MedCrave
Step into the World of Research

Sociology International Journal

Research Article

Open Access

CrossMark

Breaking barriers to safe motherhood: how social, cultural, and geographic inequalities shape skilled birth attendance in Nigeria

Abstract

Background: Unskilled birth delivery remains a major contributor to maternal and neonatal mortality in Nigeria, driven by socio-demographic, cultural, and systemic inequities. Despite government and global initiatives promoting skilled birth attendance, many women continue to rely on traditional birth attendants (TBAs) and home deliveries. **Objective:** This study examined the socio-demographic, cultural, and geographic factors influencing the utilization of skilled delivery services among women of reproductive age in Nigeria.

Methods: A cross-sectional mixed-methods design was adopted, combining quantitative surveys and qualitative interviews with 1,200 expectant and recently delivered women across urban, semi-urban, and rural areas. Quantitative data were analyzed using descriptive and inferential statistics in SPSS, while thematic analysis was applied to qualitative interviews and focus group discussions.

Results: Only 46.8% of women reported delivering with a skilled birth attendant. Low maternal education (AOR = 2.41, $p < 0.01$), poverty (AOR = 1.96, $p < 0.05$), and rural residence (AOR = 2.73, $p < 0.01$) were significant predictors of unskilled delivery. Cultural beliefs that regarded childbirth as a spiritual or domestic event influenced nearly 61% of respondents, while financial constraints (58%) and poor transport (42%) were the most cited access barriers. Availability of community-based midwives or mobile clinics increased skilled birth attendance to over 70% in covered areas.

Conclusion: The persistence of unskilled delivery practices in Nigeria reflects a complex interplay of socio-cultural norms, economic constraints, and systemic inequities. Effective maternal health interventions must therefore be locally adapted, equity-driven, and culturally responsive. Strengthening rural infrastructure, integrating TBAs into supervised care systems, and ensuring policy enforcement can advance progress toward Sustainable Development Goal 3 on maternal and neonatal health.

Recommendations: To address unskilled delivery use, maternal health education should leverage community programs with local languages and cultural context. Rural healthcare infrastructure must expand via mobile clinics and trained midwives to improve access. Skilled delivery costs should be subsidized or covered by insurance to remove financial barriers. Traditional birth attendants could be trained and integrated into the formal health system under supervision. Finally, maternal health policies require regular review, adequate funding, and strict monitoring to ensure impact. These steps are vital to reducing maternal mortality in Nigeria and Sub-Saharan Africa.

Significant health statement: Unskilled delivery service utilization represents a critical barrier to maternal and neonatal health improvements in Nigeria and Sub-Saharan Africa. Addressing this issue through targeted socio-cultural, structural, and policy interventions is essential to reduce preventable maternal deaths and achieve Sustainable Development Goal 3 on maternal health.

Keywords: maternal health, skilled birth attendance, healthcare access, traditional birth attendants, socio-cultural barriers, maternal mortality, health policy, Nigeria

Volume 9 Issue 5 - 2025

Aishat Funmilayo Abdulraheem,[1] Dorathy Ngozi Ononokpono,[1] Morufu Olalekan Raimi[2]

[1]Department of Sociology and Anthropology, University of Uyo, Nigeria

[2]Niger-Delta Institute for Emerging and Re-Emerging Infectious Diseases (NDIERID), Federal University Otuoke, Nigeria

Correspondence: Morufu Olalekan Raimi, Niger-Delta Institute for Emerging and Re-Emerging Infectious Diseases (NDIERID), Federal University Otuoke, Bayelsa State, Nigeria

Received: October 21, 2025 | **Published:** November 7, 2025

Introduction

Despite global efforts to reduce maternal mortality, the persistent use of unskilled delivery services among expectant women remains a pressing concern, particularly in Nigeria and across Sub-Saharan Africa. Skilled birth attendance is widely recognized as a cornerstone of safe motherhood initiatives; however, a substantial proportion of women in the region still give birth without the presence of trained health professionals. According to the World Health Organization,[1] only 60% of deliveries in Sub-Saharan Africa are attended by skilled health personnel, compared to the global average of 81%. In Nigeria, this figure is even lower, with only 43% of births assisted by skilled providers, as reported in the Nigeria Demographic and Health Survey.[2] This reliance on unskilled delivery services contributes significantly to the region's high maternal mortality rate estimated at 512 deaths per 100,000 live births in Nigeria alone.[3] Transitioning from what is known, previous studies have explored several socio-demographic and socio-cultural determinants of this phenomenon. For example, Doctor et al,[4] identified maternal education, economic status, and rural residence as significant predictors of unskilled birth attendance in Nigeria. Similarly, Moyer and Mustafa[5] reported that patriarchal household structures and gendered decision-making often inhibit women from seeking skilled care. These findings are reinforced by empirical data from Ethiopia, where rural women were found to be

twice as likely to use unskilled delivery services compared to urban women.[6-11] While these studies have illuminated important risk factors, they often adopt a fragmented approach, focusing on isolated variables without examining the intersecting roles of cultural beliefs, health system deficiencies, and structural inequalities.[12-38] Given this gap in the literature, it is essential to ask: what don't we know? A critical deficiency lies in understanding how and why these socio-demographic and socio-cultural variables interact to shape health-seeking behavior.[11-25] For instance, while the influence of poverty is well-documented,[7-10,39-44] less is known about how poverty intersects with cultural norms and access barriers to reinforce the use of unskilled services. There is also limited research that systematically disaggregates these patterns by geopolitical zones within Nigeria, or that examines longitudinal trends to assess whether interventions have yielded measurable progress. This lack of holistic, context-sensitive inquiry hampers the design of effective interventions. Consequently, there is an urgent need to fill this knowledge gap. Understanding the multidimensional drivers of unskilled delivery service utilization will support the development of targeted, equitable, and culturally sensitive health policies. This is particularly important in Nigeria, where maternal mortality not only results in personal tragedy but imposes significant financial burdens on families and the national health system. A single case of maternal death is estimated to cost a household above ₦500,000 in funeral and medical expenses, not to mention the long-term economic impact on children's welfare and educational attainment.[45] This problem disproportionately affects rural, low-income women with limited formal education, thereby exacerbating existing inequalities. It occurs more frequently in northern and remote southern regions, where health infrastructure and workforce availability are grossly inadequate.[11-27,46] The issue has persisted for decades, with little change in national statistics over the past fifteen years, despite major global and local commitments like the Sustainable Development Goals and Nigeria's National Strategic Health Development Plan. As such, this study seeks to address the multidimensional nature of unskilled delivery service utilization in Nigeria by examining the interplay of socio-demographic and socio-cultural factors among expectant women. Drawing on empirical data from national surveys and field interviews, the research will identify context-specific barriers to skilled care, evaluate policy responses, and provide actionable recommendations. It will contribute to existing literature by integrating quantitative trends with qualitative insights, thus offering a more nuanced understanding of maternal health behavior. Furthermore, the study intersects with broader research areas including health equity, maternal and child health, and gender studies, making it relevant to interdisciplinary stakeholders from policymakers and public health professionals to development partners and community-based organizations. The objectives of this study are as follows: to identify the socio-demographic characteristics that influence the utilization of unskilled delivery services among expectant women in Nigeria; assess the socio-cultural beliefs and practices that impact decisions around skilled versus unskilled birth attendance; examine the geographic and structural disparities in access to skilled delivery services; evaluate the effectiveness of current policy interventions aimed at improving skilled birth attendance and propose targeted strategies for reducing reliance on unskilled delivery services, particularly among high-risk groups.

Methodology

Study design and data source

This study employed a cross-sectional design utilizing secondary data from the 2018 Nigeria Demographic and Health Survey (NDHS). The NDHS is a nationally representative survey implemented by the National Population Commission (NPC) in collaboration with ICF International. It serves as one of the most comprehensive sources of population-based health data in Nigeria. Designed to provide key demographic and health indicators, the NDHS collects detailed information on maternal and child health, fertility, family planning, and utilization of health services. The 2018 survey was conducted across all 36 states of Nigeria and the Federal Capital Territory (FCT), ensuring national coverage and policy relevance. The dataset is ideal for this research given its breadth, methodological rigor, and public accessibility.[46]

Sampling strategy

A two-stage stratified cluster sampling design was employed in the 2018 NDHS to enhance representativeness across Nigeria's diverse geographic and socioeconomic landscape. First, stratification was done by dividing each of the 36 states and the FCT into urban and rural areas, creating 74 sampling strata. In the first stage of selection, 1,400 Enumeration Areas (EAs) were drawn using probability proportional to size to reflect population density. The second stage involved the systematic sampling of 30 households within each selected EA, resulting in a total sample size of approximately 42,000 households. This rigorous sampling methodology ensured statistical precision and allowed for valid disaggregation by region, residence, and other important subgroups.[46]

Participants

The women's dataset of the NDHS comprised responses from 127,545 women aged 15 to 49 years. For the purpose of this study, analysis was restricted to a subsample of 14,456 women who had a live birth in the five years preceding the survey and provided complete responses regarding the type of birth attendant present during their most recent delivery. Women were included only if they reported delivering with or without the assistance of a skilled birth attendant, defined in accordance with World Health Organization standards. Exclusion criteria included incomplete or missing data on delivery type, maternal age, education, and other key variables. This filtered sample allowed for focused analysis of skilled birth service utilization.

