. This policy framework provides actionable steps for improving maternal mental health outcomes and sets a benchmark for addressing maternal mental health challenges globally. <sup>11</sup>

Nigeria's approach to addressing postpartum depression emphasizes the integration of mental health services into existing maternal and child health care frameworks. Policies and programs highlight the importance of routine screening for perinatal mental health conditions during antenatal and postnatal visits, ensuring early detection and intervention. Public health initiatives focus on training non-specialized health workers and community providers to deliver cost-effective, culturally sensitive mental health support. These efforts aim to expand access to care,

especially for women in rural or low-resource settings, thereby reducing the burden of postpartum depression on mothers and their families. <sup>12</sup>

Efforts to integrate mental health support into maternal health care in Nigeria have gained momentum in recent years. Programs aim to bridge the gap in maternal mental health services by including psychosocial support during antenatal and postnatal visits. These initiatives focus on raising awareness about mental health issues such as postpartum depression, reducing stigma, and encouraging women to seek help. Additionally, training programs for healthcare providers emphasize the importance of early identification and intervention for mental health challenges during the perinatal period. By combining medical care with psychological support, these programs aim to improve maternal well-being and, in turn, foster healthier outcomes for children and families. <sup>13</sup>

PPD is a vital public health issue with profound impacts on mothers, children, and families. It often goes untreated, particularly in low-resource settings, due to stigma and systemic barriers. However, integrating mental health care into maternal services, raising awareness, and implementing community-based interventions can improve outcomes.

## **1.2 PROBLEM STATEMENT**

PPD represents a significant global public health concern, impacting approximately 10–22% of women across the world. <sup>14</sup> Postpartum depression poses serious risks to both maternal and child well-being, highlighting the need for early detection and intervention in public health. <sup>6,7</sup>

In sub-Saharan Africa, reported PPD prevalence varies widely, with rates as low as 18% in South Africa and as high as 57% in Nigeria. <sup>15,16</sup> Cultural stigma, inadequate healthcare infrastructure, and a lack of trained professionals contribute to the low detection and treatment rates of PPD in

these settings. In addition, studies have shown that healthcare workers in many African countries receive minimal training on maternal mental health, which limits their ability to diagnose and manage PPD effectively. <sup>17</sup>

Social support plays a critical role in the mental well-being of postpartum women. Mothers experiencing PPD frequently report low levels of support from partners, family, and the broader community, which not only intensifies depressive symptoms but also undermines recovery efforts. <sup>18,19</sup> Research suggests that inadequate social support is linked to poorer treatment outcomes and accentuates the adverse impact of risk factors such as low socioeconomic status, intimate partner violence, and unplanned pregnancies. <sup>18</sup>

Major risk factors for PPD include low socioeconomic status, intimate partner violence, unplanned pregnancies, and poor social support. <sup>18</sup> Mental health services in Nigeria are notably deficient—for example, fewer than 300 psychiatrists serve a population exceeding 200 million. <sup>20</sup> Consequently, untreated PPD not only contributes to maternal morbidity and disability but also exacerbates health challenges by impairing mother–infant bonding, increasing the risk of malnutrition and developmental delays in children, and linking to adverse outcomes such as chronic depression, anxiety disorders, and even maternal suicide. <sup>18,21</sup>

Economically, PPD imposes a substantial burden on families and healthcare systems. In high-income countries, the indirect and direct costs of untreated maternal mental health disorders have been estimated at billions of dollars annually due to increased healthcare utilization, lost productivity, and long-term developmental impacts on children. <sup>22</sup> In Nigeria, affected mothers experience financial strain from reduced workforce participation and rising medical expenses, while mental health services remain largely unaffordable. <sup>22</sup>

Over the years, several interventions—such as early screening, psychotherapy, support groups, medications, lifestyle modifications, and enhanced partner/family support—have been implemented to mitigate PPD. <sup>19</sup> WHO recommends the integration of maternal mental health services into routine postnatal care via universal screening and early intervention programs. <sup>23</sup> In Nigeria, the Federal Ministry of Health (FMOH) has introduced maternal health policies that include:

The National Mental Health Policy (NMHP) 1991, updated in 2013, aims to integrate mental health care into general healthcare services while protecting the rights of individuals with mental, neurological, and psychosocial disorders. It focuses on promotion, prevention, treatment, rehabilitation, and intersectoral collaboration. <sup>24</sup>

In addition, the 2013 National Policy for Mental Health Services Delivery and the National Mental, Neurological, and Substance Use Programme advocate for the Integration into Primary Healthcare PHC through training of workers, availability of medications, and better referral systems. Also, decentralized services, including community-based care, psychiatric units in general hospitals, and prioritizing rehabilitation over institutionalization. <sup>24</sup>

Efforts to strengthen human resources include increasing the number of trained professionals, incorporating mental health into medical curricula, and improving retention. Intersectoral collaboration engages education, social welfare, law enforcement, and corrections while promoting public awareness to reduce stigma. <sup>24</sup>

The policy calls for legal updates and protections for individuals with mental health conditions, better monitoring mechanisms, and data-driven research through national studies and evidence-based guidelines. Special attention is given to vulnerable populations, including those with substance abuse issues and intellectual disabilities. Policy initiatives emphasize integrated care,

decentralized services, capacity-building, collaboration, legal reforms, research, and funding sustainability. Community-based programs and peer support have shown success, but challenges remain, including professional shortages, funding gaps, and stigma.<sup>24</sup>

Addressing these challenges is imperative for improving overall maternal and child health outcomes, especially in regions such as Benin City, where a paucity of research hinders effective intervention development.

### **1.3 JUSTIFICATION**

PPD is a significant maternal mental health disorder that affects the well-being of mothers and has broader implications for child development, family stability, and public health systems. Despite its consequences, PPD remains common, particularly in LMICs such as Nigeria, where maternal mental health is often overlooked.<sup>3</sup> This study aims to assess the prevalence and determinants of PPD among postnatal mothers in Benin City, Edo State, to generate evidence that can inform policy and strengthen maternal mental health services within the region.

Mothers in Nigeria face unique socio-cultural determinants that may contribute to an increased risk of postpartum depression. Societal expectations surrounding motherhood—including resilience, adherence to traditional postpartum practices, exclusive breastfeeding, and immediate postpartum role adaptation—exert immense psychological pressure on new mothers.<sup>25</sup> The intersection of these cultural norms with socioeconomic determinants such as poverty, limited access to mental health services, inadequate social support, and gender norms further increases the burden of PPD. These social determinants of health create an environment where maternal mental health needs are often unrecognized and unaddressed, reinforcing health inequities and increasing the risk of adverse maternal and child health outcomes.<sup>26</sup>

PPD extends beyond individual-level morbidity to a broader population health concern. It has been associated with negative postnatal and child health outcomes, including impaired mother-infant bonding, inadequate child nutrition, and developmental delays. The economic burden of untreated maternal mental health disorders manifests in increased healthcare costs, lost productivity, and long-term societal consequences.<sup>6, 7</sup> By identifying the factors contributing to PPD in Benin City, this study will provide evidence for the development of targeted interventions, such as routine screening protocols, community-based mental health programs, and integrated maternal health services.

This research also has implications for health systems strengthening. Maternal mental health services are often fragmented within primary healthcare systems in Nigeria, with limited resources allocated to postnatal mental health.<sup>13</sup> By understanding the burden of PPD and its determinants, healthcare policymakers can advocate for the integration of mental health services into antenatal and postnatal care, ensuring that screening, early detection, and appropriate interventions become standard practice. Additionally, health promotion strategies, such as awareness campaigns and community-based peer support groups, can be leveraged to reduce stigma, improve health literacy, and encourage help-seeking behaviors among mothers experiencing postpartum depression.

In conclusion, this study aims to generate population-level data on the prevalence and determinants of postpartum depression among postnatal mothers in Benin City. The findings will provide critical insights for evidence-based decision-making, helping to shape maternal health policies, strengthen health system responsiveness, and improve health outcomes for mothers and their children. By addressing the gap in maternal mental health care, this research will contribute to broader efforts in reducing maternal morbidity and mortality, promoting health equity, and

achieving sustainable improvements in reproductive and child health services. Ultimately, tackling postpartum depression is not only essential for the well-being of mothers but also crucial for fostering healthier families and stronger communities.

#### **1.4 RESEARCH QUESTIONS**

1. What is the level of knowledge of postpartum depression among postnatal mothers in University of Benin Teaching Hospital?
2. What is the attitude regarding postpartum depression among postnatal mothers in University of Benin Teaching Hospital?
3. What is the prevalence and pattern of postpartum depression among postnatal mothers in University of Benin Teaching Hospital?
4. What are the factors associated with postpartum depression among postnatal mothers in University of Benin Teaching Hospital?
5. What role does social support play in the mental health outcomes of postnatal mothers in University of Benin Teaching Hospital?
6. What are the barriers and facilitators to accessing mental health care for postpartum depression among mothers in University of Benin Teaching Hospital?

## **1.5 RESEARCH OBJECTIVES**

### **1.5.1 General Objective**

To assess the prevalence and determinants of postpartum depression among postnatal mothers in University of Benin Teaching Hospital, and to improve maternal mental health services in the healthcare system

### **1.5.2 Specific Objectives**

1. To determine the knowledge of postpartum depression among postnatal mothers in University of Benin Teaching Hospital
2. To assess the attitude regarding postpartum depression among postnatal mothers in University of Benin Teaching Hospital
3. To determine the prevalence and pattern of postpartum depression among postnatal mothers in University of Benin Teaching Hospital
4. To identify factors associated with postpartum depression among postnatal mothers in University of Benin Teaching Hospital
5. To investigate the role of social support in the mental health outcomes of postnatal mothers in University of Benin Teaching Hospital
6. To identify barriers and facilitators to accessing mental health care for postpartum depression among postnatal mothers in University of Benin Teaching Hospital

## CHAPTER TWO

### LITERATURE REVIEW

Postpartum depression (PPD) is a significant public health issue that affects mothers and is marked by persistent sadness, fatigue, irritability and loss of interest in daily activities. Postpartum affective disorders are typically classified into baby blues, postpartum depression, and postpartum psychosis. Baby blues are mild, short-term mood disturbances occurring within the first few days after delivery. Postpartum psychosis is a rare but severe mental illness that usually appears within one to two weeks after childbirth. PPD lies between these two extremes—lasting longer than baby blues and less severe than psychosis—and can significantly affect a mother's ability to care for herself and her baby.<sup>1,2,27</sup> PPD is influenced by multiple interrelated factors, such as low socioeconomic status, unplanned pregnancies, physical changes during and after pregnancy, poor social support from partners, family, and the broader community intensifies depressive symptoms. Various standardized scales are used to screen for PPD, each differing in structure, sensitivity, and application context. According to Kendall-Tackett, commonly used tools include the Edinburgh Postnatal Depression Scale (EPDS), Beck Depression Inventory (BDI), and the Hamilton Depression Rating Scale (HDRS). The BDI, developed to measure the severity of depressive symptoms, has been widely applied in both clinical and research settings and remains one of the most recognized self-report tools. On the other hand, the Hamilton Depression Rating Scale, created by Hamilton in 1967, is a clinician-administered scale that assesses the severity of depression through observed and reported symptoms, making it particularly useful in clinical diagnostic settings. These tools vary in format and administration method, allowing researchers and clinicians to choose based on the specific needs of the postpartum population.<sup>28,29,30</sup>

The Edinburgh Postnatal Depression Scale (EPDS) is a widely used 10-item self-report questionnaire designed to screen for symptoms of PPD. It assesses a mother's emotional well-being over the previous seven days, focusing on mood, anxiety, and functional impairment. A score of 10 or above typically indicates possible depression and warrants further clinical evaluation. The scale is simple, non-invasive, and effective for early detection in both clinical and community settings.<sup>31</sup> The treatment and prevention of PPD involves both pharmacological and non-pharmacological approaches. Pharmacological options include SSRIs such as sertraline and fluoxetine, which are effective and safe for breastfeeding mothers. SNRIs such as venlafaxine may be used if SSRIs are ineffective, and newer treatments like brexanolone, a neuroactive steroid. Non-pharmacological strategies include CBT, IPT, and community-based programs involving peer support or trained lay counselors. Social support from partners, family, and the community plays a critical role in recovery, as poor support not only worsens depressive symptoms but also hinders effective treatment outcomes.<sup>10,18,19,32</sup>

## **2.1 KNOWLEDGE OF POSTPARTUM DEPRESSION AMONG POSTNATAL**

A cross-sectional online survey was conducted in Portugal from April to May 2018 to assess the knowledge and attitudes of the general population regarding postpartum depression. A total of 1,200 participants were sampled using a convenience sampling technique, and data were collected through an online questionnaire. The study revealed that while 80% of participants had knowledge of PPD, only 50% understood its symptoms. Most respondents, 75%, recognized the importance of seeking professional help, but only 30% knew where to find support services. It is important to note that this study had some limitations. Data collection was conducted via social media platforms, which may have introduced selection bias, and responses were self-reported,

increasing the possibility of inaccuracies. Additionally, the study was limited to Portuguese-speaking individuals, affecting the generalizability of the findings to non-Portuguese-speaking populations.<sup>33</sup>

A cross-sectional study was conducted in China between September and November 2022 to assess the Knowledge, Attitude, and Practice (KAP) towards PPD among pregnant and lying-in women. A total of 594 participants were included, and data were collected through a self-designed questionnaire covering demographic information and KAP dimensions. The study revealed that over half of the pregnant and maternal participants had knowledge of PPD. This study has certain limitations; the sample was drawn from a single center, resulting in a limited and insufficient sample size.<sup>34</sup>

A cross-sectional survey was conducted among 202 family members of postpartum women at a pediatric tertiary care center in India to assess their knowledge of postpartum depression (PPD). Data were collected through face-to-face interviews using structured questionnaires. The study revealed that 54% of participants had a good level of knowledge about PPD, including a basic understanding of its symptoms and implications. This finding highlights the important role that family members can play in the early recognition of PPD, especially when they are adequately informed. However, limitations such as the study's cross-sectional design and possible selection bias should be considered when interpreting the results.<sup>38</sup>

A descriptive cross-sectional study was conducted at the Tamale Teaching Hospital in Ghana to assess mothers' knowledge of PPD. A total of 132 mothers attending postnatal care were consecutively sampled. The study found that 63.6% of respondents had knowledge of PPD, with health facilities being the primary source of information. A considerable portion of participants

(39.4%) were unaware of when postpartum depression (PPD) can occur. Additionally, 34.8% believed it happens only immediately after childbirth, 10.6% thought it could develop anytime from delivery up to six weeks, and 11.4% believed it starts only after six weeks post-delivery. Regarding PPD treatment, 11.4% believed no treatment exists, 53.0% acknowledged that treatment is available, while 34.1% were uncertain. Limitations of this study include the use of a consecutive sampling method including only 132 respondents, which may introduce selection bias, and the conduction was solely at Tamale Teaching Hospital, so the findings may not be generalizable to all postpartum women in Ghana or even the northern region.<sup>35</sup>

A descriptive cross-sectional study was conducted in Minia City, Egypt, to assess the KAP of PPD among postpartum mothers. A total of 290 participants, who were within six months postpartum and attended primary healthcare centers for vaccination services, were included using a convenience sampling method. Data were collected through structured interviews covering socio-demographic and obstetric information, knowledge towards PPD, and the EPDS. The study found that 51% of participants had low knowledge levels regarding PPD. There may have been translation limitations, as the questionnaire was translated into the local language. Variations in translation quality and consistency could have affected participants' comprehension and the accuracy of their responses.<sup>36</sup>

A descriptive cross-sectional study was conducted in Surulere, Lagos, Nigeria, to assess the KAP of PPD among postnatal mothers attending immunization clinics in three primary health centers. A total of 300 participants were included using a convenience sampling method. Data were collected through structured, interviewer-administered questionnaires, utilizing the Patient Health Questionnaire-2 and Patient Health Questionnaire-9 to assess the prevalence and severity

of PPD. The study found that only 6% of respondents had good knowledge. The study is limited by the potential presence of publication bias.<sup>31</sup>

A cross-sectional study was conducted in Osogbo Local Government, Osun State, Nigeria, among 250 nursing mothers attending immunization clinics to assess their knowledge, attitude, and prevalence of postpartum depression. Data were collected through an interviewer-administered questionnaire that included the EPDS. Findings showed that 60% of respondents had a fair understanding of postpartum depression. However, less than half (43.2%) accurately described it as feeling sad and unhappy after childbirth. Some respondents were able to identify symptoms, with 57.6% recognizing prolonged unhappiness for more than a week after delivery, and 32.8% noting persistent sadness or misery lasting over a week. The study was limited by its multistage sampling technique which may provide findings that may not be generalizable to all postpartum mothers in Osun State or other regions, especially considering cultural, socioeconomic, and healthcare access differences.<sup>37</sup>

## **2.2 ATTITUDE REGARDING POSTPARTUM DEPRESSION AMONG POSTNATAL**

**MOTHERS** A cross-sectional study was conducted in China between September and November 2022 to assess the KAP toward PPD among pregnant and lying-in women. A total of 594 participants were included, and data were collected through a self-designed questionnaire covering demographic data and KAP dimensions. The study revealed that while the overall KAP scores were relatively low, participants had an average attitude score of  $36.37 \pm 4.16$  out of a possible 50, indicating a generally positive attitude toward PPD. The study also found that higher attitude scores were significantly associated with better practices related to PPD. This study has

several limitations. It was conducted at a single center, and the sample size was relatively small and potential biases in self-reported data.<sup>34</sup>

A cross-sectional survey was conducted among 202 family members of postpartum women at a pediatric tertiary care center in India to assess their knowledge and attitudes toward postpartum depression PPD. Data were collected through face-to-face interviews using structured questionnaires. The study found that 69.7% of participants had positive attitudes toward PPD. However, misconceptions and negative stereotypes persisted. Family members with higher education and those who had encountered women with PPD exhibited more positive attitudes. Limitations include the study's cross-sectional design, which precludes causal inference, and the potential for selection bias due to the sampling method.<sup>38</sup>

A descriptive cross-sectional study was conducted in Minia City, Egypt, to assess the KAP of PPD among postnatal mothers. A total of 290 participants, who were within six months postpartum and attended primary healthcare centers for vaccination services, were included using a convenience sampling method. Data were collected through structured interviews covering socio-demographic and obstetric information, knowledge, and attitudes toward PPD, and the EPDS. The study found that more than three-quarters (78.3%) of the studied new mothers had negative attitudes towards postpartum depression, this might be due to misconceptions regarding mental disorders and the stigma associated with them. Limitations of the study include its cross-sectional design, which limits causal inferences, and the use of convenience sampling, which may not represent the broader population. There may have also been translation limitations, as the questionnaire was translated into the local language which could have affected participants' comprehension and the accuracy of their responses.<sup>36</sup>

