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Knowledge, Attitude and Practice Towards Utilisation of Postnatal Care Services Among Nursing Mothers in Osogbo Local Government Area, Osun State, Nigeria

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ABSTRACT

Background: Postnatal care (PNC) is a critical but chronically underutilised component of the maternal and child health continuum of care. Despite its established role in preventing maternal and neonatal morbidity and mortality, utilisation of PNC services remains unacceptably low in Nigeria, including the Osogbo Local Government Area of Osun State. Three-quarters of women globally do not receive recommended postnatal care, contributing to 60–80% of maternal deaths during the postpartum period.

Objective: This study assessed the knowledge, attitudes, and practices of nursing mothers towards the utilisation of postnatal care services in the Osogbo Local Government Area, Osun State, Nigeria.

Methods: A descriptive cross-sectional study design was used. Using Slovin's formula, a sample size of 173 nursing mothers was calculated from a population of 270, with attrition adjustment yielding 173 targeted respondents, of whom 168 returned fully completed questionnaires. Simple random sampling was employed to select participants attending Oke-Baale Primary Health Centre in Osogbo LGA. A structured self-administered questionnaire with four sections assessed socio-demographic characteristics, knowledge of PNC, influence of knowledge on PNC utilisation, attitudes towards PNC, and PNC practice. Reliability was established using Pearson Product-Moment Correlation (r = 0.7). Data were analysed using SPSS version 21, with results presented as frequencies and percentages.

Results: The majority of respondents were aged 25–34 years (47.6%), married (70.8%), Christian (63.1%), Yoruba (43.5%), with tertiary education (48.8%), and civil servants (39.9%). Most resided in rural areas (66.7%). Knowledge of PNC was high: 78.6% correctly defined PNC, 78.0% were aware of its benefits, 78.6% knew the risks of missing PNC, and 78.6% affirmed that PNC promotes maternal and infant health. The influence of knowledge on utilisation was strong: 88.7% reported that PNC information received during ANC developed their interest in utilising PNC services, and 86.3% agreed that greater knowledge leads to increased utilisation. Attitudes were overwhelmingly positive: 78.6%

considered PNC mandatory for all nursing mothers, 81.5% did not find PNC time-consuming, and 70.8% affirmed that PNC adequately addresses the physical, medical, and emotional needs of mothers and children. Practice was largely positive: 80.4% attended PNC as a routine, scheduled visit; 83.9% believed that family/social network support improves PNC utilisation, though 73.2% encountered access barriers, including transportation, distance, and financial constraints.

Conclusion: Nursing mothers in Osogbo LGA demonstrate high levels of PNC knowledge and consistently positive attitudes, with reasonably strong practice of routine PNC attendance. Persistent access barriers, particularly transport, distance, and financial constraints, remain the primary structural impediments to optimal PNC utilisation. Targeted interventions that address these barriers, alongside community-level health education and family engagement programs, are essential to closing the knowledge–practice gap in PNC utilisation among this population.

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INTRODUCTION

Background of the Study

The postnatal period, defined as the interval from the birth of a baby and expulsion of the placenta through the first 42 days (six weeks) of the mother's and newborn's life, is one of the most critical and simultaneously most neglected phases of the maternal and child health continuum in developing countries (WHO, 2022). During this period, both the mother and her newborn undergo rapid physiological transitions that carry significant risks: the majority of maternal deaths attributable to haemorrhage, sepsis, hypertensive disorders, and thromboembolic complications occur within the first 24 hours and first week after delivery, and most neonatal deaths similarly occur in the first 24–72 hours of life (UNICEF, 2023; WHO, 2022). Postnatal care (PNC) services are designed to address these risks precisely, providing structured assessment, treatment, counselling, and referral for both mother and newborn at recommended time points: within 6–24 hours of birth, at day 3, at week 2, and at week 6 (WHO, 2022). Despite this clear evidence base, global PNC utilisation remains critically low: an estimated three-quarters of all women worldwide do not receive postnatal care, and this coverage gap is directly responsible for 60–80% of all maternal deaths occurring in the postpartum period (WHO, 2022).

Globally, more than 295,000 women died in 2017 from causes related to pregnancy and childbirth, 99% of these deaths occurring in low- and middle-income countries, with sub-Saharan Africa and South Asia accounting for 86% of all maternal deaths (WHO, 2022). The maternal mortality ratio for sub-Saharan Africa stands at approximately 542 per 100,000 live births, more than 50 times higher than the ratio of 11 per 100,000 in high-income countries. Similarly, neonatal mortality in sub-Saharan Africa accounts for approximately 40% of all deaths in children under five years of age, with the majority of deaths preventable through basic postnatal care interventions, including thermal protection, early breastfeeding initiation, hygienic cord care, and timely identification and referral of danger signs (UNICEF, 2023; WHO, 2022). Analysis of demographic and health survey data from 23 sub-Saharan African countries found that only 13% of women who delivered at home received postnatal care within 2 days of birth, and fewer than half of all women received any postnatal care visit within 2 days of childbirth, regardless of delivery setting (WHO, 2022).

Nigeria presents a particularly alarming picture of maternal and newborn health outcomes. With a maternal mortality ratio of approximately 512 per 100,000 live births, among the highest in the world, Nigeria accounts for approximately 20% of global maternal deaths (WHO, 2022; Federal Ministry of Health [FMoH], 2021). The Nigeria Demographic and Health Survey 2018 revealed that an estimated 95% of mothers nationwide did not receive postnatal care in the critical first two days after delivery, and that PNC coverage within the recommended six-week window remained below 40% nationally. In Osun State specifically, only 39.8% of women received PNC from a skilled provider within two days of delivery, below the national average of 51.5%, and 60.8% received no PNC at all (National Population Commission [NPC] & ICF, 2021). These figures represent a profound failure of the maternal health system to capture women in the postpartum window when they and their newborns are most vulnerable.

