



RESEARCH ARTICLE

Socio-Demographic Predictors of Traditional Birth Attendant Utilization Among Women in Ondo State, Nigeria

ADELEKE Olasunkanmi Rowland^{1*}

Published online: 15 January 2026

Abstract

Traditional Birth Attendants (TBAs) continue to help in deliveries in several Nigerian communities contributing to high maternal mortality despite global initiatives to encourage skilled birth attendance. This study investigate the socio-demographic predictors of use of Traditional Birth Attendants in Akoko Area of Ondo State, Nigeria. A descriptive cross-sectional study was conducted with 425 women of childbearing age (15-49 years) who had given birth in the past 5 years. Women who met the criteria were selected the criteria using a multi-stage sampling technique. A validated structured questionnaire was used to collect data which were analyzed using descriptive statistics, chi-square, and binary logistic regression at a significance level of 5%. Out of 425 women, 163 (38.4%) had their last delivery assisted by a TBA. Important predictors of TBA use were maternal age of 35 years and above (AOR=2.45, 95% CI: 1.52-3.95); having no formal education (AOR=4.12, 95% CI: 2.28-7.45); having a monthly income of below ₦20,000 (AOR=2.89, 95%CI: 1.74-4.80); having four or more children (AOR=2.23, 95% CI: 1.38-3.60); and having to travel more than 30 minutes to a health facility (AOR=2.67, 95% CI:1.65-4.32). Most women cited cost (72.4%), culture (65.0%), spiritual (62.3%) and convenient (58.9%) as the primary reasons for using TBAs. The study finds a high level of use of traditional birth attendants for last delivery. Predictors included older mothers, having no formal education, and poor household income, having many children, and long distances to health facilities. The main motivation for selecting TBAs was their low cost, culture, spirituality, and access.

Keywords: Traditional Birth Attendants, Maternal Health, Skilled Birth Attendance, Socio-demographic Factors, Nigeria

INTRODUCTION

Maternal mortality remains a critical public health priority globally and is increasingly concentrated in low- and lower-middle-income settings. In 2023, an estimated 260,000 women died during pregnancy, childbirth, or in the postpartum period, and most of these deaths were considered preventable with timely access to evidence-based maternity care. The burden is particularly acute in sub-Saharan Africa, which accounted for approximately 70% of global maternal deaths in 2023. Nigeria is a key contributor to this regional burden and continues to report among the highest maternal mortality ratios in the world. In the WHO African Region, estimates indicate that Nigeria's maternal mortality ratio increased to

approximately 1,047 deaths per 100,000 live births in 2020, underscoring persistent gaps in effective coverage of essential maternal health services (World Health Organisation (WHO, 2023). These patterns reaffirm the urgency of identifying the determinants of women's delivery-care choices, particularly the drivers of non-use of skilled birth attendance, to inform targeted and context-sensitive interventions.

A central mechanism for reducing maternal deaths is ensuring that births are attended by competent providers capable of preventing, detecting, and managing complications, including timely referral for emergency obstetric care. The 2018 joint statement definition emphasizes that "skilled health personnel providing care during childbirth" are trained, regulated, and competent to manage uncomplicated labour and childbirth, recognize and manage complications, and provide respectful, quality care within an enabling health system. However, in many low-resource contexts, the supply and distribution of skilled personnel remains constrained by chronic underinvestment, inequitable rural-urban deployment, and workforce attrition, including health worker migration ("brain drain"), which can weaken staffing and service readiness in peripheral communities (Clemens & Pettersson, 2008; World Health Organization, 2016). In settings where formal maternity services are intermittently

¹ Adekunle Ajasin University Nigeria

**) corresponding author*

ADELEKE Olasunkanmi Rowland
Department of Human Kinetics and Health Education,
Adekunle Ajasin University, Akungba Akoko, Ondo State,
Nigeria
Email: olasunkanmi.adeleke@aaua.edu.ng

available, geographically distant, or perceived as low quality, women often rely on alternative providers for pregnancy and childbirth care.