A descriptive cross-sectional study was conducted in 2021 in Southwest Nigeria, to assess the attitude of postnatal mothers toward PPD. A total of 309 participants were included using a convenience sampling method. Data were collected through structured, interviewer-administered questionnaires. The study found that only 11% of respondents held a good attitude toward PPD, indicating a generally negative or uninformed perspective on the condition, with unmarried women displaying more negative attitudes toward seeking help for PPD. Limitation of the study includes the focus on mothers attending immunization clinics in Surulere, Lagos, affects the generalizability of the findings to other regions. <sup>37</sup>

A descriptive cross-sectional study was conducted in Osogbo Local Government, Osun State, Nigeria, to assess the attitude of mothers towards PPD. A total of 250 nursing mothers were enrolled using a multistage sampling technique across eight health facilities. Data were collected through pretested, interviewer-administered questionnaires, including the EPDS. The study found that 52.4% of respondents exhibited a moderate attitude toward PPD, while 31.2% had a good attitude. This suggests that while some mothers held favorable views toward seeking help and recognizing PPD, a significant proportion maintained neutral or uninformed attitudes toward the condition. Limitations of the study limited to mothers attending immunization clinics in Osogbo, affecting the generalizability of the findings. <sup>38</sup>

### **2.3 PREVALENCE AND PATTERN OF POSTPARTUM DEPRESSION AMONG POSTNATAL MOTHERS**

A systematic review and meta-analysis were conducted in 2021 to map the global prevalence of PPD by analyzing 565 studies from 80 countries. The pooled prevalence was 17.22%, with substantial heterogeneity largely explained by study size and regional development status. The

highest rate was observed in Southern Africa, 39.96%, while developed and high-income regions demonstrated significantly lower prevalence. Limitations include heterogeneity in study designs and diagnostic criteria across regions, which could affect the generalizability of the findings.<sup>39</sup>

A cross-sectional study was conducted in China between September and November 2022 to explore the patterns of postpartum depression (PPD) among pregnant and lying-in women. A total of 594 participants were surveyed using a structured questionnaire that captured demographic and behavioral responses. While the study did not provide clinical diagnoses, it noted that poor knowledge and inconsistent practices may contribute to the underreporting and unrecognized prevalence of depressive symptoms among participants. The single-center design and reliance on self-reported data were noted as limitations.<sup>34</sup>

A systematic review and meta-analysis were conducted to assess the prevalence of PPD in Middle Eastern countries. The study analyzed data from 15 articles conducted in 2020, covering various Middle Eastern nations. The analysis revealed that the pooled prevalence rate of PPD in the region was 27%. It is important to note that the study had some limitations. The included studies varied in their methodologies, and the sample sizes differed, which may have affected the overall results. Furthermore, the findings may not be generalizable to non-Middle Eastern populations due to the regional focus of the study.<sup>40</sup>

A cross-sectional hospital-based study was conducted at the Tubah District Hospital in the Northwest Region of Cameroon to assess the prevalence and associated factors of PPD among women attending the facility. A total of 207 postpartum women, with a mean age of 27.54 years, participated in the study. The EDPS was used to assess depression levels. The study found that the prevalence of depression among the participants was 31.8%. The study had some limitations,

including the use of a consecutive convenience sampling technique, which may limit the generalizability of the findings, and the fact that it was conducted at a single hospital, which may not reflect the broader population.<sup>41</sup>

A systematic review and meta-analysis were conducted in sub-Saharan Africa to assess the prevalence of PPD among postpartum women. A total of 58 studies, involving 39,090 participants from 12 countries, were included using a comprehensive search strategy across multiple databases. The review revealed a pooled PPD prevalence of 22.1%, with the highest prevalence, 25.6%, observed within 12 weeks postpartum and in Southern African countries, such as, South Africa at 30.6% and Zimbabwe at 29.3%, while Tanzania reported the lowest prevalence, 13.5%. This review had several limitations: significant heterogeneity across studies, potential publication bias, and methodological variations, such as different study designs and screening instruments, may affect the precision and generalizability of the findings across all Sub-Saharan settings.<sup>42</sup>

In a descriptive cross-sectional study conducted in Minia City, Egypt, among 290 postpartum mothers attending vaccination services at primary health centers, the prevalence of postpartum depression (PPD) was assessed using the Edinburgh Postnatal Depression Scale (EPDS) among 290 new mothers. Although specific prevalence data were not reported in the summary, the inclusion of EPDS allowed the identification of depressive symptoms within six months postpartum. The findings suggest that negative attitudes and low awareness may contribute to underreporting or delayed diagnosis. The study's use of a non-randomized sample and cross-sectional design are limitations that may affect the robustness of the prevalence estimates.<sup>36</sup>

A cross-sectional descriptive study was conducted in Nigeria to assess the prevalence and socio-demographic correlates of postpartum depression among new mothers. A total of 392 new mothers at the Jos University Teaching Hospital were recruited at the Postnatal Clinic and Children Welfare Clinic 6–8 weeks postpartum using a convenience sampling method, and data were collected through the administration of the EPDS and a modified socio-demographic questionnaire. The study revealed that the mean age of participants was 28.0 years and that 44.5% of the mothers screened positive for postpartum depression using a cut-off score of 7. This study had some limitations, including the use of self-reported measures and a sample limited to a single teaching hospital, which may affect the generalizability of the findings to other settings.<sup>43</sup>

A cross-sectional study was conducted in the Eti-Osa Local Government Area of Lagos, Nigeria, among 250 postnatal women attending six Primary Health Care centers for infant immunization at six weeks postpartum. Data were collected using a pretested, semi-structured interviewer-administered questionnaire that incorporated the EPDS. The study revealed a prevalence of postpartum depression of 35.6%. Limitations of this study includes its focus on a single local government area may affect the generalizability of the findings to other populations.<sup>44</sup>

A cross-sectional study conducted among 250 nursing mothers in Osogbo Local Government, Osun State, Nigeria, assessed the prevalence of postpartum depression (PPD) using the Edinburgh Postnatal Depression Scale (EPDS). The results showed a prevalence rate of 33.6%, indicating that approximately one in three mothers experienced significant depressive symptoms during the postnatal period. This prevalence highlights the considerable burden of PPD in the community and the importance of routine screening during postnatal visits. The study's limited sample size and location may affect the broader applicability of the findings.<sup>38</sup>

## **2.4 FACTORS ASSOCIATED WITH POSTPARTUM DEPRESSION AMONG POSTNATAL MOTHERS**

A case-control study was conducted at Luohu Maternal and Child Health Medical Center in Shenzhen, China, between May and December 2019 to investigate the non-biological factors associated with PPD. The sample size includes 503 postpartum women, including 430 healthy mothers and 73 mothers diagnosed with PPD, using consecutive sampling techniques. Data were collected through structured questionnaires and interviewer-based assessments, including the Chinese EPDS for PPD diagnosis. The study found that social support played a significant role in maternal mental health outcomes, particularly concerning living arrangements and familial relationships. Mothers who lived with in-laws had higher odds of developing PPD, likely due to stress related to traditional expectations, generational conflicts, and household responsibilities. Conversely, strong spousal support was associated with lower levels of postpartum depression, reinforcing the importance of emotional and practical support during the postnatal period. It is important to note that this study had some limitations. The use of consecutive sampling may limit generalizability, as participants were not selected randomly. Additionally, self-reported data could introduce response bias, affecting the accuracy of reported stressors and depressive symptoms. The study also focused solely on one region in Shenzhen, which may not fully represent the broader socioeconomic and cultural diversity of postpartum mothers across China.

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A cross-sectional study was conducted in North Jakarta, Indonesia, from April to May 2022 to examine the prevalence and contributing factors of PPD among mothers during the COVID-19 pandemic. A total of 110 postpartum mothers were sampled using convenience sampling, and

data were collected through interviewer-based structured questionnaires, including the EPDS. The study revealed that several factors were significantly associated with PPD, including maternal age, childcare stress, life stress, and unplanned/unwanted pregnancy and younger mothers exhibited higher depression scores, while childcare stress and life stress were strong predictors of PPD. Unplanned or unwanted pregnancy was identified as the most significant contributing factor, increasing the likelihood of developing depression. It is important to note that this study had some limitations. The use of convenience sampling may limit generalizability, as participants were selected based on availability rather than random sampling. Additionally, self-reported data from structured questionnaires may have introduced response bias, affecting the accuracy of postpartum depression assessment.<sup>46</sup>

A cross-sectional study was conducted in Baghdad, Iraq, in August 2022 to evaluate the risk factors influencing the severity of PPD among Iraqi mothers. A total of 101 postpartum women were sampled using convenience sampling, and data were collected through structured personal interviews and the EPDS. The most significant risk factors associated with severe PPD included frequent marital problems and perinatal mood disturbances. Additionally, a personal history of depression emerged as an additional contributing factor based on path analysis and structural modeling, further influencing symptom severity. Mothers with higher symptom levels tended to be slightly older than those with lower symptom levels, though age did not show a statistically significant. It is important to note that this study had some limitations. The use of convenience sampling may limit generalizability, as participants were drawn from only two healthcare settings in Baghdad. Additionally, the cross-sectional design prevents establishing causal relationships between risk factors and PPD severity.<sup>47</sup>

A cross-sectional study was conducted in rural Mysore, Karnataka, South India, to examine the prevalence and risk factors of PPD among recently delivered young women. The study was carried out in 2024, and a total sample size of 148 postpartum mothers, between 16 to 20 weeks postpartum, was obtained from a quasi-experimental study on mobile medical clinics for antenatal care and HIV testing. Participants were selected using a consecutive sampling technique, and data were collected through self-administered questionnaires and the Patient Health Questionnaire-9 (PHQ-9) for depression screening. The most significant factor associated with PPD was the husband's education level, as mothers whose husbands had higher levels of education had lower odds of developing depressive symptoms compared to those whose husbands had lower education levels. Other common predictors of PPD in global studies, such as the number of pregnancies, infant gender, and socio-economic status, were not found to be significantly associated with PPD in this study. This study had some limitations which includes the use of consecutive sampling may limit generalizability, as participants were recruited based on accessibility rather than random selection. Additionally, self-reported data may introduce response bias, potentially influencing how mothers reported their depressive symptoms. The study also lacked measures on psychiatric history, which is a key predictor of PPD. Furthermore, PHQ-9 is a screening tool rather than a diagnostic measure, meaning elevated symptoms do not equate to a clinical diagnosis.<sup>48</sup>

A cross-sectional study was conducted in Lenjan city, Isfahan Province, Iran, from November 10, 2021, to March 19, 2022, to assess the prevalence and associated factors of postpartum anxiety and depression among mothers during the COVID-19 pandemic. A total of 360 postpartum mothers were sampled using a random cluster multistage sampling technique, and data were collected through self-administered and interviewer-based structured questionnaires, including

the EPDS and Beck Anxiety Inventory (BAI). Several factors were significantly associated with PPD including premenstrual syndrome, chronic diseases, marital conflicts, personal hospitalization due to COVID-19, stressful life events, and social support. It is important to note that this study had some limitations. The facility-based approach may limit generalizability, as participants were recruited from a single city and its surrounding villages. Additionally, the study was conducted after the COVID-19 vaccination rollout, which may have influenced levels of depression among the participants. The reliance on self-reported data could also introduce response bias in assessing postpartum anxiety and depression.<sup>49</sup>

A cross-sectional study was conducted at Nobel Medical College Teaching Hospital in Eastern Nepal from January to March 2020 to determine the prevalence and factors associated with PPD among postpartum mothers attending a child vaccine clinic. A total of 178 postpartum mothers between six to fourteen weeks postpartum were sampled using non-probability consecutive sampling, and data were collected through interviewer-based assessments using the EPDS. Various socio-demographic and maternity-related factors were significantly associated with PPD. Mothers aged over 30 years were more likely to experience PPD, while those with higher education levels had lower chances of developing depressive symptoms. Employment status also played a role, as unemployed mothers and those with lower family income had a higher risk of PPD. Additionally, unplanned pregnancy, multiparity, complications during pregnancy and delivery, infant health problems, marital dissatisfaction, and stressful life events within the previous year were strong predictors of postpartum depression. This study had some limitations. The use of non-probability consecutive sampling may limit generalizability, as participants were not selected randomly and the facility-based approach may not fully represent postpartum mothers who do not seek healthcare services. The exclusion of mothers with pre-existing chronic

health conditions could also underestimate the prevalence of PPD among high-risk groups. Lastly, self-reported responses through the EPDS may have introduced response bias in assessing depressive symptoms.<sup>50</sup>

A cross-sectional descriptive study was conducted in North Jordan from March to June 2021 to explore the prevalence and related factors of PPD among Jordanian mothers with a history of COVID-19 during pregnancy or after childbirth. A total of 109 postpartum women were recruited using convenience sampling, and data were collected through an online survey using the EPDS. Several factors were significantly associated with PPD, including smoking, delivery method, severity of COVID-19 symptoms, and hospitalization due to COVID-19. Mothers who underwent cesarean section, experienced severe COVID-19 symptoms, or required hospitalization—including ICU admission—had higher EPDS scores, indicating greater depressive symptoms. This study had some limitations. The use of convenience sampling may limit generalizability, as participants were not selected randomly. Additionally, the online data collection method could introduce response bias, as mothers may have been influenced by external factors while completing the questionnaire. The study was also conducted in a single hospital, which may not fully represent postpartum mothers across Jordan.<sup>51</sup>

A cross-sectional study was conducted in public health centers in Yeka sub-city, Addis Ababa, Ethiopia, from December 2021 to January 2022 to assess the factors associated with PPD among postnatal mothers. A total of 454 postpartum women were sampled using a multi-stage sampling method, and data were collected through interviewer-based structured questionnaires, including the EPDS. Several factors were significantly associated with PPD, including single mothers, experiencing complications during pregnancy, using bottle feeding immediately after birth, and having low perceived psychosocial support. Single mothers had higher odds of developing PPD

compared to married mothers, while complications during pregnancy increased the likelihood of depression. Additionally, bottle-feeding immediately after birth was linked to higher depression rates, whereas mothers with low psychosocial support demonstrated a greater risk of postpartum depression. Some limitations include the facility-based approach may not fully capture postpartum mothers who do not seek healthcare services and the reliance on self-reported questionnaire data may also have introduced response bias.<sup>52</sup>

A cross-sectional study was conducted in an urban postnatal clinic in Uganda to assess the prevalence and associated factors of PPD among mothers living with HIV. The study was conducted in 2018, with 290 postpartum mothers recruited through consecutive sampling. Data were collected using interviewer-administered questionnaires, including the Patient Health Questionnaire version for assessing postpartum depression. The most significant factor associated with PPD was poor male partner support, with mothers who reported low partner involvement showing a markedly higher likelihood of experiencing postpartum depression. Other contributing factors included single parenting, poor infant health, inadequate preparation for delivery, and experiencing a recent major stressful event such as death or job loss. Mothers who knew their partner's HIV status had lower odds of experiencing PPD compared to those who did not. The limitation of this study includes reliance on interviewer-administered questionnaires could also introduce interviewer bias in assessing postpartum depression.<sup>53</sup>

A systematic review and meta-analysis were conducted in Ethiopia in 2021 to estimate the KAP and associated factors of PPD among mothers. A total of 11 studies comprising 7,582 postpartum women were included, and data were analyzed using a random-effects meta-analysis model. Several factors were identified as significantly associated with PPD, including unplanned pregnancy, poor social support, and domestic violence. Mothers with a history of unplanned

pregnancy were more likely to experience PPD, as were those with inadequate social support from partners and family. Additionally, domestic violence was strongly associated with higher PPD rates, further emphasizing the role of adverse social conditions in maternal mental health outcomes. This study had some limitations. The heterogeneity of the included studies was high, which may impact the precision of the estimated prevalence. Additionally, the exclusion of non-English studies could limit the comprehensiveness of the findings. The reliance on self-reported data may also introduce response bias in assessing postpartum depression.<sup>54</sup>

A cross-sectional study was conducted at Tubah District Hospital, North West Region, Cameroon, from July to September 2021 to determine the factors associated with PPD among postnatal mothers in a rural setting. A total of 207 postpartum women were recruited using a consecutive convenience sampling technique, and data were collected through interviewer-administered structured questionnaires, including the EPDS. Several psychosocial and psychoclinical factors were significantly associated with PPD including gender-based violence, financial stress, and having a male baby were independently linked to higher odds of developing depression. Additionally, mothers with a family history of mental illness or a previous history of depression were more likely to experience PPD compared to those without these risk factors. It is important to note that this study had some limitations. The use of consecutive convenience sampling may limit generalizability, as participants were not selected randomly.<sup>55</sup>

A cross-sectional study was conducted at St. John of God Hospital, Duayaw Nkwanta, Ghana, to assess the prevalence, demographic, and obstetric risk factors of PPD among postnatal clinic attendants. The study was carried out in 2022, and a total of 386 postpartum mothers were sampled using purposive and systematic sampling techniques. Data were collected through interviewer-administered structured questionnaires, including the EPDS. Socio-demographic

factors significantly associated with PPD included being unmarried, unemployment, and having 3-4 children. Additionally, obstetric risk factors such as pregnancy complications, delivery complications, having a stillbirth, and low birth weight were linked to a higher prevalence of PPD. Mothers who experienced severe birth asphyxia in their newborns were also at greater risk of developing postpartum depression. Some limitations includes the facility-based approach as participants were drawn from a single hospital setting. <sup>56</sup>

A descriptive cross-sectional study conducted in 2023 at the Tamale Teaching Hospital in Ghana investigated factors associated with PPD among mothers attending postnatal care services. A total of 132 participants were recruited using a consecutive sampling method. The study identified significant associations between PPD and several psychosocial factors, including the preferred sex of the baby, unplanned pregnancies, and the extent of family support. Maternal age also emerged as a key predictor, with mothers aged 35 years and above having significantly higher odds of developing PPD compared to those aged 25 to 34 years (OR = 2.63,  $p < 0.01$ ). Despite its valuable insights, the study is limited by its cross-sectional design, which restricts causal interpretations, and the potential for selection bias due to the non-random sampling technique, which may affect the representativeness of the sample. <sup>35</sup>

## **2.5 ROLE OF SOCIAL SUPPORT IN THE MENTAL HEALTH OUTCOMES OF POSTNATAL MOTHERS**

A cross-sectional study was conducted in public and private hospitals in Lahore and Faisalabad, Pakistan, in 2024 to examine the relationship between childhood trauma, perceived social support, and postpartum depression in newly married women who experienced a first miscarriage. A total of 250 postpartum women aged 18-35 years were sampled using

convenience and purposive sampling, and data were collected through self-administered psychological measures, including the Childhood Trauma Questionnaire, Perceived Social Support Scale, and EPDS. The study revealed that postpartum depression was significantly associated with childhood trauma and perceived social support. Women who had experienced childhood trauma reported higher levels of postpartum depression, while those with strong social support networks showed lower depression levels. Additionally, the study identified family system differences, indicating that women from joint families had higher postpartum depression scores compared to those in nuclear families. It is important to note that this study had some limitations. The use of convenience sampling may limit generalizability, as participants were selected based on accessibility rather than random sampling. Additionally, reliance on self-reported data through structured psychological scales may have introduced response bias, as participants' perceptions could affect the accuracy of the reported trauma and depression levels.