The Health Belief Model (HBM), first developed by Hochbaum, Rosenstock, and Kegels in the 1950s and subsequently refined, provides a robust theoretical framework for understanding why women use or do not use PNC services. The model posits that a constellation of perceptual constructs determines health-seeking behaviour: perceived susceptibility (the belief that one is at risk

of a health problem), perceived severity (the belief about the seriousness of that risk), perceived benefits (the anticipated positive outcomes of the health behaviour), perceived barriers (the anticipated costs and obstacles), cues to action (internal or external stimuli that trigger the behaviour), and self-efficacy (confidence in one's capacity to perform the behaviour) (Glanz et al., 2020). Applied to PNC, the HBM predicts that a nursing mother's decision to attend PNC is shaped by whether she perceives herself as susceptible to postpartum complications, understands the severity of those risks, appreciates the benefits of PNC in mitigating those risks, and feels capable of overcoming the financial, logistical, cultural, and social barriers to attendance. This model has been widely validated in research on PNC utilisation across sub-Saharan Africa and Asia.

Knowledge, attitude, and practice (KAP) are the three interrelated domains that most directly shape PNC utilisation behaviour in the postpartum period. Adequate knowledge of PNC, including awareness of its recommended timing, components, and health benefits, is a necessary but not sufficient predictor of utilisation: women who lack knowledge of what PNC is or when to attend are structurally unable to make informed decisions about seeking care (Ibrahim et al., 2022; Oladunjoye & Gbadegesin, 2020). Attitudinal factors, including the perceived necessity of PNC, comfort with healthcare providers, and the absence of cultural or social stigma around postpartum healthcare, mediate the translation of knowledge into intentions and, ultimately, into healthcare-seeking behaviour (Neupane & Doku, 2021; Rahman et al., 2020). Practice, the actual behaviour of attending PNC at recommended intervals, adhering to scheduled follow-up visits, and engaging in recommended postpartum self-care, reflects the integrated outcome of knowledge, attitude, and structural enablers or barriers (Adeleye, Isawumi & Adeoye, 2021). In Osogbo LGA, where PNC utilisation rates are below both the state and national averages, a systematic investigation of these three domains is essential to generate the evidence needed to design effective, locally targeted PNC promotion interventions.

This study was therefore conducted to assess the knowledge, attitudes, and practices of nursing mothers towards the utilisation of postnatal care services in the Osogbo Local Government Area of Osun State, Nigeria, to identify modifiable determinants that can be addressed through community health education, health system strengthening, and policy reform. Despite well-documented evidence that postnatal care is one of the most cost-effective interventions for preventing maternal and neonatal morbidity and mortality, and despite the Nigerian government's commitment to universal access to skilled maternal health services, nursing mothers in Osogbo Local Government Area of Osun State continue to underutilise postnatal care services at rates below both state and national averages—with 60.8% receiving no PNC at all, 95% not receiving care in the critical first 48 hours post-delivery, and utilisation rates constrained by multiple intersecting barriers including inadequate knowledge, negative or ambivalent attitudes, socio-cultural practices, financial constraints, distance to facilities, and poor quality of care, yet no locally grounded empirical study has comprehensively assessed the specific knowledge levels, attitudinal profiles, and practice patterns that characterise PNC utilisation among nursing mothers in this community, leaving health planners, maternal health programme managers, and primary health care workers without the locally specific evidence base needed to design and implement targeted, culturally responsive, and effective PNC promotion interventions in Osogbo LGA. This study is essential for generating locally grounded evidence to guide maternal and child health programming in Osogbo LGA. By systematically characterising the knowledge, attitudes, and practices of nursing mothers regarding PNC, the study provides health educators, community health workers, and primary health care facility managers with actionable data to design targeted health education campaigns, improve PNC service delivery, and address specific barriers to PNC utilisation in this community. For policymakers at the Osun State and federal levels, the findings provide empirical grounding for policy revisions, resource allocation decisions, and the expansion of the Abiye Program's maternal health services to reach nursing mothers in the postpartum period better. The study contributes to the evidence base on PNC utilisation in southwestern Nigeria, where locally specific studies across all three KAP domains remain limited, and provides baseline data for future longitudinal and intervention studies.

REVIEW

The Postpartum Period and Postnatal Care

The postpartum or postnatal period, spanning from birth through the first six weeks of the mother's and newborn's life, is characterised by rapid physiological transitions for both mother and infant that carry substantial health risks if not monitored and managed by skilled health providers. WHO (2022) recommends that all women receive at least four postnatal care contacts: within 24 hours of birth, at day 3, during weeks 1–2, and at weeks 4–6. These contacts serve multiple functions: assessment of the mother for signs of haemorrhage, infection, hypertensive disorders, mental health complications, and anaemia; assessment of the newborn for signs of sepsis, hypothermia, birth asphyxia, and feeding difficulties; provision of newborn care guidance including exclusive breastfeeding support and hygienic cord care; immunisation; family planning counselling; and health education on danger signs requiring emergency care. The evidence supporting structured PNC is compelling: studies consistently demonstrate that women who receive at least two PNC contacts have significantly lower rates of maternal complications, postpartum depression, and newborn illness compared to those with no PNC (WHO, 2022; Adeleye et al., 2021).