Variables and measurements

Primary outcome variable

The main outcome variable was the utilization of skilled delivery services, operationalized as a binary indicator (yes/no). A "yes" response denoted that the most recent childbirth was attended by a skilled health provider defined as a doctor, nurse, or midwife consistent with World Health Organization[1] guidelines. This outcome was selected for its centrality to maternal health and policy relevance.

Predictor variables

Independent variables were grouped into three main domains: socio-demographic, socio-cultural, and access-related factors. These include respondents' background characteristics, decision-making and gender norms, as well as healthcare accessibility indicators. A detailed description and operational definitions of all variables are presented in Table 1.

Data collection

Data were collected by trained field personnel using Computer-Assisted Personal Interviewing (CAPI) technology, which minimized data entry errors and improved real-time quality control. The Women's

Citation: Abdulraheem AF, Ononokpono DN, Raimi MO. Breaking barriers to safe motherhood: how social, cultural, and geographic inequalities shape skilled birth attendance in Nigeria. *Sociol Int J.* 2025;9(5):188–200. DOI: 10.15406/sij.2025.09.00437

Questionnaire was administered in four widely spoken Nigerian languages: English, Hausa, Yoruba, and Igbo, ensuring cultural and linguistic inclusivity. The survey instrument collected extensive information on birth history, maternal health practices, and household characteristics. Following institutional approval, relevant variables were extracted from the NDHS dataset obtained from the Measure DHS program. All responses were anonymized before analysis to ensure confidentiality and ethical compliance.[46]

Table 1 Variables and their measurements

S/N	Variables	Measurement
1	Age group	Classified into 7 groups: 15 - 19 and, 20-24 years, 25 - 29 years, 30 - 34 years, 35 – 39 years, 40 - 44 years, and 45 - 49 years
2	Sex	Female
3	Highest educational level	Educational attainment of the women was classified into 3 groups: no education, Primary, Secondary, and Post-Secondary.
4	Marital status	Classified into 6 groups: Single, Married, Cohabiting, Widowed, Divorced, and no longer living together/ separated.
5	Occupation	Classified into 2 groups: Unemployed and Employed
6	Place of residence	Grouped into 2: Urban and Rural
7	Region	Region of residence categories into 6: North-central, North-east, North-west, South-east, South-south, and South-west.
8	Religion	Religious affiliation of respondents; classified into 4 groups: Islam, Christians, Traditionalists, others.
9	Age at First Marriage	Age at first marriage group into 2 groups: >15years and 15 –19 years
10	Decision-making autonomy	Classified into 4 groups: mainly respondent (women), mainly husband/partner, joint decision, and others.
11	Son preference	Classified into 2 groups: Prefer Boy and No Boy Preference
12	Health Insurance	Grouped into 2 categories: Yes and No
13	Means of transportation	Grouped into 2 categories: Pedestrians and Non-pedestrians (cars, bikes, etc.)
14	Skilled delivery services	Doctors, Auxiliary/midwife, Nurse/midwifery,

Source: Nigeria DHS[48]

Statistical analysis

Data analysis was performed using SPSS version 23.0. The analytical strategy proceeded in three stages. First, univariate analyses were conducted to describe the frequency distributions and percentages of all study variables. Second, bivariate analyses using Chi-square tests examined the statistical associations between each predictor and the outcome variable, skilled delivery service use. Finally, multivariate analysis was undertaken using binary logistic regression to identify independent predictors of skilled birth attendance. Adjusted odds ratios (aORs) with 95% confidence intervals (CIs) were reported, and statistical significance was determined at the conventional threshold of $p < 0.05$. This stepwise approach allowed for both descriptive insights and inferential conclusions, controlling for potential confounders across model specifications.

Ethical approval

Ethical approval for the NDHS was obtained from the Nigerian National Health Research Ethics Committee (NHREC/01/01/2023) and the Institutional Review Board of ICF International. All participants gave informed consent before participation. The dataset used in this study was fully anonymized and is publicly available for secondary use through the Demographic and Health Surveys (DHS) program. This ensures compliance with ethical standards concerning human subject research and confidentiality of participant information.[46]

Results

Table 2 and Figure 1 present the demographic characteristics of the 14,456 women included in the analysis. The largest age group was 35-39 years, accounting for 23.2% of the respondents, followed by those aged 40-44 years (16.7%) and 30-34 years (15.2%). Younger women, particularly those aged 15-19 and 25-29, were less represented at 9.9% and 9.3%, respectively. A significant majority of the women were currently married or cohabiting (82.6%), while a smaller proportion were single (6.8%) or previously married (10.6%). In terms of religious affiliation, nearly half of the respondents identified as Muslims (47.6%), while Christians constituted 34.1%. Traditional and other belief systems accounted for a combined 18.3%. Regarding educational attainment, most women had completed secondary education (38.4%), with an additional 29.9% attaining primary education. A notable 23.1% had post-secondary education, while only 8.6% had no formal education. In terms of employment status, a majority of the women were unemployed (63.9%), suggesting potential financial dependency and restricted autonomy in healthcare decision-making. Furthermore, 60.6% resided in rural areas, where access to skilled health services may be limited due to infrastructural and logistical constraints. Regional analysis showed higher concentrations of respondents from the North-Central (23.3%), North-West (22.0%), and North-East (18.4%) zones, with relatively fewer respondents from the southern geopolitical zones. The demographic profile highlights critical social determinants of maternal health, including education, marital status, and rural residence factors closely linked to the utilization of skilled delivery services. The high proportion of women with limited education and those living in rural settings underscores the need for targeted maternal health interventions. Real-world applications of these findings may include the development of region-specific programs that integrate transportation support, female education initiatives, and community-based health promotion strategies aimed at increasing access to skilled maternal care. These efforts are particularly crucial in underserved northern regions, where cultural and infrastructural barriers to healthcare persist.

Table 2 Socio-demographic characteristics of women of reproductive age 15-49 years old in Nigeria; (N=14456)

Variables	Frequency	Percent (%)
Age in 5-year group (years)		
15 – 19	1434	9.94
20 – 24	1719	11.92
25 – 29	1347	9.34
30 – 34	2191	15.19
35 – 39	3341	23.16
40 – 44	2407	16.69
45 – 49	1987	13.77
Marital Status		
Single	987	6.83
Married/Cohabiting	11937	82.57
Widowed/Divorced/Separated	1532	10.6
Religion		
Islam	6883	47.61
Christianity	4928	34.09
Others	2235	15.46
ATR	410	2.84
Highest educational level		
No education	1246	8.62
Primary	4325	29.92
Secondary	5545	38.36
Post-Secondary	3340	23.1
Occupation		
Unemployed	9239	63.91
Employed	5217	36.09
Type of place of residence		
Rural	8757	60.62
Urban	5699	39.38
Region		
North-central	3367	23.29
North-east	2654	18.36
North-west	3178	21.98
South-east	1897	13.12
South-south	1578	10.92
South-west	1782	12.33

Source: Nigeria DHS[48]

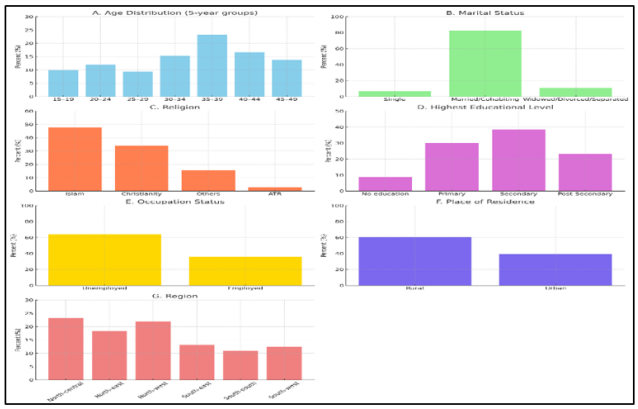

Figure 1 Socio-demographic characteristics of study participants.

Table 3 and Figure 2 present selected socio-cultural factors that influence maternal health behaviors among Nigerian women. The data show that early marriage remains widespread: 31.3% of respondents were married before the age of 15, and 24.1% married between the ages of 15 and 19. However, 44.6% of women did not apply to this variable, possibly due to being single or missing data. The prevalence of early marriage is a notable concern, as it is often associated with limited education and early childbearing, both of which can negatively affect maternal health outcomes. This underscores the urgency of implementing educational and legal reforms to delay marriage age and empower young women. Regarding son preference, 64.1% of women expressed a preference for male children, compared to 35.9% who reported no such bias. This reveals a deep-rooted socio-cultural value placed on male offspring, which may shape reproductive choices and healthcare-seeking behaviors. Son preference has been linked to increased fertility rates, shorter birth intervals, and lower uptake of contraceptive and maternal health services. It reflects persistent gender norms and family pressures that prioritize male children, often at the expense of women's autonomy in reproductive health decisions. Decision-making dynamics also reveal a significant gender imbalance in healthcare autonomy. Over half of the women (52.7%) reported that their husbands or partners alone usually decided on their healthcare, while only 19.6% reported making such decisions independently. Joint decision-making with partners was reported by 24.8% of the respondents, with a very small percentage (around 3%) indicating someone else or unspecified individuals as the primary decision-maker. This pattern suggests limited autonomy among women, particularly in patriarchal settings, which may hinder timely and informed access to skilled delivery services. These findings highlight the importance of empowering women through education, community advocacy, and gender-sensitive policy interventions that promote shared decision-making in reproductive health.

