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Risk Communication and Postpartum Depression Knowledge in Northern Nigeria

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Abstract

Postpartum depression (PPD) is a significant global maternal mental health issue often overlooked, particularly in Northern Nigeria, where the prevalence rate is 17.7% of mothers worldwide (Liu-Zarzuela et al., 2023; Carlson et al., 2024), and a total fertility rate of 7.5 in Northern Nigeria (NDHS, 2018), increasing vulnerability due to repeated childbirths at short intervals, creating physical and emotional strain. Little is known about how culturally relevant information sources and risk communication influence women's knowledge and help-seeking behaviours in Niger State. The study seeks to address this gap in alignment with Sustainable Development Goals (SDGs) 3 and 17, which promote maternal well-being and global partnerships for health advancement. A mixed-methods design was adopted, comprising a survey (n = 384) and focus group discussions (FGD) (n = 32). Multistage and purposive sampling techniques were employed, and data were analysed using SmartPLS (Partial Least Squares), SPSS, and Yin's thematic explanation model. Healthcare providers exerted the strongest influence on PPD knowledge ($\beta = 0.71, p < .01$). Social media and radio were other dominant sources of PPD knowledge, whereas family, friends, and television showed minimal influence on. Indigenous media, such as community radio and storytelling, also had a strong influence on knowledge about PPD. Strategic communication skills training emphasising risk communication, empathy, and culturally sensitive patient interaction for medical professionals, along with community-based risk messaging, and digital platforms integration, is recommended to improve knowledge about PPD, early help-seeking and reduce stigma.

Keywords: Postpartum depression, Information sources, Risk communication, Help-seeking behaviour, Subjective norms

Introduction

Postpartum depression (PPD) is a significant and under-recognised maternal mental health problem worldwide and in Northern Nigeria. Limited mental-health services increase women's vulnerability. Global estimates suggest that between 10 and 15 per cent of mothers experience PPD (Adeyemo et al, 2020), but the prevalence and consequences are often amplified in low-resource settings by socio-

economic stressors, stigma, low levels of awareness, and limited access to care. In Niger State, Nigeria, cultural beliefs and constrained health-communication systems can delay recognition of symptoms of mental health problems and help-seeking, compounding the burden on mothers and families. Communication, specifically how information about PPD is framed, transmitted, and trusted, can function as both a barrier and a facilitator to improved recognition and care. This study examines how risk communication and diverse information sources influence women's knowledge of PPD and their help-seeking behaviours in Niger State, Nigeria.

For women to understand and manage postpartum depression (PPD), access to accurate, credible, and culturally relevant information sources is crucial (O'Hara & McCabe, 2013). In many low-and middle-income countries (LMIC), including Nigeria, women rely on varied sources that differ in reliability and accessibility (Fisher et al., 2012). These sources, ranging from healthcare providers to indigenous media, influence how women interpret symptoms, seek help, and engage with health systems (Aluko et al., 2014).

Communication is the foundation upon which health-related conditions are managed. Effective communication combines scientific and social knowledge to disseminate health information, influence attitudes, and modify behaviour (Schiavo, 2013). It bridges the gap between what healthcare providers communicate and what patients need to understand to improve their health outcomes (Burgener, 2020; Finset et al., 2020; Oyesomi et al, 2017). In addressing issues such as postpartum depression (PPD), communication can transform awareness into action while dismantling stigma (Wang & Pavelko, 2024). Effective communication thus underpins health delivery and is indispensable to patient-centred care (Dogra & Sharma, 2021).

One critical dimension of health communication is risk communication, the exchange of information and recommendations about potential health risks between individuals, groups, and institutions (Lundgren & McMakin, 2018; Chia et al, 2025; Caton et al, 2025). Risk communication empowers communities to make informed decisions, build trust, and adopt protective health behaviours (WHO, 2017). Previous studies in Hong Kong (Cheng et al., 2021), the United Kingdom (Hanlon et al., 2019), and Canada (Gurgui et al., 2023) have applied risk communication frameworks to perinatal and maternal mental health, demonstrating how structured messaging improves knowledge and mitigates stigma. Drawing on such global precedents strengthens the rationale for contextualising risk communication within Niger State's sociocultural realities.

Health communication occurs in various forms and across various media, including interpersonal communication, public health campaigns, social and Indigenous media (In this context, indigenous media refers to traditional, community-based channels such as local storytellers, town criers, folk songs, and cultural gatherings used to share health information in ways that reflect the people's language, values, and way of life), and opinion leaders, to educate and inform populations (Tefera, Ali, & Woldearegay, 2024).

In the context of postpartum depression, effective risk communication depends on how well health specialists translate research findings into accessible, culturally appropriate information for the public. This involves respecting local beliefs while ensuring scientific clarity. Well-structured risk communication allows women, families, and communities to recognise PPD as a health condition, not a moral failing, and can encourage early help-seeking.

Governmental and non-governmental organisations must play active roles in disseminating accurate, culturally sensitive information on PPD through diverse information sources. This study investigates how different risk communication and information dissemination strategies influence PPD knowledge and help-seeking behaviours among women in Niger State, Nigeria.

This study aligns with the United Nations Sustainable Development Goals 3 and 17. SDG 3 emphasises good health and well-being, prioritising maternal mental health as essential to public health equity. SDG 17 focuses on partnerships that foster collaboration among governments, healthcare systems, academia, and communities (Sachs, 2020). Through the integration of communication, psychology, and maternal healthcare, this study contributes to both goals, advancing maternal well-being and promoting interdisciplinary collaboration for sustainable health development.

Research Gap and Objectives

Little is known about how culturally relevant information sources and risk communication influence women's knowledge and help-seeking behaviours. This gap underscores the need for contextually informed communication strategies that resonate with local norms and information ecosystems.

Objectives:

1. To examine how risk communication and information sources influence PPD knowledge among women in Niger State.
2. To determine the effectiveness of various information sources in shaping women's attitudes and help-seeking behaviours.
3. To assess whether risk communication strategies reduce stigma and promote awareness of PPD.
4. To explore the role of Indigenous media in disseminating culturally sensitive information about PPD.

Literature Review

Overview of Information Sources on Postpartum Depression

Healthcare professionals remain the most formal and reliable source of information (Conrad 2024, 2024; Hou & Hou, 2022), including information on PPD. Studies have shown that women informed by healthcare workers demonstrate stronger symptom recognition and are more likely to pursue clinical care (O'Hara & McCabe, 2013). However, limited access to healthcare facilities, especially in rural communities, often reduces this advantage (Adegboyega, 2022; Oyesomi et al, 2017; Fisher et al. (2012) found that only 30% of rural Nigerian women had ever received information about PPD from health workers, highlighting a severe information gap.

Informal sources such as family members, friends, spouses, religious leaders, and traditional healers play influential roles in shaping maternal health understanding (Abdulmalik, Kola, & Gureje, 2016). However, they sometimes perpetuate stigma and misconceptions, framing PPD as a spiritual or supernatural condition rather than a medical one (Adegboyega, 2022). This misattribution often delays professional care and worsens social isolation for affected women.

