Psycho-social predictors of postpartum depression among postnatal women in Ibadan metropolis

Femi E. Babalola[1]
Abel Obosi[2]
&
Shyngle k. Balogun[3]
[1]Department of Psychology, Ladoke Akintola University.
[2&3]Department of Psychology, University of Ibadan

Abstract
Postpartum depression (PPD) is a significant public health challenge in low- and middle-income countries like Nigeria. This cross-sectional study examined the influence of financial stress, online health information-seeking behaviour (OHISB), and perceived social support on PPD among 287 postnatal women in Ibadan. Validated instruments, including the Edinburgh Postnatal Depression Scale, Financial Strain Index, eHealth Literacy Scale, and Multidimensional Scale of Perceived Social Support, were administered. Hypothesis 1 was supported: financial stress had a significant positive influence on PPD ($\beta = .23$, $t = 4.03$, $p < .01$), accounting for 5% of the variance. Hypotheses 2 and 3 were not supported: OHISB ($\beta = .02$, $p > .05$) and perceived social support ($\beta = -.06$, $p > .05$) showed no significant direct effects on PPD. Hypothesis 4 was supported: the joint model of all three predictors was significant ($R^2 = .06$, $F = 5.71$, $p < .01$), although only financial stress contributed unique variance ($\beta = .24$, $p < .01$). The findings underscore financial stress had a significant positive relationship with postpartum depression and independently predicted depressive symptoms, explaining 5% of the variance. Women experiencing greater financial stress reported higher levels of depression. In contrast, online health information-seeking behaviour and perceived social support did not significantly predict postpartum depression. Collectively, the psycho-social variables explained 6% of the variance, with financial stress emerging as the only significant contributor. Interventions aimed at reducing PPD should prioritize routine screening for financial stress, integration of maternal mental health into primary healthcare, and economic empowerment, social protection initiatives to reduce vulnerability and improve postpartum mental health outcomes.

Keywords: Postpartum depression, Financial stress, Perceived social support, Online health information-seeking behaviour, psycho-social, Postnatal women

Introduction

Postpartum depression (PPD) is a common and debilitating mood disorder that occurs after childbirth and represents one of the most significant complications of the postpartum period. Unlike the transient "baby blues," which typically resolve within two weeks, PPD is persistent and characterized by prolonged sadness, hedonism, sleep disturbance, irritability, fatigue, and, in severe cases, thoughts of self-harm or suicide (APA, 2022; WHO, 2022). Beyond individual suffering, PPD poses serious risks to maternal functioning, infant development, and family well-being, making it a critical global public health concern. Despite its prevalence, the condition remains under-diagnosed and under-treated, particularly in low- and middle-income countries (LMICs), where limited mental health resources, stigma, and weak service integration restrict access to care (Mannathoko, 2025; WHO, 2023).

Globally, the prevalence of PPD ranges from 8% to 26% within the first year after childbirth (Mannathoko, 2025; WHO, 2023). However, higher rates are often reported in LMICs, reflecting the influence of socioeconomic adversity and healthcare inequities. In sub-Saharan Africa, prevalence estimates frequently exceed 30% (Bello et al., 2021; Ugoji et al., 2022). In Nigeria specifically, rates range from approximately 14.6% in the South-West to over 20% in other regions, underscoring both widespread burden and contextual variability (Odufuwa et al., 2022). These figures indicate that PPD is not only a clinical concern but also a substantial maternal and child health challenge.

The consequences of untreated PPD extend beyond maternal psychological distress. Evidence shows that depressive symptoms interfere with maternal-infant bonding, breastfeeding practices, and responsive care-giving, which in turn adversely affect child growth, emotional regulation, and cognitive development (Sanni et al., 2024). Women with PPD are also more likely to experience marital stress, social withdrawal, and impaired daily functioning. Such outcomes highlight the broader developmental, relational, and socioeconomic implications of maternal mental health and reinforce the need to identify modifiable risk factors that can inform prevention strategies.

Although biological and hormonal changes contribute to the onset of PPD, growing evidence emphasizes the central role of psycho-social determinants. Stressful life events, economic

hardship, inadequate support, and coping challenges have been consistently associated with depressive outcomes during the postpartum period (Odufuwa et al., 2022; Mannathoko et al., 2025). Guided by psycho-social perspectives of mental health, postpartum depression is increasingly conceptualized as an outcome of interactions between environmental stressors, individual coping processes, and available social resources. Within this context, financial stress, online health information-seeking behaviour (OHISB), and perceived social support represent key psycho-social factors that may influence postpartum mental health outcomes.

Financial stress refers to the perceived strain arising from insufficient economic resources to meet daily needs and responsibilities. For postnatal women, this burden is often intensified by healthcare costs, childcare expenses, and potential income disruption following childbirth. In Nigeria, economic instability, unemployment, and high out-of-pocket healthcare payments amplify these pressures. Such economic constraints may generate chronic stress that undermines coping capacity and increases vulnerability to depressive symptoms. Empirical studies across LMICs identify financial hardship as a significant predictor of maternal psychological distress (Shorey et al., 2018; Wake et al., 2022; Mannathoko et al., 2025), while Nigerian studies similarly link financial difficulties with postpartum anxiety and depression (Agbaje et al., 2019; Odufuwa et al., 2022). Nevertheless, relatively few studies have quantified its predictive role in urban Nigerian environments such as Ibadan, where cost of living and social inequalities are rapidly increasing.

In addition to financial stress, the rapid expansion of digital technology has transformed how women access maternal health information. Many postnatal women now rely on online platforms including search engines, social media, blogs, and mobile applications for information about pregnancy, childbirth, infant care, and maternal well-being. Online health information-seeking behaviour (OHISB) can empower women through increased knowledge, social interaction, and access to peer experiences. However, excessive exposure to unverified information, conflicting advice, and alarmist narratives may also generate anxiety and uncertainty. Research suggests that the psychological consequences of OHISB depend on the credibility of information sources and users' digital literacy skills (Seo et al., 2022; Xu et al., 2025). Although Nigerian women increasingly use online health resources (Odufuwa et al.,

2022; Aluko et al., 2024), empirical research examining how such behaviour relates to postpartum depression remains limited.