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A longitudinal study was conducted in Central Italy in 2024 to examine maternal depression trajectories during the perinatal period and investigate the roles of Sensory Processing Sensitivity (SPS) and partner support on maternal mental health outcomes. The study followed 88 postpartum mothers recruited from prenatal classes and neonatal units using convenience sampling. Data were collected at four time points—during pregnancy, and at 3, 6, and 9 months postpartum—using self-administered questionnaires assessing maternal depression, SPS, partner support, and infant temperament. The study revealed that maternal depression followed a decreasing trajectory over time, with higher symptoms occurring between pregnancy and 3 months postpartum, although overall levels were consistent with non-clinical populations. Mothers with higher SPS exhibited greater depressive symptoms across all time points, while

strong partner support during pregnancy was associated with lower depression levels during pregnancy and at 6 months postpartum. Additionally, prenatal depression was found to predict infants' negative affect at 3 months, particularly influencing fear temperament, which accounted for a significant portion of variance in emotional reactivity. It is important to note that this study had some limitations. The use of convenience sampling may limit generalizability, as participants were selected based on accessibility rather than random sampling. Additionally, the reliance on self-reported data may introduce response bias, and the non-clinical sample may underestimate the full impact of SPS and partner support compared to high-risk populations. Furthermore, the study utilized a non-validated scale for measuring partner support, which may limit the reliability of findings related to its role in maternal depression.<sup>58</sup>

A cross-sectional study was conducted in four primary health care facilities in Zoba Maekel, East Africa Region, Eritrea, in 2020 to assess the prevalence and determinants of PPD among recently delivered mothers. A total of 380 postpartum mothers were sampled using simple random sampling, and data were collected through structured, closed-ended questionnaires and interviewer-based DSM-5 diagnostic assessments. The study revealed that the prevalence of PPD was 7.4% among postpartum mothers. Several factors were significantly associated with PPD, including low perceived economic status, lack of partner support, unplanned pregnancy, maternal illness after delivery, and residence in Southwest Asmara. Housewives were found to have lower odds of developing PPD compared to employed mothers. It is important to note that this study had some limitations. The facility-based approach may limit generalizability to postpartum mothers outside hospital settings. Additionally, mothers with chronic illnesses or neonatal complications were excluded, restricting applicability to high-risk groups. The use of DSM-5

required trained professionals, which may have introduced interviewer bias in the diagnosis of PPD.<sup>59</sup>

A cross-sectional study was conducted in selected hospitals in Ondo State, Nigeria, in 2020 to assess the relationship between PPD and family support among mothers bringing their infants for the six-week immunization. A total of 176 postpartum mothers were sampled using convenience sampling, and data were collected through self-administered structured questionnaires and the Beck's Inventory tool. The study revealed that 75.6% of the mothers were between 18-34 years, a key reproductive age group, while 62.1% reported inadequate spousal support. Findings demonstrated a significant association between poor spousal relationships and higher levels of PPD, as well as between poor relationships with families and increased PPD severity. However, no significant association was found between adequacy of spousal support and PPD levels, nor between relationships with spouses' families and PPD. It is important to note that this study had some limitations. The use of convenience sampling may limit generalizability, as participants were selected based on accessibility rather than random sampling. Additionally, the facility-based approach may not fully represent postpartum mothers outside hospital settings. The reliance on self-reported data through questionnaires may have introduced response bias in assessing postpartum depression levels.<sup>60</sup>

## **2.6 BARRIERS AND FACILITATORS TO ACCESSING MENTAL HEALTH CARE FOR POSTPARTUM DEPRESSION AMONG MOTHERS**

A systematic review was conducted in 2025 in various regions across the United States, Canada, and South India to examine the barriers and facilitators to accessing sexual and reproductive health services for people with severe mental illness (SMI). Despite a high prevalence of sexual

and reproductive health issues among individuals with SMI, their uptake of sexual healthcare remains poor, with the underlying reasons largely unclear. This review aimed to identify service-user perspectives on barriers and facilitators to accessing care. The study systematically searched three electronic databases using keywords related to sexual health and SMI. Five studies met the inclusion criteria, covering access to HIV care, family planning methods, and general sexual healthcare. These studies underwent narrative synthesis, assessing barriers and facilitators from a service-user perspective. Several barriers to accessing sexual healthcare were identified. Financial constraints were a key obstacle for those seeking HIV care, while for family planning services, barriers included limited awareness, lack of prioritization, misconceptions about pregnancy risks, and fear of contraceptive side effects. Regarding general sexual healthcare, challenges included psychotic symptoms, prioritization of mental health over sexual health, stigma, difficulty initiating conversations, gaps in knowledge, cultural/religious influences, and financial concerns. However, facilitators to accessing care were underrepresented in the studies reviewed. Only one study explored facilitators, highlighting that siloed mental health and sexual health services allowed for anonymity, making access easier. It is important to note that this systematic review had limitations. Four of the five studies focused only on HIV and family planning, leaving broader aspects of sexual health services unexplored. Additionally, most studies relied on closed-ended questions, which may have restricted service-user responses. The review emphasized the need for future research using open-ended qualitative studies to allow service users to express their experiences freely and identify effective strategies for improving access to care.<sup>61</sup>

A cross-sectional study, in 2024, on the treatment gap and barriers to accessing mental healthcare among women with PPD symptoms in Punjab, Pakistan, highlighted significant obstacles

preventing affected women from receiving timely care. Despite the high prevalence of PPD in Pakistan, few women seek professional help, exacerbating the burden of undiagnosed and untreated postpartum depression. The research screened 3,220 postpartum women using the EPDS, identifying 1,503 women with high PPD symptoms. However, only 2% of them sought mental healthcare, reflecting a severe treatment gap. Several barriers hinder access to mental health services among postpartum women. Social stigma and misconceptions about mental illness prevent many from openly discussing their struggles or seeking professional support. Financial constraints and lack of service accessibility, particularly in rural areas, further reduce healthcare utilization. Additionally, Pakistan's limited mental health infrastructure results in a shortage of trained professionals, making specialized treatment difficult to obtain. Cultural expectations surrounding childbirth, especially gender-related biases, add to the issue—women who gave birth to female infants reported higher depression scores than those with male newborns, revealing deep-rooted societal pressures that contribute to postpartum distress. Despite these challenges, certain facilitators could improve mental healthcare accessibility. Integrating PPD screening into routine obstetric care across public and private hospitals would allow for early detection and intervention. Raising awareness through targeted health programs could reduce stigma and encourage treatment-seeking behavior. Additionally, social support from spouses and families plays a crucial role in whether women seek professional help. Strengthening family involvement in mental health education may empower postpartum mothers to prioritize their well-being. Although the study focuses on Pakistan, the barriers and facilitators identified are highly relevant to postpartum depression care in Benin City. Similar stigma, financial limitations, and lack of integrated mental health infrastructure likely prevent Nigerian mothers from seeking treatment. Improving mental health education, embedding PPD screenings

in maternal care, and expanding healthcare accessibility are crucial steps toward reducing the treatment gap for PPD in Nigeria. <sup>62</sup>

A systematic review was conducted, in 2025, in Sub-Saharan Africa (SSA) to examine the barriers and facilitators to accessing mental health services (MHS) for adults. Despite a high prevalence of mental health conditions in the region, less than 10% of individuals with mental illnesses access professional MHS. This review analyzed 16 studies from nine SSA countries and identified various factors affecting accessibility. The research followed PRISMA guidelines and employed Critical Appraisal Skills Programme (CASP) and Joanna Briggs Institute (JBI) tools for quality assessment. The study highlighted several barriers to accessing mental health care, including limited knowledge, which resulted in individuals not seeking professional services due to a lack of awareness of available treatments. Negative attitudes and stigma discouraged individuals from seeking help, with self-stigmatization, societal discrimination, and misconceptions about mental health professionals being major obstacles. Cultural and religious beliefs further influenced care-seeking behaviors, as many individuals relied on spiritual and traditional interventions instead of formal healthcare. Structural challenges, such as the scarcity of mental health facilities, long distances to health centers, transportation costs, and a shortage of trained professionals, also hindered access. Economic constraints, including high treatment costs and inadequate insurance coverage, restricted individuals from seeking mental health services. Additionally, policy and system weaknesses, such as outdated regulations, lack of funding, and poor governance, negatively impacted the availability of MHS. In contrast, the review identified fewer facilitators that improved access to mental health services. Awareness of mental health disorders and professional services was a crucial factor, as individuals who were informed about their conditions were more likely to seek care. Social support, particularly from family and

community members, was found to encourage help-seeking behavior. Furthermore, the availability of community-based services improved accessibility, enabling individuals to seek care without traveling long distances. Despite the insights gained from this review, it was noted that only nine of the 46 SSA countries were represented, indicating a significant lack of country-specific research. Additionally, studies on facilitators were scarce, limiting the understanding of effective strategies to enhance mental health accessibility in the region. The findings underscore the urgent need for targeted interventions, including education campaigns, stigma reduction initiatives, policy reforms, and improved healthcare infrastructure, to bridge the gap in MHS accessibility.<sup>63</sup>

## **CHAPTER THREE**

### **METHODOLOGY**

#### **3.1 STUDY AREA**

This study was conducted at the University of Benin Teaching Hospital (UBTH), located in Benin City, Edo State, Nigeria. Edo State is one of the 36 states in Nigeria and is situated in the South-South geopolitical zone. Its capital is Benin City. The state was created on August 27, 1991, from the northern part of the former Bendel State. It shares boundaries with Kogi State to the northeast, Anambra State to the east, Delta State to the southeast, and Ondo State to the west and northwest.<sup>64</sup> Benin City is a humid tropical urban settlement, which comprises three Local Government Areas, namely Egor, Ikpoba Okha, and Oredo. Benin City is a narrow, key-shaped, north to south strip of land in West Africa. The area is about 1125 km<sup>2</sup> and situated on fairly flat land, about 8.5km above sea level. It is located between latitude 6° 44'N and 6°21'N and longitude 5°35'E and 5°44'E. The population of Edo State is projected to reach approximately

5,420,000 in 2025, with an average annual growth rate of about 3.2%, comprising around 2,550,240 males and 2,869,760 females. Edo State is also ethnically diverse, with the Binis comprising about 57.5% of the population, followed by the Esan at 14.1%, Etsako at 12.2%, Owan at 7.4%, and Akoko Edo at 5.7%, alongside other minority groups.<sup>65,66</sup>

UBTH is a tertiary health facility that was established on May 12, 1973, following the enactment of Edict No. 12 in April 1971. It was created to support the University of Benin and to provide both secondary and tertiary healthcare services to the then Midwestern Region, now made up of Edo and Delta States. On April 1, 1975, it was taken over by the Federal Government, making it the fifth teaching hospital in Nigeria at the time. For more than four decades, UBTH has served as a referral hospital for complex health conditions. Its main catchment areas include Edo, Delta, parts of Kogi and Ondo States, and sometimes other parts of southern Nigeria. The hospital was originally commissioned as a 300-bed facility but has since expanded to over 900 beds. It is located in Egor Local Government Area along the Benin-Ore Road, and it shares boundaries with the University of Benin and the Federal Government Girls' College Road.<sup>67</sup>

UBTH is a multi-specialist tertiary health institution with a wide range of clinical departments that provide healthcare services, medical education, and research. The clinical departments include Internal Medicine, Surgery, Chemical Pathology, Haematology, Histopathology, and Medical Microbiology, along with subspecialties such as Orthopaedics, Dermatology, Radiology, Anaesthesiology, Family Medicine, Ear, Nose and Throat (ENT), and Ophthalmology. Other core departments include Child Health, Obstetrics and Gynaecology, Public Health, Mental Health, and Dentistry. UBTH also houses departments for the College of Nursing, Physiotherapy, Occupational Therapy, and Pharmacy. These departments collectively support the hospital's

mandate of delivering high-quality patient care, training healthcare professionals, and advancing medical research in Nigeria. <sup>67</sup>

Postpartum women at UBTH are seen in the Department of Obstetrics and Gynaecology, specifically within the Family Planning Unit, where postnatal care is provided. They also attend the Immunization Clinic operated by the Public Health Nursing Department, mainly to accompany their infants for routine vaccinations.

The Postnatal Clinic at UBTH provides follow-up care for women after childbirth, typically up to six weeks postpartum. It operates under the Department of Obstetrics and Gynaecology, specifically within the Family Planning Unit. This department is responsible for the comprehensive care of women during pregnancy, childbirth, and the postpartum period, and also offers services such as gynecological consultations, family planning, and reproductive health education. The Postnatal Clinic is held on the same day as the Antenatal Clinic and is attended by the same team of doctors responsible for providing antenatal care. Mothers are expected to present with their antenatal cards. On arrival, vital signs such as blood pressure, weight, and height are measured, and infants are also weighed. Mothers are then reviewed by a doctor, and in the absence of any medical concerns, both mother and child are discharged. Any infant presenting with health issues is referred to the Pediatrics Department for further evaluation. As part of routine care, postnatal mothers are also educated on family planning methods and the importance of cervical cancer screening using Pap smears. On average, the clinic sees about 30 postnatal women each week.

The Immunization Clinic at the General Practice Clinic (GPC), UBTH, is operated by the Public Health Nursing Department. It provides routine immunization services for infants in accordance with the National Immunization Schedule (NIS). Upon arrival, mothers are registered and issued

an immunization card on which each vaccine administered is documented. A copy of this record is also kept in the mother's personal file. Additionally, there is a general tally register maintained for all vaccines given, where a single stroke is marked per child per vaccine to aid in record-keeping and monitoring. After receiving their scheduled vaccine, mothers are issued a follow-up appointment date for the next dose. The clinic operates on specific days for different vaccines: Mondays through Thursdays cover the 6, 10, and 14-week vaccines; Additionally, Tuesdays are set aside for the 6-month vaccines; Wednesdays for the 9-month and 15-month immunizations; Fridays are designated for Bacille Calmette-Guérin (BCG). Mothers also receive counseling on exclusive breastfeeding, complementary feeding, supplementary feeding and child nutrition. They are also educated on common childhood illnesses, hygiene practices, the importance of growth monitoring, home-based care for minor illnesses, and when to seek hospital care. These health talks are usually conducted by public health nurses while mothers await immunization services. On average, the clinic attends to about 450 postnatal mothers weekly.

### **3.2 STUDY DESIGN**

A descriptive cross-sectional study design was used to conduct the study.

### **3.3 STUDY POPULATION**

The study was carried out among postnatal mothers attending postnatal and immunization clinics in UBTH.

### **3.4 SELECTION CRITERIA**

#### **3.4.1 Inclusion Criteria**

- I. All postnatal mothers who gave informed consent and were willing to participate.
- II. All postnatal mothers who gave birth within the last six weeks.

#### **3.4.2 Exclusion Criteria**

- I. All postnatal mothers with known mental disorders prior to pregnancy.

### 3.5 STUDY DURATION

The study was carried out over 1 year and four months, from January 2025 to April 2026. The timeline is presented in the Gantt chart presented in Appendix 1.

### 3.6 SAMPLE SIZE DETERMINATION

The minimum sample size (n) was calculated using the Cochran formula for a cross-sectional study.<sup>68</sup>

$$n = \frac{Z^2 pq}{d^2}$$

Where:

n = Minimum Sample Size.

Z = Standard normal deviate set at 95% confidence interval (1.96)

p = Prevalence rate of a particular characteristic of the target population.

= using 27.1% as the proportion of women who had postpartum depression within a year in a 2021 study.<sup>69</sup>

$$= 0.271$$

q = The complementary probability

$$1 - p = 1 - 0.271 = 0.729$$

d = Degree of precision set at 0.05

Hence:

$$n = \frac{(1.96)^2 \times (0.271) (0.729)}{(0.05)^2} = 304$$

Using a design effect of 1.5;

$$304 \times 1.5 = 456$$

To make room for non-response, poor or incomplete responses, a 10% non-response rate was added to the minimum sample size, utilizing the formula for non-response rate.

$$nf = \frac{n}{1 - nr}$$

n = Minimum sample size = 456

nr = Non-response rate = 0.10

nf = Final Minimum sample size

$$= \frac{456}{1 - 0.10}$$

$$= 506$$

However, for this study, a sample size of 510 was used.

### **3.7 SAMPLING TECHNIQUE**

A systematic random sampling technique was used to select postnatal mothers for this study. The sampling process was carried out in the following steps:

#### **Step 1: Identification of Eligible Participants**

During designated clinic days within the study period, a list of eligible postnatal mothers was compiled based on the predefined inclusion criteria

#### **Step 2: Determination of Sampling Interval**

Based on the total number of eligible mothers present during each clinic session and the required sample size, a sampling interval (k) was calculated. This determined the systematic selection rate (e.g., every 2nd or 3rd eligible mother).

### **Step 3: Selection of First Respondent**

The first respondent was selected using simple random sampling from among the first k individuals on the list to ensure an equal chance of selection.

### **Step 4: Systematic Selection of Participants**

Subsequent participants were selected by choosing every kth mother on the list until the required sample size was achieved. This process was repeated across clinic days as needed.

This approach ensures:

Representativeness of the sample from the postnatal population at UBTH.

Reduction of selection bias through random and systematic procedures.

Operational feasibility, allowing smooth integration with routine clinical activities.

## **3.8 DATA MANAGEMENT**

### **3.8.1 Tool for Data Collection**

Data were obtained using a structured interviewer-administered questionnaire adapted from the Edinburgh Postnatal Depression Scale (EPDS) and other validated instruments relevant to maternal mental health research.<sup>70</sup>

The questionnaire consisted of both open-ended and closed-ended questions and was divided into seven (7) sections as follows:

#### **Section A: Sociodemographic Characteristics**

This section was designed to gather background information about the respondents, including age, marital status, educational level, employment status, monthly income, religion, ethnicity, parity, place and type of delivery.

## **Section B: Knowledge of Postpartum Depression**

This section assessed the respondents' awareness and understanding of postpartum depression, including timing of onset, recognizable symptoms, potential causes, and knowledge of available treatment options.

## **Section C: Attitude Toward Postpartum Depression**

This section explored respondents' perceptions and beliefs about postpartum depression using a 4-point Likert scale. Statements assessed stigma, willingness to seek help, and opinions on integrating mental health services into maternal care.

## **Section D: Prevalence of Postpartum Depression**

This section included the standardized 10-item EPDS tool for assessing depressive symptoms. The Edinburgh Postnatal Depression Scale (EPDS) is a widely used, validated screening tool developed to identify women at risk of postpartum depression. It was specifically designed to detect symptoms of emotional distress in the postpartum period and has been translated into multiple languages and validated across various cultures, including in low- and middle-income countries.