Mass and digital media have transformed access to mental health information. Platforms such as radio, television, and social media have become powerful tools for awareness creation and peer connection (Sawyer et al., 2010). Yet, these tools have mixed outcomes: while some women gain supportive information through online groups and campaigns, others encounter misinformation that distorts understanding (O'Hara & McCabe, 2013). Digital literacy and message authenticity, therefore, remain essential determinants of whether media sources enhance or hinder help-seeking behaviour.

Community-based organisations and NGOs contribute significantly through grassroots awareness, health outreach, and peer education, especially where institutional health services are weak (Abdulmalik et al., 2016). Women exposed to community-based education programmes display better PPD recognition and greater willingness to seek help (Adegboyega, 2022). These efforts underscore the value of combining professional and community-driven communication to foster awareness and empathy.

Nigerian women access postpartum information from diverse channels, including medical, communal, digital, and traditional. However, the quality and credibility of these sources vary widely, influencing whether women internalise accurate knowledge or cultural myths. This diversity underscores the need for tailored, multi-channel communication strategies that integrate formal health expertise with culturally grounded media approaches.

Cultural Context of PPD in Niger State and the Role of Indigenous Media

Postpartum depression in Niger State is deeply embedded in traditional, religious, and socio-cultural practices that shape women's perceptions of mental health. Open discussions about maternal mental health are often discouraged, reinforcing stigma and secrecy (Jaiyeola & Abdulrazaq, 2022). Within many local belief systems, symptoms of PPD are interpreted through spiritual lenses as witchcraft, evil possession, or divine punishment rather than as a treatable psychological condition (Adegboyega, 2022; Mohamed et al., 2024).

Economic hardship and unemployment further compound the problem, as limited financial resources restrict access to professional mental healthcare. This, however, does not contradict the role of knowledge and attitude as highlighted in related literature. As clarified, financial barriers and informational deficiencies represent distinct but interrelated obstacles that both discourage help-seeking. Thus, unemployment limits economic access to healthcare, while ignorance and stigma limit the willingness to seek it, a dual barrier that sustains non-medical coping patterns.

In this context, Indigenous media have proven to be vital communication bridges. Community radio, storytelling, drama, and traditional songs transmit relatable messages that resonate emotionally with local women (Meadows & Foxwell, 2011). When used effectively, these media offer culturally familiar pathways for reframing postpartum depression as a health issue rather than a spiritual affliction. However, when messages lack medical accuracy, they risk reinforcing myths and fatalism. Therefore, the integration of modern health messages within Indigenous communication forms such as Hausa radio dramas or community theatre can significantly promote empathy, awareness, and early help-seeking (Tefera et al., 2024; Turner & Friesen, 2024).

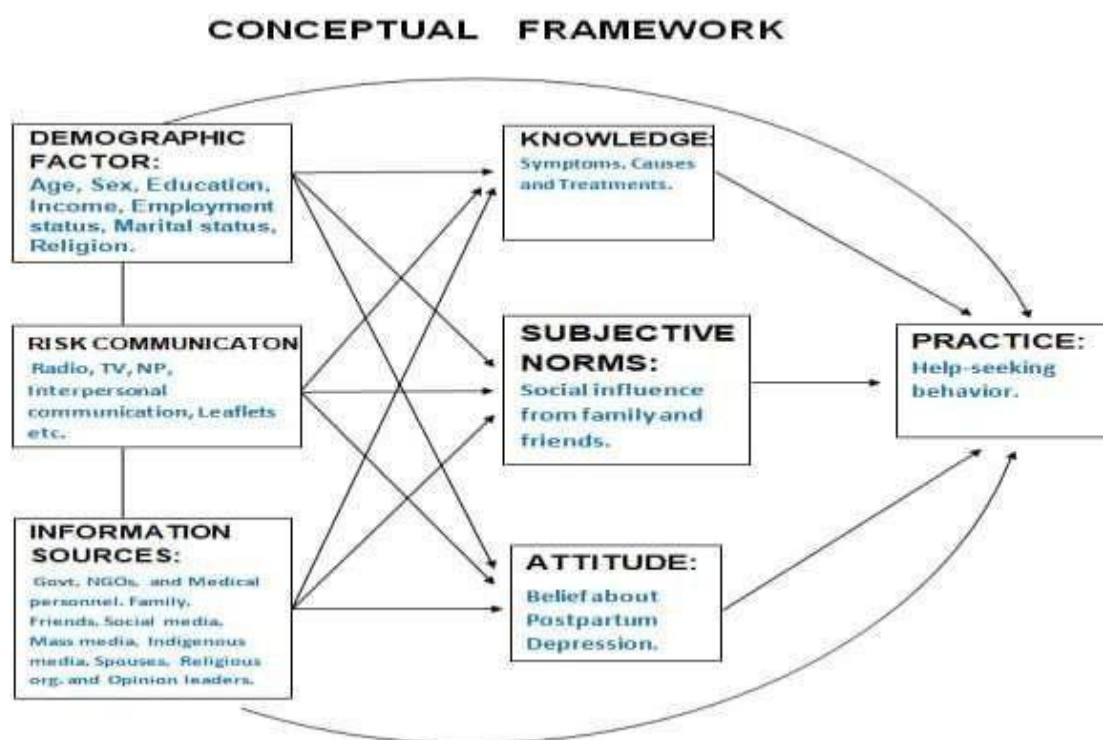


Figure 1. Conceptual framework illustrating the influence of information sources and risk communication on postpartum depression knowledge (PDK), moderated by subjective norms.

Source: (Author's work, 2026)

Conceptual Framework Explanation

The conceptual framework proposes that risk communication and information sources act as key independent variables shaping women's knowledge, attitudes, and help-seeking behaviours regarding postpartum depression (PPD). Demographic variables such as age, education, income, and marital status are acknowledged as contextual factors that can influence access and response to PPD information.

Risk communication, as applied in this study, refers to strategic health messaging by government agencies, NGOs, and medical professionals, designed to educate and influence PPD awareness. These communication processes determine how effectively women comprehend, internalise, and act upon information about PPD.

Information sources, including healthcare providers, family networks, Indigenous media, social media, and religious organisations, represent diverse channels through which women obtain and interpret

health knowledge. The interaction of these sources defines the overall credibility and accessibility of postpartum information.

Subjective norms, derived from the Theory of Planned Behaviour (Ajzen, 1985), are conceptualised here as social pressures and cultural expectations that moderate the relationship between information exposure and behavioural response. In this framework, subjective norms influence whether exposure to risk communication translates into actual help-seeking behaviour.

Theoretical Framework

This study is anchored on the Theory of Planned Behaviour (TPB) developed by Ajzen (1985) and later refined by Turner and Friesen (2024). The TPB explains how human behaviour is guided by attitudes toward the behaviour, subjective norms, and perceived behavioural control.

In the context of postpartum depression, subjective norms (social influences) and perceived behavioural control (a woman's perceived ability to seek help) are central to understanding why some women act on health information while others do not. This theory aligns with the study's aim of linking communication exposure with behavioural outcomes.