Despite this evidence, PNC is consistently identified as the weakest link in the maternal and child health continuum of care in sub-Saharan Africa. The WHO (2022) notes that while 80% of women globally access at least one antenatal care visit, fewer than 50% receive postnatal care within two days of delivery. In Nigeria, the NDHS 2021 reported that only 39% of women received any

postnatal care in the first two days after delivery, declining further in rural areas and among women with no formal education. The structural factors driving this low coverage are well-documented: distance to facilities, financial barriers, poor facility quality and staffing, lack of awareness of PNC schedules, cultural practices that restrict women's mobility in the postpartum period, and absence of systematic follow-up by health workers (FMoH, 2021; Oladunjoye & Gbadegesin, 2020).

Theoretical Framework: The Health Belief Model

The Health Belief Model (HBM), developed by Rosenstock (1966) and subsequently expanded by Becker (1974) and others, remains one of the most widely applied frameworks for explaining and predicting health-seeking behaviour, particularly in maternal and reproductive health. The model's six core constructs, perceived susceptibility, perceived severity, perceived benefits, perceived barriers, cues to action, and self-efficacy, provide a comprehensive explanatory framework for the complex decision-making processes that determine whether nursing mothers seek postnatal care (Glanz, Rimer & Viswanath, 2020). Applied to PNC utilisation, perceived susceptibility captures the mother's belief about her risk of postpartum complications if she does not attend PNC; perceived severity relates to her understanding of how serious those complications could be (including death); perceived benefits reflect her appreciation of the health gains for herself and her infant from attending; perceived barriers encompass the financial, geographic, cultural, and logistical obstacles to attendance; and self-efficacy reflects her confidence in her ability to navigate those barriers and access care.

The HBM has been extensively validated in PNC research across sub-Saharan Africa and Asia. Studies consistently demonstrate that women who perceive greater susceptibility to and severity of postpartum complications and who attribute greater benefits to PNC have significantly higher rates of PNC attendance (Adeleye et al., 2021; Ibrahim et al., 2022). Conversely, high perceived barriers, particularly financial and logistical barriers, are strongly associated with non-utilisation of PNC (Balde et al., 2021; Oladunjoye & Gbadegesin, 2020). The model's application to the present study is particularly appropriate given that PNC utilisation in Osogbo LGA appears to be shaped by precisely the multi-level attitudinal, knowledge, and structural factors that the HBM is designed to address.

Knowledge and Awareness of Postnatal Care

Adequate knowledge of PNC, encompassing awareness of its definition, recommended visit schedule, specific services offered, and the health benefits for the mother and child, is a foundational determinant of utilisation behaviour. Systematic reviews across sub-Saharan Africa consistently document that women with higher PNC knowledge scores are significantly more likely to attend scheduled PNC visits (Tesfahun et al., 2021; WHO, 2022). In a multi-country study by Kimberly et al. (2021), high knowledge of maternal healthcare, including the timing and content of both ANC and PNC, was a significant predictor of facility attendance for postnatal visits. Soltani, Sakouhi, and Beguith (2022) evaluated mothers' knowledge of postnatal preventive care in Tunisia and found that 95% of participants who understood the importance of PNC attended PNC visits, compared with only 34% among those with low knowledge. Islam and Nielson (2021) found in Bangladesh that women who lacked knowledge about the importance of PNC were not motivated to seek services, while those who received structured health education during ANC demonstrated significantly higher PNC attendance rates.

In the Nigerian context, knowledge of PNC is consistently associated with utilisation across diverse settings. Obi and Obarisiagbon (2021) found in Benin City that ANC attendance, which facilitates PNC education, was a major determinant of PNC uptake. Oladunjoye and Gbadegesin (2020) documented in rural southwestern Nigeria that low PNC utilisation was directly linked to inadequate awareness of PNC services and their benefits. Ibrahim et al. (2022), analysing 2018 NDHS data, found maternal education, a strong proxy for health knowledge and literacy, to be among the most consistent predictors of PNC utilisation in Nigeria. These findings collectively underscore that knowledge-building through structured ANC health education is a high-yield strategy for improving PNC uptake.

Attitudes of Nursing Mothers Towards Postnatal Care

Attitudinal factors constitute a critical mediating layer between knowledge and practice in PNC utilisation. Positive attitudes towards PNC, encompassing recognition of its necessity, confidence in healthcare providers, absence of cultural stigma, and satisfaction with service quality, are consistently associated with higher utilisation rates (Neupane & Doku, 2021; Rahman et al., 2020). Ibrahim et al. (2022) documented that negative or ambivalent attitudes, including perceptions that PNC is unnecessary after an apparently uncomplicated delivery, beliefs that PNC is uncomfortable or intrusive, and distrust of health facility staff, were significant predictors of non-utilisation in Nigeria. Cultural practices in many Nigerian communities prescribe a period of domestic seclusion for women in the postpartum period, restricting their mobility and social interaction in ways that directly impede PNC attendance (Iliyasu et al., 2021; Joseph, Nwosu & Anthony, 2021).

Poverty profoundly shapes attitudinal orientation towards PNC through multiple channels. Adeniyi and Ajayi (2021) documented in Nigeria that rich mothers who attended PNC were 15 times more likely to have done so than poor mothers, with the attitudinal dimension reflecting not only financial capacity but also internalised beliefs about entitlement to health care shaped by socioeconomic status. Mothers from higher-socioeconomic households tend to have more positive attitudes towards PNC, partly mediated by greater exposure to health information across diverse media channels and greater familiarity with formal health

system engagement (Neupane & Doku, 2021). The role of healthcare provider attitudes in shaping women's service-seeking behaviour is particularly significant: negative provider–patient interactions during ANC or at delivery have been documented as powerful deterrents to PNC attendance in Nigeria and across sub-Saharan Africa (Agho et al., 2021).

