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Perceived Stress and Education level as Predictors of Postpartum Depression among Women in Makurdi, Nigeria

By

Stella Eleyi Ogah, Simon Agbo Itodo², & Elvis Oblu Ihaji³

Corresponding author: Simon Agbo Itodo

^{1,3}-Department of Psychology, Rev. Fr Moses Orshio Adasu University, P.M.B 102119 Makurdi, Benue State, Nigeria.

²-Department of Clinical Psychology, Federal Medical Centre, P.M.B 102004 Makurdi, Benue State, Nigeria.

ABSTRACT: This study investigated the role of perceived stress and level of education as predictors of postpartum depression among women in Makurdi, Nigeria. The aim of the study was to determine if perceived stress and educational level predict postpartum depression among women in Makurdi, Nigeria. A multistage sampling technique was used to select Six hundred and nineteen (619) puerperal mothers who participated in the study. Two instruments were used: Perceived Stress scale (Cohen et al., 1983) and Edinburg Postnatal Depression Scale (Cos et al., 1987). Data were analyzed using regression and analysis of variance (ANOVA). Results showed that perceived stress is a significant and negative predictor of postpartum depression among women in Makurdi metropolis [$\beta = -.988$, $t = -160.930$; $p < .001$]. Also, there was a significant influence of level of education on postpartum depression among women in Makurdi, Nigeria [$F(2, 616 \text{ df}) = 3.045$; $p < .05$]. In addition, there was a significant joint influence of perceived stress and educational level on postpartum depression among women in Makurdi, Nigeria [$F(3, 615 \text{ df}) = 8625.435$; $P < .001$]. The study recommended that healthcare providers, particularly in antenatal and postnatal clinics, should incorporate routine screening for perceived stress and postpartum depression using standardized tools to enhance early identification and timely intervention to reduce adverse maternal and child outcomes among the studied population.

KEYWORDS: Perceived Stress, Postpartum Depression, Educational Level.

INTRODUCTION

Pregnancy and womanhood are a significant period in a women's life and it may come to some with significant mental health challenges. One of such mental health challenges is postpartum depression (PPD). The postpartum period represents a critical transitional phase in a woman's life, characterized by profound biological, psychological, and social changes that may increase vulnerability to mental health disorders (World Health Organization [WHO] (2022). PPD has emerged as one of the most common complications of childbirth, affecting approximately 10–15% of women globally, although higher rates are often reported in low- and middle-income countries (WHO, 2022; Shorey, et al., 2018). PPD is associated with persistent low

mood, loss of interest, fatigue, sleep disturbances, and impaired maternal functioning, with significant consequences for maternal well-being, infant development, and family stability (American Psychiatric Association, 2022).

In sub-Saharan Africa, and particularly in Nigeria, the burden of postpartum depression is substantial and increasingly recognized as a public health concern (Balogun, et al., 2026; Nweke, et al., 2024). Empirical studies in different regions of Nigeria have reported prevalence rates ranging from about 20% to over 35%, indicating that the condition may be more widespread than global averages (Upadhyay, et al., 2017; Dadi, et al., 2020). Despite this high burden, postpartum mental health remains

underdiagnosed and undertreated due to stigma, limited awareness, and inadequate integration of mental health services into routine maternal care (WHO, 2022).

The development of postpartum depression is multifactorial, involving interplay of biological, psychological, and socio-environmental factors (Yim, et al., 2015; WHO, 2022). Among these, perceived stress has consistently been identified as a critical psychological determinant (Faleschini, et al., 2020). The postpartum period is often accompanied by stressors such as childcare demands, sleep deprivation, financial pressures, and changes in social roles, all of which may overwhelm coping mechanisms and precipitate depressive symptoms (Slomian, et al., 2019). Evidence suggests that higher levels of perceived stress significantly increase the likelihood of postpartum depression (Cohen et al., 1983; Norhayati et al., 2015). Furthermore, studies in Nigeria have demonstrated that exposure to stress or perceived stress substantially elevates the risk of postpartum depression in the postnatal period (Bello, et al., 2025; Hilary, et al., 2026).