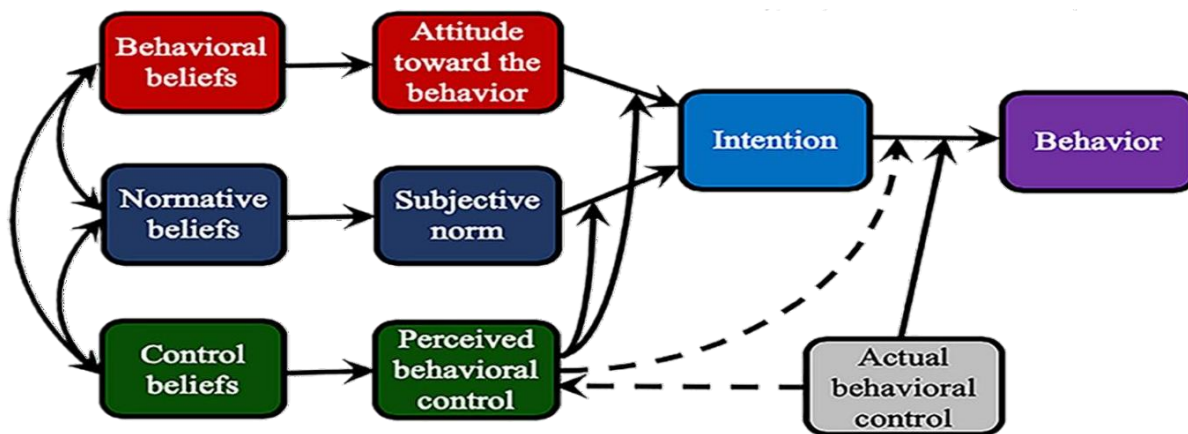


Figure 2: Theory of Planned Behaviour (Ajzen, 1985).

This study extends TPB in three key ways:

1. **Contextual expansion:** It applies TPB to a non-Western, socio-cultural environment (Niger State, Nigeria), where communal values, stigma, and religion significantly shape maternal mental health decisions.
2. **Communication linkage:** It integrates risk communication into the behavioural framework, establishing how message design and information credibility influence women's intention to seek help.
3. **Theoretical contribution:** By empirically examining how subjective norms moderate the link between risk communication and knowledge, the study offers a culturally adaptive model of TPB suited to African maternal health research.

TPB provides the behavioural lens through which this study interprets the impact of communication exposure, cultural norms, and individual agency on postpartum depression awareness and help-seeking behaviour.

Materials and Methods

Research Design

A mixed-methods design was employed to capture both the breadth of women's knowledge and attitudes through quantitative surveys and the depth of their lived experiences through qualitative focus group discussions (FGDs). This design allowed triangulation of data to enhance the validity and deepen understanding of the influence of communication on PPD knowledge and behaviours. The choice of FGDs, despite the topic's sensitivity, was deliberate; they fostered a culturally supportive environment where women felt comfortable sharing experiences within peer groups. In Northern Nigeria's collectivist setting, group discussions encourage openness and mutual validation that individual interviews might suppress (Krueger & Casey, 2015).

Study settings

The study was conducted in Niger State, Nigeria. Data were collected between June and August 2024, from both urban and rural areas across Niger State's three senatorial districts. Niger State was chosen because of its high fertility rate and cultural diversity, both of which influence postpartum mental health outcomes.



Figure 3: A map showing Niger State within the context of Nigeria.

Population of Study

Nigeria is the seventh most populous country in the world and is estimated to be the fourth most populous by 2050 (Oladosun, Akanbi, Fasina, & Samuel, 2019; Akanbi et al, 2021). The study population included women of childbearing age (18-49 years) residing in Niger State, estimated at 1,145,000 (NSPCHDA, 2023).

Sample Size and Sampling Techniques

For the quantity survey, a sample size of 384 was determined using the Krejcie and Morgan (1970) table at a 95% confidence level and 5% margin of error.

1. Seven-stage multistage sampling was implemented. Niger State was first stratified into its three senatorial districts, then further stratified into local government areas (LGAs), wards, and streets.

2. Trained research assistants conducted a household listing to identify eligible women aged 18-49 years.
3. A simple random sampling technique using a lottery method was applied within each selected street to identify participating households, ensuring fair representation of both urban and rural areas

For the FGDs

4. A total of 410 eligible women were identified during household listing across the selected communities. Of these, 384 consented and completed the survey (response rate: 93.7%). From this pool, 32 women who met the inclusion criteria and volunteered were purposively selected for focus group discussions (FGDs), all of whom participated fully. FGD sessions were divided by age group (18-29 years and 30-49 years) to capture generational differences in perception and openness. FGDs were conducted at community health centres during immunisation and postnatal visits, offering a safe, confidential, non-stigmatising environment for discussions.
5. All focus group discussions (FGDs) were audio-recorded with participants' consent and conducted in Hausa to encourage open dialogue. Recordings were transcribed verbatim in Hausa and later translated into English by bilingual research assistants. Translations were cross-checked for fidelity before analysis. Thematic analysis, guided by Yin's (2009) framework, was conducted manually by the lead author with assistance from two trained coders. Reflexively, the lead researcher, a female academic and mother familiar with the sociocultural context, recognised her insider position and maintained reflexive notes throughout the analysis to ensure balanced interpretation.

Instrument development and validation

The survey questionnaire was developed by the authors as an investigator-designed instrument combining multi-item scales for knowledge about PPD, information sources, risk communication indicators, and subjective norms. Items were derived from existing literature and previously validated measures where available (O'Hara & McCabe, 2013; Schiavo, 2013), adapted to the Niger State context through translation and back-translation into Hausa. The constructs were operationalised as follows:

1. Knowledge about PPD was measured using five items on a 5-point Likert scale assessing awareness of symptoms, causes, and treatment options. (Appendix 1).
2. Information Sources were ascertained by asking whether respondents received information on PPD from family, /friends, healthcare providers, social media, radio, newspapers, and television, frequency of exposure, and of the information.

The survey's content validity was established through expert review by three maternal mental health and two health communication specialists who assessed items for relevance, clarity and cultural appropriateness: their feedback informed item revision. The revised survey was piloted in a non-study LGA to assess item clarity and internal consistency. Construct validity was further examined via factor loadings, AVE and composite reliability in the PLS measurement model.

Factor loading values reflect how strongly each item relates to its associated concept; values more than 0.7 are regarded as acceptable. All constructs in this table meet this criterion, indicating substantial relationships between the assessed items and their corresponding constructs.

Measures of validity and reliability provide additional evidence of the constructs' robustness. All AVE values, which indicate the percentage of variance that each construct captures, are over 0.5, thus suggesting sufficient convergent validity. In a related development, all constructs have Composite Reliability (CR), which measures the internal consistency of the concepts. It must be noted that the threshold must be above 0.8 to be considered reliable

Data Analysis

Quantitative analysis

Quantitative data were analysed using SmartPLS and SPSS to test relationships between variables. Risk communication indicators included message clarity, cultural relevance, and perceived trustworthiness.