Within this context, traditional birth attendants (TBAs) remain influential in maternal and newborn care across parts of sub-Saharan Africa (WHO, 2021). TBAs are typically women who assist during childbirth without formal biomedical qualifications and who often derive legitimacy through apprenticeship, community recognition, and embedded cultural and spiritual roles. In Nigeria, TBAs are frequently utilized because they are perceived as accessible, culturally consonant, and affordable—especially for women who face financial, geographic, or relational barriers to facility-based services (Izugbara & Afangideh, 2005). At the same time, TBAs commonly operate outside regulated clinical systems and may have limited capacity to manage obstetric emergencies, including haemorrhage, hypertensive disorders, obstructed labour, or neonatal distress—conditions that require rapid clinical intervention and functional referral pathways (WHO, 2014). These risks are amplified when home delivery occurs without adequate birth preparedness, transport planning, or linkage to emergency care.

Empirical evidence from Nigeria indicates that the utilization of skilled birth attendance remains suboptimal, while reliance on TBAs persists in several regions. Ugboaja et al (2018) report that only 39% of births are attended by skilled professionals. Related community studies suggest that many women who engage with antenatal care still deliver outside facilities, reflecting a discontinuity between contact with services and delivery under skilled care. Women often describe TBAs as patient, emotionally supportive, and continuously available, and such preferences are reinforced by community norms that frame TBAs as trusted elder figures and culturally legitimate caregivers (Lawal et al., 2023). These findings align with broader literature showing that perceived respect, interpersonal treatment, and trust strongly influence maternity care decisions, sometimes as much as—or more than—clinical availability.

Importantly, the determinants of TBA utilization are not solely individual preferences; they are shaped by structural and sociopolitical constraints. Prior studies identify correlates such as low economic status, higher parity, marital context (including spouses' education and occupation), and community-level norms that portray TBAs as caring and supportive. Additional deterring factors include service context (e.g., perceived mistreatment, waiting times, informal costs) and sociocultural identity markers such as religion (Ugboaja et al., 2018; Adongo et al., 2020; Taye et al., 2022). Aturaka et al. (2024) further highlights the salience of socio-demographic characteristics—age, low educational attainment, religion, and parity—together with access barriers and cultural/spiritual considerations, as drivers of TBA use among Nigerian childbearing women. These patterns are consistent with established frameworks of maternal health care utilization, including the “three delays” model, which emphasizes delays in deciding to seek care, reaching a facility, and receiving adequate care after arrival (Thaddeus & Maine, 1994).

Across sub-Saharan Africa, socio-demographic factors repeatedly emerge as robust predictors of maternal health-seeking behaviour. Maternal age is commonly associated with childbirth decision-making; older women may rely on TBAs due to prior birth experiences, perceived self-efficacy in labour management, or entrenched community

practices (Aturaka et al., 2024; Lawal et al., 2023). Educational attainment is among the strongest predictors of skilled birth attendance, as education can improve health literacy, strengthen women's autonomy and negotiating power, and facilitate navigation of formal health systems (Sialubanje et al., 2015; Souza et al., 2024). Household income and financial access also shape delivery choices, particularly where direct and indirect costs (transport, supplies, informal fees, opportunity costs) make facility delivery less feasible; TBAs may be viewed as flexible and affordable alternatives (Ugboaja et al., 2018; Adongo et al., 2020). Parity is frequently linked to preferences for home-based or traditional care, especially among multiparous women who interpret childbirth as routine following prior uncomplicated deliveries (Taye et al., 2022; Sialubanje et al., 2015). Finally, geographic access—often operationalized as distance or travel time to the nearest functional facility—remains a well-documented barrier to skilled birth attendance and contributes to continued patronage of TBAs (Sageer et al., 2019).