Utilisation of PNC Services in Nigeria and Sub-Saharan Africa

PNC utilisation in sub-Saharan Africa is characterised by low coverage, significant urban–rural disparities, and strong socioeconomic gradients. The WHO (2022) global estimate indicates that fewer than 50% of women and their newborns receive postnatal care within two days of birth. Country-specific data document wide variation: Rwanda (95%), Kenya (62%), Uganda (40%), Nigeria (39%), and the Democratic Republic of Congo (35%) illustrate the range of coverage across the continent. In Nigeria, the NDHS 2021 found that PNC coverage from a skilled provider within 2 days of delivery was 40% nationally, with Osun State below average at 39.8%, and 60.8% of women received no PNC at all (NPC & ICF, 2021). These figures reflect a combination of structural barriers, poor access to facilities, drug stockouts, and inadequate staffing, as well as demand-side barriers related to knowledge, attitudes, and socioeconomic status (FMoH, 2021).

Studies on PNC utilisation in southwestern Nigeria reveal a complex multi-level picture. Oladunjoye and Gbadegesin (2020) found that only 31.5% of rural mothers utilised PNC within 48 hours of delivery, with distance, poor health worker attitudes, and inadequate knowledge as primary barriers. Amoran, Salami, and Oluwole (2021) identified maternal education, family support, and place of delivery as significant determinants of PNC utilisation in Nigeria, consistent with the broader African literature. The Osun State government's Abiye Program, which provides free ANC, PNC, family planning, and immunisation services, represents an important policy response to low PNC utilisation, though implementation gaps in coverage, quality, and community awareness limit its impact (Osun State Government of Nigeria, 2021).

Nursing Mothers' Practices and Their Influence on PNC Utilisation

Nursing mothers' practices in the postpartum period, including early initiation of breastfeeding, adherence to scheduled PNC visits, hygienic newborn care, and engagement with family planning services, have been shown to have direct and significant effects on both maternal and infant health outcomes (Aduloju & Akintan, 2022; Adeleye et al., 2021). Research by Aduloju and Akintan (2022) in Nigeria found that mothers who practised exclusive breastfeeding had significantly higher rates of PNC utilisation, partly mediated by their engagement with lactation counselling services offered at PNC clinics. In Ghana, Ankomah et al. (2021) found that mothers with good knowledge and practice of hygiene and sanitation, acquired through ANC counselling, were more likely to seek postnatal care. Early initiation of breastfeeding and colostrum feeding, documented in Nigeria by Kainuwa and Kalla (2020) as practices associated with PNC attendance, reflect a broader orientation towards evidence-based maternal and newborn care, thereby facilitating engagement with the health system.

Access barriers, particularly transportation costs, distance to facilities, and family opposition, represent the primary structural impediments to positive PNC practice in Nigerian communities (Balde et al., 2021; Oladunjoye & Gbadegesin, 2020). Amoran et al. (2021) found that family support and follow-up reminders from health workers were significant facilitators of PNC practice, underscoring the importance of social support systems and active case management by primary health care teams. The integration of PNC reminders into digital health platforms, SMS messages and phone calls to remind mothers of scheduled visits, has demonstrated effectiveness in increasing PNC attendance in comparable Nigerian and African settings (Ibrahim et al., 2022).

Factors Influencing PNC Utilisation: A Multi-Level Framework

Research consistently identifies a multi-level set of factors that shape PNC utilisation in Nigerian and African contexts. Individual-level determinants include maternal education, knowledge of PNC, parity, age at first pregnancy, HIV status, and self-efficacy for health system engagement. Household-level factors include household wealth, family support (particularly from the husband and mother-in-law), family size, and distance to the nearest health facility. Community-level factors encompass social norms regarding postpartum behaviour, trust in health facilities relative to traditional birth attendants, and community exposure to health education programs. Health system factors. including availability and quality of PNC services, health worker attitudes, drug and supply availability, and facility opening hours, complete the multi-level picture (Ibrahim et al., 2022; Adeniyi & Ajayi, 2021; Balde et al., 2021).

Socio-cultural practices in Nigeria and broader West African settings that inhibit PNC utilisation include the 40-day postpartum seclusion period (observed in some communities), during which women are restricted from leaving the home; traditional postpartum healing practices that substitute for evidence-based care; and reliance on traditional birth attendants for postpartum support in communities where facility quality is perceived as low (Joseph et al., 2021; Iliyasu et al., 2021). Health insurance coverage, shown in Ghana and Nigeria to increase PNC utilisation by 61% and 96%, respectively, remains very low in Osun State, limiting the financial protection available to nursing mothers seeking PNC (Browne et al., 2022). Dahiru and Oche (2020) found that approximately 48% of women who delivered in a health facility used PNC services, compared to only 11% of those who delivered outside the facility, underscoring that facility-based delivery is one of the strongest proximate determinants of PNC attendance, with implications for programs seeking to link ANC, skilled delivery, and PNC as a seamless continuum.

Research Questions

The following research questions guided the study:

What is the level of knowledge of postnatal care services among nursing mothers in Osogbo LGA?

To what extent does nursing mothers' knowledge of postnatal care influence its utilisation?

What is the attitude of nursing mothers towards postnatal care services in Osogbo LGA?

What is the relationship between nursing mothers' attitudes and postnatal care utilisation?

What is the influence of nursing mothers' practice on postnatal care services utilisation?

Objectives of the Study

The general objective was to assess the knowledge, attitudes, and practices towards the utilisation of postnatal care services among nursing mothers in the Osogbo Local Government Area.