Perceived social support is another important psycho-social factor associated with postpartum depression. It refers to an individual's perception that emotional, informational, and practical assistance is available from family, partners, and social networks. Social support can buffer stress, enhance coping capacity, and promote psychological well-being (Gao et al., 2020). In many traditional Nigerian communities, extended family systems historically provided structured postpartum support to new mothers. However, processes such as urbanization, migration, and the increasing shift toward nuclear family structures have weakened these traditional support systems, leaving many women with reduced access to informal support (Izugbara et al., 2020; Ntoimo et al., 2021). Consequently, postnatal women living in urban centres may experience increased social isolation and emotional strain during the postpartum period.

Importantly, these psycho-social factors often interact rather than operate independently. Financial hardship may increase psychological stress and limit access to professional healthcare services, thereby encouraging reliance on online information sources. At the same time, inadequate social support may intensify the emotional burden associated with financial and informational stressors. Understanding how these variables collectively influence maternal mental health requires integrated empirical investigation.

Despite growing research on postpartum depression, several important knowledge gaps remain. Existing studies have largely examined financial stress, social support, or digital health behaviour independently. However, little is known about how these psycho-social factors jointly influence postpartum depression, particularly within rapidly urbanizing Nigerian contexts such as Ibadan Metropolis. Furthermore, empirical research integrating financial stress, online health information-seeking behaviour, and perceived social support within a single explanatory model remains scarce.

Ibadan metropolis, one of the largest urban centres in southwestern Nigeria, reflects many of the social and economic challenges characteristic of rapidly expanding African cities.

Although healthcare facilities are relatively available, maternal mental health services remain poorly integrated into routine care, and psychological screening is rarely conducted in postnatal clinics. As a result, many women experiencing postpartum psychological distress remain undetected and untreated.

Therefore, this study investigates the predictive roles of financial stress, online health information-seeking behaviour, and perceived social support on postpartum depression among postnatal women in Ibadan Metropolis. By identifying the most salient psycho-social determinants in this context, the study seeks to contribute to culturally relevant maternal mental health research and provide evidence that can inform early screening, intervention strategies, and policy development in Nigeria and other similar settings.

Theoretical Framework

The integration of Stress and Coping Theory (Lazarus & Folkman, 1984) and Social Support Theory, particularly the Buffering Hypothesis (Cohen & Wills, 1985), provide a robust conceptual basis for understanding the psycho-social determinants of postpartum depression among postnatal women in Ibadan Metropolis. These theoretical perspectives collectively justify the selection of the study variables financial stress, online health information-seeking behaviour, and perceived social support while also explaining the hypothesised relationships between these factors and postpartum depressive symptoms.

Within the framework of Stress and Coping Theory, the postpartum period is conceptualised as a significant life transition characterised by increased psychological, social, and economic demands. During this period, women must adjust to new maternal responsibilities, infant care requirements, physical recovery, and potential disruptions to employment and income. According to Lazarus and Folkman (1984), psychological distress emerges when individuals appraise environmental demands as exceeding their coping resources. In the context of the present study, financial stress represents a key external stressor capable of triggering negative cognitive appraisal processes. The high costs associated with childbirth, childcare, healthcare services, and household responsibilities may overwhelm available financial resources, thereby leading mothers to perceive their circumstances as threatening or uncontrollable.

Such appraisals may subsequently heighten emotional strain and increase susceptibility to postpartum depressive symptoms. Consequently, financial stress was included in this study as a primary psycho-social predictor of postpartum depression.

In addition to financial stress, the theory also highlights the role of coping behaviours adopted to manage perceived stressors. Online health information-seeking behaviour (OHISB) represents one such coping strategy that may emerge during the postpartum period. Within the theoretical framework, OHISB may function as a problem-focused coping mechanism, where mothers actively search for information regarding infant care, maternal health, breastfeeding, and postpartum recovery in an attempt to enhance knowledge and regain a sense of control. However, the effectiveness of this coping strategy depends largely on the quality and credibility of the information accessed. Exposure to inaccurate, conflicting, or overwhelming online health information may instead increase anxiety and uncertainty, thereby exacerbating psychological distress. The inclusion of OHISB in the present study therefore reflects the growing role of digital health engagement in shaping maternal coping processes and mental health outcomes.

While Stress and Coping Theory explains the individual cognitive and behavioural processes underlying psychological distress, it does not sufficiently account for the broader social environment within which coping occurs. To address this limitation, Social Support Theory, particularly the buffering hypothesis proposed by Cohen and Wills (1985), was incorporated into the present framework. The buffering hypothesis posits that social support protects individuals from the harmful psychological effects of stress by providing emotional reassurance, informational guidance, and practical assistance. In the context of postpartum adjustment, perceived social support from partners, family members, friends, and community networks represents a critical protective resource. Such support may help reduce maternal stress by assisting with childcare responsibilities, providing financial or material assistance, offering emotional encouragement, and facilitating access to healthcare services.

More importantly, the buffering hypothesis suggests that social support may modify the relationship between stressors and mental health outcomes. For example, strong social support networks may reduce the perceived burden of financial stress by offering practical

assistance or shared care-giving responsibilities. Similarly, supportive family members or healthcare professionals may help mothers interpret and evaluate online health information more effectively, thereby preventing misinformation from escalating into anxiety or distress. In this way, perceived social support functions as an external coping resource capable of moderating the impact of financial and informational stressors on postpartum psychological well-being.

