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Silent Shadows: Unravelling the Demographic and Obstetric Correlates of Postpartum Depression among Nursing Mothers in Imo State, Nigeria

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ABSTRACT

This study examined the prevalence, demographic and obstetric correlates of postpartum depression (PPD) among nursing mothers in Imo State, Nigeria. A total of 1,198 nursing mothers participated in the study. They were selected from 12 primary healthcare centres and hospitals across Imo State. The participants' ages ranged from 18 to 52 years (M = 30.38, SD = 5.53). Data were collected using the Edinburgh Postnatal Depression Scale (EPDS) to assess PPD, and structured questionnaires were used to gather demographic and obstetric information. The results revealed that 53.9% of the participants exhibited symptoms consistent with PPD, a prevalence far exceeding the hypothesised 30%. Regression analysis showed that marital status (β = 0.124, p < 0.001), education (β = -0.102, p = 0.001), and employment status (β = -0.106, p < 0.001) were significant predictors of PPD, while age and place of residence were not. However, obstetric experience did not significantly predict PPD (β = 0.028, p = 0.355). These findings highlight a concerning prevalence of postpartum depression in Imo State, suggesting that marital status, education, and employment are key demographic factors contributing to maternal mental health challenges. The results advocate for the integration of routine PPD screening and targeted interventions to address the identified risk factors. Further research should explore the impact of social support and healthcare system factors on postpartum mental health in Imo State.

Introduction

The period following childbirth, known as the postpartum period, is a transformative phase in a woman's life, characterised by profound physiological, hormonal, psychological, and social adjustments. While often romanticised as a period of unadulterated joy, it can also precipitate significant mental health challenges, with postpartum depression (PPD) emerging as a prominent concern globally (World Health Organisation, 2021). PPD is a non-psychotic depressive episode that typically commences within four weeks postpartum, though its onset can extend up to a year after delivery. Its symptomatology includes persistent low mood, anhedonia, changes in appetite or sleep, fatigue, feelings of worthlessness or guilt, and, in severe cases, thoughts of harming oneself or the infant (American Psychiatric Association, 2013). The exact causes of PPD are not fully understood, but it is likely influenced by a combination of genetic, hormonal, psychological, and social factors (Sharma et al., 2024). It is associated with serious health risks, including an increased risk of parental suicide, which is the second leading cause of postpartum mortality (Hutcherson et al., 2020). Postpartum depression is associated with impairment of the mother-infant bond, which can result in longer-term disruption of the emotional and cognitive development of the infant (Cornish et al., 2006).

Despite its widespread impact, PPD remains underdiagnosed and undertreated in many low- and middle-income nations (Stewart & Vigod, 2019) due to compounded socioeconomic and healthcare challenges, highlighting the burden of PPD as a significant public health concern in these countries (Gelaye et al., 2016). Understanding the specific epidemiological profile and contributing risk factors of PPD within localised contexts is therefore paramount for developing effective public health interventions.

This study focuses on Imo State, located in Southeast Nigeria, a region characterised by unique socio-cultural dynamics and healthcare infrastructure. While a few studies have explored maternal mental health in Nigeria, region-specific data, particularly discerning the interplay of demographic variables and obstetric factors, remains sparse. Existing literature highlights a multifactorial aetiology for PPD, encompassing biological, psychological, and social determinants. Among these, demographic characteristics such as age, educational level, marital status, and socioeconomic status have consistently been implicated (Haque et al., 2015). Furthermore, the mode of child delivery—whether vaginal or via Caesarean section (CS)—has garnered increasing attention as a potential independent risk factor, with conflicting findings across diverse populations (Abood & Oleiwi 2025).

This research, therefore, aims to determine the prevalence of PPD among nursing mothers in Imo State and to investigate the extent to which specific demographic variables (e.g., age, parity, educational attainment, income level) and the mode of childbirth contribute to its manifestation. By providing robust, localised empirical data, this study aims to bridge critical knowledge gaps, facilitate evidence-based policy formulation, and guide the development of culturally competent screening and intervention programs to improve maternal mental health outcomes in the region.

Literature Review

Prevalence of PPD.

According to a major meta-analysis published in 2021 by Wang et al., the global prevalence of postpartum depression stands at **17.22%**. This rate, however, is not uniform across the world, showing significant regional variations. The study revealed the highest prevalence in South Africa (39.96%), followed by Southern Asia (22.32%) and South America (21.71%). In contrast, the lowest rates were observed in Southeastern Asia (13.53%) and Western Africa (13.62%), while other regions like Western Asia, Northern Africa, Eastern Asia, and North America reported prevalence rates that fell between these extremes. Meta-analyses also estimate that the global prevalence of PPD within the first year after childbirth ranges between 12.1% and 17.7% (Bai et al., 2023; Hahn-Holbrook et al., 2018). However, the rates vary depending on the assessment methods employed. For instance, diagnostic interviews report lower estimates, indicating that around 7.0% of new mothers experience major depression, whereas screening instruments often yield higher rates (Bai et al., 2023). National prevalence rates vary widely, from as low as 3% in Singapore to as high as

38% in Chile, with economic and health factors accounting for 73% of this variation (Hahn-Holbrook et al., 2018). The highest prevalence of PPD occurs within the first six months postpartum, particularly peaking at 2-3 weeks and 6-8 weeks after childbirth (Bai et al., 2023).