Qualitative analysis

Qualitative data from FGDs were transcribed verbatim and analysed using Yin's (2009) thematic analysis, which enabled the identification of recurrent themes and sub-themes.

Ethical Considerations

Ethical approval was obtained from the Covenant University Health Research Ethics Committee (CHREC) (CHREC/1129/2024, 29th May, 2024). Participants provided written informed consent and were assured of anonymity and the right to withdraw at any stage.

Results

Quantitative Findings

The pilot study (n = 30) showed acceptable internal consistency for each construct: Cronbach's α ranged from 0.761 (Radio) to 0.873 (Social media). Construct-level composite reliability values exceeded 0.80 and AVE exceeded 0.50 for most constructs, indicating acceptable reliability and convergent validity (see Table 1 and Table 2).

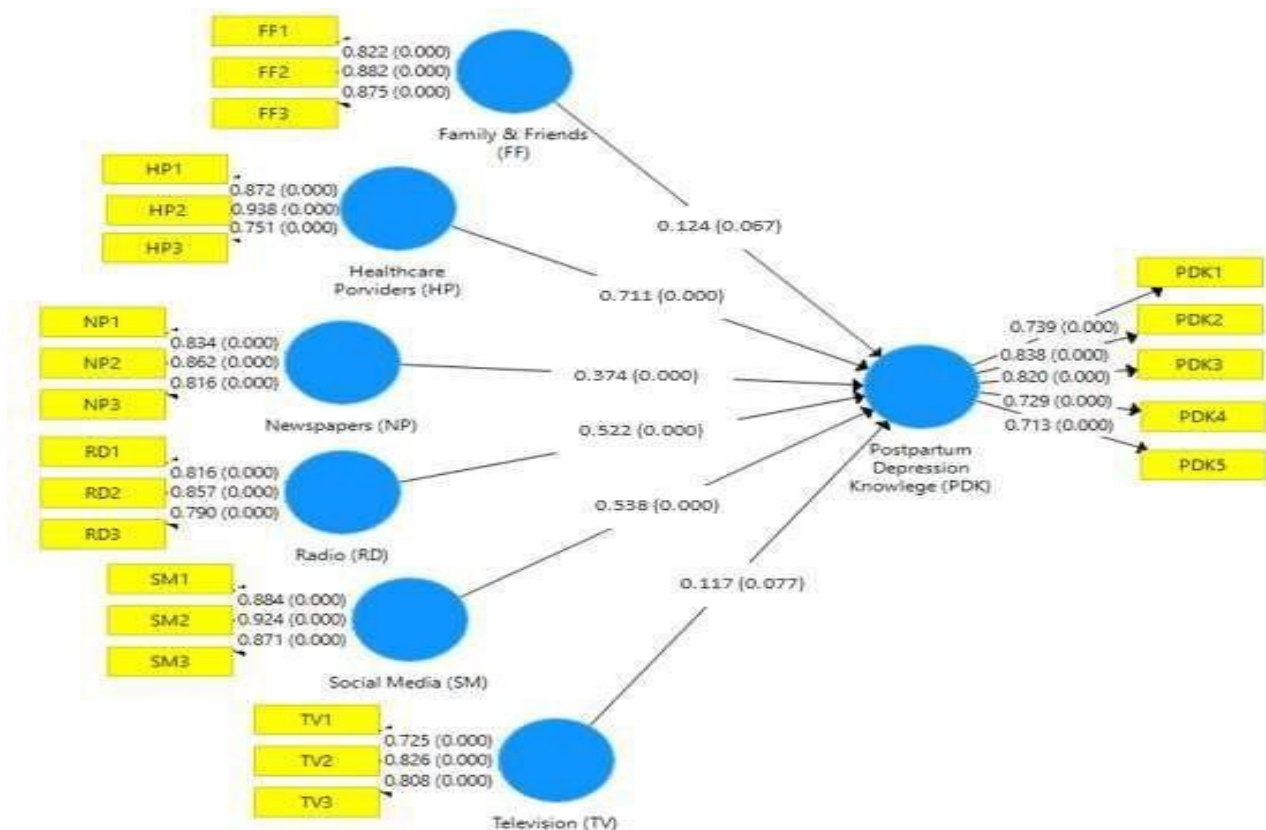
Table 1. Pilot study: Internal consistency by construct (n=30)

Construct (Information source)	No. of items	Cronbach's (pilot)	α	Composite reliability (From Table 2)	AVE (from Table 2)
Family / Friends (FF)	3	0.824		0.895	0.74
Healthcare providers (HP)	3	0.819		0.892	0.73
Newspapers (NP)	3	0.788		0.876	0.70
Radio (RD)	3	0.761		0.861	0.67
Social media (SM)	3	0.873		0.922	0.79
Television (TV)	3	0.791		0.830	0.62
Postpartum depression knowledge (PDK)	5	0.827		0.879	0.59
Total (instrument)	23 (sum of the above items)				

Note: Table 1 reports construct-level Cronbach's α s; the previously reported overall split-half coefficients referred to the complete instrument and include additional questionnaire items (demographics and other sections) not modelled in Table 2.

Quantitative Findings

Figure 3. Path Model showing relationships between Information Sources and Postpartum Depression Knowledge (PDK).



FF: Family and Friends, HP: Healthcare Providers, NP: Newspapers, PDK: Postpartum Depression Knowledge, RD: Radio, SM: Social Media, TV: Television

SmartPLS Path Model illustrating relationships between Information Sources and Postpartum Depression Knowledge (PDK). Blue circles represent latent constructs; yellow squares denote observed indicators used to measure each construct.

The SmartPLS structural model produced standardised path coefficients (β) that estimate the strength and direction of the relationships between latent constructs. Each path coefficient is accompanied by its p-value, shown in parentheses (e.g., 0.822 (0.000)), indicating the significance level based on bootstrapping with 5,000 subsamples. Paths with $p < 0.05$ were considered statistically significant. Additionally, the R^2 values were used to assess the proportion of variance explained in the dependent constructs, while t-statistics were used to confirm the robustness of the observed relationships.

In order to determine the relationships between the variables, the path coefficients, the t-statistic values, the p-values, and the R-squared value were used as the basis for the interpretation, taking into consideration the minimum thresholds as established in the literature. The PLS bootstrapping model with β and P values is also displayed in Figure 3. It shows the path coefficient values that describe the strength of the relationship between information sources on postpartum depression knowledge. The

greater the coefficient values, the more substantial the effect on postpartum depression knowledge. The R-square value indicates the percentage of variation in postpartum depression knowledge that can be explained by information sources.