These theoretical perspectives guided the formulation of the study hypotheses and the interpretation of the empirical findings. Financial stress was hypothesised to increase the likelihood of postpartum depression due to its role as a chronic psycho-social stressor. Online health information-seeking behaviour was conceptualised as a coping mechanism whose psychological implications depend on the nature and credibility of accessed information. Perceived social support was expected to function as a protective resource capable of buffering the adverse effects of stressors on maternal mental health. The integration of these frameworks therefore provides a comprehensive explanation of how individual coping processes and social environmental resources interact to influence postpartum psychological outcomes among postnatal women in Ibadan.

Empirical Review of Related Studies

Financial Stress and Postpartum Depression

Financial stress refers to the psychological strain arising from perceived or actual difficulties in meeting financial obligations, including income instability, debt, unemployment, and limited resources to meet basic household and childcare needs. The postpartum period often intensifies these pressures due to increased care-giving responsibilities, healthcare expenses, and reduced work participation. Evidence suggests that perceived financial insecurity, rather than objective income alone, is particularly detrimental to maternal mental health (Onayemi et al., 2025). Consequently, financial stress has been widely examined as a salient psycho-social determinant of postpartum depression (PPD).

Globally, financial stress consistently emerges as one of the strongest predictors of postpartum depressive symptoms. In a comprehensive meta-analysis, Shorey et al. (2018) identified low income and economic hardship as robust and universal risk factors for PPD

across both high- and low-income countries. Similarly, a population-based Canadian cohort study found that women experiencing financial insecurity were more than twice as likely to report moderate-to-severe depressive symptoms postpartum, even after adjusting for marital status and social support (Maviel et al., 2025). In the United States, Dagher et al. (2014) further demonstrated that subjective financial stress particularly difficulty affording healthcare and childcare was more predictive of depression scores than income level itself, underscoring the psychological dimension of economic stress.

Comparable findings have been reported in Asia. Zhang et al. (2024) observed that economic pressure significantly predicted postpartum depression among both first-time and multiparous mothers in China, suggesting that financial concerns exacerbate emotional vulnerability during the transition to motherhood. The scholars concluded that economic uncertainty undermines coping capacity and heightens psychological distress.

The association appears even more pronounced in sub-Saharan Africa, where structural poverty and limited social protection systems intensify financial stress. A regional review by Nweke et al. (2024) identified household financial insecurity as one of the most frequently cited risk factors for PPD. In Botswana, Mannathoko et al. (2025) found that difficulty meeting basic needs independently predicted postpartum depression after controlling for demographic variables. Similarly, Ethiopian women from low-income households were nearly three times more likely to experience depressive symptoms (Wake et al., 2022).

Within Nigeria, economic hardship remains a central concern. Agbaje et al. (2019) reported that financial difficulties significantly increased the likelihood of depressive and anxiety symptoms among postnatal women. Odufuwa et al. (2022) likewise identified financial constraints as a major barrier to both mental wellbeing and healthcare utilization in Ibadan. Abiodun et al. (2020) further demonstrated that unemployment and perceived financial inadequacy predicted depressive symptoms, particularly when compounded by limited partner support. Despite this consistent evidence, few studies have examined financial stress alongside contemporary psycho-social factors within urban settings such as Ibadan, highlighting a need for integrated investigations.

Online Health Information-Seeking Behaviour and Postpartum Depression

Online health information-seeking behaviour (OHISB) refers to the use of digital platforms including websites, social media, forums, and mobile applications to obtain health-related information. For postpartum women, these platforms often serve as readily accessible sources of guidance on infant care, breastfeeding, and emotional well-being (Lagan et al., 2020). While such engagement may enhance knowledge and self-efficacy, emerging research indicates that excessive or maladaptive online searching may also contribute to anxiety and depressive symptoms.

Evidence on the relationship between OHISB and PPD remains mixed. In the United States, Norazman et al. (2024) found that frequent online searching was associated with higher anxiety and depressive symptoms, likely due to exposure to alarming or contradictory content. Similarly, McCarthy and McMahon (2020) reported that heavy engagement with parenting forum predicted increased depressive symptoms six months postpartum, attributing this to social comparison and unrealistic portrayals of motherhood. In Sweden, Fredriksen et al. (2023) showed that low eHealth literacy amplified the psychological risks of online information seeking, indicating that the ability to critically appraise information moderates outcomes.

Conversely, some studies highlight the protective potential of credible digital resources. Seo et al. (2022) observed that postpartum women using reliable online platforms and telehealth services reported fewer depressive symptoms, suggesting that online engagement may be beneficial when integrated with professional care. Thus, the psychological impact of OHISB appears contingent on information quality, frequency of use, and users' literacy skills. In African contexts, online sources often compensate for limited healthcare access. A Ghanaian study found that heavy reliance on internet searches was associated with higher emotional distress, likely reflecting misinformation and cultural incongruence (Yevoo et al., 2025). Similarly, Banjo (2025) reported that frequent online searching predicted rumination and anxiety, precursors of depression.

Although Nigerian research directly linking OHISB to postpartum depression is limited, related evidence is suggestive. Olutade-Babatunde et al. (2024) found that reliance on social

media for health information was associated with increased psychological distress, while Aluko et al. (2023) identified low digital literacy as a contributor to emotional confusion. Odufuwa et al. (2022) noted that many postpartum women in Ibadan relied on online information due to financial barriers to professional care, sometimes leading to fear and delayed help-seeking. Collectively, these findings suggest that OHISB may function as both a coping strategy and a risk factor, warranting further empirical investigation.

Perceived Social Support and Postpartum Depression

Perceived social support refers to a mother's subjective belief that emotional, informational, and practical assistance is available from partners, family, and community networks. It has consistently been identified as one of the most powerful protective factors against postpartum depression. Unlike objective support, perceived adequacy of support more strongly predicts mental health outcomes.