In Nigeria, postpartum depression is increasingly recognised as a significant public health issue, with existing literature indicating considerable variability in prevalence rates across the country's heterogeneous regions. However, the scarcity of national-level data emphasises the necessity for extensive, country-wide research aimed at accurately assessing the prevalence and impact of PPD. Regional studies have reported prevalence rates ranging from 14.6% to 52.3%, highlighting that PPD is not only prevalent but also remains inadequately studied in the Nigerian context (Chinawa et al., 2016; Tungchama et al., 2018; Obioha et al., 2021). This underscores a pressing need for comprehensive investigations to inform targeted interventions and policy responses. In southwest Nigeria, for instance, a significantly higher rate of 52.3% was found among postnatal mothers in Surulere, Lagos (Obioha et al., 2021), a significant rate of 35.6% was found among mothers in Eti-Osa Local Government Area of Lagos State, Nigeria, attending six Primary Health Care centers for infant immunization at six weeks post-delivery (Adeyemo et al., 2020) while in Osogbo, Osun state, Nigeria. 33.6% prevalence rate was found (Ajibade et al., 2022). Similarly, a study in Ibadan reported a prevalence of 37.8%, further highlighting the condition's pervasive impact (Nwosu, 2021).

Further research from Nigeria highlights a significant prevalence of postpartum depression (PPD) among postnatal mothers. Sanni et al. (2024) identified a 21.8% prevalence in Abeokuta, emphasising the adverse effects on maternal-infant bonding and breastfeeding, and underscoring the need for targeted mental health interventions. In Gombe, Laima et al. (2025) reported a similar prevalence of 23.5%, noting that higher rates occurred among women who experienced stillbirths, with cultural misconceptions and stigma acting as barriers to recognition and treatment. Johnson et al. (2024) found an alarmingly high rate of 72.1% among nursing mothers where social support and cultural practices significantly predicted PPD, pointing to the importance of community-based support systems. Meanwhile, Olarinmoye et al. (2024) observed a 23.5% prevalence at Ahmadu Bello University Teaching Hospital, with risk factors including the mode of delivery and stillbirths, highlighting gaps in PPD awareness. Additionally. Collectively, these studies underscore the urgent need for culturally sensitive educational programs, community interventions, and healthcare strategies to improve awareness, early identification, and treatment of PPD across Nigeria.

Demographic Correlates

Several demographic factors have been consistently linked with an increased risk of PPD. Younger maternal age, often associated with psychosocial immaturity, limited resources, and inadequate support systems, has been identified as a significant predictor. For example, younger maternal age and low educational attainment have been associated with elevated risk PPD (Obioha et al., 2021). In other studies, sociodemographic factors have been found to affect women with CS and normal delivery differently. For example, Abrood and Oleiwi (2025), found that normal delivery group showed significant differences in PPD based on occupation (χ^2=6.637, P=0.036), residence (χ^2=7.915, P=0.005), and marital status (χ^2=13.184, P=0.004). Women who were employed, resided in rural areas, or were divorced exhibited higher depression levels. However, factors such as age, education, economic status, child feeding methods, and child sex showed no significant impact on PPD (P>0.05). Conversely, for C-section delivery, age (χ^2=13.814, P=0.003) and marital status (χ^2=19.028, P=0.045) significantly influenced PPD. Women aged 30-39 years had the lowest depression rank (18.50), whereas those aged ≥40 years had the highest (73.02) depression.

In contrast, a study conducted among mothers who attended postpartum clinics from two teaching hospitals and three private hospitals, all in Enugu metropolis, revealed no significant association between socio-demographics of mother and depression, age (p= 0.556), educational level (p= 0.667), occupation (p=0.494), parity (p= 0.823) and mode of delivery (p= 0.760; Chinawa et al, 2016)

However, the specific interplay of these factors within the socio-cultural fabric of Imo State warrants dedicated exploration.

Obstetric Experience

The relationship between the obstetric experience, such as mode of child delivery, and PPD is complex and subject to ongoing research. Among women with normal vaginal delivery, Abood & Oleiwi (2025), found that 79.2% had low postpartum depression scores (7.95±5.29). However, among women who underwent C/S delivery, 48.3% had moderate depression scores (17.21±6.63). Adeyemo et al. (2020) found that Multiparity, delivery by caesarean section, the mother being unwell after delivery, and not exclusively breastfeeding the baby were the factors linked with postpartum depression. Following multiple logistic regression, having postpartum blues, not getting help with caring for the baby, experiencing intimate partner violence and having an unsupportive partner were identified as predictors of postpartum depression. Gestational diabetes, unintended pregnancies, caesarean delivery, and unfavourable pregnancy or delivery have also been linked to a higher likelihood of PPD (Swart et al., 2023). A cohort study conducted in found that the prevalence of PPD was higher in the Caesarean section (34.71%) than in the Normal Delivery group (19.83%). In a recent study, mode of delivery was also significantly linked to PPD in a South African study, with Caesarean section deliveries being associated with a higher risk of depressed symptoms than normal vaginal delivery (Hoque et al., 2025). Smithson et al., (2022) found that elective caesarean section (ELCS) showed no association with PPD, while emergent caesarean section (EMCS) was found to be significantly linked to PPD. Thus, indicating that the perceived unforeseen outcomes could be the reason for the association.