Education level is another important socio-demographic factor that may influence the risk of postpartum depression. Educational attainment often determines access to health information, economic opportunities, and coping resources, thereby shaping a woman's capacity to manage stress and adapt to the demands of motherhood (Cutler, & Lleras-Muney, 2010; Grote, et al., 2010). Studies have shown that lower levels of education are significantly associated with higher levels of postpartum psychological distress (Gureje et al., 2006). Similarly, research has identified education as a significant correlate of postpartum depression, with women having lower educational attainment experiencing higher vulnerability due to limited awareness of mental health issues, reduced autonomy, and poorer access to healthcare services (Norhayati, et al., 2015).

Although several studies have examined the prevalence and predictors of postpartum depression in Nigeria, there remains a paucity of research that specifically explores the combined predictive role of perceived stress and educational level, particularly among women in Makurdi, North-Central Nigeria. In cities such as Makurdi, where socio-economic challenges, cultural expectations,

and healthcare access disparities intersect, understanding these predictors is essential for developing contextually relevant interventions. Moreover, most existing studies have focused on clinical or obstetric factors, with less emphasis on psychological constructs such as perceived stress, which may offer more immediate targets for intervention.

Given the significant impact of postpartum depression on maternal and child health outcomes, there is a pressing need to identify modifiable risk factors that can inform preventive strategies. The aim of this study is therefore to determine if perceived stress and educational level will predict postpartum depression among women in Makurdi, Nigeria. This study will not only contribute to the existing body of knowledge but also provide empirical evidence to guide policy formulation, mental health screening, and targeted interventions within maternal healthcare services in Nigeria. The study is guided by the following research questions:

1. Will perceived stress significantly predict postpartum depression among women in Makurdi, Nigeria?
2. Will level of education significantly predict postpartum depression among women in Makurdi, Nigeria?
3. Will perceived stress and level of education jointly and significantly predict postpartum depression among women in Makurdi, Nigeria?

Materials and Methods

Research Design

This study adopted a cross-sectional correlational research design. This design is appropriate because it allowed for the examination of the predictive relationship between perceived stress, educational level, and postpartum depression among women without manipulating any variables. It also enabled the collection of data at a single point in time, which is suitable for assessing psychological states in the postpartum period.

Study Area

The study was conducted in Makurdi, the capital of Benue State, North-Central Nigeria. Makurdi hosts several healthcare facilities, including tertiary and secondary healthcare institutions that provide antenatal and postnatal services to a diverse population of women. Participants were sampled from Federal Medical Centre Makurdi, Benue State Teaching Hospital Makurdi, General Hospital

North Bank, Primary Healthcare Wadata, and Family Support Programme Clinic Makurdi.

Population, Sample Size and Sampling Technique

The target population consisted of postpartum and antenatal women attending clinics in selected healthcare facilities in Makurdi. A multistage sampling technique was used to select 619 participants for the study. First, health facilities offering postnatal and antenatal services in Makurdi were purposively selected. Second, they were stratified in to Tertiary, secondary and primary health care facilities. Thirdly, systematic random sampling was used to recruit women attending either postnatal or antenatal clinics. Every second eligible respondent was selected until the required sample size was achieved.

Inclusion criteria are women aged 14 years and above, women within the postpartum period (≤ 12 months after delivery) and are willing to provide informed consent. Exclusion criteria are women with severe medical or psychiatric conditions impairing participation.

Participants

The sample consisted entirely of women with a mean age of 35.96 years ($SD = 11.50$), ranging from 14 to 49 years. Most participants had been married for 6–10 years (42.2%), followed by 1–5 years (37.5%), while 20.4% had been married for 11 years or more. In terms of education, nearly half (47.7%) had secondary education, 29.2% had tertiary education, and 23.1% had no or only primary education. Slightly more than half (54.1%) were employed, while 45.9% were unemployed. Regarding mode of delivery, the majority (56.9%) had vaginal births, compared to 43.1% who had caesarean sections. Participants were drawn from multiple health facilities, with the largest proportions from BSU Teaching Hospital (22.0%) and General Hospital North Bank (21.0%), followed by Primary Health Care Wadata (19.9%), Federal Medical Centre (19.4%), and Family Support Programme Clinic Makurdi (17.8%).