Globally, evidence demonstrates a robust inverse association between perceived social support and PPD. Shorey et al. (2018) reported that women with low support were nearly twice as likely to experience depressive symptoms. Muliyani and Suryaningsih (2023) found that partner and family support significantly reduced depressive symptoms over time, while Zhang et al. (2024) observed that inadequate family support independently predicted depression across parity groups. Similarly, Faleschini et al. (2019) showed that strong perceived support buffered the effects of postpartum stress, supporting the social buffering hypothesis.

In Africa, shifting family structures have altered traditional support systems. Ethiopian women with low perceived support were over three times more likely to report depressive symptoms (Desta et al., 2021). Nigerian studies similarly highlight its protective role. Agbaje et al. (2019) and Abiodun et al. (2020) reported that inadequate family and partner support significantly increased depressive risk, while Odufuwa et al. (2022) linked low support to delayed mental healthcare utilization. Sanni et al. (2024) further demonstrated that strong support improved maternal–infant bonding and emotional wellbeing.

However, rapid urbanization and nuclear family living in cities such as Ibadan may weaken traditional postpartum support systems (Izugbara et al., 2020), potentially increasing vulnerability to PPD. Despite established evidence, few studies have examined perceived social support alongside financial stress and digital behaviours within the same model.

Overall, empirical literature identifies financial stress as a consistent risk factor, perceived social support as a protective buffer, and OHISB as a context-dependent influence on postpartum depression. Yet, limited research has simultaneously examined these psycho-social variables within urban Nigerian populations. Addressing this gap is essential for developing culturally relevant interventions. The present study therefore investigates the independent and joint contributions of financial stress, online health information-seeking behaviour, and perceived social support to postpartum depression among postnatal women in Ibadan Metropolis.

Objectives of the study

The general aim of this study is to investigate the influence of financial stress, online health information seeking behaviour, and perceived social support on postpartum depression among postnatal women in Ibadan. The following specific objectives will be achieved at the end of the study;

1. To investigate whether financial stress has significant influence on postpartum depression among postnatal women in Ibadan Metropolis.
2. To examine whether online health information-seeking behaviour has significant influence on postpartum depression among postnatal women in Ibadan Metropolis.
3. To determine whether perceived social support has significant influence on postpartum depression among postnatal women in Ibadan Metropolis.
4. To ascertain whether financial stress, online health information-seeking behaviour, and perceived social support have significant joint influence on postpartum depression among postnatal women in Ibadan Metropolis.

Based on the above reviewed literature, the following hypotheses would be tested;

Hypotheses

1. Financial stress will have a significant influence on postpartum depression among postnatal women in Ibadan Metropolis.
2. Online Health information-seeking behaviour will have a significant influence on postpartum depression among postnatal women in Ibadan Metropolis.
3. Perceived social support will have a significant influence on postpartum depression among postnatal women in Ibadan Metropolis.
4. Financial stress, online health information-seeking behaviour, and perceived social support will have a significant joint influence on postpartum depression among postnatal women in Ibadan Metropolis.

Methods

Research Design

The study employed a cross-sectional, ex post facto design to examine psycho-social predictors of postpartum depression among postnatal women in Ibadan Metropolis, Oyo State. This design was appropriate as the independent variables including financial stress, online health information-seeking behaviour, and perceived social support occurred naturally and could not be manipulated. Data were collected from women within twelve months postpartum using a structured questionnaire.

Research Settings

The study was conducted in selected public health facilities that provide maternal and postnatal healthcare services in Ibadan, Oyo State, Nigeria. Specifically, participants were recruited from postnatal clinics at Adeoyo Maternity Hospital, Ajibode Primary Health Centre, and Ojoo Primary Health Centre.

These facilities serve a large population of women across Ibadan and surrounding communities and offer essential maternal and child health services, including antenatal care, delivery services, postnatal care, and infant immunization. The postnatal clinics in these centres provide regular follow-up services for mothers after childbirth, making them

appropriate settings for assessing maternal mental health outcomes, including postpartum depression.

The selection of these health facilities was based on their high patronage by postnatal women and their accessibility within the Ibadan metropolis. Recruiting participants from multiple healthcare facilities also enhanced the diversity of the sample and improved the representativeness of postnatal women receiving maternal healthcare services in the study area.

Participants

The study population consisted of postnatal women residing in Ibadan Metropolis, Oyo State, Nigeria, who attended maternal and child health services at selected healthcare facilities. A total of 300 postnatal women were approached for participation, out of which 287 completed questionnaires were valid for analysis, representing a response rate of 95.7%.

Inclusion Criteria

Participants were eligible for the study if they:

Were women aged 18 years and above

Were within twelve months postpartum

Attended postnatal clinics, primary healthcare centres, or immunisation clinics in the selected Local Government Areas

Provided informed consent to participate in the study.

Participants were predominantly aged 24–29 years (49.8%), followed by 30–34 years (35.2%), with smaller proportions aged 18–23 years (8.4%) and ≥35 years (6.6%). Most were married (97.2%) and had tertiary education (67.6%), while 28.6% and 3.8% had secondary and primary education, respectively. Employment was largely self-employment (59.6%) or formal employment (37.3%), with 3.1% unemployed. Monthly income was mainly ₦50,001–₦100,000 (34.5%), followed by ₦150,001–₦200,000 (25.8%), ₦100,001–₦150,000

(14.6%), >₦200,000 (15.0%), and <₦50,000 (10.1%). Religious affiliation was primarily Islam (50.5%) and Christianity (43.9%). Most participants had vaginal deliveries (81.5%), were within the early postpartum period, and were either first-time mothers (40.1%) or had two children (36.9%).