Table 2 shows factor loadings, composite reliability (CR), and Cronbach's alpha (CA) for various constructs representing information sources on PPD knowledge among women in Niger State. Factor loadings (>0.70), composite reliability (>0.80), and AVE (Average Variance Extracted) (>0.50) all exceeded the recommended thresholds, confirming strong reliability and convergent validity (Table 2)

Table 2: Factor Loading, Construct Reliability, and Validity

	Loading	AVE Average Variance Extracted	Composite Reliability	Cronbach's Alpha
Constructs (Information Sources)	≥ 0.7	≥ 0.5	≥ 0.8	> 0.7
Family/Friends (FF)		0.740	0.895	0.824
FF1	0.822			
FF2	0.822			
FF3	0.875			
Healthcare Providers (HP)		0.736	0.892	0.819
HP1	0.872			
HP2	0.938			
HP3	0.751			
Newspapers (NP)		0.702	0.876	0.788
NP1	0.834			
NP2	0.862			
NP3	0.816			
Radio (RD)		0.675	0.861	0.761
RD1	0.816			
RD2	0.857			
RD3	0.790			
Social media (SM)		0.798	0.922	0.873
SM1	0.884			
SM2	0.924			
SM3	0.871			
Television (TV)		0.620	0.830	0.791
TV1	0.725			
TV2	0.826			
TV3	0.808			
Postpartum Depression Knowledge (PDK)		0.592	0.879	0.827
PDK1	0.739			
PDK2	0.838			
PDK3	0.820			
PDK4	0.729			
PDK5	0.713			

All constructs have Cronbach's Alpha (CA), a conventional indicator of reliability that accounts for over 0.7. This implies strong internal consistency among the various data sources. Television (TV) has the lowest reliability scores among the sources. However, they are still within the permitted limits, while social media (SM) has the highest reliability scores (AVE = 0.798, CR = 0.922, CA = 0.873).

It supports confidence in the constructs utilised for further investigation by showing that the measurement model used in the study is reliable and resilient. Strong dependability metrics and high factor loadings show that various information sources greatly enhance postpartum depression knowledge (PDK). Social media is the most trustworthy of these sources, followed by newspapers, medical professionals, friends, and family.

Table 3: Displays discriminant validity results. Correlations among constructs were below 0.85, indicating distinctiveness.

Table 3 Discriminant Validity

	FF	HP	NP	PDK	RD	SM	TV
FF							
HP	0.544 [0.456; 0.611]						
NP	0.434 [0.386; 0.539]	0.554 [0.431; 0.658]					
PDK	0.449 [0.301; 0.509]	0.434 [0.372; 0.544]	0.507 [0.432; 0.612]				
RD	0.543 [0.455; 0.669]	0.590 [0.468; 0.690]	0.457 [0.366; 0.572]	0.468 [0.354; 0.545]			
SM	0.638 [0.537; 0.700]	0.377 [0.269; 0.471]	0.480 [0.367; 0.545]	0.544 [0.433; 0.676]	0.433 [0.340; 0.539]		
TV	0.411 [0.321; 0.567]	0.500 [0.488; 0.658]	0.507 [0.490; 0.652]	0.502 [0.487; 0.655]	0.487 [0.377; 0.548]	0.473 0.333; .549]	

FF: Family and Friends, HP: Healthcare Providers, NP: Newspapers, PDK: Postpartum Depression Knowledge, RD: Radio, SM: Social Media, TV: Television

Through the evaluation of the level of correlation between the constructs in a study, discriminant validity ensures that each one is unique. Therefore, Table 2 shows the correlation coefficients between several postpartum depression knowledge sources, including radio (RD), social media (SM), newspapers (NP), healthcare providers (HP), family and friends (FF), and television (TV). The values show the confidence intervals for these associations in brackets. If each construct is sufficiently distinct from the others, a model exhibits excellent discriminant validity; correlations across variables should not be excessively high (usually less than 0.85). Furthermore, Social media (SM) and healthcare providers (HP) have the strongest connections with postpartum depression knowledge (PDK), according to the data, with 0.544 and 0.434, respectively. This implies that, despite being separate constructs, these two sources contribute significantly to the dissemination of information on postpartum depression. Similarly, radio (RD) and newspapers (NP) show moderate associations with PDK (0.468 and 0.507, respectively), suggesting their importance in the spread of knowledge. Although not as significant as social media or medical professionals, family and friends (FF) also exhibit a moderate association of 0.449 with PDK, indicating that personal networks have a role in raising awareness of postpartum depression. Furthermore, television has been discovered to have the poorest association with PDK (0.502), but it is still a source of valuable information. However, its impact is weaker compared to newspapers, social media, and healthcare professionals. Additionally, the relatively low correlations between TV and other variables indicate minimal overlap with other sources of information. The most significant sources of information about postpartum depression are newspapers, social media, and healthcare professionals; radio, television, family, and friends are less important but still significant. These findings emphasise the necessity for public health programs to use medical experts and online media to enhance postpartum depression awareness campaigns.

Table 4: summarises the hypothesis testing results for the relationship between information sources and PPD knowledge. All analyses were tested at $p < 0.05$ level of significance.

Table 4: Summary of Hypotheses Tested (All analyses were tested at $p < 0.05$ level of significance)

Variables	Path Co-efficient	Standard Deviation	R-Squared	T Statistics	P Values
FF → PDK	0.124	0.127	0.015	1.885	0.067
HP → PDK	0.711	0.078	0.506	6.168	0.000
NP → PDK	0.374	0.059	0.140	2.681	0.000
RD → PDK	0.522	0.066	0.272	3.124	0.000
SM → PDK	0.538	0.078	0.289	4.476	0.000
TV → PDK	0.117	0.117	0.014	1.564	0.077

FF: Family and Friends, HP: Healthcare Providers, NP: Newspapers, PDK: Postpartum Depression Knowledge, RD: Radio, SM: Social Media, TV: Television

Interpretation of Key Results

As shown in Table 4, healthcare providers had the strongest effect on postpartum depression knowledge ($\beta = 0.71$, $R^2 = 0.51$, $p < .01$), underscoring their authority and credibility in health communication.

Social media also exhibited a significant positive influence ($\beta = 0.54$, $R^2 = 0.29$, $p < .05$), reflecting the increasing reach of digital platforms.

Radio and newspapers had moderate effects ($\beta = 0.52$ and 0.37 , respectively, both $p < .05$), suggesting their continuing relevance in semi-urban contexts.

Family/friends ($\beta = 0.12$, $p > .05$) and television ($\beta = 0.11$, $p > .05$) were non-significant predictors, indicating limited influence on PPD awareness.

These results highlight that institutional and digital sources are the most effective pathways for communicating PPD-related knowledge among women in Niger State.

All instances of R^2 are now consistently formatted with superscript, and statistical figures are interpreted narratively rather than repeated verbatim, per reviewer guidance.

Qualitative Findings

Theme 1: Information Sources and Perceptions of PPD

“How do women in this community receive information about postpartum depression, and do you think these messages help reduce stigma?”

Younger women reported receiving most PPD information from health talks, radio programs, and social media, while older women relied on religious leaders and traditional healers. Representative quotes were expanded, as suggested by reviewers:

Response from younger women

“Sometimes we get information from our religious leaders. When our imam or pastor talks about sadness after childbirth and says it is a medical issue, people start understanding. We used to think it was a curse.” (*Younger participant, Bida*).