However, earlier studies have reported no significant difference in PPD between CS group and VD group (Eisenach et al., 2008; Sadat et al., 2014).

It is crucial to examine this relationship within the specific healthcare practices and maternal expectations prevalent in Imo State.

Statement of the Problem

Globally, postpartum depression represents a pressing maternal health concern, affecting up to one in five mothers in low- and middle-income countries (Woody et al., 2017; Wang et al., 2021; Liu et al., 2022). Despite growing recognition, PPD in Nigeria often remains underdiagnosed due to stigma, poor awareness, and fragmented healthcare systems (Ayobola & Nwokocha, 2022). Evidence further indicates that Nigerian mothers generally possess limited knowledge of PPD, with over 60% lacking awareness of the condition (Abazie & Usoro, 2021).

Regional studies reveal strikingly high and inconsistent prevalence rates of PPD across Nigeria, yet no systematic investigation has been conducted in Imo State. Understanding the prevalence and risk factors in this context is crucial to informing maternal health interventions, especially given socioeconomic disparities and limited mental health resources in southeastern Nigeria.

This study therefore seeks to:

1. Ascertain the prevalence of PPD among nursing mothers in Imo State.
2. Examine demographic predictors (age, marital status, education, employment, residence) of PPD.
3. Investigate whether obstetric experience will significantly predict PPD.
4. Provide recommendations for evidence-based interventions to improve maternal mental health.

Hypotheses

1. The prevalence of postpartum depression (PPD) among nursing mothers in Imo State will not be greater than 30%.
2. Demographic factors (age, marital status, education, employment, residence) will not significantly predict postpartum depression among nursing mothers in Imo State.

3. Obstetric experience will not significantly predict postpartum depression among nursing mothers in Imo State.

Method

Participants

The participants in this study comprise 1,198 nursing mothers (postnatal) from Imo State. The participants were selected from twelve primary healthcare centres and hospitals, both public and private, offering maternal and child health services across the three senatorial zones of Imo State, Nigeria. Imo State is located in the South-Eastern part of Nigeria and has an estimated population of over 4.8 million, with a population density ranging from 230 to 1,400 people per square kilometre. The participants' ages ranged from 18 to 52 years, with a mean age of 30.38 and a standard deviation of 5.53 years. They were selected using a multi-site approach. This multi-site approach ensures a representative sample from both urban and rural areas.

Instruments

Structured questionnaires were used to gather data on demographic details, including age, marital status, educational attainment, employment status, spouse's employment and educational levels, and place of residence. Additionally, obstetric history was documented, including the mode of delivery (vaginal or caesarean section).

Data on postpartum depression were obtained using the Edinburgh Postnatal Depression Scale (EPDS). The EPDS, developed by Cox, Holden and Sagovsky (1987), was used to assess the severity of depressive symptoms. It is a well-validated 10-item self-report depression screening tool, in which endorsement of each item is based on how participants feel during the previous 7 days. Each question in the EPDS has four possible answers, scored 0, 1, 2, or 3. To determine the prevalence of PPD, all the scores were summed up. The minimum and maximum total scores obtained from the EPDS were 0 and 30, respectively. An EPDS score $\geq$13 was considered positive for PPD, while a score of <13 ruled out the possibility of PPD. The EPDS has shown high sensitivity, specificity, and positive predictive power for postpartum depression when using the 10 + score cutoff in US samples [Cox, et al., 1987; O'Connor, et al, 2016]. Recent studies in Nigeria have shown the EPDS to be a reliable measure. For example, Arinze et al. (2025) obtained a reliability coefficient of 0.84 for the EPDS.

For this study, a reliability coefficient of 0.76 and a mean of 11.79 (SD=5,38) were obtained following a pilot study involving 150 nursing mothers in Imo State. A score above the norm indicates the presence of PPD in the study participants. Also, the convergent validity of the Edinburgh Postnatal Depression Scale (EPD) and the Zung Self-Rating Depression Scale (SDS) was assessed. The correlation analysis between the two scales indicated a positive relationship, with a Pearson correlation coefficient of 0.167, which was statistically significant at the 0.05 level ($p = 0.043$). Although the correlation was weak, it suggests that the EPD and SDS are related in measuring depression, with a slight but significant association. In conclusion, the reliability analysis of the Edinburgh Postnatal Depression Scale demonstrated that it is a reliable instrument for measuring postnatal depression among nursing mothers in Imo State, Nigeria. The Cronbach's Alpha of 0.76 indicates good internal consistency, and the individual item analyses show that the scale performs well in capturing a range of depressive symptoms. The findings support the use of the EPDS in future studies and clinical practice in this population, with the scale proving to be a valid tool for assessing postnatal depression in this context.

Procedure

Ethical approval to conduct this research was obtained from the Ministry of Health, Imo State. This approval was presented to the Chief Medical Director/Primary Health Care (PHC) Coordinator of each of the 12

randomly sampled hospitals/health centres. Participants were approached during postnatal clinic visits and infant immunisation appointments. They were debriefed on the purpose of the research. Additionally, each questionnaire includes a brief introduction to the study's aim and a consent request. In all, 1250 nursing mothers who gave their consent participated in the study. No personal information was collected; privacy and confidentiality were ensured.