Data Collection

Two instruments were used for data collection. They included the Perceived stress scale and Edinburge Postnatal Depression Scale. The 14 items

Perceived Stress scale developed by Cohen et al., (1983) was used to measure Perceived stress. It is rated on a 5-point scale that ranges from never = 0; Almost never = 1; Sometimes = 2; Fairly often = 3; and very often = 4. Edinburge Postnatal Depression Scale was developed by Cos, Holden and Sagovsky (1987) to assess mothers' postnatal depression. The instrument has 10 items and the mothers were asked to underline the possible response options closest to how they have been feeling during the past week. Each item is scored on 0–3-point scale from mildly depressed to severely depressed according to increased severity of symptoms. Items 3, 5, 6, 7, 8, 9, 10 were reversed scored. Both instruments have established reliability and validity globally and in Nigeria.

The researchers collected data from women attending antenatal and postnatal clinics through the use of questionnaire in five government-owned hospitals in Makurdi after obtaining ethical approval and institutional permissions. Six trained research assistants (including hospital staff) administered questionnaires to eligible participants, obtaining informed consent, assuring them of confidentiality of information, and voluntary participation and assurance of withdrawal at any point in the study. Although 790 women were initially targeted, 619 completed and valid questionnaires were returned and analyzed. Only participants who met the inclusion criteria were included in the final analysis.

Data Analysis

The researchers employed the use of descriptive and inferential statistics for data analyses. The researchers used descriptive statistics such as frequencies for the bio-data and inferential statistics, particularly Regression analysis and One-Way Analysis of Variance for testing the stated hypotheses. All data were analysed using Statistical Package for Social Sciences (SPSS) version 20.

Results

The result of the key findings from the study are presented below:

Table 1: Linear regression analysis showing perceived stress as a predictor of postpartum depression among women in Makurdi, Nigeria.

Variables	R	R ²	F	β	T	p	Remark
Constant	.988	.977	25898.550		239.370	.000	
Perceived Stress				-.988	-160.930	.000	Sig

Dependent Variable: Postpartum Depression

$F(1, 617 \text{ df}) = 25898.550$; $P < .001$; $R = .988$ and $R^2 = .977$

Result in table 1 above shows that perceived stress is a significant and negative predictor of postpartum depression among women in Makurdi Nigeria [$\beta = -.988$, $t = -160.930$; $p < .001$]. Observation further revealed that, perceived stress negatively accounted for 97.7% of the total variance observed in

postpartum depression among women [$R = .988$ and $R^2 = .977$]. Therefore, hypothesis one which stated that, perceive stress will significantly predict postpartum depression among women in Makurdi, Nigeria is therefore accepted.

Table 2: One-Way ANOVA showing the influence of level of education on postpartum depression among women in Makurdi, Nigeria.

Source	SSQ	df	MSQ	F	p	Remark
Between Groups	1810.477	2	905.238	3.045	.048	Sig
Within Groups	183102.095	616	297.244			
Total	184912.572	618				

The result in table 2 above shows that there is a significant influence of level of education on postpartum depression among women in Makurdi, Nigeria [$F(2, 616 \text{ df}) = 3.045$; $p < .05$]. To further test the hypothesis, LSD multiple comparism was conducted and the result indicated that participants in the secondary level of education (Mean = 25.19, SD = 17.82) significantly scored higher on postpartum depression followed by those in the tertiary (Mean = 22.59, SD = 17.03) and lastly those

in the no education/primary education category (Mean = 21.10, SD = 16.25). Based on this, hypothesis two which stated that, there will be a significant influence of level of education on postpartum depression among women in Makurdi, Nigeria is accepted.

Table 3: Multiple regression analysis showing the joint influence of perceived stress and level of education on postpartum depression among women in Makurdi, Nigeria.