## **Section E: Factors Associated with Postpartum Depression**

This section collected information on potential risk factors such as pregnancy planning status, complications during pregnancy or delivery, relationship quality with partner, recent stressful events, and personal or family history of mental illness.

## **Section F: Role of Social Support**

This section assessed the availability and sources of emotional support. It explored the frequency

and type of social interactions the respondent had with key support figures like spouse, family, friends, or religious groups.

### **Section G: Barriers and Facilitators to Mental Health Care**

This section aimed to identify challenges preventing respondents from seeking mental health care, such as stigma, cost, or cultural beliefs. It also examined factors that could encourage care-seeking behavior, including education, free services, and community-based support.

#### **3.8.2 Method of Data Collection**

A structured, paper-based questionnaire was administered to consenting postnatal mothers attending selected health facilities in Benin City, Edo State. Prior to participation, the purpose of the study was clearly explained to each participant, and informed verbal consent was obtained. The questionnaire was interviewer-administered to ensure clarity, and all participants were assured of anonymity and confidentiality. Participation was entirely voluntary.

#### **3.8.3 Research Assistants**

Two research assistants with Bachelor's degree qualifications were recruited and trained for two days on the objectives of the study, ethical considerations, and standard procedures for administering the questionnaire. They were also trained on how to obtain informed consent, maintain respondent confidentiality, and provide necessary guidance during the interview process.

#### **3.8.4 Pre-Testing**

The questionnaire was pre-tested among postnatal mothers attending the postnatal clinic at Irrua Specialist Teaching Hospital, Irrua. The pre-test helped determine the clarity, relevance, sensitivity, and reliability of the questions. Based on feedback received, necessary adjustments were made to ensure cultural appropriateness and ease of understanding.

### **3.8.5 Data Analysis**

Completed questionnaires were checked for completeness, coded, and serially numbered before being entered into IBM SPSS version 27.0.

Univariate analysis was used to describe the frequency distribution of key variable. These include socio-demographic characteristics (such as age, marital status, level of education, occupation, and parity), knowledge of postpartum depression, attitude towards postpartum depression, prevalence and severity of postpartum depressive symptoms, as well as barriers and facilitators to accessing mental health care. Descriptive statistics such as frequencies, percentages, means, and standard deviations were computed as appropriate.

Bivariate analysis was carried out to identify associations between socio-demographic characteristics and variable such as knowledge, attitude, prevalence of postpartum depression amongst postnatal mothers in UBTH, and access to care. Chi-square and Fisher's exact tests were used to determine statistical significance at a p-value of  $<0.05$ .

Multivariate analysis was used to identify the independent determinants of postpartum depression while controlling for potential confounding variable.

Results were presented using frequency tables, charts, graphs, and written summaries.

## **Measurements of Variable and Scoring**

### **Occupational Classification**

The occupation of respondents was categorized using the modified International Labour Organization (ILO) skill level classification into skill levels 0-4.<sup>71</sup>

Skill Level 0: Housewives, students, unemployed.

Skill Level 1: Cleaners, laborers, domestic helpers, security guards.

Skill Level 2: Secretaries, police officers, hairdressers, drivers.

Skill Level 3: Shop managers, medical radiographers, legal secretaries, medical laboratory technicians.

Skill Level 4: Medical practitioners, civil engineers, secondary school teachers, university lecturers, lawyers, accountants.

### **Parity Categorization**

Parity was categorized into three groups: primiparous (parity = 1), multiparous (parity = 2–4), and grand multiparous (parity  $\geq 5$ ).

### **Postpartum Phase Categorization**

The postpartum phase was categorized into two groups: early postpartum phase (<2 weeks) and late postpartum phase ( $\geq 2$  weeks).

### **Scoring for Knowledge of Postpartum Depression**

The knowledge of postpartum depression among postnatal mothers was assessed using 10 structured questions in Section B of the questionnaire. Each correct response was awarded a score of 1, while each incorrect response was scored 0. The cumulative knowledge score was obtained by summing all correct responses.

The maximum obtainable score was 10, and the minimum score was 0. The mean knowledge score of the respondents was calculated as 6.3 and used as the cut-off for categorization.

Poor knowledge:  $<6.3$

Good knowledge:  $\geq 6.3$

### **Scoring for Attitude Towards Postpartum Depression**

The attitude of respondents toward postpartum depression was assessed using 5 statements in Section C of the questionnaire. Each item was rated on a 4-point Likert scale: Strongly Disagree (1), Disagree (2), Agree (3), Strongly Agree (4).

Respondents selected the option that best represented their view. The cumulative attitude score was obtained by summing the scores of the 5 items. The maximum obtainable score was 20, while the minimum score was 5. The mean attitude score of the respondents was calculated as 16.6 and used as the cut-off for categorization.

Negative attitude:  $< 16.6$

Positive attitude:  $\geq 16.6$

### **Measurement for Prevalence of Postpartum Depression**

The prevalence of postpartum depression among postnatal mothers was assessed using the Edinburgh Postnatal Depression Scale (EPDS), a widely validated 10-item self-reported screening tool. Each item evaluates a specific symptom of depression experienced over the past

seven days, including low mood, anhedonia (loss of interest or pleasure), anxiety, guilt, and suicidal ideation.<sup>70</sup>

Each item on the EPDS is scored on a 4-point Likert scale ranging from 0 to 3, with the total score ranging from 0 to 30. Some items are reverse-scored to account for positive phrasing. A higher cumulative score indicates greater depressive symptomatology. The EPDS is specifically designed to exclude somatic symptoms (such as fatigue and appetite changes) that are common in postpartum women, thereby improving its specificity for identifying psychological distress.<sup>70</sup>

For the purpose of this study:

A cut-off score of 10 or more was used to indicate the presence of possible postpartum depression.

A score of 13 or more was used to classify respondents as having a high likelihood of clinical postpartum depression, suggesting the need for further psychological assessment or referral.<sup>28</sup>

Although the EPDS is not a diagnostic tool, it is considered a reliable and effective screening instrument for identifying women at risk of postpartum depression in both community and clinical settings.

Measurement of Prevalence:

The prevalence of postpartum depression was calculated by identifying the number of respondents who scored  $\geq 10$  on the EPDS, and expressing this as a proportion of the total number of participants assessed. Mathematically:

$$\text{Prevalence (\%)} = \frac{\text{Number of mothers with EPDS score} \geq 10}{\text{Total number of respondents}} \times 100$$

This method ensures an accurate representation of the burden of postpartum depression within the study population.

### **3.9 ETHICAL CONSIDERATIONS**

Ethical approval and permission to carry out the study was obtained from the Ethics and Research Committee of the University of Benin Teaching Hospital. Permission was taken from the Head of Department of Public Health and Community Medicine, School of Medicine, College of Medical Sciences, University of Benin. Informed consent was also taken from the respondents before administering the questionnaires. The respondents were informed that they have the right to withdraw from the study, and that withdrawal poses no loss or harm.

### **3.10 LIMITATIONS OF STUDY**

This study was limited by the reluctance of some mothers to participate due to the stigma associated with mental health conditions. Some respondents were also hesitant to disclose emotional symptoms they perceive as personal.

To mitigate this, the study's purpose was clearly explained to participants, they were assured of anonymity and the significance of providing honest responses for enhancing maternal mental health services was highlighted.

## **CHAPTER FOUR**

### **RESULTS**

Five hundred and ten (510) respondents participated in the study. The results were divided into sections as follows:

Section A: Sociodemographic characteristics of respondents

Section B: Respondents' knowledge of postpartum depression

Section C: Respondents' attitude towards postpartum depression

Section D: Prevalence of postpartum depression among respondents

Section E: Factors associated with postpartum depression among respondents

Section F: Barriers and facilitators to accessing mental healthcare services for postpartum depression among respondents

**SECTION A**

**SOCIODEMOGRAPHIC CHARACTERISTICS OF RESPONDENTS**

**Table 1: Sociodemographic characteristics of respondents**

<b>Variable</b>	<b>Frequency (n = 510)</b>	<b>Percent</b>
Age Group (years)		
< 20	7	1.3
20-34	366	71.8
≥ 35	137	26.9
<b>Mean ± SD</b>	<b>30.9 ± 5.6</b>	
<b>Marital Status</b>		
Married	494	96.8
Single	10	2.0
Cohabiting	5	1.0
Divorced	1	0.2
<b>Type of Marriage (n=494)</b>		
Monogamous	491	99.4
Polygamous	3	0.6
<b>Ethnicity</b>		
Benin	189	37.1
Igbo	118	23.1
Esan	68	13.3
Yoruba	37	7.3
Urhobo	28	5.5
Ibibio	20	3.9
Hausa	13	2.5
Igala	11	2.2
Afemai	11	2.1
Isoko	6	1.2
Others*	9	1.8
<b>Religion</b>		
Christianity	497	97.5
Islam	13	2.5

Others\*: Ijaw (3), Ogoni (2), Itsekiri (2), Igbanke (1), Hagi (1)

The 20 – 34 years age group recorded the highest frequency with 366 (71.8%), followed by the ≥35 years group with 137 (26.9%) and the <20 years group with 7 (1.3%). The respondents had a mean age of 30.90 ± 5.60 years. Married respondents accounted for 494 (96.9%), followed by single respondents 10 (2.0%), cohabiting respondents 5 (1.0%), and divorced respondents 1 (0.2%). Among the married respondents, the monogamous union was predominant, accounting for 491 (99.4%) compared to 3 (0.6%) in polygamous arrangements.

The ethnic distribution was led by the Benin 189 (37.1%), Igbo 118 (23.1%), and Esan 68 (13.3%) groups. Other ethnicities included Yoruba 37 (7.3%), Urhobo 28 (5.5%), Ibibio 20 (3.9%), Igala 11 (2.2%), and Afemai 10 (2.0%), while 29 (5.6%) respondents identified with other minority groups. Religious affiliation was predominantly Christianity, reported by 497 (97.5%) respondents, with 13 (2.5%) identifying as Muslim.

**Table 2: Socioeconomic characteristics of respondents**

<b>Variable</b>	<b>Frequency (n = 510)</b>	<b>Percent</b>
<b>Educational Status</b>		
No formal education	3	0.6
Primary	9	1.8
Secondary	250	49.0
Tertiary	248	48.6
<b>Employment Status</b>		
Not employed	385	75.5
Employed	125	24.5
<b>Occupational Skill Level</b>		
Skill level 0	32	6.3
Skill level 1	24	4.7
Skill level 2	367	72.0
Skill level 3	80	15.7
Skill level 4	7	1.4
<b>Spouse/Partners' Educational Status</b>		
No formal education	5	1.0
Primary	4	0.8
Secondary	205	40.2
Tertiary	296	58.0
<b>Spouses/Partners' Employment Status</b>		
Unemployed	301	59.0
Employed	209	41.0
<b>Spouse/Partner's Occupational Skill Level</b>		
Skill level 1	61	12.0
Skill level 2	261	51.2
Skill level 3	175	34.3
Skill level 4	13	2.5
<b>Household Income (monthly)</b>		
< ₦70000	364	71.4
₦70000– ₦210000	118	23.1
> ₦210000	28	5.5
<b>Mean ± SD</b>	<b>₦116,463.33 ± ₦15,3942</b>	

Regarding educational attainment, 250 (49.0%) had completed secondary education followed by those with tertiary education, 248 (48.6%). Majority of the respondents were not employed 385

(75.5%), while 125 (24.5%) were employed. In terms of occupational skill levels, the largest proportion of respondents was classified at skill level 2, 367 (72.0%), followed by skill level 3, 80 (15.7%).

Analysis of the respondents' spouses/partners revealed that 296 (58.0%) had attained tertiary education, and 205 (40.2%) had reached the secondary level. The employment status showed that 301 (59.0%) were unemployed and 209 (41.0%) were employed. The predominant occupational skill level was skill level 2, 261 (51.2%), followed by skill level 3, 175 (34.3%). Monthly household income was less than ₦70,000 for 364 (71.4%) respondents, with 118 (23.1%) earning between ₦70,000 and ₦210,000. The mean monthly household income was ₦116,463.33 ± ₦153,942.00.

**Table 3: Obstetrics characteristics of respondents**

<b>Variable</b>	<b>Frequency (n = 510)</b>	<b>Percent</b>
<b>Parity</b>		
1	169	33.1
2-4	321	62.9
≥ 5	20	3.9
<b>Mean ± SD</b>	<b>1.71 ± 0.54</b>	
<b>Postpartum Phase (Weeks)</b>		
< 2	104	20.4
≥ 2	406	79.6
<b>Mean ± SD</b>	<b>4.87 ± 2.77</b>	
<b>Place of Delivery</b>		
Private hospital	273	53.5
Public hospital	215	42.2
Home	12	2.4
Traditional Birth Attendant	10	2.0
<b>Type of Delivery</b>		
Vaginal birth	377	73.9
Caesarean section	133	26.1
<b>Planned pregnancy</b>		
Yes	357	70.0
No	153	30.0
<b>Experienced complications during pregnancy/delivery</b>		
Yes	44	8.6
No	466	91.4
<b>History of Substance Use</b>		
<b>Yes</b>	83	16.3
<b>No</b>	427	83.7
<b>Family history of psychiatric conditions</b>		
Yes	31	6.1
No	379	93.9

Regarding parity, the largest proportion of respondents reported having 2–4 children 321 (62.9%), followed by those with one child 169 (33.1%) and those with five or more children 20 (3.9%). The mean parity for the respondents was  $1.71 \pm 0.54$ . At the time of the study, the majority of respondents were in a postpartum phase of two weeks or more 406 (79.6%), while 104 (20.4%) were less than two weeks postpartum. The mean postpartum duration was  $4.87 \pm 2.77$  weeks.

For the place of delivery, private hospital recorded the highest frequency at 273 (53.5%), with public hospital at 215 (42.2%), home at 12 (2.4%), and traditional birth attendant at 10 (2.0%). Regarding the type of delivery, vaginal delivery accounted for 377 (73.9%) and caesarean section 133 (26.1%). Majority of the respondents 357 (70.0%), reported that their pregnancy was planned, while 153 (30.0%) indicated that the pregnancy was unplanned. Complications during the pregnancy or delivery phase were experienced by 44 (8.6%) respondents, whereas 466 (91.4%) reported no complications. Family history of psychiatric conditions was present in 31 (6.1%) cases, while 479 (93.9%) respondents indicated an absence of psychiatric conditions within their family.

**SECTION B**

**KNOWLEDGE OF POSTPARTUM DEPRESSION AMONG RESPONDENTS**

**Table 4: Respondents' knowledge of postpartum depression**

<b>Variable</b>	<b>Frequency</b>	<b>Percent</b>
<b>Awareness of PPD (n = 510)</b>		
Yes	272	53.3
No	238	46.7
<b>Symptoms of PPD*(n=272)</b>		
Excessive happiness	271	99.6
Over attachment to baby	269	98.9
Loss of interest in baby	175	64.3
Poor appetite	113	41.5
Insomnia	165	60.1
Sadness	34	12.5
<b>Occurrence of PPD (n=272)</b>		
Immediately after childbirth	194	71.3
Within the first 6 weeks	5	1.9
Up to 6 months after delivery	73	26.8
<b>Possible Causes of PPD (n=272)</b>		
Financial Stress	106	39.0
Lack of support from partner or family	91	33.5
Unplanned pregnancy	39	14.3
Complications during pregnancy or childbirth	27	9.9
Social isolation or loneliness	8	3.0
Exercising daily	1	0.3
<b>Possibility of PPD Treatment (n=272)</b>		
Yes	249	91.5
No	12	4.4
Not sure	11	4.1
<b>Possible Treatments for PPD(n=272)</b>		
Counselling	191	70.2
Support from partner, family and friends	42	15.4
Regular Hospital Visits	31	11.4
Joining a support group with other mothers	5	1.8
Lifestyle changes	3	1.2

Multiple Choice Response\* PPD – Postpartum depression

A total of 272 (53.3%) respondents indicated they were aware of PPD, while 238 (46.7%) reported no prior awareness. Among the respondents who were aware of PPD, various symptoms were identified. Excessive happiness was the most frequently cited symptom by 271 (99.6%) respondents, followed by over-attachment to the baby by 269 (98.9%) and loss of interest in the baby by 175 (64.3%). Other identified symptoms included insomnia 165 (60.1%), poor appetite 113 (41.5%), and sadness 34 (30.0%).

The perceived timing for the occurrence of PPD was most commonly identified as immediately after childbirth by 194 (71.3%) respondents, 73 (26.8%) believed it could occur up to 6 months after delivery, while 5 (1.9%) identified the window as being within the first 6 weeks.

Financial stress was the most recognized possible cause of the condition, by 106 (39.0%) respondents. This was followed by a lack of support from partner or family 91 (33.5%), unplanned pregnancy 39 (14.3%), and complications during pregnancy or childbirth 27 (9.9%). A smaller proportion of respondents identified social isolation 8 (3.0%) and daily exercise 1 (0.3%) as potential causes.

Most respondents expressed a belief in the possibility of treatment, with 249 (91.5%) responding affirmatively. However, 12 (4.4%) believed the condition could not be treated, and 11 (4.1%) were unsure. Regarding potential treatments, counselling was the most preferred option for 191 (70.2%) respondents. Other suggested interventions included support from partner, family, and friends 42 (15.4%), regular hospital visits 31 (11.4%), joining a support group 5 (1.8%), and lifestyle changes 3 (1.2%).

**Table 5: Overall respondents' knowledge towards PPD**

<b>Variable</b>	<b>Frequency (n=272)</b>	<b>Percent</b>
Good Knowledge	121	44.5
Poor Knowledge	151	55.5

Among the 272 respondents assessed, 121 (44.5%) of the respondents had good knowledge, while 151 (55.5%) had poor knowledge of PPD.

**Table 6: Sociodemographic characteristics and respondents' knowledge of postpartum depression**

Variable	Knowledge		Test Statistic	p – value
	Poor (n = 151) Freq (%)	Good (n = 121) Freq (%)		
<b>Age Group (years)</b>				
< 35	110 (54.5)	92 (45.5)	0.361*	0.550
≥ 35	41 (58.6)	29 (41.4)		
<b>Marital Status</b>				
Not married	2 (50.0)	2 (50.0)	0.050**	>0.999
Married	149 (55.6)	119 (44.4)		
<b>Ethnicity</b>				
Edo	81 (53.3)	71 (46.7)	0.692*	0.406
Non-Edo	70 (58.3)	50 (41.7)		
<b>Religion</b>				
Christian	150 (55.8)	119 (44.2)	0.600**	0.587
Islam	1 (33.3)	2 (66.7)		

Chi-square\* Fisher's Exact\*\*

A greater proportion of respondents aged less than 35 years 92 (45.5), had good knowledge compared to those aged 35 years or older 29 (41.4%). However, the association between age group and level of knowledge was not statistically significant ( $\chi^2 = 0.361$ ;  $p = 0.550$ ). The level of PPD knowledge among unmarried respondents was 2 (50.0%) compared to 119 (44.4%) among married respondents. Among respondents, 71 (46.7%) of Edo respondents had good knowledge compared to 50 (41.7%) of non-Edo respondents. However, the association between ethnicity and level of knowledge was not statistically significant ( $\chi^2 = 0.692$ ;  $p = 0.406$ ). Similarly, 119 (44.2%) of Christian respondents and 2 (66.7%) of Muslim respondents had good knowledge. The association between religious affiliation and level of knowledge was also not statistically significant (Fisher's Exact = 0.600;  $p = 0.587$ ).