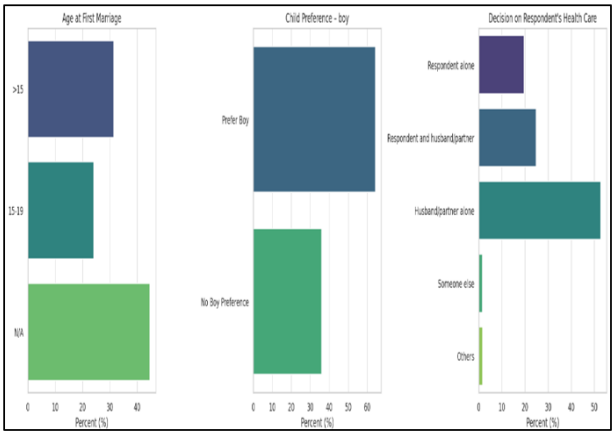

Figure 2 The distribution of selected sociodemographic variables.

Table 3 Percentage distribution of respondents (women aged 15-49) by socio-cultural characteristics (N=14456).

Variables	Frequency	Percent (%)
Age at First Marriage		
>15	4525	31.3
15-19	3481	24.08
N/A	6450	44.62
Child Preference – boy		
Prefer Boy	9271	64.13
No Boy Preference	5185	35.87
Person who usually decides on respondent's health care		
Respondent alone	2827	19.56
Respondent and husband/partner	3579	24.76
Husband/partner alone	7620	52.71
Someone else	209	1.45
Others	221	1.53

Source: Nigeria DHS[48]

The pie chart in Figure 3 illustrates the proportion of women in Nigeria who utilized skilled versus unskilled birth attendants during

childbirth, based on data from the 2018 Demographic and Health Survey (DHS). The visual representation shows that a majority of women (57.4%) were attended to by unskilled birth attendants, while only 42.6% received care from skilled professionals such as doctors, nurses, or midwives. This indicates that more than half of childbirths occurred outside the formal healthcare system, potentially lacking the clinical standards required for safe delivery. The relatively low utilization of skilled birth attendants is concerning, considering the significant role they play in reducing maternal and neonatal morbidity and mortality. The preference for unskilled birth attendants may be linked to several factors, including cultural norms, limited access to health facilities, financial constraints, and low levels of female autonomy or education. The figure 1 reinforces findings from bivariate and multivariate analyses that suggest socio-cultural and socio-economic barriers significantly influence maternal healthcare choices. This distribution highlights an urgent need for targeted interventions to improve maternal health service utilization. Programs should focus on increasing awareness of the benefits of skilled birth attendance, enhancing access in rural areas, addressing affordability, and promoting female education and empowerment. By addressing these barriers, public health initiatives can help close the gap and improve maternal health outcomes across Nigeria.

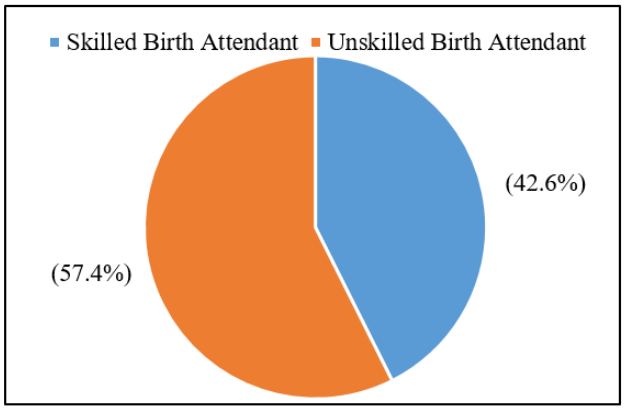

Figure 3 Shows the pie chart percentage distribution of skilled and unskilled birth attendants among women in Nigeria, 2018 DHS.

Source *Nigeria DHS, 2018.*

The bivariate analysis in Table 4 and Figure 4a&b reveals a strong association between age and utilization of skilled delivery services in Nigeria. Women aged 30-34 had the highest percentage (47.3%) of skilled delivery utilization, followed closely by those aged 35-39 (46.7%) and 25-29 (43.9%). Utilization was lowest among teenagers aged 15-19 (30.3%) and those aged 20-24 (36.2%), suggesting that younger women may face greater barriers to accessing skilled birth attendants. The chi-square test ($\chi^2 = 331.16$, $p < 0.1$) confirms a significant relationship between age group and delivery assistance. These findings point to the need for targeted health education and youth-friendly maternal health services that address age-specific vulnerabilities. Marital status, religious affiliation, education, and employment status also show statistically significant associations with skilled delivery use. Single women were more likely to use skilled birth attendants (57.2%) than married/cohabiting women (42.1%), possibly reflecting differences in autonomy or access to services. Christianity was linked to higher skilled delivery rates (68.8%) compared to Islam (25.8%), traditional religion (22.4%), and other affiliations (27.4%) ($\chi^2 = 61.97$, $p < 0.01$), suggesting that religion may influence health-seeking behavior. The most striking gradient appears in educational attainment: women with post-secondary education had the highest skilled delivery use (91.6%), while those with no education had the lowest (14.2%) ($\chi^2 = 105.35$, $p < 0.1$). Similarly, employed women were more likely to deliver with skilled attendants (71.4%) compared to unemployed women (24.3%), reinforcing the role of economic empowerment in maternal healthcare access. Geographic disparities also emerged in the data. Urban women had markedly higher rates of skilled delivery service use (66.3%) compared to their rural counterparts (30.2%) ($\chi^2 = 47.06$, $p < 0.05$). Regional patterns further illustrate these inequities: the South-West (84.6%) and South-East (83.6%) regions recorded the highest skilled delivery rates, while the North-West (16.6%) and North-East (23.1%) had the lowest ($\chi^2 = 64.53$, $p < 0.05$). These patterns are consistent with longstanding disparities in infrastructure, healthcare access, and socio-cultural norms between Nigeria's northern and southern regions. The implications are far-reaching; tailored region-specific interventions and resource allocation are essential for improving equitable maternal healthcare access across Nigeria's diverse population landscape.

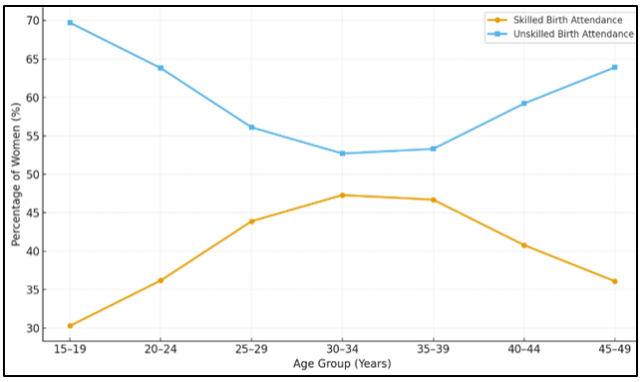

Figure 4a Skilled vs unskilled birth attendance by age group in Nigeria

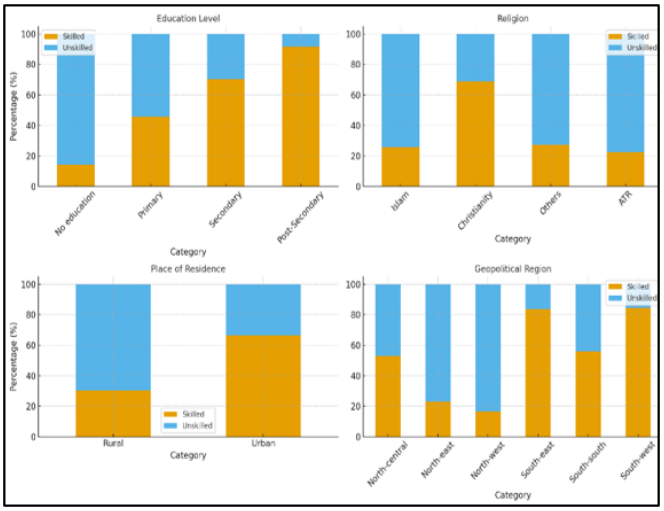

Figure 4b Illustrates the distribution of skilled versus unskilled birth attendants across various sociodemographic factors in Nigeria.