The inclusion criteria were nursing mothers aged 18 years or older, residents of Imo State, Nigeria, and residing in Imo State within 12 months postpartum. Nursing mothers who have severe medical conditions that may interfere with their ability to participate in the study and who were unable to provide informed consent due to language barriers or other reasons were excluded.

Data Analysis: Data was analysed using Statistical Package for Social Sciences (SPSS) version 27. Descriptive statistics (frequencies, percentages, means, and standard deviations) were used to summarise socio-demographic and obstetric characteristics, as well as PPD prevalence. Multiple regression analysis was utilised to identify independent predictors of PPD, controlling for potential confounders.

Results

Table 1: Demographic Characteristics of the Participants

Demographic Variable	Category	Frequency (N)	Percent (%)
Age	18-22 years	79	6.6
	23-27 years	329	27.5
	28-32 years	409	34.1
	33-37 years	257	21.5
	38-42 years	102	8.5
	43-47 years	16	1.3
	48-52 years	6	0.5
Marital Status	Married	1170	97.7
	Single	17	1.4
	Widowed	1	0.1
	Divorced	3	0.3
	Separated	7	0.6
Educational Level	Primary	21	1.8
	Secondary	406	33.9
	OND/NCE	186	15.5
	HND/Degree	533	44.5
	PGD	8	0.7
	Masters	34	2.8
	PhD	10	0.8
Employment Status	Unemployed	241	20.1
	Self-employed	793	66.2
	Employed	163	13.6
	Other	1	0.1
Employment Status of Spouse	Unemployed	41	3.4
	Self-Employed	812	67.8
	Employed	339	28.3
Educational Level of Spouse	Primary	97	8.1
	Secondary	356	29.7
	OND/NCE	130	10.9
	HND/Degree	507	42.3

Demographic Variable	Category	Frequency (N)	Percent (%)
	PGD	18	1.5
	Masters	65	5.4
	PhD	20	1.7
Place of Residence	Rural	572	47.7
	Urban	626	52.3
Method of Birth	Normal Delivery	925	77.2
	Caesarean Section	273	22.8

The dataset reveals a significant concentration of participants in their late 20s and early 30s. The largest age group was 28-32 years, accounting for 34.1% of the sample, followed closely by the 23-27 years group at 27.5%. Together, these two groups represent over 60% of the total participants. The mean age of the participants falls within the 28-32 years range. In terms of marital status, the sample was overwhelmingly married, with 97.7% of participants reporting this status. Other categories like single, widowed, divorced, and separated made up a negligible portion of the sample.

The educational attainment of the participants was relatively high, with the majority holding a higher national diploma (HND) or a university degree (44.5%). A substantial portion also completed secondary education (33.9%). This trend of higher education is mirrored in the employment status of the participants' spouses, with 42.3% also holding an HND or a degree. The majority of participants were self-employed (66.2%), while a smaller percentage were unemployed (20.1%) or employed by a third party (13.6%). The spousal employment data shows a similar pattern, with most spouses being self-employed (67.8%).

The sample was nearly evenly split between urban (52.3%) and rural (47.7%) areas, suggesting a balanced representation of both geographic settings. The data on method of birth indicates that a large majority of participants gave birth via normal delivery (77.2%), with caesarean sections accounting for a notable but smaller proportion (22.8%).

Table 2: Prevalence of Postpartum Depression (PPD) Among Nursing Mothers in Imo State

Category	Frequency (N)	Percent (%)
No PPD	552	46.1
PPD (EPDS ≥ 12)	646	53.9
Total	1198	100.0

Table 2 presents the results of the analyses of hypothesis 1, which proposed that the prevalence of postpartum depression (PPD) among nursing mothers in Imo State would not exceed 30%. However, the results indicate that the prevalence of PPD is 53.9% among the sampled participants. This is significantly higher than the 30% threshold proposed in the hypothesis. This finding indicates that more than half of the nursing mothers in the sample are experiencing postpartum depression, suggesting a much higher burden of PPD than initially anticipated. Thus, the null hypothesis is not supported by the data. The actual prevalence of PPD among the sampled participants in Imo State is over 50%, indicating a serious public health concern and highlighting the need for targeted mental health interventions for nursing mothers in the region.