**Table 7: Socioeconomic characteristics and respondents' knowledge of postpartum depression**

Variable	Knowledge		Test Statistic	p – value
	Poor (n =151) Freq (%)	Good (n =121) Freq (%)		
<b>Educational Status</b>				
Non-tertiary	55 (58.5)	39 (41.5)	0.522*	0.470
Tertiary	96 (53.9)	82 (46.1)		
<b>Employment Status</b>				
Employed	48 (55.8)	38 (44.2)	0.012*	0.946
Not employed	103 (55.4)	83 (44.6)		
<b>Occupational Skill Level</b>				
Skill level 0	7 (53.8)	6 (46.2)	6.801*	0.147
Skill level 1	6 (50.0)	6 (50.0)		
Skill level 2	108 (57.8)	79 (42.2)		
Skill level 3	25 (45.5)	30 (54.5)		
Skill level 4	5 (100.0)	0 (0.0)		
<b>Spouse/partner's Educational Status</b>				
Non-tertiary	50 (60.2)	33 (39.8)	1.084*	0.299
Tertiary	101 (53.4)	88 (46.6)		
<b>Spouse/partner's Employment Status</b>				
Employed	67 (50.0)	67 (50.0)	3.251**	0.087
Unemployed	84 (60.9)	54 (39.1)		
<b>Spouse/partner's Occupational Skill Level</b>				
Skill level 1	14 (58.3)	10 (41.7)	2.923*	0.404
Skill level 2	81 (60.0)	54 (40.0)		
Skill level 3	50 (49.0)	52 (51.0)		
Skill level 4	6 (54.5)	5 (45.5)		
<b>Household Income (₦)</b>				
< 70,000	97 (55.1)	79 (44.9)	1.456*	0.484
70,000 – 210,000	41 (53.2)	36 (46.8)		
> 210,000	13 (68.4)	6 (31.6)		

Chi-square\* Fisher's Exact\*\*

Educational status showed that 39 (41.5%) of respondents with non-tertiary education had good knowledge compared to 82 (46.1%) of those with tertiary education. The association between educational status and level of knowledge was not statistically significant ( $\chi^2 = 0.522$ ;  $p = 0.470$ ). Employment status revealed that 38 (44.2%) of employed respondents had good knowledge compared to 83 (44.6%) of those not employed. The association between employment status and level of knowledge was not statistically significant ( $\chi^2 = 0.012$ ;  $p = 0.946$ ). Skill level distribution showed that 30 (54.5%) of respondents at skill level 3 had good knowledge compared to 0 (0.0%) at skill level 4. The association between skill level and level of knowledge was not statistically significant ( $\chi^2 = 6.801$ ;  $p = 0.147$ ). Spouse/partner's educational background indicated that 33 (39.8%) of respondents with non-tertiary educated partners had good knowledge compared to 88 (46.6%) of those with tertiary educated partners. The association was not statistically significant ( $\chi^2 = 1.084$ ;  $p = 0.299$ ). Spouse/partner's employment status showed that 67 (50.0%) of respondents with employed partners had good knowledge compared to 54 (39.1%) of those with unemployed partners. The association between spouse/partner's employment status and knowledge was not statistically significant (Fisher's Exact = 3.251;  $p = 0.087$ ). Spouse/partner's occupational skill level showed that 52 (51.0%) of respondents at skill level 3 had good knowledge compared to other skill levels. The association was not statistically significant ( $\chi^2 = 2.923$ ;  $p = 0.404$ ). Monthly household income showed good knowledge rates of 79 (44.9%) among respondents earning < ₦70,000 compared to 36 (46.8%) among those earning ₦70,000–210,000 and 6 (31.6%) among those earning > ₦210,000. The association between income level and knowledge was not statistically significant ( $\chi^2 = 1.456$ ;  $p = 0.484$ ).

**Table 8: Obstetrics characteristics and respondents' knowledge of postpartum depression**

Variable	Knowledge		Test Statistic	p – value
	Poor (n = 151) Freq (%)	Good (n = 121) Freq (%)		
<b>Parity</b>				
< 2	47 (50.0)	47 (50.0)	1.776*	0.184
≥ 2	104 (58.4)	74 (41.6)		
<b>Postpartum Phase (weeks)</b>				
< 2	22 (53.7)	19 (46.3)	0.071*	0.795
≥ 2	129 (55.8)	102 (44.2)		
<b>Place of Delivery</b>				
Healthcare facility	148 (55.2)	120 (44.8)	0.623**	0.631
Others	3 (75.0)	1 (25.0)		
<b>Type of Delivery</b>				
Vaginal birth	109 (56.2)	85 (43.8)	0.121*	0.725
Caesarean section	42 (53.8)	36 (46.2)		

Chi-square\* Fisher's Exact\*\* Others: Home, Traditional Birth Attendant

Respondents with parity of less than two 47 (50.0%) had good knowledge compared to those with parity of two or more 74 (41.6%). The association between parity and level of knowledge was not statistically significant ( $\chi^2 = 1.776$ ;  $p = 0.184$ ). Respondents within two weeks postpartum 19 (46.3%) had good knowledge compared to 102 (44.2%) of those at two weeks or more. The association between duration of postpartum period and level of knowledge was not statistically significant ( $\chi^2 = 0.071$ ;  $p = 0.795$ ). A greater proportion of respondents who delivered in a healthcare facility 120 (44.8%) had good knowledge compared to 1 (25.0%) who delivered in other locations. The association between place of delivery and level of knowledge was not statistically significant (Fisher's Exact = 0.623;  $p = 0.631$ ). For the type of delivery, respondents with vaginal delivery, 85 (43.8%), had good knowledge compared to 36 (46.2%) of

those who had Caesarean section. The association between mode of delivery and level of knowledge was not statistically significant ( $\chi^2 = 0.121$ ;  $p = 0.725$ ).

**Table 9: Predictors of knowledge towards postpartum depression amongst respondents**

Predictor	B (regression coefficient)	ODDS RATIO	95% CI for OR		p – value
			Lower	Upper	
<b>Age (in years)</b>	0.02	1.02	0.97	1.08	0.472
<b>Parity</b>					
< 2	0.58	1.78	0.99	3.19	0.054
≥ 2*		1			
<b>Postpartum phase (weeks)</b>					
< 2	0.12	1.13	0.56	2.28	0.739
≥ 2*		1			
<b>Mode of delivery</b>					
Caesarean section	-0.10	0.91	0.51	1.62	0.747
Vaginal birth*		1			
<b>Place of delivery</b>					
Others	-1.01	0.36	0.03	3.85	0.401
Healthcare facility*		1			
<b>Partner employment status</b>					
Unemployed	-0.42	0.65	0.39	1.10	0.111
Employed*		1			

CI = Confidence interval; OR = Odd ratio; \*reference category

There was no statistically significant association between age and PPD (OR = 1.02, p = 0.472). Regarding Parity, respondents with fewer than two children (< 2) had 1.78 times the odds of experiencing PPD compared to those with two or more children (≥ 2); however, this association was not statistically significant (p = 0.054).

Respondents in the early postpartum phase (< 2 weeks) showed slightly higher odds (OR = 1.13, 95% CI: 0.56–2.28) than those in the late phase, but this was not statistically significant (p = 0.739). The mode of delivery (OR = 0.91, p = 0.747) and place of delivery (OR = 0.36, p = 0.401) were also not significant predictors. Unemployed partner was associated with lower odds of PPD

(OR = 0.65, 95% CI: 0.39–1.10) compared to having an employed partner, but this relationship was not statistically significant ( $p = 0.111$ ).

**SECTION C**  
**ATTITUDE TOWARDS POSTPARTUM DEPRESSION AMONG RESPONDENTS**

**Table 10: Respondents' attitude towards postpartum depression**

<b>Variable</b>	<b>SA Freq (%)</b>	<b>A Freq (%)</b>	<b>D Freq (%)</b>	<b>SD Freq (%)</b>
PPD is a normal part of motherhood	6 (2.2)	37 (13.6)	222 (81.6)	7 (2.6)
A woman with PPD should be ashamed	0 (0.0)	1 (0.4)	264 (97.1)	7 (2.6)
Seeking help is a sign of weakness	4 (1.5)	4 (1.5)	259 (95.2)	5 (1.8)
Mental health services in maternal care	262 (96.3)	8 (2.9)	2 (0.7)	0 (0.0)
Support for friend/family with PPD	259 (95.2)	8 (2.9)	5 (1.8)	0 (0.0)

n=272 SA: Strongly agree A: Agree D: Disagree SD: Strongly disagree

A total of 222 (81.6%) respondents disagreed that PPD is a normal part of motherhood, while 37 (13.6%) agreed, 7 (2.6%) strongly disagreed, and 6 (2.2%) strongly agreed. A greater majority of the respondents, 264 (97.1%) disagreed that a woman with PPD should feel ashamed, with 7 (2.6%) strongly disagreeing; only 1 (0.4%) respondent agreed with this statement. Most respondents did not view help-seeking as a sign of weakness, with 259 (95.2%) disagreeing and 5 (1.8%) strongly disagreeing, while 4 (1.5%) agreed and 4 (1.5%) strongly agreed. For integration of mental health services into maternal care, 262 (96.3%) respondents strongly agreed and 8 (2.9%) agreed, while only 2 (0.7%) disagreed. Similarly, 259 (95.2%) respondents strongly agreed that they would support a friend or family member with PPD, 8 (2.9%) agreed, while 5 (1.8%) disagreed.

**Table 11: Overall respondents' attitude towards postpartum depression**

<b>Attitude Category</b>	<b>Frequency (n=272)</b>	<b>Percent</b>
<b>Positive Attitude</b>	<b>212</b>	<b>77.9</b>
<b>Negative Attitude</b>	<b>60</b>	<b>22.1</b>

Overall, 212 (77.9%) respondents demonstrated a positive attitude toward postpartum depression, while 60 (22.1%) had a negative attitude towards PPD.

**Table 12: Sociodemographic characteristics and respondents' attitude towards postpartum depression**

Variable	Attitude		Test Statistic	p-value
	Negative (n = 60) Freq (%)	Positive (n = 212) Freq (%)		
<b>Age Group (years)</b>				
< 35	43 (21.3)	159 (78.7)	0.277*	0.618
≥ 35	17 (24.3)	53 (75.7)		
<b>Marital Status</b>				
Not married	0 (0.0)	4 (100.0)	1.153**	0.579
Married	60 (22.4)	208 (77.6)		
<b>Religion</b>				
Christian	60 (22.3)	209 (77.7)	0.864**	>0.999
Islam	0 (0.0)	3 (100.0)		
<b>Ethnicity</b>				
Edo	36 (23.7)	116 (76.3)	0.539*	0.556
Non-Edo	24 (20.0)	96 (80.0)		
<b>Education Level</b>				
Non-tertiary	20 (21.3)	74 (78.7)	0.051*	0.879
Tertiary	40 (22.5)	138 (77.5)		

Chi-square\* Fisher's Exact\*\*

Among respondents aged < 35 years, 43 (21.3%) exhibited a negative attitude compared to 17 (24.3%) among those aged ≥ 35 years. The association between age group and attitude towards PPD was not statistically significant ( $\chi^2 = 0.277$ ;  $p = 0.618$ ). Regarding married respondents, 60 (22.4%) had a negative attitude compared to none among unmarried respondents. The association between marital status and attitude towards PPD was not statistically significant (Fisher's Exact = 1.153;  $p = 0.579$ ). Of respondents who identified as Christians, 60 (22.3%) demonstrated a negative attitude compared to none among Muslim respondents. The association between religion and attitude towards PPD was not statistically significant (Fisher's Exact =

0.864;  $p > 0.999$ ). Among respondents of Edo ethnicity, 36 (23.7%) recorded a negative attitude compared to 24 (20.0%) among non-Edo respondents. The association between ethnicity and attitude towards PPD was not statistically significant ( $\chi^2 = 0.539$ ;  $p = 0.556$ ). For educational status, 20 (21.3%) of respondents with non-tertiary education had a negative attitude compared to 40 (22.5%) among those with tertiary education. The association between educational status and attitude towards PPD was not statistically significant ( $\chi^2 = 0.051$ ;  $p = 0.879$ ).

**Table 13: Socioeconomic characteristics and respondents' attitude towards postpartum depression**

Variable	Attitude		Test Statistic	p-value
	Negative (n = 60) Freq (%)	Positive (n = 212) Freq (%)		
<b>Employment Status</b>				
Unemployed	41 (22.0)	145 (78.0)	0.000*	>0.999
Employed	19 (22.1)	67 (77.9)		
<b>Occupational Skill</b>				
Skill level 0	0 (0.0)	13 (100.0)	7.799**	0.079
Skill level 1	5 (41.7)	7 (58.3)		
Skill level 2	41 (21.9)	146 (78.1)		
Skill level 3	12 (21.8)	43 (78.2)		
Skill level 4	2 (40.0)	3 (60.0)		
<b>Spouse Education</b>				
Non-tertiary	16 (19.3)	67 (80.7)	0.541*	0.527
Tertiary	44 (23.3)	145 (76.7)		
<b>Spouse Employment</b>				
Unemployed	30 (21.7)	108 (78.3)	0.023*	>0.999
Employed	30 (22.4)	104 (77.6)		
<b>Household Income (₦)</b>				
< 70,000	37 (21.0)	139 (79.0)	0.552**	0.744
70,000 – 210,000	18 (23.4)	59 (76.6)		
> 210,000	5 (26.3)	14 (73.7)		

Chi-square\* Fisher's Exact\*\*

Respondents who were unemployed, 41 (22.0%), demonstrated a negative attitude towards PPD compared to 19 (22.1%) among those who were employed. The association between employment status and attitude towards PPD was not statistically significant ( $\chi^2 = 0.000$ ;  $p > 0.999$ ). At occupational skill level 0, all 13 (100.0%) respondents reported a positive attitude, while skill level 1 (41.7%) and skill level 4 (40.0%) recorded the highest proportions of negative attitudes. The variation in occupational skill level and attitude was not statistically significant (Fisher's

Exact = 7.799;  $p = 0.079$ ). Respondents whose spouses had non-tertiary education, 16 (19.3%), had a negative attitude compared to 44 (23.3%) among those whose spouses had tertiary education. The association between spouse's educational status and attitude was not statistically significant ( $\chi^2 = 0.541$ ;  $p = 0.527$ ). Respondents with unemployed spouses, 30 (21.7%), exhibited a negative attitude compared to 30 (22.4%) among those with employed spouses. The association between spouse's employment status and attitude was not statistically significant ( $\chi^2 = 0.023$ ;  $p > 0.999$ ). Household income below ₦70,000 showed 37 (21.0%) respondents with a negative attitude compared to 26.3% among those earning above ₦210,000. The association between household income and attitude towards PPD was not statistically significant (Fisher's Exact = 0.552;  $p = 0.744$ ).

**Table 14: Obstetrics characteristics and respondents' attitude towards postpartum depression**

Variable	Attitude		Test Statistic	p-value
	Negative (n = 60) Freq (%)	Positive (n = 212) Freq (%)		
<b>Parity</b>				
< 2	25 (26.6)	69 (73.4)	1.721*	0.219
≥ 2	35 (19.7)	143 (80.3)		
<b>Postpartum Phase</b>				
< 2 weeks	9 (22.0)	32 (78.0)	0.000*	>0.999
≥ 2 weeks	51 (22.1)	180 (77.9)		
<b>Place of Delivery</b>				
Others	2 (50.0)	2 (50.0)	1.844**	0.212
Healthcare facility	58 (21.6)	210 (78.4)		
<b>Type of Delivery</b>				
Caesarean section	24 (30.8)	54 (69.2)	4.832*	<b>0.035</b>
Vaginal birth	36 (18.6)	158 (81.4)		

Chi-square\* Fisher's Exact\*\*

Respondents with parity of less than two 25 (26.6%), recorded a negative attitude towards PPD compared to 35 (19.7%) among those with parity of two or more. The association between parity and attitude towards PPD was not statistically significant ( $\chi^2 = 1.721$ ;  $p = 0.219$ ). Among the respondents in the postpartum phase of less than two weeks, 9 (22.0%) had a negative attitude compared to 51 (22.1%) among those at two weeks or more. The association between duration of postpartum period and attitude was not statistically significant ( $\chi^2 = 0.000$ ;  $p > 0.999$ ). Of the respondents who delivered in other locations, 2 (50.0%) exhibited a negative attitude compared to 58 (21.6%) among those who delivered in a healthcare facility. The association between place of delivery and attitude was not statistically significant (Fisher's Exact = 1.844;  $p = 0.212$ ). Respondents who had a Caesarean section, 24 (30.8%), recorded a negative attitude compared to

36 (18.6%) among those with vaginal delivery. The association between mode of delivery and attitude towards PPD was statistically significant ( $\chi^2 = 4.832$ ;  $p = 0.035$ ).

**Table 15: Respondents' Knowledge Level and Attitude Toward Postpartum Depression**

<b>Variable</b>	<b>Negative (n = 60) Freq (%)</b>	<b>Positive (n = 212) Freq (%)</b>	<b>Test Statistic</b>	<b>p-value</b>
<b>Knowledge Level</b>				
Poor	36 (23.8)	115 (76.2)		
Good	24 (19.8)	97 (80.2)	0.631*	0.464
Chi-square*				

Respondents with poor knowledge of postpartum depression had 36 (23.8%) exhibiting a negative attitude compared to 24 (19.8%) among those with good knowledge. The association between knowledge level and attitude toward postpartum depression was not statistically significant ( $\chi^2 = 0.631$ ;  $p = 0.464$ ). Although a slightly higher proportion of negative attitudes was observed among those with poor knowledge, the relationship did not reach statistical significance.