Nigeria's policy history reflects a persistent tension between engaging TBAs as community resources and prioritizing skilled birth attendance as the standard for safe delivery. While approaches have included attempts to incorporate TBAs into formal systems (e.g., through training or referral linkages) and parallel efforts to expand skilled attendance, women in rural and semi-urban communities often continue to prefer TBAs for interpersonal, cultural, and practical reasons (Amutah-Onukagha et al., 2017). In particular, family influence and tradition can shape delivery decisions among younger women, including those aged 18–28, even when facilities exist within reach. The Akoko area of Ondo State offers a distinctive setting for examining these dynamics because formal health facilities and long-standing traditional practices coexist. This juxtaposition suggests that the persistence of TBA utilization may reflect not only service availability, but also social exclusion, perceived quality deficits, financial constraints, and culturally grounded trust relationships that keep women aligned with traditional systems of care.

Accordingly, understanding the socio-demographic predictors of women's use of TBAs in Akoko is essential for designing interventions that are both effective and locally acceptable. Identifying which groups are most likely to utilize TBAs—and the specific socio-demographic patterns that distinguish them—can support targeted risk reduction strategies, including culturally competent health education, improved birth preparedness counselling, strengthened respectful maternity care, and feasible referral linkages. Therefore, this study aimed to identify the socio-demographic predictors of women's utilization of traditional birth attendants in the Akoko area of Ondo State, Nigeria.

Objectives of the Study

1. To determine the level of knowledge of women in Akoko area of Ondo state on traditional birth attendants.
2. To understand the patterns of delivery care for the last childbirth in study area.
3. To explore the primary reasons for TBAs patronage in the study area
4. To examine the bivariate associations between socio-demographic factors (age, education, income, parity and distance with the outcome of TBAs use.

5. To identify the socio-demographic predictors of TBAs patronage in the study area

METHODS

Study Design and Setting

A community-based cross-sectional study was conducted in the Akoko area of Ondo State, Nigeria, from January to May 2025. Akoko comprises rural and semi-urban communities and includes both long-term indigenous residents and a university community. The study design and reporting were structured in line with established guidance for observational studies.

Study Population and Sample Size

The study population included women of reproductive age (15–49 years) residing in selected communities within three Local Government Areas (LGAs) of Akoko–Akoko North-East, Akoko North-West, and Akoko South-West—who had a live birth or pregnancy outcome within the five years preceding data collection.

The minimum sample size was estimated using Cochran's formula for cross-sectional surveys: $n = (Z^2P(1-P))/d^2$, where $Z=1.96$ (95% confidence level), $P=0.50$ (assumed prevalence of TBA use in the absence of a precise local estimate to maximize sample size), and $d=0.05$ (margin of error). This yielded a minimum of 384 participants. A 10% allowance for non-response was applied, resulting in a final target sample of 425 women.

Sampling Procedure

A multistage sampling approach was used to select 425 respondents across the three LGAs. First, Akoko North-West, Akoko North-East, and Akoko South-West were purposively included because they encompass both rural and semi-urban communities where TBAs provide delivery-related services. Second, two political wards were randomly selected from each LGA using simple random sampling (balloting). Third, two communities were randomly selected from each chosen ward, yielding a total of 12 communities.

Because no formal registry of eligible women was available, household enumeration was conducted in each selected community to identify women aged 15–49 years who had delivered within the last five years. Community-level allocation of respondents was proportional to estimated community population size. Within each community, eligible participants were selected through systematic random sampling by interviewing every third eligible woman identified during enumeration until the community quota was met, resulting in 425 respondents across the study area.

Eligibility Criteria

Inclusion criteria: women (1) aged 15–49 years, (2) resident in the selected communities, and (3) who had given birth within the five years preceding data collection. Exclusion criteria: women who were not residents of the selected communities, had not delivered within the preceding five years, were unable to participate due to serious mental or physical impairment at the time of interview, or declined participation.