Table 3: Model Summary for Demographic and Obstetric Predictors of Postpartum Depression (PPD)

Model	Predictors	R^2	Adjusted R^2	F	Sig. F Change
1	Age, Marital Status, Education, Employment, Residence	0.048	0.044	11.498	0.000
2	Age, Marital Status, Education,	0.049	0.044	9.723	0.000

Model	Predictors	R^2	Adjusted R^2	F	Sig. F Change
	Employment, Residence, Obstetric Experience				

Table 4: Coefficients for Demographic and Obstetric Predictors of Postpartum Depression (PPD)

Predictor	B	Std. Error	Beta	t-value	Sig.
Age	0.012	0.030	0.013	0.418	0.676
Marital Status	1.847	0.435	0.124	4.248	0.000
Education Level	-0.496	0.153	-0.102	-3.234	0.001
Residence	-0.568	0.323	-0.053	-1.757	-0.079
Employment Status	-0.974	0.276	-0.106	-3.524	0.000
Obstetric Experience	0.356	0.385	0.028	0.926	0.355

The regression analysis, as presented in Tables 3 and 4 above, demonstrated that both Model 1, which included demographic predictors, and Model 2, which incorporated obstetric experience, were statistically significant. In Model 1, demographic predictors accounted for 4.8% of the variance in postpartum depression (PPD) scores ($R^2 = 0.048$, $F = 11.498$, $p < 0.001$). When obstetric experience was introduced in Model 2, the explained variance increased only marginally to 4.9% ($R^2 = 0.049$, $F = 9.723$, $p < 0.001$). Examination of Hypothesis 2 revealed that marital status ($t = 4.248$, $p < 0.001$), education ($t = -3.234$, $p = 0.001$), and employment status ($t = -3.$, $p < 0.001$) were significant predictors of PPD, with higher education and employment associated with lower depressive scores. while marital status code increases (from "Married" to "Single," "Widowed," "Divorced," and "Separated"), the likelihood of experiencing higher symptoms of postpartum depression increases. This finding indicates that marital instability or the lack of a supportive marital relationship may contribute to the risk of developing PPD.

In contrast, age ($t = 0.418$, $p = 0.676$) and place of residence ($t = -1.757$, $p = 0.079$) were not significant predictors. Accordingly, the null hypothesis that demographic factors would not predict PPD was rejected. For Hypothesis 3, obstetric experience did not significantly predict PPD, as indicated by the non-significant coefficient ($\beta = 0.356$, $t = 0.926$, $p = 0.355$). This finding suggests that factors such as mode of delivery do not significantly contribute to variations in PPD among nursing mothers in Imo State.

Discussion

This study aimed to investigate the prevalence of postpartum depression (PPD) among nursing mothers in Imo State, Nigeria, as well as the demographic and obstetric factors that could potentially influence its manifestation. Given the critical role that maternal mental health plays in the overall well-being of both mother and child, understanding the prevalence and determinants of PPD in this region is crucial for formulating effective interventions. In this section, the study's findings are discussed in relation to each hypothesis, and the implications of the results are considered in the context of existing literature.

The first hypothesis posited that the prevalence of postpartum depression (PPD) among nursing mothers in Imo State would not exceed 30%. However, the study revealed that the prevalence of PPD among the sample was 53.9%, significantly higher than the hypothesised threshold. This finding indicates that more than half of the nursing mothers in Imo State are experiencing postpartum depression, underlining a considerable public health concern in the region.

The observed prevalence of 53.9% far exceeds the expectations of this hypothesis. This high rate of postpartum depression may be reflective of various socio-cultural and healthcare system factors that affect nursing mothers in Imo State. Research in other Nigerian regions and low- and middle-income countries has similarly found elevated rates of PPD, often linked to limited access to mental health care, stigma, and socio-economic challenges (Gelaye et al., 2016). The finding is consistent with the general trend of higher

PPD rates in sub-Saharan Africa, as noted in previous studies (Wang et al., 2021). This suggests that the mental health needs of nursing mothers in the region are substantial and require urgent attention.

Previous studies in Nigeria, such as those in Lagos and Ibadan, report varying PPD prevalence rates ranging from 14.6% to 52.3% (Adeyemo et al., 2020). The finding in Imo State, which is above these national averages, highlights the possibility of regional variations in the prevalence of PPD. The factors contributing to these disparities may include differences in healthcare access, socio-economic status, and regional differences in stigma or cultural practices regarding maternal mental health. The study by Johnson et al. (2024) in Nigeria, also reported a prevalence rate of 72.1%, which is alarmingly high and further underscores the need for region-specific research on PPD. The study's finding that over 50% of nursing mothers in Imo State experience postpartum depression emphasises the urgent need for targeted mental health interventions and the incorporation of PPD screening into routine maternal care.

The analysis of demographic predictors indicated that marital status, education, and employment status were significant predictors of postpartum depression. Specifically, mothers who were married, had lower education levels, and were unemployed were at a higher risk of experiencing PPD. However, age and place of residence did not significantly predict PPD, suggesting that these factors were less influential in this context.

The significant role of marital status aligns with previous research that has identified relationship factors, including lack of partner support, as significant contributors to postpartum depression (Adeyemo et al., 2020). The findings also suggest that lower educational attainment and unemployment may increase the risk of PPD, likely due to associated financial stress and reduced coping resources, which is consistent with findings from studies in Nigeria and other low-resource settings (Obioha et al., 2021). The lack of significant findings for age and place of residence suggests that factors such as social support and economic security may play a more pivotal role in maternal mental health than demographic factors such as age and location. This non significance aligns with findings from other studies (Abrood & Oleiwi, 2025). The absence of a significant relationship with place of residence also contrasts with some studies that have found rural residency to be a risk factor due to limited access to healthcare and support networks (Chinawa et al., 2016).

The findings suggest that improving socio-economic conditions and providing better support systems for married and less-educated mothers could significantly reduce the prevalence of postpartum depression in Imo State. Policymakers should target these high-risk groups for early intervention.