**Table 16: Predictor of attitude towards postpartum depression among respondents**

Predictors	B	Odds Ratio	95% CI		p-value
			Lower	Upper	
<b>Age in years</b>	0.03	1.03	0.95	1.12	0.473
<b>Postpartum phase</b>					
< 2 weeks	-0.42	0.66	0.25	1.75	0.399
≥ 2 weeks*	—	1	—	—	—
<b>Type of delivery</b>					
Caesarean section	-1.10	0.33	0.15	0.72	<b>0.005</b>
Vaginal birth*	—	1	—	—	—
<b>Place of delivery</b>					
Others	-1.29	0.28	0.01	5.44	0.397
Healthcare facility*	—	1	—	—	—
<b>Parity</b>					
< 2	-0.74	0.48	0.21	1.09	0.080
≥ 2*	—	1	—	—	—
<b>PPD knowledge level</b>					
Poor Knowledge	0.29	1.34	0.64	2.80	0.432
Good Knowledge*	—	1	—	—	—

CI = Confidence interval; OR = Odd ratio; \*reference category

For every one-year increase in age, there was a 0.03 increase in the odds of having a positive attitude toward PPD (OR = 1.03; 95% CI: 0.95–1.12), although this was not statistically significant (p = 0.473). Regarding the postpartum phase, respondents who were less than two weeks postpartum had 0.34 lower odds of holding a positive attitude (OR = 0.66; 95% CI: 0.25–1.75) compared to those at two weeks or more, a finding that was not statistically significant (p = 0.399). Type of delivery was the only statistically significant predictor (p = 0.005) as respondents who had a Caesarean section had 0.67 lower odds of having a positive attitude towards PPD (OR = 0.33; 95% CI: 0.15–0.72) compared to those who had a vaginal delivery.

Place of delivery was not statistically significant ( $p = 0.397$ ), with respondents who delivered in other locations having 0.28 times the odds of a positive attitude (95% CI: 0.01–5.44) compared to those who delivered in healthcare facilities. Monthly income was not a statistically significant predictor of attitude (OR = 1.00; 95% CI: 1.00–1.00;  $p = 0.411$ ). Knowledge level was also not statistically significant ( $p = 0.432$ ), as respondents with poor knowledge had 1.34 times the odds of a positive attitude (95% CI: 0.64–2.80) compared to those with good knowledge. Parity showed a trend toward significance, where respondents with parity of less than two had 0.52 lower odds of having a positive attitude (OR = 0.48; 95% CI: 0.21–1.09) compared to those with parity of two or more, although this was not statistically significant ( $p = 0.080$ ).

**SECTION D**  
**PREVALENCE AND FACTORS OF POSTPARTUM DEPRESSION AMONG**  
**RESPONDENTS**

**Table 17: Edinburgh Postnatal Depression Scale (EPDS) scoring among respondents**

<b>Domains</b>	<b>Yes, often times Freq (%)</b>	<b>Yes, sometimes Freq (%)</b>	<b>Very few times Freq (%)</b>	<b>Not at all Freq (%)</b>
<b>Positive Affect</b>				
Ability to laugh and see the funny side of things	424 (83.1)	79 (15.5)	7 (1.4)	0 (0.0)
Looking forward with enjoyment to things	425 (83.3)	76 (14.9)	8 (1.6)	1 (0.2)
<b>Anxiety and Self-Blame</b>				
Unnecessary self-blame when things went wrong	24 (4.7)	60 (11.8)	54 (10.6)	372 (72.9)
Anxious or worried for no good reason	35 (6.9)	34 (6.7)	103 (20.2)	338 (66.3)
Feeling scared or panicky for no very good reason	23 (4.5)	44 (8.6)	113 (22.2)	330 (64.7)
<b>Depressive Symptoms and Functioning</b>				
Things getting on top of me	7 (1.4)	19 (3.7)	69 (13.5)	415 (81.4)
Difficulty sleeping due to unhappiness	15 (2.9)	30 (5.9)	48 (9.4)	417 (81.8)
Feeling sad or miserable	7 (1.4)	35 (6.9)	61 (12.0)	407 (79.8)
Unhappiness leading to crying	5 (1.0)	10 (2.0)	35 (6.9)	460 (90.2)
<b>Suicidal Ideation</b>				
Thoughts of self-harm	2 (0.4)	3 (0.6)	9 (1.8)	496 (97.3)

n=510

The ability to laugh and see the funny side of things was reported as occurring often by 424 (83.1%) respondents, while 79 (15.5%) experienced this sometimes, and none reported an inability to do so. Looking forward with enjoyment to things was reported as occurring often by

425 (83.3%) respondents, whereas 1 (0.2%) respondent reported not at all experiencing this state. Unnecessary self-blame when things went wrong was reported as not at all a factor for 372 (72.9%) respondents, although 24 (4.7%) respondents indicated this happened often. Anxious or worried for no good reason was absent for 338 (66.3%) respondents, while 35 (6.9%) respondents felt this way often. Feeling scared or panicky for no very good reason was not at all experienced by 330 (64.7%) respondents, though 23 (4.5%) reported this occurred often.

Things getting on top of me was not a concern for 415 (81.4%) participants, but 7 (1.4%) respondents reported this happened often. Difficulty sleeping due to unhappiness was not at all reported by 417 (81.8%) respondents, while 15 (2.9%) respondents experienced this often. Feeling sad or miserable was absent in 407 (79.8%) respondents, whereas 7 (1.4%) respondents felt this often. Unhappiness leading to crying was not an issue for 460 (90.2%) respondents, though 5 (1.0%) respondents reported this occurred often. Thoughts of self-harm had not at all occurred to 496 (97.3%) respondents, while 2 (0.4%) respondents reported such thoughts often.

**Table 18: Prevalence of postpartum depression among respondents**

<b>Variable</b>	<b>Frequency (n=510)</b>	<b>Percent</b>
Positive	36	7.1
Negative	474	92.9

Out of the 510 participants assessed, the majority of the respondents 474 (92.9%), screened negative for PPD, while 36 (7.1%) screened positive for PPD.

**Table 19: Sociodemographic characteristics and prevalence of PPD using the EPDS scoring among respondents**

Variable	Postpartum Depression		Test Statistic	p – value
	Negative (n = 474) Freq (%)	Positive (n = 36) Freq (%)		
<b>Age Group (years)</b>				
< 35	340 (91.2)	33 (8.8)	6.771*	<b>0.009</b>
≥ 35	134 (97.8)	3 (2.2)		
<b>Marital Status</b>				
Not married	14 (87.5)	2 (12.5)	0.754**	0.314
Married	460 (93.1)	34 (6.9)		
<b>Marriage Type</b>				
Monogamous	458 (93.3)	33 (6.7)	3.302**	0.193
Polygamous	2 (66.7)	1 (33.3)		
<b>Ethnicity</b>				
Edo	251 (92.6)	20 (7.4)	0.097*	0.763
Non-Edo	223 (93.3)	16 (6.7)		
<b>Religion</b>				
Christian	461 (92.8)	36 (7.2)	1.011**	0.613
Islam	13 (100.0)	0 (0.0)		

Chi-square\* Fisher's Exact\*\*

Among respondents aged less than 35 years, 33 (8.8%) screened positive for PPD compared to 3 (2.2%) among those aged 35 years or older. The association between age and PPD was statistically significant ( $\chi^2 = 6.771$ ;  $p = 0.009$ ). Of the married respondents, 34 (6.9%) screened positive for PPD compared to 2 (12.5%) among those who were not married. The association between marital status and PPD was not statistically significant (Fisher's Exact = 0.754;  $p = 0.314$ ). Regarding monogamous respondents, 33 (6.7%) screened positive for PPD compared to 1 (33.3%) among polygamous respondents. The association between type of marriage and PPD was not statistically significant (Fisher's Exact = 3.302;  $p = 0.193$ ). Among Edo respondents, 20

(7.4%) screened positive for PPD compared to 16 (6.7%) among non-Edo respondents. The association between ethnicity and PPD was not statistically significant ( $\chi^2 = 0.097$ ;  $p = 0.763$ ). Of Christian respondents, 36 (7.2%) screened positive for PPD compared to 0 (0.0%) among Muslim respondents. The association between religious affiliation and PPD was not statistically significant (Fisher's Exact = 1.011;  $p = 0.613$ ).

**Table 20: Socioeconomic characteristics and prevalence of PPD using the EPDS scoring among respondents**

Variable	Postpartum depression		Test Statistic	p – value
	Negative (n = 474) Freq (%)	Positive (n = 36) Freq (%)		
<b>Educational Status</b>				
Non-tertiary	243 (92.7)	19 (7.3)	0.032*	0.861
Tertiary	231 (93.1)	17 (6.9)		
<b>Employment Status</b>				
Employed	117 (93.6)	8 (6.4)	0.114*	0.741
Not employed	357 (92.7)	28 (7.3)		
<b>Occupational Skill Level</b>				
Skill level 0	27 (84.4)	5 (15.6)	4.993*	0.288
Skill level 1	23 (95.8)	1 (4.2)		
Skill level 2	342 (93.2)	25 (6.8)		
Skill level 3	76 (95.0)	4 (5.0)		
Skill level 4	6 (85.7)	1 (14.3)		
<b>Partner Educational Status</b>				
Non-tertiary	202 (94.4)	12 (5.6)	1.188*	0.277
Tertiary	272 (91.9)	24 (8.1)		
<b>Partner Employment Status</b>				
Employed	192 (91.9)	17 (8.1)	0.625*	0.430
Unemployed	282 (93.7)	19 (6.3)		
<b>Partner Occupation Skill Level</b>				
Skill level 1	53 (86.9)	8 (13.1)	4.029*	0.259
Skill level 2	244 (93.5)	17 (6.5)		
Skill level 3	165 (94.3)	10 (5.7)		
Skill level 4	12 (92.3)	1 (7.7)		
<b>Household Income (₦)</b>				
< 70,000	345 (94.8)	19 (5.2)	6.601*	<b>0.037</b>
70,000 – 210,000	104 (88.1)	14 (11.9)		
> 210,000	25 (89.3)	3 (10.7)		
<b>Someone to talk to</b>				
Yes	447 (92.7)	35 (7.3)	0.550**	0.711
No	27 (96.4)	1 (3.6)		
<b>Primary support source</b>				
Spouse/partner	456 (93.3)	33 (6.7)	1.74**	0.179
Others	18 (85.7)	3 (14.3)		

Chi-square\* Fisher's Exact\*\* Others: Parents, Friends, Religious groups, No one

Regarding respondents with non-tertiary education, 19 (7.3%) screened positive for PPD compared to 17 (6.9%) among those with tertiary education. The association between educational status and PPD was not statistically significant ( $\chi^2 = 0.032$ ;  $p = 0.861$ ). Among respondents who were employed, 8 (6.4%) screened positive for PPD compared to 28 (7.3%) among those who were unemployed. The association between employment status and PPD was not statistically significant ( $\chi^2 = 0.114$ ;  $p = 0.741$ ). For occupational skill levels, PPD positive rates ranged from 1 (4.2%) to 5 (15.6%). The association between occupational skill level and PPD was not statistically significant ( $\chi^2 = 4.993$ ;  $p = 0.288$ ). Of respondents with non-tertiary educated partners, 12 (5.6%) screened positive for PPD compared to 24 (8.1%) among those whose partners had tertiary education. The association between partner's educational status and PPD was not statistically significant ( $\chi^2 = 1.188$ ;  $p = 0.277$ ). Regarding respondents with employed partners, 17 (8.1%) screened positive for PPD compared to 19 (6.3%) among those with unemployed partners. The association between partner's employment status and PPD was not statistically significant ( $\chi^2 = 0.625$ ;  $p = 0.430$ ). For partner occupational skill levels, PPD positive rates ranged from 10 (5.7%) to 8 (13.1%). The association between partner skill level and PPD was not statistically significant ( $\chi^2 = 4.029$ ;  $p = 0.259$ ). Regarding monthly household income, PPD prevalence differed significantly across income groups with 19 (5.2%) screened positive among those earning  $< \text{₦}70,000$ , 14 (11.9%) among those earning  $\text{₦}70,000\text{--}\text{₦}210,000$ , and 3 (10.7%) among those earning  $> \text{₦}210,000$ . The association between monthly household income and PPD was statistically significant ( $\chi^2 = 6.601$ ;  $p = 0.037$ ). Among respondents with emotional support, 35 (7.3%) screened positive for PPD compared to 1 (3.6%) among those without such support. The association was not statistically significant (Fisher's Exact = 0.550;  $p = 0.711$ ). For the primary source of support, 33 (6.7%) of those supported mainly by a spouse or

partner screened positive for PPD compared to 3 (14.3%) among those relying on other sources. The association was not statistically significant (Fisher's Exact = 1.74;  $p = 0.179$ ).

**Table 21: Obstetrics characteristics and prevalence of postpartum depression using the EPDS scoring among respondents**

Variable	Postpartum Depression		Test Statistic	p – value
	Negative (n = 474) Freq (%)	Positive (n = 36) Freq (%)		
<b>Parity</b>				
< 2	151 (89.3)	18 (10.7)	4.970*	<b>0.026</b>
≥ 2	323 (94.7)	18 (5.3)		
<b>Postpartum Phase (weeks)</b>				
< 2	98 (94.2)	6 (5.8)	0.333*	0.565
≥ 2	376 (92.6)	30 (7.4)		
<b>Place of Delivery</b>				
Healthcare facility	455 (93.2)	33 (6.8)	1.527**	0.197
Others	19 (86.4)	3 (13.6)		
<b>Type of Delivery</b>				
Vaginal birth	350 (92.8)	27 (7.2)	0.021*	0.879
Caesarean section	124 (93.2)	9 (6.8)		
<b>Pregnancy Planned</b>				
Yes	140 (91.5)	13 (8.5)	0.690*	0.451
No	334 (93.6)	23 (6.4)		
<b>Complications During Pregnancy</b>				
Yes	38 (86.4)	6 (13.6)	3.176*	0.112
No	436 (93.6)	30 (6.4)		
<b>History of Substance Use</b>				
Yes	69 (83.1)	14 (16.9)	14.543*	<b>0.001</b>
No	405 (94.8)	22 (5.2)		
<b>Family History of Psychiatric Conditions</b>				
Yes	28 (90.3)	3 (9.7)	0.345*	0.715
No	446 (93.1)	33 (6.9)		

Chi-square\* Fisher's Exact\*\* Others: Home, Traditional Birth Attendant

Among respondents with a parity of less than two, 18 (10.7%) screened positive for PPD compared to 18 (5.3%) among those with a parity of two or more. The association between parity and PPD was statistically significant ( $\chi^2 = 4.970$ ;  $p = 0.026$ ). For the duration of the postpartum phase, 6 (5.8%) respondents within two weeks postpartum screened positive for PPD compared to 30 (7.4%) among those at two weeks or more. The association between postpartum duration and PPD was not statistically significant ( $\chi^2 = 0.333$ ;  $p = 0.565$ ). Among respondents who delivered in a healthcare facility, 33 (6.8%) screened positive for PPD compared to 3 (13.6%) among those who delivered in other locations. The association between place of delivery and PPD was not statistically significant (Fisher's Exact = 1.527;  $p = 0.197$ ). Respondents with vaginal delivery had 27 (7.2%) screened positive for PPD compared to 9 (6.8%) among those who had caesarean section. The association between mode of delivery and PPD was not statistically significant ( $\chi^2 = 0.021$ ;  $p = 0.879$ ). Among respondents with a planned pregnancy, 13 (8.5%) screened positive for PPD compared to 23 (6.4%) of those with an unplanned pregnancy. There was no statistically significant association between pregnancy planning and PPD ( $\chi^2 = 0.69$ ;  $p = 0.451$ ). Regarding respondents who had complications during pregnancy, 6 (13.6%) screened positive for PPD compared to those with no complications during pregnancy, 30 (6.4%). The association between pregnancy complications and PPD was not statistically significant ( $\chi^2 = 3.176$ ;  $p = 0.112$ ). Among respondents with a personal history of substance use, 14 (16.9%) screened positive for PPD compared to 22 (5.2%) among those without a history. The association between personal history of substance use and PPD was statistically significant ( $\chi^2 = 14.543$ ;  $p = 0.001$ ).

Concerning respondents with a family history of psychiatric illness, 3 (9.7%) screened positive for PPD compared to 33 (6.9%) among those with no family history. The association between

family history of psychiatric illness and PPD was not statistically significant ( $\chi^2 = 0.345$ ;  $p = 0.715$ ).

**Table 22: Predictors of postpartum depression among respondents**

Predictors	B (regression coefficient)	ODDS RATIO	95% CI for OR		p – value
			Lower	Upper	
<b>Age (in years)</b>	-0.09	0.92	0.83	1.01	0.090
<b>Parity</b>					
< 2	0.82	2.26	0.83	6.18	0.112
≥ 2*		1			
<b>Postpartum phase (weeks)</b>					
< 2	-0.49	0.61	0.15	2.48	0.492
≥ 2*		1			
<b>Mode of delivery</b>					
Caesarean section	-0.68	0.51	0.16	1.61	0.248
Vaginal birth*		1			
<b>Place of delivery</b>					
Others	0.71	2.03	0.14	28.64	0.600
Healthcare facility*		1			
<b>Household income</b>	0.16	1.17	0.57	2.41	0.661
<b>Overall Knowledge Level</b>					
Good knowledge	0.24	1.27	0.50	3.20	0.619
Poor knowledge*		1			
<b>Overall Attitude level</b>					
Positive attitude	-1.32	0.27	0.10	0.70	0.007
Negative attitude*		1			
<b>Someone to talk to</b>					
Yes	0.08	1.08	0.09	13.05	0.952
No*		1			
<b>Primary support source</b>					
Spouse/partner	-0.66	0.52	0.07	3.62	0.505
Others*		1			
<b>Partner employment status</b>					
Unemployed	-0.01	0.99	0.39	2.52	0.978
Employed*		1			
<b>Planned pregnancy</b>					
Yes	0.14	1.15	0.42	3.17	0.789
No*		1			
<b>Complications experienced</b>					
Yes	0.49	1.64	0.44	6.06	0.461
No*		1			
<b>History of Substance Use</b>					
Yes	0.34	1.40	0.49	4.04	0.532
No*		1			
<b>Family history of psychiatric conditions</b>					

Yes	0.11	1.12	0.20	6.19	0.898
No*		1			

CI = Confidence interval; OR = Odd ratio; \*reference category

A multivariable binary logistic regression analysis was performed to determine the independent predictors of postpartum depression among the respondents. Age showed a trend toward significance ( $p = 0.090$ ), with the results suggesting that for every one-year increase in age, the odds of testing positive for postpartum depression decreased by 8.1% (OR = 0.92; 95% CI: 0.83–1.01). Parity did not emerge as a statistically significant predictor ( $p = 0.112$ ), although respondents with low parity ( $< 2$ ) demonstrated over twice the odds of having postpartum depression compared to those with high parity (OR = 2.26; 95% CI: 0.83–6.18). The postpartum phase (OR = 0.61; 95% CI: 0.15–2.48,  $p = 0.492$ ), mode of delivery (OR = 0.51; 95% CI: 0.16–1.61,  $p = 0.248$ ), and place of delivery (OR = 2.03; 95% CI: 0.14–28.64,  $p = 0.600$ ) were all found to have no significant independent association with the condition.