The specific objectives were to:

1. Assess the level of knowledge of postnatal care services among nursing mothers in Osogbo LGA.
2. Assess the influence of nursing mothers' knowledge on postnatal care and its utilisation.
3. Determine the attitude of nursing mothers towards postnatal care services in Osogbo LGA.
4. Identify the relationship between nursing mothers' attitudes and postnatal care utilisation.
5. Determine the influence of nursing mothers' practice on postnatal care services.

MATERIALS AND METHODS

Study Location

The study was conducted at Oke-Baale Primary Health Centre in Osogbo Local Government Area, Osun State, Nigeria. Osogbo is the state capital of Osun State, centrally located and accessible from multiple surrounding communities, including Ikirun, Ilesa, Ede, Egbedore, and Ogbomosho. The city had a population of approximately 500,000 at the 2006 census, with the LGA serving as the state's administrative and commercial hub. Oke-Baale Primary Health Centre was selected as the study site because it serves a large and diverse population of nursing mothers across multiple wards of Osogbo LGA and is the primary facility-based point of contact for PNC services in the catchment area.

Study Design

A descriptive cross-sectional survey design was employed. This design is appropriate for assessing the prevalence, distribution, and determinants of health-related knowledge, attitudes, and practices in a defined population at a single point in time (Creswell & Creswell, 2022). The descriptive cross-sectional approach enabled the systematic characterisation of the KAP profiles of nursing mothers regarding PNC utilisation without manipulating study variables, yielding population-level data directly applicable to program planning.

Study Population

The target population comprised nursing mothers attending Oke-Baale Primary Health Centre in Osogbo LGA for postnatal care and related maternal and child health services during the study period. These women were selected because, as nursing mothers who are or have recently been in the postpartum period, they are the primary beneficiaries of PNC services and their KAP profiles directly determine PNC utilisation outcomes in the study community.

Sample Size Calculation

The sample size was calculated using Slovin's formula: $n = N / (1 + Ne^2)$, where N = 270 (total registered nursing mothers in the postnatal clinic), e = 0.05 (margin of error at 5%), and the constant 1. This yielded $n = 270 / (1 + 270 \times 0.0025) = 270 / 1.675 \approx 158$. Adding a 10% attrition allowance (n = 15) produced a final target sample of 173 respondents. Of the 173 questionnaires distributed, 168 were returned fully completed and were included in the analysis, representing a 97.1% response rate.

Instrument for Data Collection

A structured self-administered questionnaire was developed by the researcher and organised into four sections: Section A (socio-demographic characteristics: age, marital status, religion, ethnicity, educational status, occupational status, residential area, family size, age at first pregnancy, and number of children); Section B (knowledge of PNC services: five items using Yes/No response format); Section C (influence of knowledge on PNC utilisation: five items using Yes/No format); Section D (attitude towards PNC services: five items using Yes/No format); and Section E (practice towards PNC: six items using Yes/No format). The questionnaire was pretested at Oke-Fia Primary Health Centre in Osogbo, and the Pearson Product-Moment Correlation (PPMC) analysis yielded a reliability coefficient of r = 0.7, indicating acceptable internal consistency. Content validity was established through expert review by the project supervisor.

Sampling Technique and Data Collection

Simple random sampling was employed to select 173 participants from the pool of eligible nursing mothers who attended the study facility during the data collection period. Each eligible mother had an equal probability of selection. Questionnaires were

distributed and collected on the same day to minimise non-response. The researcher personally oversaw data collection, explained the study's purpose to each participant, obtained verbal informed consent, and ensured the confidentiality of all responses. Participation was entirely voluntary.

Data Analysis

Data were entered, cleaned, and analysed using IBM SPSS version 21. Frequency counts and percentage distributions were computed for all variables. Results are presented in tabular form with accompanying narrative interpretation.

Ethical Considerations

Ethical approval was obtained from the School of Community Health, Obafemi Awolowo University Teaching Hospitals Complex, Ile-Ife. Permission was obtained from the Medical Officer of Health and the Officer-in-Charge of Oke-Baale Primary Health Centre. All participants provided voluntary verbal informed consent. The purpose of the study, confidentiality of responses, and the right to withdraw without consequence were clearly explained to each participant. No identifying information was included in the analysed dataset.

RESULTS

A total of 168 respondents provided complete and usable responses to the questionnaire. Results are presented in five tables covering socio-demographic characteristics and the four research question domains.

4.1 Socio-Demographic Characteristics of Respondents

Table 1: Socio-Demographic Characteristics of Respondents (n = 168)

Parameter / Classification	Frequency (n=168)	Percentage (%)
Age (Years)		
15–24	69	41.1
25–34	80	47.6
35 and above	19	11.3
Marital Status		
Married	119	70.8
Single	49	29.2
Religion		
Christianity	106	63.1
Islam	62	36.9
Ethnicity		
Yoruba	73	43.5
Igbo	44	26.2
Others	38	22.6
Hausa	13	7.7
Educational Status		
Tertiary	82	48.8
Primary	50	29.8
No formal education	18	10.7
Secondary	18	10.7
Occupational Status		
Civil Servant	67	39.9
Self-employed	52	31.0
Full housewife	49	29.2
Residential Area		
Rural	112	66.7
Urban	56	33.3
Family Size		
5–7 children	88	52.4
1–2 children	31	18.5
3–4 children	31	18.5
8 and above	18	10.7
Age at First Pregnancy		

21–25 years	82	48.8
26–30 years	37	22.0
15–20 years	31	18.5
31–35 years	18	10.7
Number of Children		
3 children	68	40.5
1 child	49	29.2
2 children	33	19.6
4 and above	18	10.7
Total	**168**	**100.0**