Sample Size Calculation

The sample size for this study was determined using Cochran's (1977) formula for cross-sectional surveys, which is appropriate when the target population is large or unknown:

$$n = (Z^2 \times p \times (1 - p)) / e^2$$

Where: n = required sample size, Z = Z-value for 95% confidence level (1.96), p = estimated population proportion (0.50), e = margin of error (0.05). Based on evidence from a community-based study conducted in Ibadan, Nigeria, the prevalence of postpartum depression among postnatal women was reported as 20.8% (Odufuwa et al., 2022). This prevalence rate was therefore adopted as the estimated population proportion (p = 0.208) for the present study.

Substituting the values into Cochran's formula:

$n = (1.96)^2 \times 0.208 \times (1 - 0.208) / (0.05)^2$

$n = 3.8416 \times 0.208 \times 0.792 / 0.0025$

$n = 0.632 / 0.0025$

$n = 252.8$

Thus, the minimum required sample size was approximately 253 respondents. To compensate for possible attrition, non-response, and incomplete questionnaires, an attrition rate of 15% was added, which is considered appropriate for community-based health surveys in similar contexts.

n (adjusted) = 253 ÷ 0.85 ≈ 297.6 Accordingly, the final sample size was rounded up to 300 postnatal women, who were proportionately distributed across the two selected Local Government Areas (Ibadan North and Akinyele) to ensure adequate representation of both urban and semi-urban settings.

Sampling Technique

A multistage sampling technique was employed in this study. At the first stage, the eleven (11) Local Government Areas (LGAs) that constitute Ibadan Metropolis were stratified into two categories based on administrative and settlement characteristics: urban LGAs and semi-urban LGAs. At the second stage, one LGA was selected from each stratum using simple random sampling (balloting). Ibadan North was selected to represent the urban setting, while Akinyele was selected to represent the semi-urban setting. At the third stage, specific primary health centres, postnatal clinics, and immunisation units within the selected LGAs were purposively identified as sampling locations based on the availability of postnatal care services and accessibility for data collection. At the final stage, eligible participants were recruited using convenience sampling techniques. Postnatal women who were within twelve months postpartum were approached during routine postnatal clinic visits, and immunization sessions. This approach was considered appropriate because postnatal women constitute a specific subgroup within the general population, and health facility attendance provided a practical and reliable access point for recruitment.

Instruments

Data were collected using a structured questionnaire comprising five sections:

Section A: Socio-Demographic Information

This section assessed participants' age, marital status, educational level, employment status, monthly household income, religion, mode of delivery, weeks postpartum, and parity.

Section B: Financial Strain Index (FSI)

The Financial Strain Index (FSI) was developed by Hamby et al. (2011) to assess perceived financial stress. The FSI consists of 5 items, each rated on a 3-point Likert scale (1 = Not true, 2= A little true, 3= Very true). Score range from 5 to 15 with higher scores indicating greater financial stress. This scale has demonstrated good psychometric properties, with Cronbach's alpha value 0.83, indicating good reliability across population involving families, parents, and maternal mental health (Hamby et al., 2011). The FSI is brief, well-suited for surveying postnatal women and highly relevant for assessing financial stressors among postpartum

women in Nigeria and when minimizing respondent burden is a priority. For the purpose of this study, all the items were analysed and it yielded a cronbach alpha of 0.79.

Section C: eHealth Literacy Scale (eHEALS)

The eHealth Literacy Scale (eHEALS), developed by Norman and Skinner (2006), is an 8-item self-report instrument that assesses individuals' skills at finding, evaluating, and applying health information from electronic sources, reflecting their online health information-seeking behaviour. Participants respond on a 5-point Likert scale ranging from 1 ("Strongly disagree") to 5 ("Strongly agree"), with higher scores indicating greater levels of perceived eHealth literacy and confidence in seeking and using online health information. The eHEALS has demonstrated good psychometric properties across diverse populations, with internal consistency reliability estimates (Cronbach's alpha) generally ranging from 0.80 to 0.92 (Norman & Skinner, 2006; Ma et al., 2019; Burzynska et al., 2022). The eHEALS is widely used as a brief, reliable, and culturally adaptable tool for examining online health information-seeking behaviours, making it highly relevant relevant for examining the role of online information-seeking behaviour in predicting postpartum depression among postnatal women in Ibadan. For the purpose of this study, all the items were analysed and it yielded a cronbach alpha of 0.91.

Section D: Multidimensional Scale of Perceived Social Support (MSPSS)
The Multidimensional Scale of Perceived Social Support (MSPSS) was developed by Zimet, Dahlem, Zimet, and Farley (1988) to measure perceived adequacy and availability of support from family, friends, and significant others. The 12-item instrument uses a 7-point Likert scale (1 = Very Strongly Disagree to 7 = Very Strongly Agree), with higher scores reflecting greater perceived social support. The MSPSS provides a total score and three subscale scores, allowing researchers to assess domain-specific and overall support perceptions. Numerous studies have validated the MSPSS across different cultural and clinical contexts, including among postpartum populations. Internal consistency is consistently high, with Cronbach's alpha values typically ranging from 0.85 to 0.91 (Zimet et al., 1988; Wang, Chen, & Liu, 2021). The MSPSS's simplicity, reliability, and cross-cultural adaptability make it a robust choice for examining perceived social support as a protective factor against postpartum

depression. For the purpose of this study, all the items were analysed and it yielded a cronbach alpha of 0.87.

Section E: Edinburgh Postnatal Depression Scale (EPDS)

The Edinburgh Postnatal Depression Scale (EPDS), developed by Cox, Holden, and Sagovsky (1987), is a 10-item self-report questionnaire specifically designed to screen for symptoms of postpartum depression in mothers. Each item is rated on a 4-point Likert scale (0–3), yielding a total possible score of 0 to 30. Scores of 10 or above typically indicate possible depression, while a cut-off score of 13 or higher is often used to identify probable cases requiring further clinical evaluation. The EPDS has been extensively validated across diverse cultural contexts and is endorsed by the World Health Organization as a standard screening tool for postnatal depression. It demonstrates strong psychometric properties, with Cronbach's alpha estimates generally ranging from 0.82 to 0.87 (Cox et al., 1987; Levis et al., 2020). Its brevity and diagnostic accuracy make it particularly suitable for large-scale maternal mental health screening in both high- and low-resource settings. For the purpose of this study, all the items were analysed and it yielded a Cronbach alpha of 0.77.