The third hypothesis, which posited that obstetric experience would not significantly predict PPD, was supported by the data. Specifically, the mode of delivery (whether vaginal or Cesarean section) did not significantly contribute to the prediction of postpartum depression in the study population.

This study aligns with earlier research, such as the studies by Eisenach et al., (2008) and Sadat et al., (2014), which found no significant difference in PPD rates between women who had vaginal deliveries and those who had Cesarean sections. This suggests that in the context of Imo State, other factors such as social support and economic status may play a more central role in determining postpartum depression than the mode of delivery.

However, the non-significant role of obstetric experience in predicting PPD in this study contradicts the findings of other studies that have identified traumatic births or emergency Cesarean sections as significant risk factors for postpartum depression (Abrood & Oleiwi, 2025; Adeyemo et al., 2020; Hoque et al., 2025). This discrepancy could be attributed to cultural differences, varying healthcare practices, or the availability of psychological support during the postpartum period in different settings.

The lack of a significant relationship between obstetric experience and PPD in Imo State suggests that interventions aimed at reducing postpartum depression should focus on broader socio-economic factors and mental health support, rather than on the mode of delivery alone.

Implications of the Study

The findings of this study have significant implications for maternal health policy and interventions in Imo State, Nigeria. The high prevalence of postpartum depression (53.9%) among nursing mothers in the region calls for urgent action in terms of public health strategies. Given the significant predictors of PPD, particularly marital status, education, and employment, targeted interventions should focus on improving socio-economic conditions for nursing mothers, particularly those with lower education levels and unemployment. Mental health screening for postpartum depression should be integrated into routine postnatal care in all healthcare facilities, including primary healthcare centres and hospitals, to ensure early identification and intervention. Additionally, the findings suggest the need for greater awareness and education regarding postpartum depression, as many mothers may not seek help due to stigma or lack of knowledge.

Furthermore, healthcare providers should be trained to offer emotional and psychological support to mothers, particularly those who are married or have limited resources. The role of partners in supporting maternal mental health should also be emphasised, as the study indicated that marital status was a significant predictor of PPD. These steps could significantly reduce the burden of postpartum depression and improve maternal and child health outcomes in the region.

Limitations of the Study

1. The cross-sectional design of the study and the use of self-reported measures limit the ability to draw causal inferences regarding the relationships between demographic factors, obstetric experiences, and postpartum depression and may be subject to bias or inaccuracies in self-reporting.
2. The study was limited to nursing mothers in Imo State, so the findings may not be generalizable to other regions of Nigeria or sub-Saharan Africa.

Suggestions for Future Studies

1. Future studies should adopt longitudinal designs to explore the causal relationships between demographic, obstetric, and psychological factors and the development of postpartum depression.
2. More research should be conducted to explore the role of cultural beliefs and stigma in the diagnosis and treatment of postpartum depression in Nigeria and other similar contexts.
3. Studies should investigate the impact of social support networks, including extended family and community support, on postpartum mental health outcomes.
4. Future research could also consider the influence of healthcare system factors, such as access to mental health services and quality of postpartum care, on the prevalence of PPD.

Conclusion

In conclusion, this study highlights the alarmingly high prevalence of postpartum depression among nursing mothers in Imo State, Nigeria. It underscores the importance of understanding the socio-economic and demographic factors that contribute to maternal mental health challenges. Although obstetric factors such as mode of delivery were not significant predictors, other factors such as marital status, education, and employment were found to be crucial in determining the risk of PPD. These findings provide critical insights that could inform targeted interventions and policies aimed at addressing postpartum depression in the region, ultimately improving maternal and child health outcomes.

Recommendations

1. Public health campaigns should focus on raising awareness of postpartum depression and its symptoms, particularly in rural areas where access to mental health resources may be limited.
2. Healthcare facilities should integrate mental health screening for postpartum depression into routine postnatal care, ensuring that nursing mothers receive appropriate support.

3. There should be a concerted effort to improve the socio-economic conditions of nursing mothers, particularly those with lower education levels and unemployment, to reduce the prevalence of PPD.
4. Partners and family members should be educated on the importance of emotional and psychological support during the postpartum period, as marital status was found to be a significant predictor of PPD.
5. Government and non-governmental organisations should collaborate to establish community-based mental health programs to provide support for mothers experiencing postpartum depression.

References

Abazie, O. H., & Usoro, I. I. (2021). Knowledge of postpartum depression among mothers at immunisation clinics in Mushin, Nigeria. *African Journal of Midwifery and Women's Health, 15*(1), 1–9. https://doi.org/10.12968/ajmw.2020.0001

Abood, H. I., & Oleiwi, S. S. (2025). Delivery methods and postpartum depression: A comparative study. *Journal of Obstetrics, Gynecology and Cancer Research, 10*(8), 626–634. https://doi.org/10.24200/jogcr.10.8.626

Adeyemo, E. O., Oluwole, E. O., Kanma-Okafor, O. J., Izuka, O. M., & Odeyemi, K. A. (2020). Prevalence and predictors of postpartum depression among postnatal women in Lagos, Nigeria. *African Health Sciences, 20*(4), 1943–1954. https://doi.org/10.4314/ahs.v20i4.53