Household income (OR = 1.17; 95% CI: 0.57–2.41,  $p = 0.661$ ) and overall knowledge level (OR = 1.27; 95% CI: 0.50–3.20,  $p = 0.619$ ) were likewise non-significant in the final model. The overall attitude level was identified as the only statistically significant predictor of postpartum depression ( $p = 0.007$ ). Respondents with a positive attitude toward the condition were 73.3% less likely to test positive for postpartum depression compared to those with a negative attitude (OR = 0.27; 95% CI: 0.10–0.70). Finally, psychosocial variables, including having someone to talk to (OR = 1.08; 95% CI: 0.09–13.05,  $p = 0.952$ ), the primary source of support (OR = 0.52; 95% CI: 0.07–3.62,  $p = 0.505$ ), partner employment status (OR = 0.99; 95% CI: 0.39–2.52,  $p = 0.978$ ), pregnancy planning (OR = 1.15; 95% CI: 0.42–3.17,  $p = 0.789$ ), pregnancy complications (OR = 1.64; 95% CI: 0.44–6.06,  $p = 0.461$ ), personal history of psychiatric conditions (OR = 1.40; 95% CI: 0.49–4.04,  $p = 0.532$ ), and family history of psychiatric

conditions (OR = 1.12; 95% CI: 0.20–6.19,  $p = 0.898$ ) did not independently predict the prevalence of postpartum depression among the study population

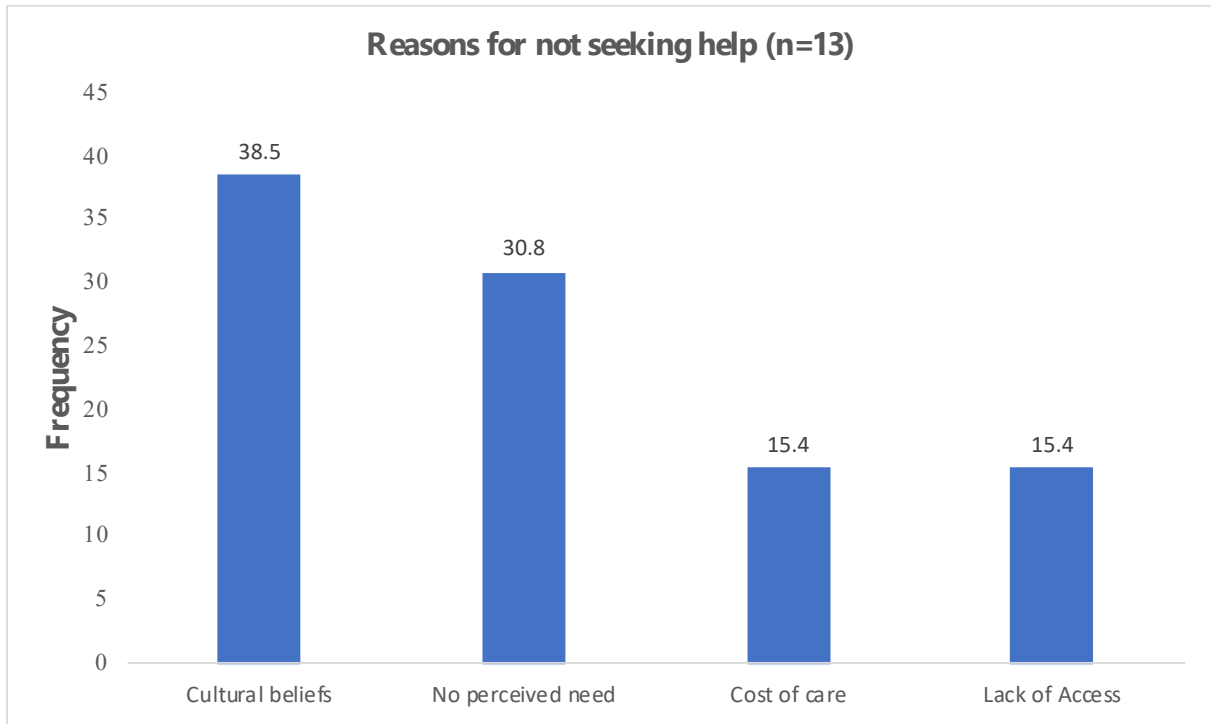
**SECTION E**  
**BARRIERS AND FACILITATORS TO MENTAL HEALTH OUTCOME FOR**  
**POSTPARTUM DEPRESSION AMONG RESPONDENTS**

**Table 23: Role of social support among respondents**

<b>Variable</b>	<b>Frequency (n=510)</b>	<b>Percent</b>
<b>Someone to talk to about feelings</b>		
Yes	482	94.5
No	28	5.5
<b>Who provides most support</b>		
Spouse/partner	489	95.9
Parents	17	3.3
Friends	2	0.4
No one	1	0.2
Religious groups	1	0.2

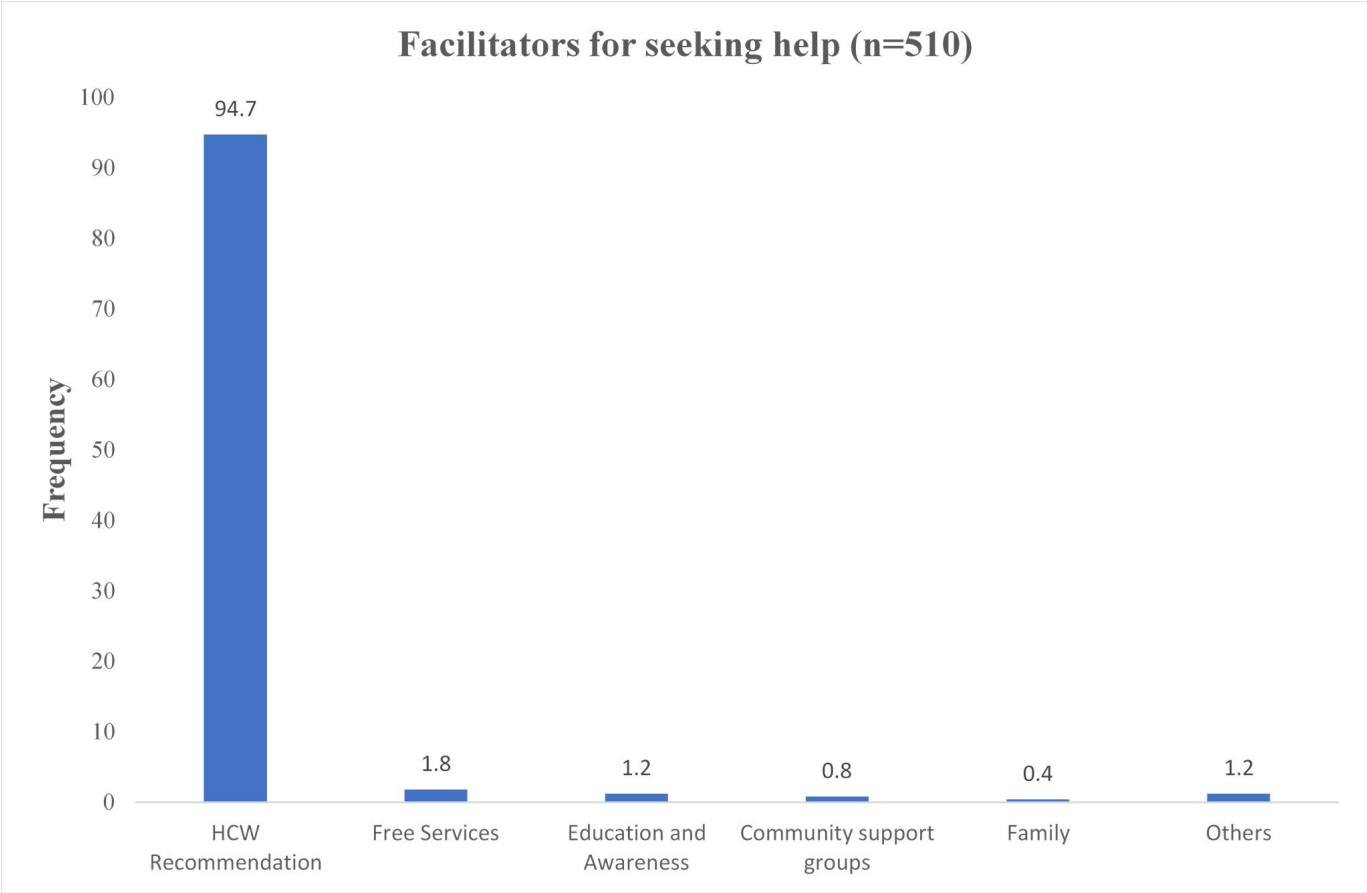
The availability of someone to talk to about feelings was confirmed by 482 (94.5%) respondents, whereas 28 (5.5%) respondents reported they did not have such a confidant.

The spouse or partner was identified as providing the most support by 489 (95.9%) respondents. Other sources of primary support included parents for 17 (3.3%) respondents and friends for 2 (0.4%) respondents, with religious groups and no one each reported by 1 (0.2%) respondent.



**Figure 1: Reasons for not seeking help**

The majority of respondents, 497 (97.4%), reported having sought help for emotional issues, while 13 (2.6%) had not. Among the respondents who did not seek assistance, cultural beliefs 5 (38.5%) and a lack of perceived need 4 (30.8%) were the primary deterrents, followed by the cost of care 2 (15.4%) and lack of access 2 (15.4%).



**Figure 2: Facilitators for seeking help**

Healthcare Worker (HCW) recommendations served as the most prominent facilitator for seeking help, reported by 483 (94.7%) respondents. Additional facilitators included the provision of free services 9 (1.8%), education and awareness 6 (1.2%), and community support groups 4 (0.8%). A smaller number of respondents identified family support 2 (0.4%), while 6 (1.2%) respondents gave no response.

## CHAPTER FIVE

### DISCUSSION

This study aimed to assess the prevalence and determinants of Postpartum Depression (PPD) with specific objectives focusing on postnatal mothers' knowledge of PPD, their attitude regarding the condition, prevalence and pattern, factors associated with PPD, investigate the role of social support in the mental health outcomes and to identify barriers and facilitators to accessing mental health care for PPD.

The sociodemographic characteristics of respondents showed that the study population was largely composed of women in their active reproductive years, with about two-thirds aged 20–34 years. This may be because women within this age group constitute the peak childbearing population and are more likely to utilize postnatal and immunization services. Almost all respondents were married, and among those married, monogamous unions were predominant, which may reflect prevailing cultural and social norms in the study setting where childbirth commonly occurs within marriage. The ethnic distribution was mainly Benin, followed by Igbo and Esan, reflecting the indigenous population structure and cosmopolitan nature of Benin City. Christianity was the dominant religion among participants, which is consistent with the religious composition of southern Nigeria. These findings are similar to a cross-sectional study conducted in 2022 in Osogbo Local Government, Osun State, Nigeria, where most respondents were within the reproductive age group, married, and Christians.<sup>38</sup>

Regarding socioeconomic characteristics, respondents demonstrated relatively high educational attainment, with almost equal proportions having secondary and tertiary education. This may be because the study was conducted in a tertiary health facility located in an urban centre, where

access to formal education is generally higher. However, despite this educational profile, about three-quarters of respondents were not formally employed, and most households earned below the lower income bracket, suggesting that many families may experience financial constraints during the postnatal period. This may be related to temporary withdrawal from work after delivery and limited employment opportunities for women. In addition, spouses generally had higher educational attainment and moderate employment levels. This may be because male partners are often the primary income earners and may have had stable employment, which may provide some degree of household financial support. These findings are in contrast to a cross-sectional study conducted in 2021 at Tubah District Hospital, North West Region, Cameroon, which reported that respondents generally had lower educational attainment, with the majority engaged in self-employment or other non-formal occupations, and had lower household income.<sup>41</sup>

The obstetric characteristics revealed that about two-thirds of respondents had between two and four children, while one-third were primiparous, indicating that most were multiparous mothers with previous childbirth experience. Most women were at least two weeks postpartum at the time of the interview, likely reflecting the routine timing of postnatal follow-up and infant immunization visits. Majority of the deliveries occurred predominantly in health facilities, especially private hospitals, with only a small minority occurring at home or with traditional birth attendants. This may reflect increasing awareness of skilled birth attendance and better access to maternity services in urban settings. Vaginal birth was the commonest mode of delivery, while about one-quarter had caesarean section, which is consistent with expected obstetric patterns where spontaneous vaginal delivery remains more frequent. About two-thirds of the pregnancies were planned, and only a small proportion reported pregnancy or delivery

complications or a family history of psychiatric illness, suggesting generally favorable reproductive and maternal health profiles among respondents. These findings are similar to a cross-sectional study conducted in 2023, in Addis Ababa, Ethiopia, which revealed that most respondents were multiparous, had planned pregnancies, delivered in health facilities, and had spontaneous vaginal births as the predominant mode of delivery and majority of the respondents reported no pregnancy or postpartum complications.<sup>52</sup>

The study revealed that more than half of the respondents had poor knowledge of PPD, with most respondents incorrectly identifying excessive happiness and over-attachment to the baby as symptoms, while other respondents correctly identified symptoms such as sadness, poor appetite, and insomnia. Respondents with tertiary education, employed partners, and lower parity showed higher proportions of good knowledge compared with those with lower education, unemployed partners, and higher parity, although these associations were not statistically significant. Respondents with lower parity were also more likely to have good knowledge of PPD, with 1.78 times the odds compared with those of higher parity. This is similar to a cross-sectional study conducted in Osogbo Local Government, Osun State, Nigeria, which revealed that slightly less than half of the respondents accurately described PPD as feeling sad and unhappy after childbirth, with some identifying symptoms such as prolonged unhappiness and persistent sadness.<sup>38</sup>

Poor knowledge of PPD may result in incorrect interpretation of symptoms and difficulty distinguishing the condition from normal postpartum experiences. This can lead to delayed identification of affected individuals and missed opportunities for early intervention. Inadequate understanding of the condition may also affect how women respond to their symptoms and the type of care they seek, potentially resulting in inappropriate or delayed management.<sup>72</sup>

Community-based outreach programmes should be implemented to improve understanding of PPD through the use of culturally appropriate communication strategies. Engagement with community leaders and religious institutions should be encouraged to disseminate accurate information about the symptoms and nature of postpartum depression, as they play a key role in influencing beliefs and perceptions within the community. In addition, the use of mass media and local communication channels can further support the correction of misconceptions and promote better recognition of the condition among women and their families.

This study found that slightly more than three-quarters of respondents demonstrated a positive attitude towards PPD. This may be attributed to the high level of social support reported among respondents, particularly from spouses or partners, which may foster acceptance and supportive attitudes towards mental health conditions. Respondents who had vaginal delivery showed higher proportions of positive attitude compared with those who had caesarean section. Mode of delivery was the only significant independent predictor of attitude, with respondents who had a caesarean section being less likely to demonstrate a positive attitude towards PPD, with 0.33 times the odds compared with those who had vaginal delivery. This may be because women who undergo caesarean section often experience a more physically and emotionally demanding recovery, which may influence their postpartum experiences and reduce openness to acknowledging or seeking help for PPD. This is in contrast with a descriptive cross-sectional study conducted in 2021 in Southwest Nigeria among 309 postnatal mothers which reported that less than one-fifth of respondents demonstrated a good attitude towards PPD.<sup>37</sup>

Positive attitudes towards PPD contribute to reduced stigma, early recognition of symptoms, improved help-seeking behaviour, as well as increased utilization of mental health services, which can lead to improved maternal wellbeing, enhanced mother–infant bonding, better child

development outcomes and improved family functioning.<sup>73</sup> There is a need for healthcare providers to sustain and further strengthen their understanding of PPD during antenatal and postnatal care, with emphasis on reinforcing the already existing positive attitudes towards PPD through routine mental health discussions, to promote early help-seeking behaviour and encourage willingness to discuss postpartum mental health concerns.

This study also revealed that less than one-tenth of the respondents screened positive for PPD, indicating a relatively low prevalence of the condition among the study population. This may be attributed to the high level of social support reported among respondents, particularly from spouses or partners, which may have a protective effect on maternal mental health. In addition, the generally positive attitude towards postpartum depression observed in this study may have contributed to reduced vulnerability to the condition. The majority of respondents who experienced PPD were predominantly younger mothers and mothers with lower parity. This may be because younger mothers, especially first-time or low-parity mothers, often have less maternal experience, poorer coping skills, and greater anxiety about childcare responsibilities. They may also face challenges adjusting to the physical, emotional, and social demands of motherhood. This is in contrast with a descriptive cross-sectional study conducted in Nigeria among 392 new mothers attending the postnatal and child welfare clinics at Jos University Teaching Hospital, 6–8 weeks postpartum which reported that about two-fifths of respondents screened positive for PPD.<sup>43</sup>

PPD, even at a relatively low prevalence, remains a major concern as it indicates that a proportion of mothers experience psychological distress during the postpartum period. This underscores the need for sustained attention to maternal mental health within healthcare systems.

If unrecognized or inadequately managed, it may result in reduced maternal functioning, compromised infant care, and increased demand on healthcare services.<sup>73</sup> Continuous monitoring of its occurrence is therefore essential for informing targeted interventions and reducing its overall burden on maternal and child health. There is a need to strengthen routine screening and surveillance of PPD within maternal healthcare services to ensure continuous monitoring of its occurrence. This will facilitate early identification of affected mothers and support timely intervention. In addition, integrating mental health assessment into standard postnatal care protocols will help to ensure that cases are not overlooked and will contribute to reducing the overall burden of PPD.

The findings of this study revealed that factors such as younger maternal age, lower parity and personal history of substance use contribute to the occurrence of PPD among respondents. This is similar to a cross-sectional study conducted in Tubah District Hospital, North West Region, Cameroon, in 2021 among 207 postnatal mothers, which identified gender-based violence, financial stress, having a male baby, and a family or personal history of mental illness as factors associated with postpartum depression.<sup>55</sup>

PPD can negatively affect maternal well-being, infant bonding, breastfeeding practices, and long-term child development outcomes. Early identification of high-risk women can significantly reduce the burden of untreated PPD and its consequences on families and communities.<sup>6</sup> Healthcare workers, families, and the community should provide emotional support and practical assistance to younger mothers and women with lower parity, who may have less maternal experience, poorer coping skills, and greater anxiety about childcare. Additionally, the history of substance use underscores the importance of integrating mental health screening and counselling into routine antenatal and postnatal care services to improve maternal and child outcomes.

The findings of this study revealed that the majority of respondents reported having social support, with most identifying their spouse or partner as their primary source. This indicates that support systems were generally available among the study population, particularly within the immediate family setting. However, social support did not appear to have a clear influence on the occurrence of PPD among respondents. This is in contrast with a cross-sectional study conducted in selected hospitals in Ondo State, Nigeria, in 2020 among 176 postpartum mothers attending six-week immunization clinics which reported that a majority of respondents had inadequate spousal support and that poor spousal and family relationships were associated with higher levels of PPD.<sup>60</sup>

Strong social support systems have important benefits for postnatal mothers, as emotional support from spouses and family members may enhance coping during the postpartum period. Adequate support can improve maternal well-being, encourage healthy childcare practices, and promote a stable family environment.<sup>7,8</sup> There is a need to sustain family-centred maternal support by encouraging the active involvement of spouses, close relatives, and friends in the care of postnatal mothers. Healthcare providers should educate family members and friends on the importance of providing emotional and practical support to mothers, while also promoting prompt referral for professional care when psychological distress is identified.