Procedure for Data Collection

Ethical approval was obtained from the Oyo State Ministry of Health Research Ethics Committee, and permission was secured from relevant health facility authorities prior to data collection. Participants were recruited during routine postnatal clinic and immunization sessions at selected primary and secondary health facilities, where the study purpose was explained and informed consent obtained before questionnaire administration. Data collection spanned seven weeks, during which 300 questionnaires were distributed. Data were analyzed using SPSS, with descriptive statistics summarizing socio-demographic characteristics, zero-order correlation, linear regression, and multiple regression were employed to test the study hypotheses. Ethical principles of informed consent, confidentiality, voluntariness, beneficence, and non-maleficence were strictly upheld throughout the study.

Results

Table 1: Zero-order correlation summary table showing relationship among the variables

SN	Variable	Mean	SD	1	2	3	4
1	Postpartum depression	18.23	4.22	-			
2	Financial stress	7.93	2.38	.23**	-		
3	Health information-seeking behaviour	23.60	7.51	.02	-.14*	-	
4	Perceived social support	47.01	13.32	-.06	-.26**	.05	-

*** Significant at 0.01; * Significant at 0.05*

Table1 presents results on the relationship among the variables of the study. It is shown that financial stress demonstrated a positive and statistically significant association with postpartum depression, $r(285) = .23$, $p < .01$, indicating that higher financial stress was associated with greater depressive symptoms among postnatal women.

In contrast, online health information-seeking behaviour and perceived social support were not significantly associated with postpartum depression, suggesting that these variables were not directly related to depressive symptom severity at the bivariate level.

Additional relationships were observed among the predictor variables. Online health information-seeking behaviour was negatively associated with financial stress, $r(285) = -.14$, $p < .05$, indicating that women who reported greater engagement in online health information seeking reported slightly lower financial stress. Similarly, perceived social support demonstrated a negative association with financial stress, $r(285) = -.26$, $p < .01$, suggesting that stronger social support networks were linked to reduced financial stress.

Hypothesis One

Financial stress will have a significant influence on postpartum depression among postnatal women in Ibadan Metropolis. This was tested using linear regression analysis and the result is presented on Table 2;

Table 2: Linear regression analysis summary table showing results on the influence of financial stress on post-partum depression

Predictor	β	t	P	R	R^2	F	P
Financial stress	.23	4.03	< .01	.23	.05	16.24	< .01

Table 2 presents results on the influence of financial stress on post-partum depression among postnatal women in Ibadan metropolis. It is shown that financial stress had significant influence on post-partum depression among the women [R = .23; R^2 = .05; F (1, 285) = 16.24; p < .01], indicating that financial stress significantly predicted postpartum depressive symptoms. Further, it is observed that financial stress accounted for about 5% variance in post-partum depression among post-partum women. Direction of the beta value revealed that the higher the financial stress, the higher the post-partum depression among postnatal women. This confirmed the stated hypothesis, hence was retained in this study.

Hypothesis Two

Online Health information-seeking behaviour will have a significant influence on postpartum depression among postnatal women in Ibadan Metropolis. This was tested using linear regression analysis and the result is presented on Table 3;

Table 3

Linear regression analysis summary table showing results on the influence of online health information-seeking behaviour on post-partum depression

Predictor	B	t	p	R	R^2	F	p
eHealth information seeking behaviour	.02	.41	> .05	.02	.01	.16	> .05

Table 3 presents results on the influence of online health information-seeking behaviour on post-partum depression among postnatal women in Ibadan metropolis. It is shown that online health information-seeking behaviour had no significant influence on post-partum depression among postnatal women [R = .02; R^2 = .01; F (1, 285) = .16; p > .05], indicating that engagement with online health information was not significantly related to postpartum depressive symptoms in the present study. Although online health information-seeking

behaviour accounted for 1% variance in post-partum depression, it was not significant. This negates the stated hypothesis, hence was rejected in this study.

Hypothesis Three

Perceived social support will have a significant influence on postpartum depression among postnatal women in Ibadan Metropolis. This was tested using linear regression analysis and the result is presented on Table 4;

Table 4

Linear regression analysis summary table showing results on the influence of perceived social support on post-partum depression

Predictor	β	t	p	R	R^2	F	P
Perceived social support	-.06	-1.09	> .05	.06	.01	1.19	> .05

Table 4 presents result on the influence of perceived social support on post-partum depression among postnatal women in Ibadan metropolis. It is shown that perceived social support had no significant influence on post-partum depression among postnatal women [R = .02; R^2 = .01; F (1, 285) = .16; p > .05].Although perceived social support accounted for 1% variance in post-partum depression, it was not significant, suggesting that higher perceived social support corresponded with lower depressive symptoms, the association did not reach statistical significance. This negates the stated hypothesis, hence was rejected in this study.