Source: *Field Survey, 2023*

Table 1 presents the socio-demographic profile of the 168 respondents. The modal age group was 25–34 years (47.6%), followed by 15–24 years (41.1%) and 35 and above (11.3%). The majority were married (70.8%), Christian (63.1%), and of Yoruba ethnicity (43.5%). Educational attainment was relatively high, with 48.8% holding tertiary qualifications, 29.8% holding primary education, and 10.7% having no formal education. Civil servants constituted the largest occupational group (39.9%), followed by self-employed women (31.0%) and full housewives (29.2%). Notably, 66.7% resided in rural areas, a finding that has direct implications for access to facility-based PNC services. Most respondents had large families (52.4% with 5–7 children), first became pregnant between ages 21–25 years (48.8%), and had three children (40.5%). The relatively large family sizes and early age at first pregnancy profile the study population as one with high reproductive health service needs.

4.2 Research Question 1: Level of Knowledge of PNC Services

Table 2: Level of Knowledge of PNC Services Among Nursing Mothers (n = 168)

Parameter	Yes — n (%)	No — n (%)
PNC is care given to the mother and baby from birth to 6 weeks after delivery	132 (78.6%)	36 (21.4%)
Aware of the benefits of PNC	131 (78.0%)	37 (22.0%)
Nursing mothers without PNC are at risk of postpartum complications	132 (78.6%)	36 (21.4%)
PNC services play roles in preventing/detecting medical conditions in the mother and baby	113 (67.3%)	55 (32.7%)
PNC visits promote the health of the mother and the baby	132 (78.6%)	36 (21.4%)

Source: *Field Survey, 2023*

Table 2 reveals consistently high levels of PNC knowledge across all five items. The majority of respondents (78.6%) correctly defined PNC as care given to mother and baby from birth through six weeks after delivery; 78.0% were aware of the benefits of PNC; 78.6% knew that nursing mothers who do not attend PNC are at risk of postpartum complications; 67.3% affirmed that PNC plays a role in preventing and detecting medical conditions in mothers and babies; and 78.6% knew that PNC visits promote the health of both mother and infant. The lowest endorsement (67.3%) was for the preventive and diagnostic functions of PNC, a knowledge gap that has implications for mothers' understanding of PNC beyond its immediate symptomatic management value.

4.3 Research Question 2: Influence of Knowledge on PNC Utilisation

Table 3: Influence of Nursing Mothers' Knowledge on PNC Utilisation (n = 168)

Item	Yes -n (%)	No -n (%)
Knowledge about PNC determines the mother's level of PNC utilisation	143 (85.1%)	25 (14.9%)
Received information about PNC services during ANC	148 (88.1%)	20 (11.9%)
PNC information received developed interest in utilising PNC services	149 (88.7%)	19 (11.3%)
Mothers with adequate knowledge use PNC more than those with little/no knowledge	145 (86.3%)	23 (13.7%)
PNC information can successfully reduce maternal and neonatal/infant mortality	146 (86.9%)	22 (13.1%)

Source: *Field Survey, 2023*

Table 3 presents very high rates of affirmation across all five items and examines the relationship between knowledge and PNC utilisation. Eighty-five per cent (85.1%) recognised that PNC knowledge determines the level of utilisation; 88.1% had received PNC information during ANC; 88.7% stated that the information they received developed their interest in utilising PNC services; 86.3% agreed that mothers with adequate knowledge use PNC more than those with limited knowledge; and 86.9% believed that PNC information can successfully reduce maternal and neonatal mortality. The finding that 88.1% received PNC information during ANC underscores ANC's role as a vehicle for PNC education. It supports the model of integrating PNC counselling into routine antenatal care services.

4.4 Research Question 3: Attitude of Nursing Mothers Towards PNC Services

Table 4: Attitude of Nursing Mothers Towards PNC Services (n = 168)

Parameter	Yes - n (%)	No - n (%)
PNC services are a must for all nursing mothers	132 (78.6%)	36 (21.4%)
PNC visits add more stress to nursing mothers during the postpartum period	67 (39.9%)	101 (60.1%)
PNC visits during postpartum consume excessive nursing mothers' time	31 (18.5%)	137 (81.5%)
Comfortable discussing postnatal health challenges with health care providers	106 (63.1%)	62 (36.9%)
PNC services adequately address the physical, medical and emotional needs of the mother and child	119 (70.8%)	49 (29.2%)

Source: *Field Survey, 2023*

Table 4 reveals a predominantly positive attitudinal profile. The strong majority (78.6%) regarded PNC services as mandatory for all nursing mothers. Critically, 60.1% rejected the view that PNC adds excessive stress during the postpartum period, and 81.5% denied that PNC visits are excessively time-consuming—positive attitudinal findings that contradict commonly cited reasons for non-attendance. Sixty-three per cent (63.1%) felt comfortable discussing postnatal health challenges with healthcare providers, and 70.8% affirmed that PNC adequately addresses the physical, medical, and emotional needs of both mother and child. The 36.9% who did not feel comfortable discussing health challenges with providers constitute a significant minority whose barriers to provider–patient communication require targeted programmatic attention, including training for health workers in patient-centred, non-judgmental care.