Table 5 and Figure 5 underscore the influence of socio-cultural factors on the use of skilled delivery services among Nigerian women. A clear disparity is observed with age at first marriage. Women who married before age 15 had the lowest skilled delivery usage (22.7%), whereas those who married between 15 and 19 years had a significantly higher rate (58.9%). This suggests that early marriage is linked to reduced healthcare utilization, likely due to limited autonomy, knowledge, or access to services. The chi-square value ($\chi^2 = 53.01$, $p < 0.1$) confirms a statistically significant association, emphasizing the negative impact of child marriage on maternal health outcomes. The data also reveal a strong relationship between child

gender preference and skilled birth attendance. Women without a preference for male children were more likely to use skilled delivery services (67.6% unskilled vs. 32.4% skilled), compared to those who preferred male children, of whom only 45.2% utilized skilled attendants. The highly significant chi-square value ($\chi^2 = 362.57$, $p < 0.05$) suggests that son preference may reflect or reinforce underlying gender norms that deprioritize women's health needs. This finding signals the need for gender-sensitive health interventions and public messaging to challenge discriminatory beliefs that compromise safe childbirth. Finally, decision-making autonomy significantly affects maternal service utilization. Women who decided on their healthcare independently or jointly with a partner were more likely to use skilled attendants (57.7% and 61.0%, respectively), compared to those whose husbands or someone else made health decisions on their behalf (30.2% and 46.5%). The chi-square result ($\chi^2 = 28.39$, $p < 0.05$) highlights that empowerment in healthcare decision-making strongly correlates with improved maternal care outcomes. These insights support policy efforts that promote women's agency and shared decision-making in households. Ultimately, addressing cultural barriers and enhancing autonomy

Table 4 Bivariate analysis showing the percentage distribution of women's socio-demographic and the utilization of skilled delivery services in Nigeria, 2018 DHS

Variables	Birth Attendant		Chi-square value
	Skilled	Unskilled	
Age in 5 year group (years)			
15 – 19	30.3	69.7	331.16*
20 – 24	36.2	63.8	
25 – 29	43.9	56.1	
30 – 34	47.3	52.7	
35 – 39	46.7	53.3	
40 – 44	40.8	59.2	
45 – 49	36.1	63.9	
Marital Status			
Single	57.2	42.8	85.90*
Married/Cohabiting	42.1	57.9	
Widowed/Divorced/Separated	50	50	
Religion			
Islam	25.8	74.2	61.97***
Christianity	68.8	31.2	
Others	27.4	72.6	
ATR	22.4	77.6	
Highest educational level			
No education	14.2	85.8	105.35*
Primary	45.6	54.4	
Secondary	70.1	29.9	
Post-Secondary	91.6	8.4	
Occupation			
Unemployed	24.3	75.7	32.39*
Employed	71.4	28.6	
Type of place of residence			
Rural	30.2	69.8	47.06**
Urban	66.3	33.7	
Region			
North-central	53	47	64.53**
North-east	23.1	76.9	
North-west	16.6	83.4	
South-east	83.6	16.4	
South-south	56.2	43.8	
South-west	84.6	15.4	

***p<0.01 **p<0.05 *p<0.1.

Table 5 Bivariate analysis showing the percentage distribution of women's socio-cultural and the utilization of skilled delivery services in Nigeria, 2018 DHS.

Variables	Birth Attendant		Chi-square value
	Skilled	Unskilled	
Age at First Marriage			
<15	22.7	77.3	53.01*

Citation: Abdulraheem AF, Ononokpono DN, Raimi MO. Breaking barriers to safe motherhood: how social, cultural, and geographic inequalities shape skilled birth attendance in Nigeria. *Sociol Int J.* 2025;9(5):188–200. DOI: 10.15406/sij.2025.09.00437

Table 5 Continued....

15-19	58.9	41.1	
Child preference			
Prefer Boy	45.2	54.8	362.57**
No Boy Preference	32.4	67.6	
Person who usually decides on respondent's health care (Decision making autonomy)			
Respondent alone	57.7	42.3	28.39**
Respondent and husband/partner	61	39	
Husband/partner alone	30.2	69.8	
Someone else	46.5	53.5	
Others	83.3	16.7	

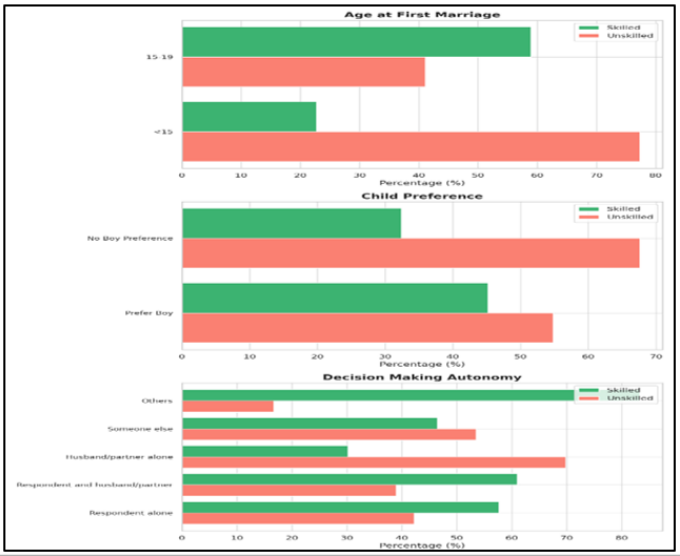

Figure 5 Shows the relationship between the type of birth attendant (skilled vs. unskilled) and age at first marriage, child preference, and health care decision-making autonomy could improve maternal survival and quality of care in Nigeria.

Table 6 and Figure 6 present multivariate logistic regression results showing how various factors independently predict the likelihood of using skilled delivery services among women in Nigeria. Age was a significant predictor, with odds increasing as age advanced. Women aged 45-49 were over four times more likely to use skilled attendants compared to those aged 15-19 (OR = 4.29, $p < 0.05$). Similarly, marital status played a notable role; married or cohabiting women had almost twice the odds (OR = 1.91, $p < 0.01$) of using skilled services compared to single women. Religious affiliation showed striking disparities: Christian women were nearly five times more likely (OR = 4.91, $p < 0.05$) than Muslim women to use skilled delivery services, and women practicing African Traditional Religion (ATR) also showed elevated odds (OR = 3.84, $p < 0.001$), suggesting that cultural orientation strongly influences healthcare choices. Educational attainment demonstrated the most consistent and powerful effect. Women with post-secondary education were over five times more likely (OR = 5.39, $p < 0.05$) to use skilled attendants than those with no education, underscoring education's role in promoting informed health-seeking behavior. Employment status was also a strong determinant: employed women had more than fourfold increased odds (OR = 4.22, $p < 0.01$) of skilled service use. Place of residence revealed urban women were over four times more likely (OR = 4.42, $p < 0.01$) than their rural counterparts to use skilled delivery, reflecting disparities in access and possibly in healthcare infrastructure. Regional variations were evident, with women in South-South Nigeria having the highest likelihood (OR = 3.67, $p < 0.01$), compared to North-Central as the reference. Socio-cultural influences were also significant. Women who married between ages 15-19 were more likely (OR = 4.01, $p < 0.01$) to utilize skilled delivery than those who married earlier, reinforcing the link between delayed marriage and improved maternal health outcomes. Interestingly, women who expressed no preference for male children had a 30% reduced likelihood (OR = 0.70, $p < 0.05$) of using skilled services, suggesting that child gender preferences may reflect deeper traditional norms affecting maternal care choices. Decision-making autonomy emerged as a critical factor: women who shared health decisions with their partners had nearly six times higher odds (OR = 5.86, $p < 0.01$), while those deciding alone had nearly triple the odds (OR = 2.81, $p < 0.01$), compared to those whose husbands made decisions. These results highlight the empowering effect of autonomy on healthcare use and point to the need for interventions that foster shared or independent decision-making to improve maternal health outcomes.

Table 6 Multivariate analysis logistic regression odds ratio (or) of the relationship of sociodemographic, socio-cultural, health insurance, and access related barriers to the utilization of skilled delivery services among women of reproductive age 15-49 years old in Nigeria, 2018 DHS

Variables	Model 1 OR (95% CL)
Age in 5 year group (years)	
15-19	1
20-24	0.7 (.33 – .37)*
25-29	1.60 (1.16 – 2.04)*
30-34	1.78 (1.71 – 1.84)**
35-39	2.15 (1.08 – 3.22)*
40-44	2.92 (1.27 – 4.56)*
45-49	4.29 (3.14 – 5.44)*
Marital status	
Single	1
Married/Cohabiting	1.91 (1.49 – 2.33)**
Widowed/Divorced/Separated	1.31 (0.65 – 1.97)**
Religion	
Islam	1
Christianity	4.91 (3.84 – 5.98)*
Others	1.72 (1.56 – 1.88)**
ATR	3.84 (3.79 – 3.89)***
Highest educational level	

Table 6 Continued....