Hypothesis Four

Financial stress, online health information-seeking behaviour, and perceived social support will have a significant joint influence on postpartum depression among postnatal women in Ibadan Metropolis. This was tested using multiple regression analysis and the result is presented on Table 5;

Table 5

Multiple regression analysis summary table showing results on the joint influence of financial stress, online health information-seeking behaviour and perceived social support on post-natal depression

Predictor	B	t	p	R	R^2	F	P
				.24	.06	5.71	< .01
Financial stress	.24	3.96	< .01				
eHealth information seeking behaviour	.06	.98	> .05				
Perceived social support	-.01	-.10	> .05				

Table 5 presents results on the joint influence of financial stress, online health information seeking behaviour, and perceived social support on post-partum depression among postnatal women in Ibadan metropolis. It is shown that financial stress, online health information seeking behaviour, and perceived social support had joint influence on on post-partum depression among the women [R = .23; R^2 = .05; F (1, 285) = 16.24; p < .01]. Further, it is observed that financial stress, online health information seeking behaviour, and perceived social support accounted for about 6% variance in post-partum depression among post-partum women. However, only financial stress had significant independent influence on post-natal depression among postnatal women. These findings suggest that financial stress represents the most salient psycho-social correlate of postpartum depressive symptoms. This confirmed the stated hypothesis, hence was retained in this study.

Discussion

The present study examined psycho-social factors associated with postpartum depression among postnatal women in Ibadan Metropolis, with particular attention to financial stress, online health information-seeking behaviour, and perceived social support. The findings contribute to the growing literature on maternal mental health in low- and middle-income settings by highlighting the contextual psycho-social conditions that shape postpartum psychological wellbeing.

The results showed that financial stress was significantly associated with postpartum depression, both at the correlational level and within the regression model. Postnatal women who reported higher levels of financial stress reported significantly higher levels of depressive symptoms. This finding suggests that economic pressures during the postpartum

period represent a significant psycho-social burden that may heighten vulnerability to maternal depressive symptoms.

This finding can be interpreted within the framework of Stress and Coping Theory proposed by Lazarus and Folkman (1984), which posits that psychological distress arises when individuals perceive environmental demands as exceeding their coping resources. Financial stress represents a persistent life stressor capable of threatening essential resources such as access to healthcare, infant care, nutrition, and household stability. In the postpartum period, when women may experience reduced income, increased caregiving demands, and additional healthcare costs, financial stress may intensify psychological distress and contribute to depressive symptomatology.

The present finding is consistent with a substantial body of empirical evidence. A systematic review and meta-analysis conducted by Shorey et al. (2018) identified financial hardship and low socioeconomic status as among the most consistent correlates of postpartum depression globally. Similarly, Norhayati et al. (2015) reported that women experiencing financial constraints were significantly more likely to develop postpartum depressive symptoms compared to those with stable economic resources. More recent evidence also supports this association. For example, Maviel et al. (2025) found that financial insecurity significantly predicted depressive symptoms among postpartum women in Canada, even after controlling for demographic factors. Likewise, Zhang et al. (2024) reported that economic pressure was a significant correlate of postpartum depression among Chinese mothers.

Evidence from sub-Saharan Africa also aligns with the present findings. Dadi et al. (2020) documented that household economic hardship was significantly associated with maternal depressive symptoms in Ethiopia. Similarly, Mannathoko et al. (2025) reported that financial stress was significantly related to postpartum depression among mothers in Botswana, while Weobong et al. (2014) found that poverty and economic insecurity were strongly associated with maternal psychological distress in Ghana.

Within the Nigerian context, the findings of this study are also consistent with earlier research. Agbaje et al. (2019) reported that financial difficulties were significantly related to

depressive symptoms among postnatal women in southwestern Nigeria. Similarly, Abiodun et al. (2020) found that unemployment and perceived financial inadequacy were associated with increased risk of postpartum depression among women attending primary healthcare centres. In addition, Odufuwa et al. (2022) identified financial constraints as a major psycho-social challenge influencing maternal mental health and healthcare-seeking behaviour among postpartum women in Ibadan. The convergence of these findings suggests that economic vulnerability remains a critical determinant of maternal mental health outcomes in Nigeria and other resource-constrained settings.

In contrast, online health information-seeking behaviour was not significantly related to postpartum depression in the present study. This suggests that engagement with online health information platforms may not independently correspond with depressive symptoms among postnatal women in this context.

Previous studies examining the psychological consequences of online health information seeking have produced mixed findings. Some researchers have reported that excessive exposure to online health information, particularly through unregulated digital platforms, may increase anxiety and emotional distress. For instance, McCarthy and McMahon (2020) found that frequent engagement with online parenting forums was associated with higher depressive symptoms among postpartum women in Australia. Similarly, Norazman et al. (2024) reported that extensive online health information seeking was associated with increased anxiety and depressive symptoms among postpartum women in the United States, particularly when the information encountered was contradictory or alarming.

Conversely, other studies suggest that online health information seeking may have beneficial effects when the information accessed is credible and supports informed decision-making. For example, Seo et al. (2022) reported that postpartum women who used structured digital health platforms demonstrated lower depressive symptoms and improved maternal confidence. Similarly, Fredriksen et al. (2023) found that online health information engagement was associated with better maternal coping among women with high eHealth literacy. The absence of a significant association in the present study may therefore reflect the context-dependent nature of digital health behaviour, where the psychological impact of

online information seeking may vary depending on digital literacy, quality of information sources, and patterns of use.

Interestingly, the findings revealed that online health information-seeking behaviour was negatively related to financial stress. This suggests that women who accessed online health information more frequently reported slightly lower financial stress. One possible explanation is that online platforms may provide relatively low-cost access to health knowledge, thereby reducing reliance on costly professional consultations. In contexts where financial resources are limited, digital health information may serve as an alternative source of maternal health guidance.

The present study also found that perceived social support was not significantly related to postpartum depression, although the direction of the relationship was negative. This indicates that higher levels of perceived support may correspond with lower depressive symptoms, but the relationship did not reach statistical significance in the current sample.

This finding contrasts with a substantial body of literature that identifies social support as a strong protective factor against postpartum depression. For instance, Shorey et al. (2018) reported that emotional and instrumental support significantly reduced the likelihood of postpartum depressive symptoms across multiple countries. Similarly, Faleschini et al. (2019) found that women with strong social support networks were significantly less likely to develop postpartum depression. More recently, Muliyani and Suryaningsih (2023) reported that family and partner support significantly predicted lower depressive symptoms among postpartum women in Indonesia.