Agarwal, S., Dasari, P., & Sarkar, S. (2023). Mode of delivery and postpartum depression: A cohort study. *Journal of Obstetrics and Gynaecology of India, 73*, 88–96. https://doi.org/10.1007/s13224-023-01810-7

Ajibade, B. L., Ajibade, T. L., Adeyemo, T. L., & Akeem, A. A. (2020). Assessment of anxiety among pregnant women attending antenatal clinic at a tertiary health institution in Ibadan, Oyo State. *International Journal of Nursing and Midwifery, 12*(1), 1–8. https://doi.org/10.5897/IJNM2019.0436

Ajibade, I. T., Ajibade, P. O., Kolawole, S., Akinbola, A., & Nwachukwu, B. C. (2022). Knowledge, attitude and prevalence of postpartum depression among mothers attending immunization clinics in Osogbo Local Government, Osun State. *African Journal of Health, Nursing and Midwifery, 5*(4), 28–42. https://doi.org/10.52589/AJHNM UI5DYZVX

Alipour, Z., Lye, M. S., Latif, L. A., & Rajeh, M. T. (2019). The effect of psychosocial support on maternal anxiety and depression: A randomized controlled trial. *Journal of Maternal-Fetal & Neonatal Medicine, 32*(1), 164–171. https://doi.org/10.1080/14767058.2017.1378828

American Psychiatric Association. (2013). *Diagnostic and statistical manual of mental disorders* (5th ed.). American Psychiatric Publishing.

American Psychological Association. (2020). *Publication manual of the American Psychological Association* (7th ed.). American Psychological Association.

Ayobola, M., & Nwokocha, E. E. (2022). Factors constituting barriers to seeking healthcare for postnatal depression among mothers in Ibadan, Nigeria. *The Nigerian Journal of Sociology and Anthropology, 20*(1), 46–60. https://doi.org/10.36108/NJSA/2202.02.0140

Bai, Y., Li, Q., Cheng, K. K., Caine, E. D., Tong, Y., W., & Gong, W. (2023). Prevalence of postpartum depression based on diagnostic interviews: A systematic review and meta-analysis. *Depression and Anxiety, 2023*, 1–12. https://doi.org/10.1155/2023/8403222

Bakare, M. A., & Agboola, D. O. (2020). Prevalence and correlates of postpartum depression among mothers in a rural community in Osun State, Nigeria. *International Journal of Women's Health, 12*, 1–8. https://doi.org/10.2147/IJWH.S241607

Chinawa, O. M., Odetunde, O. I., Ndu, I. K., Ezugwu, E. C., Aniwada, E. C., Chinawa, A. T., & Ezenyiriocha, U. (2016). Postpartum depression among mothers as seen in hospitals in Enugu, South East, Nigeria: An undocumented issue. *Pan African Medical Journal, 23*, Article 180. https://doi.org/10.11604/pamj.2016.23.180.8244

Cornish, A. M., McMahon, C. A., Ungerer, J. A., Barnett, B., Kowalenko, N., & Tennant, C. (2006). Maternal depression and the experience of parenting in the second postnatal year. *Journal of Reproductive and Infant Psychology, 24*(2), 121–132. https://doi.org/10.1080/02646830600676166

Cox, J. L., Holden, J. M., & Sagovsky, R. (1987). Detection of postnatal depression. Development of the 10-item Edinburgh Postnatal Depression Scale. *British Journal of Psychiatry, 150*(6), 782–786. https://doi.org/10.1192/bjp.150.6.782

Eisenach, J. C., Pan, P. H., Smiley, R., Lavand'homme, P., Landau, R., & Houle, T. T. (2008). Severity of acute pain after childbirth, but not type of delivery, predicts persistent pain and postpartum depression. *Pain, 140*(1), 87–94. https://doi.org/10.1016/j.pain.2008.07.011

Gelaye, B., Rondon, M., Araya, R., & Williams, M. A. (2016). Epidemiology of maternal depression, risk factors and child outcomes in lowincome and middleincome countries. *Lancet Psychiatry, 3*(10), 973–982. https://doi.org/10.1016/S2215-0366(16)30284-X

Hahn-Holbrook, J., Cornwell-Hinrichs, T., & Anaya, I. (2018). Economic and health predictors of national postpartum depression prevalence: A systematic review, meta-analysis, and meta-regression of 291 studies from 56 countries. *Frontiers in Psychiatry, 8*, Article 248. https://doi.org/10.3389/fpsyt.2017.00248

Hoque, A. M., Hoque, M., Hoque, R., & Buckus, S. (2025). Prevalence and risk factors for postpartum depression in eThekwini district of KwaZulu-Natal province of South Africa. *European Journal of Medical and Health Sciences, 7*(1). https://doi.org/10.24018/ejmed.2025.7.1.2248

Hutcherson, T. C., Cieri-Hutcherson, N. E., & Gosciak, M. F. (2020). Brexanolone for postpartum depression. *American Journal of Health-System Pharmacy, 77*(5), 336–345. https://doi.org/10.1093/ajhp/zxaa001