The findings of this study revealed that more than nine-tenths of respondents reported willingness to seek help for emotional concerns, while only a small proportion indicated that they would not seek assistance. Among those unwilling to seek help, cultural beliefs and lack of perceived need were the most commonly identified barriers, followed by the cost of care and lack of access to services. Regarding facilitators, healthcare worker recommendation emerged as the most prominent influence on help-seeking behaviour, while free services, education and

awareness, community support groups, and family support were also identified as motivating factors. This is in contrast with a cross-sectional study conducted in 2024 in Punjab, Pakistan, which reported very low professional help-seeking behaviour, as only less than one-tenth of women with high PPD symptoms accessed mental healthcare services. The study further identified social stigma, misconceptions about mental illness, and poor accessibility of services as major barriers to care.<sup>62</sup>

The presence of barriers to help-seeking for postpartum depression may limit the willingness to seek care and service utilization. Cultural beliefs and low perceived need for treatment can discourage women from recognising symptoms as requiring professional attention, while financial constraints and poor access may further hinder utilization of available services. On the other hand, the influence of healthcare worker recommendation, alongside free services, education, community support groups, and family support, demonstrates that appropriate guidance and enabling support systems can improve care-seeking behaviour.<sup>17</sup> There is a need to strengthen mental health education during antenatal, postnatal, and child welfare visits so that mothers can recognize PPD as a treatable condition. Health workers should actively screen for depressive symptoms and provide referral or counselling when needed. Efforts should also be made to reduce the cost of care and improve access to mental health services within maternal health settings. Community support groups, family education, and culturally appropriate awareness campaigns should also be promoted to reduce stigma and encourage early help-seeking.

## CONCLUSION

This study gives a comprehensive understanding of postnatal mothers' knowledge of PPD, their attitude regarding the condition, prevalence and pattern, factors associated with PPD, the role of social support in the mental health outcomes and barriers and facilitators to accessing mental health care for PPD.

The study revealed that more than half of the respondents had poor knowledge of PPD. More than three-quarters of the respondents demonstrated a positive attitude towards PPD. Mode of delivery was identified as a significant predictor of attitude, with respondents who had a caesarean section being less likely to demonstrate a positive attitude towards PPD, with 0.33 times the odds compared with those who had vaginal delivery.

The prevalence of PPD among the respondents was less than one-tenth. Factors significantly associated with PPD included younger age and lower parity, while a positive attitude towards PPD reduced the likelihood of screening positive for the condition.

Most respondents reported having social support, with spouses or partners being the main source of support. Although more than nine-tenths of the respondents expressed willingness to seek help, cultural beliefs, no perceived need and limited access to services were the major barriers to not

seeking help. Healthcare worker recommendation was the most common facilitator for seeking help.

## **RECOMMENDATIONS**

The following are recommendations based on the findings of this study, with the hope that proper implementation will improve the knowledge, attitude towards PPD, and better care-seeking practices of postnatal mothers with PPD.

### **TO THE FEDERAL MINISTRY OF HEALTH**

1. Develop and strengthen national guidelines for screening and management of postpartum depression.
2. Allocate funds for maternal mental health education, screening, and treatment.
3. Ensure that postpartum depression services are included in maternal health policies and health insurance coverage.
4. Support public awareness campaigns to reduce stigma and improve help-seeking.

### **TO NON-GOVERNMENTAL ORGANIZATIONS (NGOS) AND CIVIL SOCIETY GROUPS**

1. Organize community awareness campaigns on postpartum depression.
2. Help reduce stigma surrounding maternal mental health.

3. Create support groups for mothers and families affected by postpartum depression.
4. Advocate for better maternal mental health policies and services.

### **TO THE COMMUNITY (SPOUSES, PARTNERS, FAMILIES AND COMMUNITY MEMBERS)**

1. Provide emotional, practical, and financial support to new mothers.
2. Learn the common symptoms of postpartum depression.
3. Encourage early help-seeking when symptoms appear.
4. Participate in maternal and child health education programmes.
5. Promote open discussions about maternal mental health.
6. Create a supportive and non-judgmental environment.

### **RECOMMENDATIONS TO HOSPITAL MATERNITY UNITS**

1. Routinely screen postnatal mothers for postpartum depression during postnatal visits.
2. Train doctors, nurses, and midwives to recognize symptoms of postpartum depression early.
3. Establish clear referral pathways for mothers who need specialist mental health care.
4. Provide basic counselling and emotional support to at-risk mothers.

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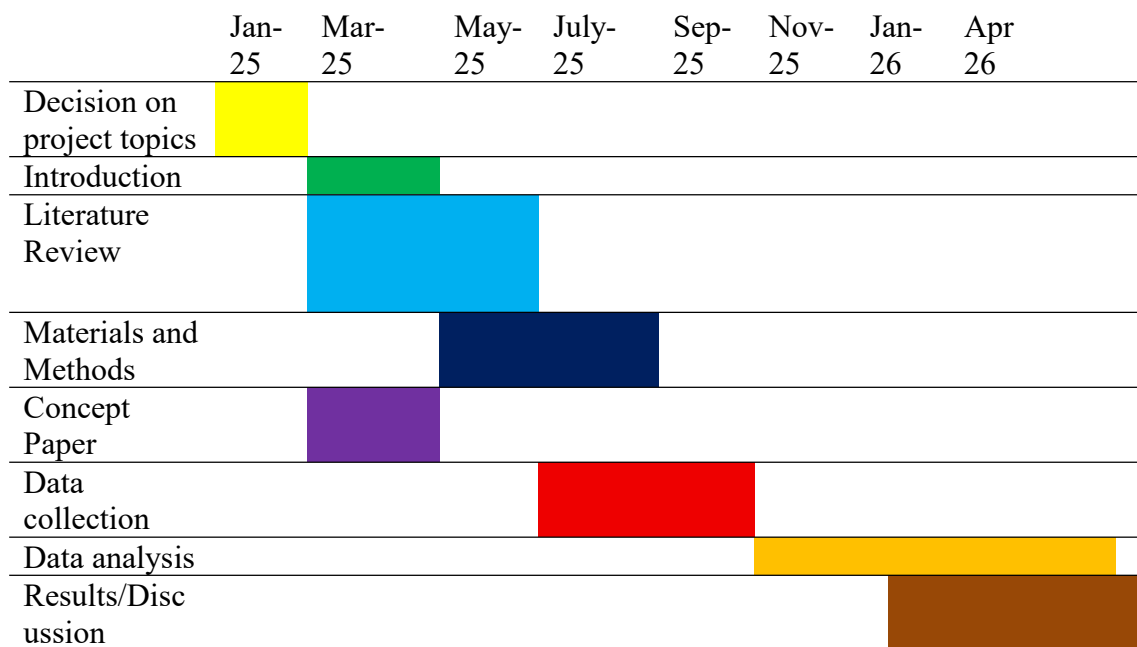
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### APPENDIX 1



**Figure 3: Gantt chart showing the work plan for the one-year study**

## APPENDIX 2

### **INFORMED CONSENT FORM**

#### TITLE OF STUDY

Prevalence and Determinants of Postpartum Depression Among Postnatal Mothers in  
University of Benin Teaching Hospital, Benin City.

#### INSTITUTION

Department of Public Health and Community Medicine, College of Medical Sciences, University  
of Benin, Benin City.

#### PRINCIPAL INVESTIGATORS

Aghomo Teresa Ilekupé

Ajidahun Timilehin Praise

## SUPERVISOR

Prof. Vivian Omuemu

## FINANCIAL SPONSORSHIP

This research work is financially sponsored by the principal investigators.

## PURPOSE OF RESEARCH

The purpose of this research work is to assess the Prevalence and Determinants of Postpartum Depression Among Postnatal Mothers in University of Benin Teaching Hospital, Benin City.

## PROCEDURES TO BE FOLLOWED

If respondents agree to participate, they will receive a google form containing a questionnaire to assess the Prevalence and determinants of postpartum depression among postnatal mothers attending the University of Benin Teaching Hospital, Benin City.

## PARTICIPATION

Participation in this study is voluntary. Refusal to participate will involve no penalty or loss of benefits to which you are otherwise entitled. You may discontinue your participation at any time without penalty or loss of benefits. The principal investigators may decide to withdraw you from the study if we are unable to obtain the necessary information.

## CONFIDENTIALITY

All information collected would be kept confidential and stored securely. Data collected would be anonymized and only accessible to the research team.

#### COMPENSATION

Participants will not receive any financial compensation for their participation.

#### RISKS

There are no risks associated with participation in this study.

#### BENEFITS

Participants will contribute to important research that may help improve the detection, management, and support services for postpartum depression among postnatal mothers. The results of this study may also help healthcare providers and policymakers develop better strategies to support the mental health and well-being of mothers after childbirth.

#### CONTACT INFORMATION

If you have any questions or concerns regarding this research work please contact:

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OR

Ethics and Research Committee,  
University of Benin Teaching Hospital,  
Benin City.

Email: ubthresearchethics@gmail.com

Phone number: 07063331337

IF THERE IS ANY PORTION OF THIS CONSENT AGREEMENT THAT YOU DO NOT UNDERSTAND, ASK THE FIELD WORKER OR INVESTIGATOR BEFORE SIGNING.

Please, sign below if you have agreed to participate in the study.

#### CERTIFICATION OF CONSENT

I, \_\_\_\_\_ having full capacity to consent for myself do thereby consent to my participation in the research study.

The methods and means by which the study will be conducted have been explained to me by Ethical Committee. I have been given the opportunity to ask questions concerning this investigational study, and any such questions have been answered to my full and complete satisfaction.

I understand that I may at any time during the course of this study revoke this consent and withdraw myself from the study without prejudice.

Participant's Signature: \_\_\_\_\_

Date: \_\_\_\_\_

## APPENDIX 3

### QUESTIONNAIRE

#### **PREVALENCE AND DETERMINANTS OF POSTPARTUM DEPRESSION AMONG POSTNATAL MOTHERS IN UNIVERSITY OF BENIN TEACHING HOSPITAL**

We are final year medical students at the University of Benin conducting a study titled "Prevalence and Determinants of Postpartum Depression among Postnatal Mothers in Benin City." This research is part of our project for the award of the MBBS degree.

The aim is to understand how common postpartum depression is and what factors may contribute to it. Your participation is entirely voluntary, and all responses will be kept strictly confidential and used only for academic purposes. The questionnaire takes about 10–15 minutes to complete.

There are no right or wrong answers, just kindly respond as honestly as you can.

By continuing, you indicate your consent to participate in this study. Thank you for your time and support.

**SECTION A: SOCIO-DEMOGRAPHIC DATA**

1. Age in years (as at last birthday): \_\_\_\_\_
2. Marital status: Single ( ) Married ( ) Widowed ( ) Divorced ( ) Separated ( ) Cohabiting ( )
3. Marriage type: Monogamous ( ) Polygamous ( ) Others ( ) (specify)\_\_\_\_\_
4. Tribe: Bini ( ), Esan ( ), Igbo ( ), Urhobo ( ), Yoruba ( ), Hausa( ), Others please specify \_\_\_\_\_
5. Religion: Christian ( ) Islam ( ) African traditional religion ( ) Others specify .....
6. Level of education: No formal education ( ) Primary ( ) Secondary ( ) Tertiary ( )
7. Employment status: Employed ( ) Not employed ( )
8. Occupation: \_\_\_\_\_
9. Spouse’s level of education: No formal education ( ) Primary ( ) Secondary ( ) Tertiary ( )
10. Spouse's employment status: Employed ( ) Not employed ( )
11. Spouse’s occupation: \_\_\_\_\_
12. Monthly income (Naira): \_\_\_\_\_
13. Parity: \_\_\_\_\_
14. How many weeks ago did you deliver? \_\_\_\_\_
15. Place of delivery: Public hospital ( ) Private hospital ( ) Traditional birth attendant ( ) Home ( ) Others specify .....
16. Type of delivery: Vaginal ( ) Cesarean section ( ) Assisted delivery ( )

**SECTION B: KNOWLEDGE OF POSTPARTUM DEPRESSION**

1. Have you ever heard of Postpartum Depression? Yes ( ) No ( )
2. When does Postpartum Depression occur? Immediately after childbirth ( ) Within the first 6 weeks ( ) Up to 6 months after delivery ( )
3. Which of the following are symptoms of Postpartum Depression? (Tick all that apply)  
Sadness ( ) Insomnia ( ) Excessive happiness ( ) Loss of interest in baby ( ) Poor appetite ( ) Over attachment to baby ( )
4. What are the possible causes of Postpartum Depression? Financial Stress ( ) Unplanned pregnancy ( ) Lack of support from partner or family ( ) Complications during pregnancy or childbirth ( ) Personal or family history of mental illness ( ) Social isolation or loneliness ( ) Exercising daily ( )
5. Can Postpartum Depression be treated? Yes ( ) No ( ) Not sure ( )
6. What are the possible treatments for Postpartum Depression? Regular Hospital Visits ( ) Counselling ( ) Lifestyle changes ( ) Support from partner, family and friends ( ) Joining a support group with other mothers ( ) Drinking alcohol to feel better ( )

**SECTION C: ATTITUDE TOWARD POSTPARTUM DEPRESSION**

		STRONGLY AGREE	AGREE	DISAGREE	STRONGLY DISAGREE
1	PPD is a normal part of motherhood				
2	A woman with PPD should be ashamed				
3	Seeking help for PPD is a sign of				

	weakness				
4	Mental health services should be part of maternal care				
5	I would support a friend or family member with PPD				

**SECTION D: PREVALENCE OF POSTPARTUM DEPRESSION**

		NOT AT ALL	VERY FEW TIMES	YES, SOMETIMES	YES, OFTEN TIMES
1	I have been able to laugh and see the funny side of things				
2	I have looked forward with enjoyment to things				
3	I have blamed myself unnecessarily when things went wrong				
4	I have been anxious or worried for no good reason				
5	I have felt scared or panicky for no very good reason				
6	Things have been getting on top of me				
7	I have been so unhappy that I have had difficulty sleeping				
8	I have felt sad or miserable				
9	I have been so unhappy that I have been crying				
10	The thought of harming myself has occurred to me				

## **SECTION E: FACTORS ASSOCIATED WITH PPD**

1. Was your pregnancy planned? Yes ( ) No ( )
2. Did you experience complications during pregnancy/delivery? Yes ( ) No ( )
3. How would you describe your relationship with your partner? Supportive ( ) Neutral ( )  
Abusive ( )
4. Did you experience any stressful life events recently? Yes ( ) No ( )
5. Do you have a history of the following? Being excessively anxious or worried ( )  
Depression ( ) Wanting to harm yourself ( ) Mania ( ) Substance use e.g alcohol, cannabis,  
tramadol, methamphetamine, cocaine, lysergic acid diethylamide ( ) No ( ) Not sure ( )  
Other (specify): \_\_\_\_\_
6. Do you have a family history of any of the above? Yes ( ) No ( ) Not sure ( ) Other  
(specify): \_\_\_\_\_

## **SECTION F: ROLE OF SOCIAL SUPPORT**

1. Do you receive emotional support from your spouse/family? Always ( ) Sometimes ( )  
Never ( )
2. Do you have someone to talk to about your feelings? Yes ( ) No ( )
3. Who provides you with the most support? Spouse ( ) Parents ( ) Friends ( ) Health  
workers ( ) Religious group ( ) No one ( )

## **SECTION G: BARRIERS AND FACILITATORS TO MENTAL HEALTH CARE**

1. Have you ever sought help for emotional issues during or after pregnancy? Yes ( ) No ( )

2. If not, why? (Tick all that apply) Stigma ( ) Cost of care ( ) Lack of awareness ( ) Lack of nearby hospitals ( ) Cultural beliefs ( ) Religious beliefs ( ) Others (specify):

\_\_\_\_\_


3. What would make it easier for you to seek help? Free services ( ) Education and awareness ( ) Community support groups ( ) Health worker recommendation ( ) Other (specify): \_\_\_\_\_

APPENDIX 4

ETHICAL CLEARANCE FORM

**HEALTH RESEARCH ETHICS COMMITTEE (HREC)**  
**UNIVERSITY OF BENIN TEACHING HOSPITAL**  
P.M.B. 1111 BENIN CITY NIGERIA Telephone: 052-600418 Website: ubth.org

<b>CHIEF MEDICAL DIRECTOR</b> Prof. Darlington E. Obaseki E-mail: darlobaseki@gmail.com	<b>DIRECTOR OF ADMINISTRATION</b> Jim Uwadie, Esq	<b>CHAIRMAN</b> Prof. (Mrs.) Antoinette N. Ofili
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 **HREC OFFICE:**  
Committee email: ubthresearchethics@gmail.com  
**Registration Number:**  
NHREC-UBTH-HREC/24/12/2022B

**PROTOCOL NUMBER:** ADM/E 22/A/VOL. VII/148654912712

**PROPOSAL TITLE:** "PREVALENCE AND DETERMINANTS OF POSTPARTUM DEPRESSION AMONG POSTNATAL MOTHERS IN UNIVERSITY OF BENIN TEACHING HOSPITAL, BENIN CITY"

**PRINCIPAL INVESTIGATOR(S):** AGHOMO TERESA ILEKUPE & AJIDAHUN TIMILEHIN PRAISE

**DEPARTMENT/INSTITUTION:** DEPARTMENT OF PUBLIC HEALTH AND COMMUNITY MEDICINE, SCHOOL OF MEDICINE, UNIVERSITY OF BENIN, BENIN CITY, EDO STATE, NIGERIA

**DATE CONSIDERED:** 1<sup>ST</sup> SEPTEMBER, 2025

**DECISION OF THE COMMITTEE:** APPROVED

*THIS APPROVAL DATES 1/09/2025 TO 31/08/2026. IF THERE IS DELAY IN STARTING THE RESEARCH, PLEASE INFORM THE HREC SO THAT THE DATES OF APPROVAL CAN BE ADJUSTED ACCORDINGLY*

**REMARK:**

**CHAIRMAN:** PROF. (MRS) A.N. OFILI

**SIGNATURE & DATE** 

**SUPERVISOR (S):** PROF. VIVIAN OMUEMU

**DECLARATION BY INVESTIGATOR(S):**  
**PROTOCOL NUMBER** (please quote in all enquiries)  
Note that no participant accrual or activity related to this research may be conducted outside of these dates. All informed consent forms used in this study must carry the HREC assigned number and duration of HREC approval of the study. In multiyear research, endeavor to submit your annual re-port to the HREC early in order to obtain renewal of your approval and avoid disruption of your research. No changes are permitted in the research without prior approval by the HREC except in circumstances outlined in the Code. The HREC reserves the right to conduct compliance visit your research site without previous notification

Signature & Date.....

 **ubthresearchethics@gmail.com**      Registration Number: NHREC/24/01/202

APPENDIX 5

**PLAGIARISM CLEARANCE CERTIFICATE**