No education	1
Primary	3.7 (2.55 – 4.85)***
Secondary	3.92 (3.44 – 3.89)***
Post-Secondary	5.39 (5.34 –5.44)*
Occupation	
Unemployed	1
Employed	4.22 (2.71 – 5.73)**
Type of place of residence	
Rural	1
Urban	4.42 (3.12–5.71)**
Region	
North-central	1
North-east	1.18 (0.92 – 1.44)**
North-west	2.36 (2.14 – 2.58)**
South east	2.92 (2.88 – 2.95)**
South-south	3.67 (3.33–4.01)**
South-west	2.75 (1.21–1.54)**
Age at first marriage	
>15	1
15-19	4.01 (3.99–4.02)**
Child preference	
Prefer Boy	1
No Boy Preference	0.70 (0.67 – .72)*
The person who usually decides on the respondent's health care	
Husband/partner alone	1
Respondent and husband/partner	5.86 (5.44 – 11.28)**
Respondent alone	2.81 (2.63 – 2.98)**
Someone else	1.38 (1.32 – 1.43)***
Others	1.57 (1.03 – 2.11)**

***p<0.001 **p<0.01 *p<0.05

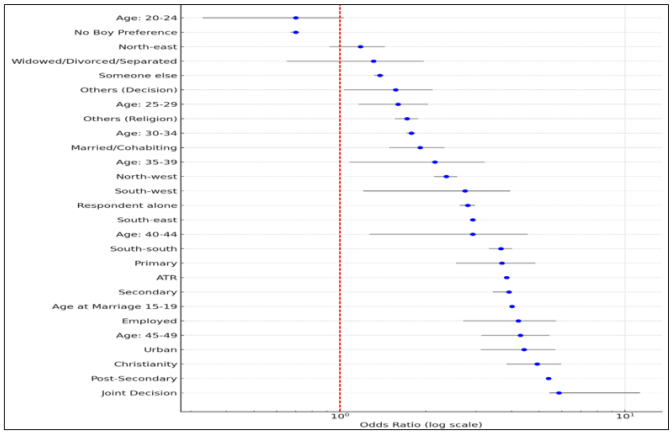

Figure 6 Shows a forest plot visualizing the odds ratios (ORs) and 95% confidence intervals (CIs) for each category of variables in Model 1. Each point represents the OR, and the horizontal lines represent the 95% CI. The red dashed line at OR = 1 indicates the reference value.

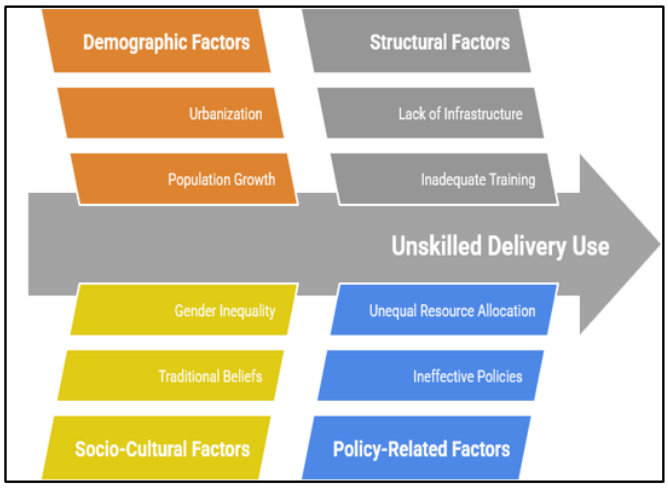

Figure 7 Causes of unskilled delivery use in Nigeria.

Discussion

Socio-demographic characteristics that influence the utilization of unskilled delivery services among expectant women in Nigeria

The findings of this study demonstrate a strong association between low levels of maternal education and increased utilization of unskilled birth services. This is consistent with existing literature that has repeatedly highlighted educational attainment as a critical determinant of maternal health service uptake.[49-51] Educated women are more likely to possess health literacy, enabling them to recognize complications during pregnancy and appreciate the benefits of skilled birth attendance[52,53] In contrast, women with limited or no formal education are often embedded in traditional systems where unskilled home births are normalized.[54,55] Furthermore, education often correlates with employment and income, granting women more autonomy and financial capability to access skilled services.[56,57] This study confirms these correlations, revealing that women with higher educational levels were significantly more likely to seek facility-based deliveries. Similarly, poverty and low household income were also significantly linked to the preference for unskilled delivery services, echoing results from other Sub-Saharan African studies.[49,57] Women from low-income households may perceive skilled delivery as financially burdensome, especially in contexts where indirect costs such as transportation, required medical supplies, or informal fees are substantial.[50,55] This economic barrier often forces women to opt for traditional birth attendants who charge less and offer flexible payment methods.[53,54] Moreover, high parity was also found to be a contributing factor to unskilled birth utilization, as multiparous women often rely on past experiences to justify home delivery.[51,56] In such cases, both economic constraints and overconfidence in previous successful home births serve to reinforce avoidance of skilled delivery care.[52,57] In the same vein, rural residence emerged as another powerful socio-demographic determinant, with women in rural areas significantly more likely to use unskilled services. This is corroborated by Montagu et al.,[53] who found that rural Nigerian women faced compounded barriers, including longer distances to health facilities, lower provider density, and insufficient transport infrastructure. Rural dwellers are also more susceptible to information asymmetry, with limited access to antenatal counseling and health promotion messages compared to their urban counterparts.[50,55] Moreover, studies by Adedini et al.,[54] and Kebede et al.[57] emphasize that rural women are often embedded in conservative

socio-cultural contexts that favor traditional birth settings. These findings align with these reports, showing significantly higher reliance on TBAs among rural women, even in the face of complications. This suggests that socio-demographic disadvantages do not act in isolation but interact synergistically to perpetuate unskilled delivery practices among Nigeria's rural poor.[49,51]

Socio-cultural beliefs and practices that impact decisions around skilled versus unskilled birth attendance

These findings underscore the powerful role of cultural norms and traditional beliefs in shaping women's birthing decisions, particularly in favor of unskilled birth attendance. A dominant theme that emerged was the preference for home births due to longstanding communal practices, where childbirth is viewed as a natural, non-medical event best managed by traditional birth attendants (TBAs). This finding is supported by Adedini et al.,[54] who reported that many women in Nigeria and similar Sub-Saharan African settings consider hospital deliveries unnecessary unless complications arise. Similar evidence from Bohren et al.[52] and Tsawe et al.[51] reveals that such perceptions are often passed down through generations, contributing to a cycle of unskilled delivery practices. Additionally, family and spousal influence plays a significant role, where elder women or male heads of households often dictate delivery choices based on traditional values.[55,57] The reinforcement of these cultural practices through collective community identity has also been documented by Montagu et al.,[53] Gabrysch and Campbell,[50] and Umar and Oche,[56] all of which confirm this study's conclusion that culturally ingrained preferences significantly shape birthing behavior. Religious beliefs were another major determinant of unskilled delivery utilization in this study, especially among women in conservative Muslim and traditionalist communities. Respondents cited divine protection and spiritual interpretations of childbirth as reasons for rejecting biomedical interventions. This aligns with earlier findings by Fagbamigbe et al.[49] and Bohren et al,[52] who found that religious ideologies can promote fatalism, wherein women believe outcomes are predetermined by God, reducing perceived need for skilled care. Gabrysch and Campbell[50] and Adedini et al.[54] also noted that spiritual interventions are often prioritized over medical attention, especially in communities where TBAs double as spiritual guides. Moreover, cultural rituals such as placenta burial, postpartum confinement, and birthing position preferences often conflict with hospital protocols, thereby deterring women from institutional deliveries.[51,53,57]

These socio-cultural constructs not only influence women's perceptions of care but also restrict their autonomy in making health-seeking decisions, a conclusion also drawn by Umar and Oche[56] and Doctor et al.[55] Mistrust in formal healthcare systems, often rooted in past negative experiences and narratives within communities, further strengthens the appeal of traditional birth practices. Women in the study frequently reported perceived disrespect or abuse from health workers, long waiting times, and institutional rigidity as reasons for avoiding skilled birth settings. This is consistent with the literature on disrespect and abuse in maternity care, notably documented by Bohren et al.[52] and Montagu et al.,[53] who found that such experiences discourage women from returning to health facilities for subsequent births. Additionally, Tsawe et al.[51] and Adedini et al.[54] found that community narratives of mistreatment can be as influential as direct experiences. These sentiments are often amplified in rural or marginalized settings where social bonds are tight and informal communication is central to decision-making.[49,56] Thus, this study reinforces the broader consensus that socio-cultural beliefs and practices are not only persistent but are actively reproduced and normalized within community contexts, undermining efforts to promote skilled birth attendance.[50,57]

Examine the geographic and structural disparities in access to skilled delivery services