Study Variables and Operational Definitions

The primary outcome was utilization of a Traditional Birth Attendant for the most recent delivery within the five-year recall window. The outcome was coded as binary (TBA-assisted last delivery vs. non-TBA-assisted last delivery, including deliveries attended in government or private facilities by skilled personnel). Key predictors included maternal age, educational attainment, monthly income, parity, and geographic access.

Geographic access was operationalized as self-reported travel time (minutes) to the nearest formal health facility using the respondent's usual mode of transport (e.g., walking, motorcycle, public transport), to better reflect real-world mobility conditions. Travel time was categorized as ≤ 30 minutes versus > 30 minutes, consistent with common practice in access-to-care research where longer travel time is treated as a barrier to timely service use.

Parity was categorized consistently for descriptive and inferential analyses as 0–1, 2–3, and ≥ 4 births to ensure comparability across tables and models. Knowledge of TBAs (secondary measure): Knowledge regarding TBAs was assessed using a composite score derived from responses to multiple knowledge items in the questionnaire, with higher scores indicating greater knowledge. (The scoring and categorization procedures should be retained exactly as used in the study database to preserve consistency with the reported Results.)

Data Collection Instruments and Procedure

Data were collected using a structured, interviewer-administered questionnaire developed from a review of relevant literature on maternal health service utilization and TBA use. The questionnaire captured socio-demographic characteristics, obstetric history, awareness of childbirth care options, and reasons for TBA patronage. The instrument was developed in English and translated into Yoruba (the primary local language) to improve comprehension and response accuracy.

The questionnaire was pre-tested among 30 women in a community outside the study area to assess clarity, internal consistency, and feasibility. Feedback from the pre-test informed refinement of wording, flow, and administration procedures. Data collection was conducted by the researcher and trained community assistants fluent in Yoruba and familiar with the community context. Training covered study objectives, standardized interviewing procedures, confidentiality safeguards, and informed consent processes. Interviews were conducted house-to-house and typically lasted 20–30 minutes. Completed questionnaires were reviewed daily for completeness and internal consistency, and issues were addressed promptly through field debriefing and supervision.

Data Analysis

Data were analyzed using IBM SPSS Statistics (version 26). Descriptive statistics (frequencies, percentages, and summary measures as appropriate) were used to characterize respondents and key variables. Bivariate associations between socio-demographic variables and TBA utilization were examined using chi-square tests.

Given the multistage sampling design and the nesting of respondents within communities (and LGAs), intra-cluster correlation was considered plausible. Therefore, regression analyses were estimated with cluster-robust

standard errors, with clustering specified at the community level to reduce bias in standard errors and inference under correlated observations.

A multivariable binary logistic regression model was fitted to identify independent predictors of TBA utilization. While variables significant at $p < 0.05$ in bivariate analyses were initially screened for potential inclusion, final covariate selection followed a theory-driven approach based on prior empirical evidence and the study's conceptual framework, rather than relying solely on statistical significance. Model results were reported as Adjusted Odds Ratios (AORs) with 95% Confidence Intervals (CIs). Statistical significance was set at $p < 0.05$.

RESULTS OF STUDY

Table 1 indicates that the sample is concentrated in the prime reproductive age range. Nearly half of respondents were aged 25–34 years (46.6%), followed by 15–24 years (30.1%), while women aged ≥ 35 years constituted 23.3%. This age structure is important because maternal care-seeking decisions often shift with accumulated childbirth experience and household decision dynamics, which may be more pronounced among older women.

Educational attainment was generally low to moderate. One in five women reported no formal education (20.5%), and an additional 28.0% had only primary education. Secondary education accounted for 45.4%, while tertiary education was uncommon (6.1%). This distribution suggests that a substantial proportion of women may face constraints in health literacy, navigation of facility-based maternity services, and decision autonomy—factors that are strongly implicated in skilled birth attendance and facility delivery in the wider maternal health literature.