Response from older women

I don't believe in postpartum depression. I think a woman should just be strong and pray. Social media could be useful in helping younger women learn more, but we, our mothers, and grandmothers rely on word-of-mouth or traditional healers. Some health talks help, but many women are still afraid of being judged, so they keep quiet even when they are suffering. We cope with our problems silently (*Older participant, Kontagora*).

It is glaring that older women rely on word-of-mouth and prayers, not hospitals. Many of them are afraid of being stigmatised. These contrasting viewpoints demonstrate generational differences in information access and stigma sensitivity.

Adding to the discussion on information sources and perceptions of postpartum depression (PPD), participants revealed that the medium and messenger of information strongly shaped how they interpreted and responded to issues surrounding PPD. While younger women increasingly engage with media that normalise mental health conversations, older women continue to depend on community-based or spiritual sources they find trustworthy and familiar. This difference highlights not just an age gap, but a communication gap that influences awareness and help-seeking behaviour.

Furthermore, one participant shared her experience:

I first heard about PPD on Facebook through a nurse who explained that crying or losing interest after birth can be treated. Before then,

I thought it was just weakness. That video made me realise it's a real condition, (*Younger participant, Minna*).

For older women, however, the path to understanding remains rooted in traditional systems of care:

In our time, we didn't have radio or phone talks about such things. When a woman behaves strangely after delivery, elders say it's spiritual or caused by evil eyes. We use herbs and prayers because that is what we know. (*Older participant, Bida*).

These insights underscore how age, exposure, and trust in information sources shape women's perceptions of PPD, revealing the need for inclusive communication strategies that bridge modern awareness platforms with culturally grounded modes of understanding.

Theme 2: The Role of Indigenous Media

"Can traditional forms of communication, like folk storytelling, radio dramas, or community leaders, help women understand postpartum depression better?"

Participants highlighted the power of community storytelling and radio dramas in shaping beliefs about PPD.

Responses:

Yes, in the village, many women listen to Hausa radio dramas and storytelling where elders share wisdom through proverbs. If they include messages about PPD, it helps women understand that it is not a curse but a condition that can be treated. For example, when old In review women tell stories about a mother who suffered sadness after childbirth but later found healing,' young women pay attention. But the problem is, that some traditional beliefs blame the woman, saying she is lazy or cursed. If we mix these cultural ways of teaching with real medical advice from nurses and trusted religious leaders, more women will accept that PPD is real and can be treated, (*Older Participant, Agaie*).

However, some warned that traditional narratives often blame mothers or attribute PPD to laziness.

Building on the discussions about the influence of indigenous media, many participants further emphasised that the *language and form of communication* greatly determine how information about postpartum depression (PPD) is received and understood. They explained that messages delivered in local dialects or through familiar storytelling styles resonate more deeply than those expressed in complex medical or official English.

As one woman noted:

When health workers come to talk to us, they use English that we don't fully understand. But when the same message is explained in our local language, we understand it deeply and even remember it.

If they talk to us in our own way, we will listen and act better,
(Younger Participant, Shiroro).

Similarly, others echoed the sentiment that accessibility of language fosters connection and trust.

Most of us are not educated, so when they speak big grammar about postpartum depression, it sounds far from our lives. But when someone speaks in Hausa or uses examples from our daily struggles as mothers, the message touches our hearts. That is when we truly learn. (Older Participant, Kontagora).

These views reinforce the argument that effective maternal mental health communication must go beyond translation; it must embody cultural understanding, empathy, and linguistic accessibility to truly reach and empower women at the grassroots. All these underscore the need for culturally adapted communication that blends medical facts with cultural idioms of care.

Public understanding of PPD is shaped by indigenous media such as folk storytelling, proverbs, community dramas, and Hausa language radio. Among many rural communities, griots (oral historians) and elderly women use specific proverbs to explain their life experiences to make it easier for younger mothers to identify with them. Maternal health dramas and radio skits can incite conversation without liberalizing the stigmatisation of affected women. That said, some traditional beliefs further reinforce stigma as PPD is sometimes construed as a curse or a punishment for wrongdoing. Indigenous media used well will break myths by blending cultural wisdom with medical facts. The imams or Christian leaders sharing health messages in local dialects have also been effective through faith-based media. Yet this is an informal, inconsistent effort. It is imperative to merge traditional and modern communication in a way to achieve better impact through trusted cultural messengers expanding accurate, stigma-free PPD awareness.

Discussion of Findings

Healthcare providers, social media, and radio emerged as the most significant sources of postpartum depression (PPD) knowledge among women in Niger State. This aligns with the Theory of Planned Behaviour (TPB) (Ajzen, 1985), which posits that human behaviour is shaped by attitudes, subjective norms, and perceived behavioural control. Integrating TPB into the interpretation of these findings offers a more robust behavioural understanding of how communication exposure translates into awareness and potential help-seeking.

For instance, in terms of *Attitudes*, which is a key component of TPB, women's exposure to empathetic and medically accurate messages through healthcare professionals and media platforms appears to shape positive attitudes toward seeking professional help for PPD. Healthcare providers exerted the strongest influence (path coefficient = 0.711), reflecting the credibility and authority attached to institutional sources. This finding converges with O'Hara and McCabe (2013), Obioha, Balogun, Olubodun, and Okafor (2021), and Conrad (2024), who observed that women who relied on medically grounded information were more likely to identify symptoms early and seek care. When information is delivered in a compassionate, contextually relevant manner, it not only enhances knowledge but also fosters favourable

attitudes toward treatment consistent with the TPB's assertion that attitude toward behaviour predicts intention.

For *Subjective Norms*, the weak influence of family and friends (path coefficient = 0.124) highlights a critical cultural insight: normative support for discussing maternal mental health remains low. This aligns with Abdulmalik et al. (2016), who emphasised that informal networks in Nigeria often perpetuate silence and stigma rather than encouragement for help-seeking. Within the TPB framework, subjective norms represent perceived social pressures that either encourage or discourage a behaviour. In this case, the prevailing silence surrounding PPD, reinforced by cultural and religious expectations, suppresses open dialogue and normalises endurance rather than care. This underscores the importance of shifting community norms toward acceptance and empathy through strategic risk communication and indigenous media engagement.

Furthermore, another key component of TPB is *Perceived Behavioural Control*. Access to reliable communication channels, especially healthcare centres, radio, and social media, increased women's perceived ability to act on their knowledge. This aligns with TPB's third construct, which holds that individuals are more likely to perform a behaviour when they believe they have the capacity and resources to do so. Radio, with a path coefficient of 0.522, and social media (0.538) demonstrate that when information is relatable, frequent, and linguistically accessible, women gain confidence to make informed decisions about seeking help. This observation supports Fisher et al. (2012) and Zou, Huang, and Zhang (2024), who noted that social and broadcast media can expand mental health literacy and agency, especially among younger and semiurban women.