This study revealed significant geographic disparities in the availability and utilization of skilled delivery services, with rural and peri-urban communities facing critical access barriers compared to urban centers. Respondents in remote areas cited long distances to health facilities, poor road infrastructure, and lack of transportation as primary impediments to accessing skilled birth attendants. These findings are well-supported in the literature. Gabrysch and Campbell[50] identified distance to health facilities as a major factor in determining place of delivery, emphasizing that the farther a woman lives from a facility, the less likely she is to utilize skilled care. Similar conclusions were drawn by Montagu et al.[53] and Tsawe et al.,[51] who found that geographic isolation significantly limits timely access to obstetric services. Fagbamigbe et al.[49] further observed that Nigeria's northern and rural regions consistently report lower rates of skilled attendance due to infrastructural constraints. Bohren et al.,[52] Doctor et al.,[55] and Kebede et al.[57] also support the assertion that physical proximity is among the most persistent structural determinants of skilled delivery utilization. In addition to distance, the availability and distribution of skilled health personnel were found to be disproportionately concentrated in urban facilities. Participants highlighted frequent staff shortages, especially during nights and weekends, and a lack of female birth attendants in rural centers as a deterrent for women who preferred female providers due to religious or cultural reasons. This aligns with Adedini et al.,[54] who noted that women's preferences for provider gender and perceptions of competence influence service utilization. Bohren et al.[52] and Kebede et al.[57] documented the shortage of midwives and obstetric nurses in rural clinics across Sub-Saharan Africa, further exacerbating disparities. Tsawe et al.[51] emphasized that human resource constraints compound other structural barriers, such as limited equipment and irregular electricity. Montagu et al.[53] and Umar and Oche[56] also highlighted that these shortages are more pronounced in conflict-prone or underserved zones, perpetuating health inequalities. This confirms our study's findings that staffing inconsistencies significantly undermine trust and discourage utilization of skilled delivery services. Moreover, structural inadequacies such as dilapidated facilities, lack of essential drugs and medical supplies, and frequent industrial actions by healthcare workers were reported to influence women's decisions to avoid health centers altogether. These conditions create a perception of inefficiency and neglect in the public healthcare system, making traditional delivery options appear more reliable or less stressful. Gabrysch and Campbell[50] and Doctor et al.[55] both found that the physical condition of health facilities and availability of resources correlate strongly with maternal service uptake. Fagbamigbe et al.[49] and Tsawe et al.[51] argued that inadequate infrastructure not only affects service delivery but also reinforces socio-economic inequities in maternal care. Montagu et al.[53] and Bohren et al.[52] reiterated that poor service environments reduce demand for facility-based births even when awareness of skilled care benefits is high. This cumulative evidence underscores how structural disparities intersect with geographic isolation to entrench inequitable access to skilled delivery services; a pattern clearly reflected in this study findings

Effectiveness of current policy interventions aimed at improving skilled birth attendance

Findings from this study indicate that although several policy interventions have been introduced, such as the National Health

Insurance Scheme (NHIS), free maternal health programs, and conditional cash transfers, these strategies have had uneven effects across different regions and socio-economic groups. While urban women reported some improvements in access and utilization of skilled birth services due to these interventions, rural populations continue to face systemic exclusion. This aligns with the observations of Adedini et al., [54] who found that national policies disproportionately benefit urban residents due to poor policy implementation in marginalized areas. Fagbamigbe et al.[49] and Gabrysch and Campbell[50] also reported that while policies might exist on paper, weak infrastructure and poor monitoring mechanisms dilute their impact in real-world settings. Similar concerns were raised by Montagu et al.[53] and Umar and Oche,[56] who emphasized the disconnect between national maternal health frameworks and their on-the-ground execution. Tsawe et al.,[51] and Kebede et al.,[57] further corroborated this mismatch, noting that benefits often fail to reach the most vulnerable women, those the policies were designed to serve. Additionally, the study showed that policy-driven incentives such as free delivery services and community-based health insurance schemes often fail to address the broader socio-cultural and psychological barriers that influence service utilization. Many respondents, especially in rural or traditional communities, expressed skepticism towards government-run programs, citing past experiences of corruption, stockouts, or discriminatory treatment in public facilities. Bohren et al.,[52] highlighted the role of negative perceptions and past mistreatment in discouraging facility-based births despite the availability of subsidized services. Likewise, Doctor et al.,[55] reported that public mistrust can override financial incentives, leading women to continue relying on traditional birth attendants. Adedini et al.,[54] and Fagbamigbe et al.,[49] found that policy effectiveness depends not just on financial coverage but also on quality of care and interpersonal aspects of service delivery. Montagu et al.[53] and Tsawe et al.[51] emphasized that policies should integrate behavioral change strategies and community involvement to bridge this perceptual gap. Moreover, the study found minimal community-level engagement in the formulation and implementation of maternal health policies, limiting their acceptability and sustainability. Respondents noted that most interventions were top-down, with little consultation of community leaders, women's groups, or local health workers. This corroborates Kebede et al.[57] and Bohren et al.,[52] who stressed that stakeholder engagement is crucial for contextualizing health programs and improving uptake. Montagu et al.[53] and Adedini et al.[54] also found that programs with strong community participation, such as those involving trained community health workers or culturally adapted health education, achieved better outcomes. Fagbamigbe et al.[49] and Umar and Oche[56] emphasized that interventions imposed without local adaptation often struggle to gain traction. These findings suggest that for current policies to be effective, they must go beyond financial provisions and incorporate participatory, culturally sensitive, and quality-oriented approaches that resonate with the lived realities of target populations.

Targeted strategies for reducing reliance on unskilled delivery services, particularly among high-risk groups

This study identified that reliance on unskilled delivery services is particularly high among adolescents, rural dwellers, low-income women, and those with limited formal education. To reduce this dependence, context-specific and group-targeted interventions are required. The findings support recommendations by Adedini et al.[54] and Tsawe et al.,[51] who emphasized the need for interventions tailored to the unique barriers faced by high-risk groups. Community-based maternal health services that engage local birth attendants in formal training, as advocated by Montagu et al.,[53] offer a practical strategy for bridging gaps in rural areas where professional health workers are scarce. Moreover, Doctor et al.[55] and Umar and Oche[56] highlighted the importance of integrating traditional birth attendants (TBAs) into the healthcare system through certification, supervision, and referral linkages to skilled facilities, an approach also validated in this study. Fagbamigbe et al.[49] suggested prioritizing culturally acceptable models of maternal care, which align with the socio-cultural beliefs of marginalized groups. Gabrysch and Campbell[50] further argued that community health interventions are most successful when they address social determinants like education and empowerment concurrently. The study also emphasized that financial incentives and structural supports must be sustained and expanded for high-risk groups. For example, conditional cash transfers for antenatal care visits and deliveries at health facilities showed promise, especially when complemented with transportation vouchers or community health insurance. Kebede et al.[57] reported improved skilled birth attendance when such strategies were implemented in rural Ethiopia. This aligns with findings by Bohren et al.,[52] who observed that reducing out-of-pocket costs, combined with improving the quality of maternity care, significantly increases health facility use among socioeconomically disadvantaged women. Adedini et al.[54] and Tsawe et al.[51] also pointed to the importance of expanding maternal health financing schemes to cover not just services but also logistics like ambulance services and housing for distant patients. Doctor et al.[55] and Montagu et al.[53] highlighted that continuity of care linking antenatal, delivery, and postnatal services is essential for maintaining patient trust and preventing return to unskilled practices after initial engagement. Finally, behavioral change communication (BCC) strategies emerged as indispensable tools for transforming entrenched norms and practices that sustain unskilled deliveries. This study recommends media campaigns, peer education, and community dialogue forums that involve men, religious leaders, and traditional authorities. Bohren et al.[52] and Adedini et al.[54] documented success with similar approaches in shifting perceptions and improving maternal health outcomes. Fagbamigbe et al.[49] emphasized that behavioral interventions must be context-sensitive, repetitive, and embedded in local cultural idioms to generate long-term change. Kebede et al.[57] and Gabrysch and Campbell[50] advocated for the incorporation of maternal health topics into school curricula and women's cooperatives, thereby fostering early awareness and collective accountability.[58] Montagu et al.[53] and Umar and Oche[56] highlighted the role of community champions and role models in demystifying hospital-based deliveries and demonstrating positive maternal experiences. Therefore, the multi-pronged strategy recommended here, comprising financial, structural, and psychosocial dimensions, is critical for reducing dependence on unskilled services among the most vulnerable groups.

Implications for policy and interventions

The findings reveal that socio-demographic factors, particularly age, education, income level, and parity, significantly influence expectant women's reliance on unskilled delivery services, underscoring the need for policies that prioritize women's education and economic empowerment through initiatives such as girl-child education programs, maternal health subsidies, and incentivized antenatal care, especially in rural and underserved communities. Cultural norms, traditional birth preferences, and religious beliefs also strongly shape delivery choices, calling for culturally sensitive, community-driven strategies that engage local leaders, traditional birth attendants (TBAs), and religious groups in health promotion campaigns. Training TBAs as referral agents and integrating them into the formal health system could help bridge cultural gaps and encourage safer delivery practices. Additionally, geographic and

Citation: Abdulraheem AF, Ononokpono DN, Raimi MO. Breaking barriers to safe motherhood: how social, cultural, and geographic inequalities shape skilled birth attendance in Nigeria. *Sociol Int J.* 2025;9(5):188–200. DOI: 10.15406/sij.2025.09.00437

structural disparities demand improved infrastructure and equitable healthcare resource distribution, including expanding primary healthcare facilities in hard-to-reach areas, strengthening mobile clinics and community health extension services, and investing in rural road networks and ambulance systems to enhance emergency obstetric care access. A comprehensive approach addressing these socio-demographic, cultural, and structural barriers is essential to reducing reliance on unskilled delivery services and improving maternal health outcomes.