Table 1. Socio-demographic Characteristics of Respondents (N = 425)

Characteristic	Category	Frequency (n)	Percentage (%)
Age Group	15–24 years	128	30.1
	25–34 years	198	46.6
	≥ 35 years	99	23.3
Educational Level	No formal education	87	20.5
	Primary	119	28.0
	Secondary	193	45.4
	Tertiary	26	6.1
Monthly Income	$< \text{₦}20,000$	164	38.6
	$\text{₦}20,000$ – $\text{₦}50,000$	187	44.0
	$> \text{₦}50,000$	74	17.4
Parity	0–1	201	47.3
	2–3	156	36.7
	≥ 4	68	16.0

The income profile further highlights structural vulnerability: 38.6% earned $< \text{₦}20,000$ monthly and 44.0% earned $\text{₦}20,000$ – $\text{₦}50,000$, whereas only 17.4% reported $> \text{₦}50,000$. Given the recurring evidence that both direct and indirect delivery costs influence place-of-delivery choices, the predominance of low-income households provides a plausible foundation for the cost-related motivations observed among TBA users. Parity distribution shows that 47.3% had 0–1 birth, 36.7% had 2–3 births, and

16.0% had ≥ 4 births. In many contexts, higher parity is associated with a “normalization” of childbirth and a preference for home-based or traditional delivery care, especially when previous deliveries were uncomplicated.

Table 2 presents respondents' knowledge scores regarding TBAs. The minimum score was 11.00 and the maximum was 32.00. The mean knowledge score was 25.82 (SD = 3.49). Based on the scoring methodology described in the Methods section, this mean score was categorized as ‘above average’.

Table 2. Descriptive Statistics showing level of knowledge of TBA

Level of Knowledge	N	Min	Max	Mean	Std. Deviation
	163	11.00	32.00	25.8188	3.49304

Table 3 presents the prevalence of delivery care utilization and indicates that TBA-assisted delivery remains substantial: 38.4% of women (163/425) used a TBA for their most recent childbirth. Facility deliveries accounted for 61.6%, split between government facilities (44.7%) and private facilities (16.9%). This pattern demonstrates that while facility delivery is the majority practice in the area, a large minority continues to rely on TBAs.

The “type of birth attendant” distribution aligns with the “place of delivery” distribution: TBAs attended 38.4% of births, nurses/midwives attended 50.3%, and doctors attended 11.3%. This supports internal consistency in reporting and shows that most facility-based deliveries were attended by nurses/midwives rather than physicians—an expected pattern in many primary health care contexts.

A particularly policy-relevant finding is the habitual nature of TBA use. Among TBA users ($n = 163$), 72.4% reported that a TBA is their usual place of delivery, while only 27.6% reported variation. This indicates that TBA utilization is not merely a one-time response to an acute constraint; it is often a stable, socially embedded pattern of care.

Table 3. Prevalence and Patterns of Delivery Care for the Last Childbirth (N = 425)

Characteristic	Category	Frequency (n)	Percentage (%)
Place of Last Delivery	Traditional Birth Attendant (TBA)	163	38.4
	Government Health Centre / Hospital	190	44.7
	Private Hospital / Clinic	72	16.9
	Total	425	100.0
Type of Birth Attendant for Last Delivery	Traditional Birth Attendant (TBA)	163	38.4
	Nurse / Midwife	214	50.3
	Doctor	48	11.3
	Total	425	100.0
Usual Place of Delivery (Among TBA Users, $n = 163$)	TBA is the usual place	118	72.4
	It varies	45	27.6
	Total	163	100.0

*This question was only asked to participants who used a TBA for their last delivery to understand if it was a consistent pattern or a one-time occurrence.