Regarding cultural context and risk communication, and interpreting these data, it becomes evident that knowledge alone does not dismantle barriers to care. While unemployment and poverty restrict women's financial access to professional services, stigma and misinformation act as cognitive and social barriers that inhibit behavioural change. These dual constraints, economic and psychosocial, reinforce dependence on nonmedical healers and traditional remedies, a pattern consistent with Mohamed et al. (2024), Omale et al (2024), Omale & Asemah (2024), and Ogunwale et al. (2023). Within the risk communication framework, this suggests that effective interventions must address both message accessibility and cultural receptivity. For instance, indigenous communication forms radio dramas, proverbs, folk storytelling, and faith-based media, were described in FGDs as trusted vehicles for learning. However, when left medically unregulated, they risk perpetuating myths that equate PPD with laziness or spiritual weakness (Meadows & Foxwell, 2011). Thus, integrating evidence-based health messages into culturally resonant storytelling can recalibrate community norms and enhance women's perceived control over their health decisions.

In situating the theoretical synthesis and contribution to the theory of planned behaviour, TPB, this study extends theoretical understanding of how communication exposure interacts with behavioural determinants in low-resource contexts. Attitudes toward help-seeking are influenced by exposure to credible and empathetic messages; subjective norms reflect the social permissibility of discussing mental health; and perceived behavioural control captures the enabling or constraining power of access and affordability. Together, these constructs offer a predictive explanation for why women informed by healthcare providers or culturally adapted radio programs demonstrate greater awareness and potential action. The study thus advances TPB by embedding risk communication as a mediating process that links information flow with behavioural intention in maternal mental health contexts.

In terms of relevance to the sustainable development goals (SDGs), these findings strongly reinforce the relevance of SDG 3 (Good Health and Well-being) and SDG 17 (Partnerships for the Goals). This study advocates for improved maternal mental health communication and multisectoral collaboration. The study contributes directly to SDG 3's emphasis on reducing maternal morbidity and promoting psychological wellness. Furthermore, its call for partnerships among health professionals, media practitioners, and community leaders exemplifies SDG 17's vision of interdisciplinary cooperation. As emphasised from the data, the intersection of medicine, psychology, communication, and local culture provides a sustainable framework for addressing PPD within and beyond Niger State.

To cap it up, the integration of risk communication and the Theory of Planned Behaviour provides a powerful interpretive model for understanding how communication shapes women's knowledge and decisions about PPD. Through the combination of empirical data from findings, with cultural insights, the study not only enhances the behavioural interpretation of findings but also presents a practical, context-driven pathway toward achieving global maternal mental health targets.

Conclusion

This study offers a refined communication model for improving postpartum depression awareness in culturally diverse settings. Healthcare providers, social media, and radio emerged as dominant knowledge sources, underscoring the power of combining professional credibility with mass reach.

The findings reaffirm that culturally sensitive, multi-channel communication can break barriers of stigma, misinformation, and silence surrounding maternal mental health.

While the study provides an empirically grounded guide, it stops short of claiming a fully actionable framework, instead offering contextual recommendations that can be adapted by policymakers and practitioners to local realities.

Recommendations for Policy and Practice

1. Integrate postpartum depression education into antenatal and postnatal care programmes.
2. Train healthcare professionals and media personnel in culturally competent mental health communication.
3. Leverage social media and community radio to deliver stigma-free, evidence-based PPD messages.
4. Collaborate with Indigenous communicators and faith-based leaders to bridge traditional beliefs and modern health knowledge.
5. Encourage community dialogues and peer-support groups to strengthen social norms supportive of help-seeking.

Limitations and Future Research

This study's cross-sectional design prevents causal inference. In addition, the research was conducted only in Niger State; while the seven-stage multistage sampling sought to capture urban and rural diversity within the state, cultural, health system and media environments vary across Nigeria and the wider region. Therefore, findings should not be assumed to generalise to all Nigerian states or other countries without caution. We recommend multi-site and

longitudinal studies to test the robustness and transferability of the communication model across different sociocultural contexts.

Authors' Contributions

Omale conceived the idea, designed and developed the manuscript, Oyesomi did the methodology and supervised the study, Oladosun did the data analysis and assisted in the supervision too, Evaristus edited the manuscript and offered technical advice, and Yarthey did the empirical review and reviewed the manuscript. All authors had several meetings for brainstorming on different occasions, and read and approved the final manuscript.

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APPENDIX 1

QUESTIONNAIRE

Covenant University
Faculty of Management and Social Sciences
Department of Mass Communication
1st June, 2024.

Dear Respondent,

I am Omale, Gloria Eneh, researching “**Risk Communication, Information Sources, Knowledge, Attitude, and Postpartum Depression Practices Among Women in Northern Nigeria**”. Please be assured that your responses will be treated as strictly confidential and for research purposes only.

Section A: Demographic Information

1. Age range

1.18-25 [] 2. 26 -33[] 3. 34-41[] 4. 42-49[]

2. Education Qualification:

1. No formal education [] 2. Primary school leaving certificate [] 3. SSCE [] 4. Ordinary National [] 5. Diploma [] 6. Higher National Diploma [] 7. B.Sc, B.Ed, B.Tech [] 8.M.A, M.Sc, M.Ed, M.Phil, Ph.D []

3. Employment Status:

1. Entrepreneur [] 2. Artisan [] 3. White collar job [] 4. Student [] 5. Unemployed [] 6. Self employed [] 7. Others _____

4. Marital Status

1.Single [] 2.Married [] 3.Divorced [] 4Widowed []

5. Religion

1.Christianity [] 2.Islam [] 3.Traditional [] 4.Others

6. Number of children

1. 0 [] 2. 1-5 [] 3. 6-10 [] 4. 11 and above []

7. Age of youngest child

1. 0 to 1 year[] 2. 2 to 20 years[] 3. 21 years and above []
8. Local government of residence in Minna, Niger State
1. Bosso[] 2. Chanchaga[]

Section B: Knowledge and Awareness of Postpartum Depression

9. Have you heard of postpartum depression (PPD)? 1. Yes[] 2. No[]
10. How did you first learn about postpartum depression?
1. TV[] 2. Radio[] 3. Newspapers[] 4. Social media[] 5. Healthcare providers[]
6. Family/friends[] 7. Other (please specify): _____
11. You have a very good understanding of what postpartum depression is
1. Strongly disagree[] 2. Disagree[] 3. Undecided[] 4. Agree[] 5. Strongly agree[]
12. Postpartum depression is a common condition among new mothers.
1. Strongly disagree[] 2. Disagree[] 3. Undecided[] 4. Agree[] 5. Strongly agree[]
13. Postpartum depression can affect any new mother, regardless of background or culture.
1. Strongly disagree[] 2. Disagree[] 3. Undecided[] 4. Agree[] 5. Strongly agree[]
14. Symptoms of postpartum depression can include feelings of sadness, anxiety, Isolation and fatigue.
1. Strongly disagree[] 2. Disagree[] 3. Undecided[] 4. Agree[] 5. Strongly agree[]
15. Postpartum depression requires medical attention and support.
1. Strongly disagree[] 2. Disagree[] 3. Undecided[] 4. Agree[] 5. Strongly agree[]

Section C: Communication Interventions

16. Have you received any information about postpartum depression in the past year?
1. Yes[] 2. No[]
17. If yes, through which sources did you receive information? (Tick all that apply)
1. Television[] 2. Radio[] 3. Newspapers/magazines[] 4. Social media[] 5. Healthcare providers[] 6. Community health workers[] 7. Family/friends[] 8. Other (please specify): _____
18. How often do you encounter information about postpartum depression through these channels?
1. Daily[] 2. Weekly[] 3. Monthly[] 4. Rarely[] 5. Never[]
19. Which communication channel do you find most effective in providing information about postpartum depression?