4.5 Research Question 4 (Practice): Nursing Mothers' Practice Towards PNC

Table 5: Nursing Mothers' Practice Towards Postnatal Care (n = 168)

Parameter	Yes — n (%)	No — n (%)
Have you ever attended PNC services	121 (72.0%)	47 (28.0%)
Attend the PNC clinic as a routine scheduled visit	135 (80.4%)	33 (19.6%)
Receive reminders or follow-up calls/messages before the PNC visit	130 (77.4%)	38 (22.6%)
Encountered challenges accessing PNC (location, transport, finance, family)	123 (73.2%)	45 (26.8%)
Family/social network support can improve PNC utilisation by nursing mothers	141 (83.9%)	27 (16.1%)

Source: *Field Survey, 2023*

Table 5 presents the practice findings. Seventy-two per cent (72.0%) had ever attended PNC services, and 80.4% reported attending PNC as a routine scheduled visit, a positive practice indicator suggesting that routine engagement with PNC is becoming normalised among this population. Seventy-seven per cent (77.4%) received reminders or follow-up calls before their PNC visits, indicating some level of health system–patient communication infrastructure. However, 73.2% reported challenges accessing PNC, including location difficulties, transport problems, financial constraints, and family-related barriers, confirming that structural and domestic barriers remain the primary impediments to full utilisation of PNC despite positive knowledge and attitudes. The strong majority (83.9%) believed that family and social network support can improve PNC utilisation, signalling the potential of family engagement strategies in PNC promotion programs.

DISCUSSION

Socio-Demographic Profile and Its Implications

The socio-demographic profile of the study population, predominantly rural-resident (66.7%), with high tertiary education (48.8%), large family sizes (52.4% with 5–7 children), and substantial representation of civil servants (39.9%), creates an

interesting paradox: a relatively educationally advantaged urban-peri-urban population that nonetheless faces significant access barriers to PNC due to rural residence. The high rate of tertiary education likely contributes to the strong knowledge profile documented in Tables 2 and 3, consistent with Ibrahim et al. (2022) and Adeniyi and Ajayi (2021), who identified education as one of the most consistent predictors of PNC knowledge and utilisation in Nigeria. The predominance of large family sizes (52.4% with 5–7 children) indicates high parity among respondents, which is associated with both greater accumulated experience with PNC services and, potentially, complacency about PNC attendance in higher-order pregnancies, a pattern documented by Dahiru and Oche (2020) in northeastern Nigeria.

Knowledge of Postnatal Care Services

The high overall knowledge levels documented in Table 2, with affirmative response rates ranging from 67.3% to 78.6% across five knowledge items, are broadly consistent with findings from comparable Nigerian studies that documented high PNC awareness among women with secondary or higher education and facility-attending mothers. The 78.6% who correctly defined PNC and understood its risk-reduction function aligns closely with Kimberly et al. (2021), who found that high knowledge about maternal healthcare, including PNC timing and content, was associated with facility attendance in sub-Saharan African settings. Soltani et al. (2022), in their Tunisian study, similarly reported that 95% of mothers who understood the importance of PNC attended visits, underscoring the direct knowledge–behaviour pathway.

The lowest knowledge item, 67.3% endorsing PNC's role in preventing and detecting medical conditions in mother and baby, is a clinically significant gap: women who understand PNC only as a post-delivery check rather than as an active preventive and diagnostic service may be less motivated to attend PNC when they feel well, believing there is no clinical reason to do so. This pattern, attending when symptomatic but not for preventive purposes, is well-documented in the literature on health-seeking behaviour in low-resource settings and is directly addressable through targeted health education messages that emphasise the preventive and early detection functions of routine PNC attendance (WHO, 2022; Adeleye et al., 2021).

Influence of Knowledge on PNC Utilisation

The very high endorsement rates across all five items in Table 3, ranging from 85.1% to 88.7%, strongly affirm the HBM's prediction that knowledge serves as a cue to action in health-seeking behaviour. The finding that 88.1% of respondents received PNC information during ANC and 88.7% reported that this information directly increased their interest in utilising PNC provides strong evidence for the importance of integrating PNC counselling into routine ANC services as a primary strategy to improve PNC uptake. This finding aligns directly with multiple Nigerian and African studies: Obi and Obarisiagbon (2021) established ANC attendance as a major determinant of PNC uptake; Olaitan et al. (2021) found that women with four or more ANC visits in southwestern Nigeria tended to attend PNC more; and Takai et al. (2021) in northeastern Nigeria documented a positive association between ANC attendance and PNC utilisation.

The 86.9% who believed PNC information could reduce maternal and neonatal mortality reflects a sophisticated appreciation of the public health significance of PNC, an attitudinal foundation that health educators can leverage in motivational messaging to bridge the knowledge–practice gap. However, the 14.9% who did not perceive knowledge as a determinant of PNC utilisation may represent women whose health-seeking behaviour is more powerfully shaped by structural and cultural barriers than by information, consistent with the HBM's conceptualisation of perceived barriers as a potential override of knowledge-based motivation (Glanz et al., 2020).

Attitudes Towards PNC Services

The overwhelmingly positive attitudinal profile documented in Table 4, with 78.6% considering PNC mandatory, 81.5% rejecting the time-consumption barrier, and 70.8% affirming comprehensive service quality, suggests that attitudinal factors are not the primary driver of suboptimal PNC utilisation in this population. This finding contrasts with the pattern documented in some rural Nigerian settings where negative attitudes towards PNC, driven by cultural postpartum seclusion practices, distrust of health facilities, and negative provider interactions, have been identified as primary barriers (Iliyasu et al., 2021; Joseph et al., 2021). The relatively high educational attainment and ANC engagement of this population likely explain the more positive attitudinal profile, consistent with the well-established education–health attitude relationship.