Variables	R	R ²	F	β	T	P	Remark
Constant	.988	.977	8625.435		14.114	.000	
Perceived Stress				-.979	-52.402	.000	Sig
Educational Status				.006	1.035	.301	Not Sig

Dependent Variable: Postpartum Depression

$F(3, 615 \text{ df}) = 8625.435$; $P < .001$; $R = .988$ and $R^2 = .977$

The result in table 3 above shows that, there is a significant joint influence of perceived stress, and educational level on postpartum depression among women in Makurdi, Nigeria [$F(3, 615 \text{ df}) = 8625.435$; $P < .001$]. Observation further revealed that, perceived stress, and level of education jointly accounted for 97.7% of the total variance observed [$R = .988$ and $R^2 = .977$]. Hypothesis three which stated that perceived stress and level of education will significantly and jointly predict postpartum depression among women in Makurdi, Benue State is therefore accepted.

Discussion

The result of the first hypothesis which stated that, perceive stress will significantly predict postpartum depression among women in Makurdi, Nigeria was found to be significant. Perceived stress is a significant predictor of postpartum depression among women in Makurdi, Nigeria. This finding is consistent with the findings of some studies who found that mothers who had higher level of perceived stress or stress had a significant increase risk of postpartum depression (Maureen, Kartik, Elizabeth, & Caron, 2014; Hillary, Terwase, & Benjamin, 2026).

The second hypothesis which stated that, there will be a significant influence of level of education on postpartum depression among women in Makurdi, Nigeria was tested using One-Way Analysis of Variance and the result indicated that, level of

education significantly influenced postpartum depression among women in Makurdi, Nigeria. Further analysis indicated that, participants in the secondary level of education significantly scored higher on postpartum depression followed by those in the tertiary and lastly those in the no education/primary education category. This finding is consistent with that of Bello, et al., (2025) who found that young age and a low education level are among predictors of postpartum depression among women at a tertiary health institution in Nigeria.

The finding that women with secondary education reported higher depression levels is noteworthy. This may reflect increased socio-economic pressures, unmet expectations, or transitional stress associated with this group. The non-significance of education in the combined model suggests that its influence may be indirect, operating through stress pathways. Overall, the findings align with existing literature emphasizing stress as a key determinant of maternal mental health outcomes.

Recommendations of the Study

Policymakers should recognize postpartum depression as a public health concern and allocate resources toward maternal mental health programs, especially those targeting stress reductions. Given the central role of perceived stress, targeted psychological interventions such as Cognitive Behavioral Therapy (CBT), stress management training, and psychoeducation should be implemented for pregnant and postpartum women in the study area. These interventions should be culturally adapted to the local context in Makurdi. Healthcare providers, particularly in antenatal and postnatal clinics, should incorporate routine screening for perceived stress and postpartum depression using standardized tools to facilitate early identification and timely intervention to reduce adverse maternal and child mental health outcomes.

Limitations of the Study

Data were collected using self-report questionnaires, which are subject to social desirability bias, recall bias, response distortion or participants may have underreported or overreported their stress levels or depressive symptoms. In addition, the study was conducted among women in Makurdi metropolis, Nigeria. Therefore, the findings may not be generalizable to women in rural areas, other regions of Nigeria.

Finally, the study had limited consideration of other influential postpartum predictor variables such as social support, marital satisfaction, economic status, obstetric complications, etc. The omission of these variables may have inflated the apparent effect of perceived stress.

Suggestions for Future Studies

Future studies should explore additional variables such as social support, marital satisfaction, income level, and cultural beliefs. Possibility of extending the area of research to the whole Benue and other geographical location in Nigeria should be considered. This will help not only in creating awareness on postpartum depression and its impacts but also in the generalization of findings to the entire populace. Future studies could also replicate this work using experimental method where some confounding variables could be properly controlled.

Conclusion

Overall, the study concludes that perceived stress is the primary determinant of postpartum depression among women in Makurdi, while the role of education is secondary and context-dependent. These findings underscore the critical importance of psychological stress in the development and maintenance of postpartum depressive symptoms among women in Makurdi Nigeria.

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