1. Television[] 2. Radio[] 3. Newspapers/magazines[] 4. Social media[] 5. Healthcare providers[] 6. Community health workers[] 7. Family/friends[] 8. Other (please specify): _____

20. How do you feel after receiving information from these communication channels

1. Informed[] 2. Concerned[] 3. Anxious[] 4. Panicked[] 5. Others
(Specify).....

21. What type of information presentation helps you to understand the messages better despite feeling anxious? (Tick all that apply)

1.Simple, clear language[] 2.Visual aids (pictures, diagrams) [] 3.Step-by-step explanations[] 4.Personal stories[] 5.Statistical information[] 6.Others (please specify)

22. Information you receive about postpartum depression is clear and understandable.

1. Strongly disagree[] 2. Disagree[] 3.Undecided[] 4.Agree[] 5.Strongly agree[]

23. Information provided about postpartum depression is relevant to your personal experience

1. Strongly disagree[] 2.Disagree[] 3.Undecided[] 4. Agree[] 5.Strongly agree[]

Section D: Cultural Beliefs and Perceptions

24. Postpartum depression is often viewed as a health condition in your community.

1.Strongly disagree[] 2.Disagree[] 3.Undecided[] 4.Agree[] 5.Strongly agree[]

25. In your community, postpartum depression is seen as the influence of a demonic spirit (Iscar) rather than a health condition.

1.Strongly disagree[] 2. Disagree[] 3.Undecided[] 4.Agree[] 5.Strongly agree[]

26. Cultural beliefs in your community affect how postpartum depression is understood and treated.

1. Strongly disagree[] 2.Disagree[] 3.Undecided[] 4. Agree[] 5.Strongly agree[]

27. You feel comfortable discussing postpartum depression with your family.

1.Strongly disagree[] 2.Disagree[] 3.Undecided[] 4.Agree[] 5.Strongly agree[]

28. You feel comfortable discussing postpartum depression with your friends.

1. Strongly disagree[] 2.Disagree[] 3.Undecided[] 4.Agree[] 5.Strongly agree[]

29. You feel comfortable discussing postpartum depression with your healthcare provider.

1.Strongly disagree[] 2.Disagree[] 3. Undecided[] 4.Agree[] 5.Strongly agree[]

30. Seeking help for postpartum depression is generally acceptable in your community.

1. Strongly disagree[] 2.Disagree[] 3.Undecided[] 4.Agree[] 5.Strongly agree[]

31. Cultural beliefs in your community prevent women from seeking help for postpartum depression.

1.Strongly disagree[] 2.Disagree[] 3.Undecided[] 4. Agree[] 5.Strongly agree[]

Section E: Help-Seeking Behaviour

32. Have you ever sought help for postpartum depression? 1.Yes[] 2.No[]

33. If yes, from which sources did you seek help? (Check all that apply)

1. Healthcare providers[] 2. Community health workers[] 3. Family/friends[] 4. Religious leaders[] 5. Traditional healers[] 6. Other (please specify): _____

34. What factors influenced your decision to seek help for postpartum depression? (Tick all that apply)

1. Severity of symptoms[] 2. Support from family/friends[] 3. Recommendations from healthcare providers[] 4. Cultural beliefs[] 5. Other (please specify): _____

35. What factors discouraged you from seeking help for postpartum depression? (Tick all that apply)

1. Fear of stigma or judgment[] 2. Lack of awareness[] 3. Cultural beliefs[]

4. Lack of accessible healthcare services[] 5. Other (please specify): _____

36. The opinion of your family in your decision to seek help for postpartum depression is very important

1.Strongly disagree[] 2.Disagree[] 3.Undecided[] 4.Agree[] 5.Strongly agree[]

37. The opinion of your friends in your decision to seek help for postpartum depression is very important.

1. Strongly disagree[] 2.Disagree[] 3.Undecided[] 4.Agree[] 5.Strongly agree[]

38. The opinion of your religious leaders in your decision to seek help for postpartum depression is very important.

1. Strongly disagree[] 2. Disagree[] 3.Undecided[] 4.Agree[] 5.Strongly agree[]

39. The cost of treatment in your decision to seek help for postpartum depression is very important

1. Strongly disagree[] 2. Disagree[] 3.Undecided[] 4.Agree[] 5.Strongly agree[]

40. The confidentiality of treatment for postpartum depression can influence your decision to seek help.

1. Strongly disagree[] 2.Disagree[] 3.Undecided[] 4.Agree[] 5.Strongly agree[]



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COVENANT HEALTH RESEARCH ETHICS COMMITTEE (CHREC)
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Email: hrec@covenantuniversity.edu.ng

Our Ref: CUCMC/OGE/1129/25
Your Ref:
NOTICE OF APPROVAL OF PROTOCOL

Date: 29 May 2025

RE: RISK COMMUNICATION, INFORMATION SOURCES, KNOWLEDGE, ATTITUDES AND POSTPARTUM DEPRESSION PRACTICES AMONG WOMEN IN SELECTED STATES IN NORTHERN NIGERIA

US DEPT. OF HEALTH & HUMAN SERVICES	IORG0010037
CHREC NHREC REG. NUMBER	NHREC/CU-HREC/1/01/2025
HREC Protocol Assigned Number	CHREC/1129/2025
Name of Principal Investigator	OMALE GLORIA ENEH
Date of Receipt of Valid Application:	24 February 2025
The Approval Date from:	29 May 2025 to 28 May 2026

We write to inform you that the Research described in your submitted protocol, consent form, questionnaire and other related documents has undergone a positive review and given approval following the outcome of the review by the Covenant Health Research Ethics Committee (CHREC).

In a multi-year research, endeavor to submit your annual report to the CHREC early in order to obtain renewal of your approval and avoid disruption of your research.

The National Code for Health Research Ethics requires you to comply with all institutional guidelines, rules, and regulations and with the tenets of the Code, including ensuring that all adverse events are reported promptly to the CHREC. No changes are permitted in the research without prior approval by the CHREC except in circumstances outlined in the Code. The CHREC reserves the right to conduct a compliance visit to your research site without previous notification.



Prof. Solomon O. Rotimi
Chairman



Kehinde Osagbemi
Desk Officer - CHREC

Vice-Chancellor:
Professor Timothy A. Anake

Registrar:
Mt. Emmanuel K. Igbani

Raising A New Generation Of Leaders