The finding that 36.9% did not feel comfortable discussing postnatal health challenges with healthcare providers is a significant minority that warrants targeted intervention. Discomfort in provider–patient communication is a well-documented barrier to PNC quality and continuity of care in sub-Saharan Africa: women who are unable or unwilling to communicate their health concerns to providers are more likely to miss complications, discontinue PNC attendance, and seek alternative traditional care. Sacks et al. (2021) documented in Uganda and Zambia that women's displeasure with how they were treated by health workers, including dismissive or judgmental attitudes, was a major deterrent to PNC attendance. Targeted training of primary health care workers in patient-centred, empathetic, and non-judgmental communication, particularly for women who delivered at home, is directly indicated by this finding.

Nursing Mothers' Practice Towards PNC

The practice findings in Table 5 present a nuanced picture. The 72.0% who reported ever having attended PNC, and the 80.4% who attend as a routine scheduled visit, indicate that among this relatively educated, facility-attending population, PNC practice is substantially better than the national average of 39% and the Osun State figure of 39.8% (NPC & ICF, 2021). This discrepancy likely reflects selection bias inherent in facility-based sampling: women attending a PHC are, by definition, more likely to engage with formal health services than the general population, which includes women who never attend health facilities. This is an important methodological consideration when interpreting the study's findings in relation to the broader population.

The most clinically and programmatically important finding in Table 5 is that 73.2% reported encountering barriers to PNC access, including location, transport, finances, and family opposition. This high prevalence of reported access barriers, despite positive knowledge and attitudes, confirms the now-classic pattern in global PNC research: the knowledge–attitude–practice gap, in which positive health beliefs do not automatically translate into health-seeking behaviour when structural barriers are present (Balde et al., 2021; WHO, 2022). Amoran et al. (2021) found family support to be a significant facilitator of PNC in Nigeria, a finding reinforced by 83.9% of respondents who believed that family and social network support could improve PNC utilisation. This represents a strong community asset—social capital and familial support systems, which health promotion programs can systematically engage to facilitate PNC attendance.

CONCLUSION AND RECOMMENDATIONS

Conclusion

This study assessed the knowledge, attitudes, and practices of 168 nursing mothers regarding the use of postnatal care services at the Oke-Baale Primary Health Centre in the Osogbo Local Government Area, Osun State, Nigeria. The findings reveal a population with high overall knowledge of PNC (affirmative response rates of 67.3–78.6% across knowledge items), a predominantly positive attitudinal profile (70.8–81.5% positive across attitude items), and reasonably strong practice of routine PNC attendance (80.4% as scheduled visits). The influence of knowledge on utilisation is strong and ANC-mediated: 88.7% reported that PNC information received during ANC increased their interest in utilising services. However, 73.2% encountered structural access barriers, including transport, distance, financial constraints, and family opposition, confirming that despite positive KAP profiles, structural and domestic barriers remain the primary impediments to optimal PNC utilisation. These findings align with the Health Belief Model's prediction that perceived barriers can override knowledge-based motivation, and point to the need for multi-level interventions that simultaneously address knowledge, attitudinal comfort, and structural access to achieve meaningful improvements in PNC coverage in Osogbo LGA.

Recommendations

Based on the study findings, the following recommendations are made for policy, program implementation, community health practice, and public knowledge contribution:

The Osun State Ministry of Health and Osogbo Local Government health authorities should design and implement a community-based PNC outreach programme for Osogbo LGA that deploys community health extension workers to conduct home visits to nursing mothers within 24–48 hours of discharge from delivery facilities, provide structured PNC counselling and newborn assessment at the household level, and actively trace and follow up mothers who miss their scheduled facility-based PNC visits, targeting in particular the 73.2% of respondents who reported encountering location, transport, and financial barriers, by eliminating transport costs through community health worker outreach and leveraging the existing Abiye Programme infrastructure to provide free, high-quality PNC services at health facilities that are geographically accessible to the 66.7% of respondents who reside in rural areas.

Primary health care managers at Oke-Baale PHC and all PHC facilities in Osogbo LGA should implement mandatory patient-centred communication training for all health workers involved in postnatal care delivery, directly addressing the 36.9% of respondents who reported discomfort discussing their postnatal health challenges with providers, by instituting structured patient satisfaction assessments, establishing confidential postnatal counselling spaces, and rewarding demonstrated improvements in provider–patient communication quality, recognising that negative provider interactions are among the most potent deterrents to PNC return visits and continuity of care in the postpartum period.

Health educators working within Osogbo LGA's antenatal care programme should intensify PNC education during ANC sessions, building on the finding that 88.1% of respondents received PNC information during ANC and 88.7% reported that this information developed their interest in utilisation, by introducing structured, pictorial PNC education modules in the third trimester that specifically address the preventive and early detection functions of PNC (endorsed by only 67.3% of respondents), provide a personalised postnatal care plan with clear reminder schedules, and engage the mother's husband and family members in birth preparedness and PNC planning to harness the social support potential acknowledged by 83.9% of respondents as a facilitator of PNC utilisation.

This study makes an original contribution to public health knowledge by providing the first comprehensive KAP assessment of PNC utilisation among nursing mothers in Osogbo LGA, demonstrating that high levels of PNC knowledge and positive attitudes

are not sufficient to overcome structural access barriers, particularly transport, distance, and financial constraints, and that the most effective strategy for improving PNC coverage in this community is a multi-level approach that simultaneously reinforces knowledge through ANC-integrated education, builds family and community support networks, strengthens the provider–patient relationship through communication training, and eliminates structural barriers through community-based outreach and financial protection mechanisms; these findings provide an evidence base that health authorities, programme planners, and international maternal health organisations can use to design locally tailored, multi-component PNC promotion interventions that move Osogbo LGA meaningfully towards the universal PNC coverage targets embedded in Sustainable Development Goal 3.

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