Conclusion

Maternal and neonatal health in Nigeria continues to face significant challenges due to the persistent reliance on unskilled delivery services. The findings of this study reveal that unskilled delivery use arises from a complex interplay of socio-demographic, cultural, structural, and policy-related factors. Younger, less educated, and economically disadvantaged women remain disproportionately vulnerable, while cultural and religious beliefs, such as faith in ancestral protection or fear of mistreatment in hospitals, further discourage the use of skilled birth attendants. These factors collectively underscore the urgent health significance of addressing both behavioral and systemic determinants to improve maternal outcomes. Socio-demographic influences, including low education levels, early marriage, high parity, and poverty, strongly shape women's reliance on traditional birth attendants. Cultural and religious dynamics further reinforce these behaviors, often framing childbirth as a domestic or spiritual matter rather than a medical event. Meanwhile, structural barriers, such as geographic isolation, poor road networks, and inadequate healthcare facilities, significantly limit physical access to skilled care, particularly in rural and conflict-affected regions. Policy frameworks, though well-intentioned, frequently fall short due to weak enforcement, limited funding, and insufficient community engagement, thereby reducing their effectiveness and sustainability. To effectively reduce unskilled delivery practices and achieve Sustainable Development Goal 3 (maternal health), a multispectral, equity-driven approach is required. This includes expanding women's education, improving rural health infrastructure, ensuring financial protection for maternal care, and incorporating traditional birth attendants into supervised community health systems. Furthermore, maternal health programs should be context-sensitive, emphasizing community ownership, behavioral change communication, and accountability mechanisms that ensure resources reach the most underserved populations. Without addressing these interconnected social and structural barriers, maternal health outcomes in Nigeria and Sub-Saharan Africa will continue to lag behind global targets.

Recommendations

To improve maternal health outcomes, national governments should implement free and universal healthcare coverage, including education campaigns, transportation subsidies, and incentives for facility-based deliveries, such as conditional cash transfers to encourage service uptake among low-income women. Culturally sensitive interventions, developed in collaboration with traditional and religious leaders, are also critical, alongside training community health workers and traditional birth attendants (TBAs) as advocates and referral agents within formal healthcare systems. Additionally, long-term investments in rural healthcare infrastructure, including mobile maternity units, maternity waiting homes, and improved workforce retention through housing incentives, hazard pay, and career development, are essential to overcoming geographic and structural barriers to skilled delivery care.

Health significance

This study provides crucial insights into the demographic, socio-cultural, structural, and policy-related factors driving unskilled delivery use in Nigeria and Sub-Saharan Africa, key knowledge for preventing life-threatening maternal and newborn complications. Its findings underscore the need for improved healthcare system design and equitable resource allocation, particularly in underserved communities, to expand access to skilled care and advance progress toward SDG 3. By informing scalable, evidence-based, and context-sensitive interventions, the research contributes to global efforts to eliminate preventable maternal deaths and strengthen health systems in low-resource settings. Thus, graphically it is represented in Figure 7 below

Study limitations

While this study offers valuable insights into factors influencing unskilled delivery utilization, its cross-sectional design limits causal inferences, suggesting the need for longitudinal research to track temporal dynamics and policy impacts. The geographical focus on specific Nigerian and Sub-Saharan African regions may affect generalizability, warranting future studies across diverse geopolitical and urban-rural contexts. Although constrained by potential self-reporting biases and cultural practice underreporting, the findings remain empirically robust and well-aligned with existing literature, providing a meaningful foundation for maternal health interventions.

Acknowledgments

The authors sincerely thank all participants whose time and responses were instrumental to the success of this study. Your insights have greatly enriched our findings. We also extend our appreciation to the Demographic and Health Survey (DHS) Program for granting free access to the NDHS dataset, which made this research possible.

Author contributions

All authors contributed to the study's conception, design, data collection, and analysis. They jointly drafted the manuscript, interpreted the findings, and provided critical revisions to ensure clarity and accuracy. Each author reviewed and approved the final version, reflecting a collaborative effort throughout all stages of the research.

Funding

The authors declare that this study received no financial or material support. It was conducted independently, without external funding, in the interest of unbiased scientific inquiry.

Consent for publication

Not applicable.

Conflicts of interest

The authors affirm that they have no competing interests to declare. There are no conflicts of interest that could influence the objectivity or impartiality of the research findings presented in this study.

References

1. World Health Organization. Births attended by skilled health personnel. Published 2023.

2. National Population Commission (NPC) [Nigeria] and National Malaria Elimination Programme (NMEP). Nigeria Demographic and Health Survey 2018. Abuja, Nigeria: NPC and ICF; 2019.
3. World Bank. Maternal mortality ratio (modeled estimate, per 100,000 live births) – Nigeria. The World Bank Group. Published 2023.
4. Doctor HV, Nkhoma D, Abdulsalam-Anibilowo M, et al. Predictors of utilization of skilled birth attendants among women of reproductive age in Nigeria: Analysis of demographic and health survey data. *BMC Public Health.* 2019;19:361.
5. Moyer CA, Mustafa A. Drivers and deterrents of facility delivery in sub-Saharan Africa: A systematic review. *Reprod Health.* 2013;10:40.
6. Tsegay Y, Gebrehiwot T, Goicolea I, et al. Determinants of antenatal and delivery care utilization in Tigray region, Ethiopia: A cross-sectional study. *Int J Equity Health.* 2018;17:86.
7. Raimi MO, Bilewu OO, Adio ZO, et al. Women contributions to sustainable environments in Nigeria. *J Sci Res Allied Sci.* 2019;5(4):35–51.
8. Raimi MO, Suleiman RM, Odipe OE, et al. Women role in environmental conservation and development in Nigeria. *Ecol Conserv Sci.* 2019;1(2).
9. Raimi MO, Odubo TR, Ogah A. Women, water and development in the Global South. Presented at: Multidisciplinary International Conference on Water in Africa (ICWA 2022); February 9-11, 2022; Nigeria.
10. Raimi MO, Odubo TR, Odubo TV, et al. Gender and sustainability in the Niger Delta. Presented at: Multidisciplinary International Conference on Water in Africa (ICWA 2022); February 9-11, 2022; Nigeria.
11. Raimi OM, Sunday OA, Mcfubara KG, et al. Perspective chapter: Applying innovative research as a tool to advance immunization coverage in Bayelsa State, Nigeria. In: Raimi MO, Sunday OA, Sawyerr HO, Adias TC, eds. Emerging Issues in Environmental Epidemiology and Its Reflection. *IntechOpen*; 2022.
12. Raimi MO. Peer review report for: Development of a health impact assessment implementation model: Enhancing intersectoral approaches in tackling health inequalities—A mixed methods study protocol. *HRB Open Res*. 2025;7:14.
13. Promise VI, Alabere I, Abdulraheem I, et al. The effect of mobile phone and home visit on childhood vaccination uptake in rural communities of Bayelsa State, Nigeria: A pragmatic cluster randomized control trial. *JMIR Preprints*. Published April 1, 2025.
14. Ibrahim ML, Sawyerr HO, Opasola OA, et al. Bridging knowledge and practice gaps in Lassa fever prevention: Awareness, attitudes, and infection control measures among healthcare workers and residents in Edo, Ondo, and Kwara States. *JMIR Preprints.* Published March 30, 2025.
15. Kakwi JD, Yakasai KM, Raimi MO, et al. Understanding the dynamics of COVID-19 vaccine uptake in Plateau State, Nigeria: Analyzing socioeconomic, cultural, and communication influences. *JMIR Preprints.* Published December 30, 2024.
16. Promise VI, Macauley T, Alabere I, et al. Closing the gap: Assessment of vaccination coverage among under-two children in Bayelsa State, Nigeria. *JMIR Preprints.* Published December 29, 2024.
17. Elumuwa CO, Raimi MO, Ainu M, et al. Conquering Mpox: A comprehensive public health strategy for addressing Mpox and poxvirus infections in Nigeria—Understanding global trends, transmission dynamics, and effective prevention and control measures in Nigeria. *JMIR Preprints.* Published October 14, 2024.
18. Kakwi JD, Yakasai KM, Kakwi JD, et al. Campaigning against vaccine hesitancy: Evaluating the effectiveness of health communication on COVID-19 vaccination uptake in Plateau State, Nigeria. *JMIR Preprints.* Published September 22, 2024.
19. Abaya ST, Ogoina D, Stow J, et al. Beyond the epidemic: Effective public health strategies in response to Nigeria's first Lassa fever outbreak in a non-endemic region. *JMIR Preprints.* Published August 19, 2024.
20. Okechukwu CO, Ainu M, Adias TC, et al. Evaluating the impact of rotavirus vaccination on childhood diarrhea incidence in Bayelsa State, Nigeria: Achievements, challenges, and future directions. *JMIR Preprints.* Published July 27, 2024.
21. Austin-Asomeji I, Raimi MO, et al. Evaluating the anti-cancer potential of Ganoderma lucidum: a critical analysis of clinical evidence and methodological advances. *Preprints*. 2024;2024070119.
22. Uchenna GE, Enato E, Christopher OE, et al. Pentavalent vaccine: how safe is it among infants accessing immunization in Nigerian health facilities. *medRxiv*. 2024;2024.05.28.24307998.
23. Christopher OE, Muyi A, Teddy CA, et al. Transforming primary healthcare in Nigeria: enhancing universal health coverage through strong and sustainable primary healthcare laboratories. *Qeios*. 2024.
24. Mordecai O, Uchenna GE, Emma A, et al. Analyzing Nigeria's journey towards sustainable development goals: a comprehensive review from inception to present. *Qeios*. 2024.
25. Morufu OR, Aziba-anyam GR, Teddy CA. Evidence-based environmental and public health practices to respond to the COVID-19 crisis. *Research Square*. Preprint. Published May 7, 2021.
26. Elemuwa CO, Ainu M, Adias TC, et al. Boosting community engagement: leveraging the ward health system approach for enhanced HPV vaccination acceptance in Nigeria. *F1000Research*. 2024;13:1392.
27. Oweibia M, Elemuwa UG, Akpan E, et al. Analyzing Nigeria's journey towards sustainable development goals: a comprehensive review from inception to present. *F1000Research*. 2024;13:984.
28. Joshua MT, Austin-Asomeji I, Izah SC, et al. Environmental factors exacerbating hepatitis transmission: a mini review. *J Pharmacol Clin Toxicol*. 2024;12(1):1181.
29. Tuebi M, Franco A, Raimi MO, et al. The quality and acceptance of family planning services in improving Bayelsa State: lessons learnt from a review of global family planning programs. *Greener J Med Sci*. 2021;11(2):212–225.
30. Raimi OM, Lucky EC, Okoyen E, et al. Making better informed, more confident COVID-19 decisions: vaccine hesitancy, its barriers and impact studies taking Bayelsa State as an example. *Int J Vaccine Immunizat.* 2021;5(1).
31. Raimi MO, Mcfubara KG, Abisoye OS, et al. Responding to the call through translating science into impact: building an evidence-based approach to effectively curb public health emergencies (COVID-19 crisis). *Glob J Epidemiol Infect Dis*. 2021;1(1).
32. Morufu OR, Ebikapaye O, Tuebi M, et al. Do weak institutions prolong crises? (#ENDSARS) in the light of the challenges and opportunities beyond COVID-19 pandemic and the next normal in Nigeria. *Commun Soc Media*. 2021;4(2).
33. Raimi MO, Raimi AG. The toughest triage in decision impacts: rethinking scientific evidence for environmental and human health action in times of concomitant global crises. *CPQ Med*. 2020;11(1):1–5.
34. Raimi MO, Moses T, Okoyen E, et al. A beacon for dark times: rethinking scientific evidence for environmental and public health action in the coronavirus disease 2019 era. *Med Res Microbiol*. 2020;1(3).
35. Raimi MO, Ihuoma BA, Esther OU, et al. Health impact assessment: expanding public policy tools for promoting sustainable development goals (SDGs) in Nigeria. *EC Emerg Med Crit Care*. 2020;4(9).
36. Samson TK, Ogunlaran OM, Raimi OM. A predictive model for confirmed cases of COVID-19 in Nigeria. *Eur J Appl Sci.* 2020;8(4):1–10.
37. Olalekan RM, Oluwatoyin OA, Olawale SH, et al. A critical review of health impact assessment: towards strengthening the knowledge of decision makers to understand sustainable development goals in the twenty-first century—necessity today; essentiality tomorrow. *Res Adv Environ Sci.* 2020;1:72–84.