Johnson, B. O., Twizelimana, D., & Nkhata, L. A. (2024). Social factors as predictors of postpartum depression among nursing mothers in Akinyele Local Government Area of Oyo State, Nigeria. *Journal of Psychology and Psychotherapy, 14*(6), Article 495. https://doi.org/10.35841/2161-0487.24.14.495

Laima, C. H., Olufajo, T. O., Paktama, H. E., Joseph, E., & Shitu, A. (2025). Postpartum depression among postnatal mothers: Knowledge, attitudes, and prevalence at Federal Teaching Hospital Gombe, Northeast Nigeria. *Asian Research Journal of Gynaecology and Obstetrics, 8*(1), 159–166. https://doi.org/10.9734/arjgo/2025/v8i1266

Liu, X., Wang, S., & Wang, G. (2022). Prevalence and risk factors of postpartum depression in women: A systematic review and meta-analysis. *Journal of Clinical Nursing, 31*(19–20), 2665–2677. https://doi.org/10.1111/jocn.16121

Nwosu, N. G. (2021). Postpartum depression and physical activity among women attending postnatal clinics in a tertiary hospital in Nigeria. *Journal of Research & Health, 11*(5), 285–296. https://doi.org/10.32598/jrh.11.5.1915.1

Obioha, E. G., Balogun, M. R., Olubodun, T., & Okafor, I. P. (2021). Knowledge, attitude, and prevalence of postpartum depression among postnatal mothers in Southwest Nigeria. *African Journal of Health Sciences, 34*(6), 779–792.

O'Connor, E., Rossom, R. C., Henninger, M., Groom, H. C., & Burda, B. U. (2016). Primary care screening for and treatment of depression in pregnant and postpartum women: Evidence report and systematic review for the US Preventive Services Task Force. *JAMA, 315*(4), 388–406. https://doi.org/10.1001/jama.2015.18948

Olarinmoye, A., Oshineye, A., Oyebade, A., Nureni, D., Ayuba, R., & Joseph, G. (2024). Prevalence and risk factors of postpartum depression among post-natal mothers at Ahmadu Bello University Teaching Hospital, Zaria, Nigeria. *Journal of Mental Health and Psychiatric Disorders, 3*, 1–12.

Sadat, Z., Kafaei, A. M., Masoudi, A. N., Abbaszadeh, F., Karimian, Z., & Taherian, A. (2014). Effect of mode of delivery on postpartum depression in Iranian women. *Journal of Obstetrics and Gynaecology Research, 40*(1), 172–177. https://doi.org/10.1111/jog.12150

Sanni, S. O., Adeoye, I. A., Bella-Awusah, T. T., & Bello, O. O. (2024). Influence of postpartum depression on maternal-infant bonding and breastfeeding practices in Abeokuta, Ogun State, Nigeria. *Discover Mental Health, 4*(46). https://doi.org/10.1007/s44192-024-00104-2

Sharma, R., Bansal, P., Saini, L., Sharma, N., & Dhingra, R. (2024). Zuranolone, a neuroactive drug, used in the treatment of postpartum depression by modulation of GABA$_{A}$ receptors. *Pharmacology, Biochemistry and Behavior, 238*, Article 173734. https://doi.org/10.1016/j.pbb.2023.173734

Smithson, S., Mirocha, J., Horgan, R., Graebe, R., Massaro, R., & Accortt, E. (2022). Unplanned cesarean delivery is associated with risk for postpartum depressive symptoms in the immediate postpartum period. *Journal of Maternal-Fetal & Neonatal Medicine, 35*(20), 3860–3866. https://doi.org/10.1080/14767058.2020.1841163

Swart, T., Shandley, K., Huynh, M., Brown, C. M., Austin, D. W., & Bhowmik, J. (2023). Pregnancy complications and their association with postpartum depression symptoms: A retrospective study. *Australian Journal of Psychology, 75*(1), Article 2247088. https://doi.org/10.1080/00049530.2023.2247088

Tungchama, F. P., Obindo, J. T., Armiya'u, A. Y., Maigari, Y. T., Davou, F., Goar, S., Piwuna, C., Umar, M., Sadiq, S., Agbir, M. T., & Uwakwe, R. (2018). Prevalence and sociodemographic correlates of postpartum depression among women attending postnatal and/or children's welfare clinics in a tertiary hospital, Jos, Nigeria. *Sahel Medical Journal, 21*(1), 23–30. https://doi.org/10.4103/smj.smj_36_17

Wang, Z., Liu, J., Shuai, H., Cai, Z., Fu, X., Liu, Y., Xiao, X., Zhang, W., Krabbendam, E., Liu, S., Liu, Z., Li, Z., & Yang, B. (2021). Mapping global prevalence of depression among postpartum women. *Translational Psychiatry, 11*(1), Article 543. https://doi.org/10.1038/s41398-021-01663-6

Woody, C. A., Ferrari, A. J., Siskind, D. J., Whiteford, H. A., & Harris, M. G. (2017). A systematic review and meta-regression of the prevalence and incidence of perinatal depression. *Journal of Affective Disorders, 219*, 86–92. https://doi.org/10.1016/j.jad.2017.05.003

World Health Organization. (2021). *Maternal mental health*. https://www.who.int/news-room/fact-sheets/detail/maternal-mental-health

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