However, the absence of a significant association in the present study may reflect the changing social dynamics within rapidly urbanising Nigerian cities such as Ibadan. Traditional extended family structures that historically provided postpartum support may be weakening due to urban migration, economic pressures, and the increasing prevalence of nuclear households. Previous Nigerian studies have documented similar trends. Izugbara et al. (2020) noted that urbanisation has significantly altered traditional family support structures,

while Ntoimo et al. (2021) reported declining extended family involvement in maternal caregiving within urban Nigerian communities.

Another possible explanation is that social support may operate indirectly through other psycho-social pathways. In the present study, perceived social support was significantly associated with lower financial stress. This suggests that supportive social networks may help alleviate financial stress rather than directly influencing depressive symptoms. This interpretation aligns with the buffering hypothesis proposed by Cohen and Wills (1985), which suggests that social support protects psychological wellbeing primarily by mitigating the impact of stressful life conditions.

Finally, the multiple regression analysis indicated that the psycho-social variables were jointly related to postpartum depression, although financial stress remained the only statistically significant independent predictor within the regression model. This finding underscores the central role of financial stress in shaping maternal mental health outcomes within the study population.

Overall, the findings suggest that postpartum depression among postnatal women in Ibadan is strongly embedded within broader socioeconomic stress conditions. While informational resources and social support networks may contribute to maternal wellbeing, their influence appears secondary to the impact of financial stress. These results highlight the importance of addressing structural economic challenges and strengthening maternal support systems as part of comprehensive maternal mental health interventions in Nigeria and similar low-resource contexts.

Conclusion

This study investigated the psycho-social predictors of postpartum depression among postnatal women in Ibadan Metropolis, with particular emphasis on financial stress, online health information-seeking behaviour, and perceived social support. Using correlational, regression, and variance analyses, the study sought to determine both the independent and joint contributions of these variables to postpartum depression within an urban Nigerian context.

Overall, the findings provide important insights into the contextual realities shaping maternal mental health in low- and middle-income settings. The results demonstrated that financial stress emerged as the only consistent and statistically significant independent predictor of postpartum depression. Women who experienced greater financial stress reported higher depressive symptoms, and financial stress explained a meaningful proportion of variance in postpartum depression. This finding underscores the central role of financial stress as a chronic stressor capable of undermining psychological wellbeing during the vulnerable postpartum period. It suggests that postpartum depression in Ibadan is strongly embedded within structural and socioeconomic constraints rather than solely individual or behavioural factors.

In contrast, online health information-seeking behaviour and perceived social support did not independently predict postpartum depression, although both variables were significantly related to financial stress. These findings indicate that their effects may be indirect or conditional rather than direct. Online health information-seeking behaviour appeared to function primarily as an informational or coping resource without exerting a measurable psychological impact on depressive symptoms. Similarly, perceived social support, while theoretically protective, did not independently buffer against postpartum depression in this context, possibly due to the limited material and functional adequacy of available support systems in an urban environment. Thus, although informational and social resources remain important aspects of maternal wellbeing, they were insufficient to counteract the stronger influence of financial stress.

The study advances the understanding that postpartum depression among postnatal women in Ibadan Metropolis is best conceptualised as a multifactorial but predominantly stress-driven phenomenon, with financial insecurity serving as the most salient risk factor. The findings therefore support theoretical perspectives such as the Stress and Coping Theory and the social determinants of health framework, both of which emphasize the impact of structural stressors on mental health outcomes.

Importantly, this study contributes to the limited body of indigenous Nigerian research on postpartum depression by providing empirical evidence grounded in the lived experiences of

urban postnatal women. It highlights the necessity of moving beyond purely clinical or individual level explanations toward broader socioeconomic and contextual interventions. Addressing postpartum depression effectively in this setting requires not only psychological support but also policies and programs that mitigate financial hardship and enhance material wellbeing.

In summary, postpartum depression among postnatal women in Ibadan is influenced more by financial vulnerability than by informational behaviours, perceived social support, and any meaningful intervention strategy must prioritise the reduction of financial stressors alongside psycho-social care.

Recommendations

Based on the findings of this study, the following recommendations are proposed:

For Clinical and Mental Health Practice:
Healthcare providers, particularly clinical psychologists, nurses, and obstetric professionals, should incorporate routine assessment of financial stress during antenatal and postnatal mental health screenings. Identifying women experiencing financial stress may facilitate early detection of those at higher risk for postpartum depression.

Maternal and child health clinics should integrate psychological services, including counselling, stress management training, and psychoeducation, into routine postnatal care. Embedding clinical psychologist within maternity settings will enhance accessibility and reduce stigma associated with seeking psychological support.

Structured psychoeducation programmes should be developed to teach postnatal women adaptive coping strategies, emotional regulation skills, and stress management techniques. Such interventions may strengthen resilience against unavoidable life stressors.

Clinicians should prioritise women experiencing severe financial hardship for closer monitoring, referral to social welfare services, and additional psycho-social support, given their elevated vulnerability to depression.

For Government and Policymakers

Government and policymakers should implement financial assistance schemes, maternity benefits, subsidised healthcare, and conditional cash transfers for postnatal women. Reducing financial stress at the structural level may significantly lower the risk of postpartum depression.

Strengthening and expanding the National Health Insurance Scheme to cover maternal mental health services and postpartum care costs would reduce out-of-pocket expenditures and alleviate financial burden on families.

Local governments and community organisations should establish support groups and maternal resource centres where women can access both emotional and practical assistance, thereby enhancing functional social support.

Given the widespread use of online health information, healthcare authorities should promote credible digital maternal health resources and improve digital health literacy to ensure that online engagement remains beneficial rather than misleading.

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