Citation: Abdulraheem AF, Ononokpono DN, Raimi MO. Breaking barriers to safe motherhood: how social, cultural, and geographic inequalities shape skilled birth attendance in Nigeria. *Sociol Int J.* 2025;9(5):188–200. DOI: 10.15406/sij.2025.09.00437

38. Olalekan RM, Oluwatoyin O, Olalekan A**.** Health impact assessment: a tool to advance the knowledge of policymakers to understand sustainable development goals—a review. *ES J Public Health.* 2020;1(1):1002.

39. Anthony BP, Charles O, Raimi MO. Black gold, empty plates: how oil and gas are destroying food security in the Niger Delta. *JMIR Preprints.* Published May 13, 2025.

40. Raimi MO, Odubo TR. Dutch diseases and resources curse: key regulatory challenges and opportunities associated with extractive industries in Nigeria. Presented at: 8th National Conference on Political Stability, Security and Economic Development; July 21-22, 2022; Merit House, Abuja, Nigeria.

41. Olalekan RM, Dodeye EO, Efegbere HA, et al. Leaving no one behind? Drinking-water challenge on the rise in Niger Delta region of Nigeria—a review. *Merit Res J Environ Sci Toxicol.* 2020;6(1):31–49.

42. Gift RA, Olalekan RM. Access to electricity and water in Nigeria: a panacea to slow the spread of COVID-19. *Open Access J Sci.* 2020;4(2):34.

43. Gift RA, Olalekan RM, Owobi OE, et al. Nigerians crying for availability of electricity and water: a key driver to life coping measures for deepening stay-at-home inclusion to slow COVID-19 spread. *Open Access J Sci.* 2020;4(3):69–80.

44. Raimi MO, Omidiji AO, Odipe OE, et al. Open defecation and public toilets importance: an economic perspective. Presented at: Preventing Health Care in Nigeria: Everyone, Everywhere Leaving Nobody Behind; July 29–August 1, 2019; National Open University Auditorium, University Village, Jabi-Abuja, Nigeria.

45. Adedokun ST, Uthman OA, Adekanmbi VT, et al. Maternal deaths in Nigeria: a systematic review and meta-analysis of determinants and associated factors. *PLoS One.* 2020;15(6):e0235127.

46. National Population Commission (NPC) [Nigeria]; ICF. *Nigeria Demographic and Health Survey 2018.* Abuja, Nigeria, and Rockville, MD: NPC and ICF; 2019.

47. Adhikari R. Effect of women's autonomy on maternal health service utilization in Nepal: a cross-sectional study. *BMC Womens Health.* 2016;16(26):1–7.

48. Fagbamigbe AF, Hurricane-Ike EO, Yusuf OB, et al. Trends and drivers of skilled birth attendant use in Nigeria (1990–2013): policy implications for child and maternal health. *Int J Womens Health.* 2017;9:843–853.

49. Gabrysch S, Campbell OM. Still too far to walk: literature review of the determinants of delivery service use. *BMC Pregnancy Childbirth.* 2009;9(1):34.

50. Tsawe M, Moto A, Netshivhera T, et al. Factors influencing the use of maternal healthcare services and childhood immunization in Swaziland. *Int J Equity Health.* 2015;14:32.

51. Bohren MA, Hunter EC, Munthe-Kaas HM, et al. Facilitators and barriers to facility-based delivery in low- and middle-income countries: a qualitative evidence synthesis. *Reprod Health.* 2014;11(1):71.

52. Montagu D, Yamey G, Visconti A, et al**.** Where do poor women in developing countries give birth? A multi-country analysis of demographic and health survey data. *PLoS One.* 2011;6(2):e17155.

53. Adedini SA, Odimegwu C, Imasiku ENS, et al. Regional variations in infant and child mortality in Nigeria: a multilevel analysis. *J Biosoc Sci.* 2015;47(2):165–187.

54. Doctor HV, Nkhana-Salimu S, Abdulsalam-Anibilowo M**.** Health facility delivery in sub-Saharan Africa: successes, challenges, and implications for the 2030 development agenda. *BMC Public Health.* 2012;12:409.

55. Umar AS, Oche MO. Determinants of antenatal care utilization in Nigeria: a population-based study. *J Public Health Epidemiol.* 2012;4(6):147–152.

56. Kebede A, Hassen K, Teklehaymanot AN. Factors associated with institutional delivery service utilization in Ethiopia. *Int J Womens Health.* 2016;8:463–475.

57. Oginifolunnia OC, Elemuwa CO, Adias TC, et al**.** Bridging the gaps: unveiling weaknesses in disease surveillance during mass immunization campaigns in Nigeria. *JMIR Preprints.* Published July 4, 2025.

Citation: Abdulraheem AF, Ononokpono DN, Raimi MO. Breaking barriers to safe motherhood: how social, cultural, and geographic inequalities shape skilled birth attendance in Nigeria. *Sociol Int J.* 2025;9(5):188–200. DOI: 10.15406/sij.2025.09.00437