Table 4 provides insight into the mechanisms sustaining TBA utilization. The leading reasons were: affordability/lower cost (72.4%), cultural congruence/traditional practices (65.0%), spiritual reasons (62.3%), proximity/accessibility (58.9%), and respect/emotional support (52.1%). Family or spouse influence (45.4%) and 24/7 availability (41.7%) further highlight the social and practical advantages TBAs offer. Two interpretive themes emerge:

- TBA patronage is primarily driven by “pull” factors— attractive features of TBAs (cost, cultural and spiritual alignment, convenience, relational quality).
- “Push” factors related to dissatisfaction with facilities appear less prominent in self-reports; only 12.3% cited a previous negative facility experience. This does not mean facility quality is unimportant, but it suggests that the narrative women most readily express is one of TBA advantage rather than facility failure. Social desirability, recall limitations, or normalization of poor facility experiences may also influence reporting.

Because multiple responses were allowed, percentages exceed 100% and should be interpreted as the proportion of TBA users endorsing each reason, not as mutually exclusive categories.

Table 4. Reasons for Patronage of Traditional Birth Attendants (N = 163)*

Reason for Choosing a TBA	Frequency (n)	Percentage (%)
Affordability / Lower Cost	118	72.4
Cultural Congruence / Traditional Practices	106	65.0
Spiritual Reasons	101	62.3
Accessibility / Proximity to Home	96	58.9
Respect and Emotional Support	85	52.1
Influence of Family or Spouse	74	45.4
Availability at Any Time (24/7)	68	41.7
Previous Negative Experience at a Health Facility	20	12.3
Other Reasons†	15	9.2

*Participants were allowed to select more than one reason; hence, the total percentage exceeds 100%.

†Other reasons included perceived efficiency, and having a long-standing relationship with the TBA.

The bivariate analysis demonstrates strong and statistically significant differences between TBA users and facility users across all listed factors (all p-values < 0.001): age ≥ 35 years, no formal education, income $< \text{₦}20,000$, parity ≥ 4 , and travel time > 30 minutes. Substantively, Table 5 suggests a consistent social gradient: TBA use is more common among older women, women with less education, women with lower income, women with higher parity, and those facing greater geographic barriers. The pattern is coherent with Table 4 (especially affordability and accessibility) and indicates that TBA patronage is not random but concentrated among structurally disadvantaged groups.

Critical data quality note: There is an internal inconsistency in the parity counts across tables. Table 1 reports 68 women with parity ≥ 4 (16.0%), but Table 5 shows 67 TBA users plus 61 facility users with parity ≥ 4 (total 128), which cannot be reconciled with N = 425 and the Table 1 distribution. This discrepancy should be treated as a high-priority issue for correction because parity is also

included in the logistic regression model (Table 6). Without resolving this inconsistency (e.g., verifying recoding, category thresholds, or table transcription), inferences about parity effects remain vulnerable.

Table 5. Factors Associated with TBA Patronage (Bivariate Analysis)

Factor	TBA Users (n = 163)	Facility Users (n = 262)	p-value
Age ≥ 35 years	58 (35.6%)	41 (15.6%)	<0.001
No formal education	56 (34.4%)	31 (11.8%)	<0.001
Income $< \text{₦}20,000$	89 (54.6%)	75 (28.6%)	<0.001
Parity ≥ 4	67 (41.1%)	61 (23.3%)	<0.001
Distance > 30 mins	72 (44.2%)	58 (22.1%)	<0.001

Table 6 presents adjusted odds ratios (AORs) identifying independent predictors of TBA use after controlling for other covariates. Women aged ≥ 35 years had significantly higher odds of TBA use (AOR = 2.45; 95% CI: 1.52–3.95; $p < 0.001$) than women aged 15–34 years. This suggests that age operates beyond socioeconomic composition—potentially reflecting accumulated childbirth experience, established norms, and stronger reliance on familiar traditional care pathways. Compared with tertiary education (reference), no formal education was the strongest predictor (AOR = 4.12; 95% CI: 2.28–7.45; $p < 0.001$). Primary education also significantly increased odds (AOR = 2.97; 95% CI: 1.45–6.08; $p = 0.003$). Secondary education showed a positive but non-significant trend (AOR = 1.86; $p = 0.083$). This pattern indicates a clear educational gradient, consistent with the role of education in health literacy, risk appraisal, and system navigation.

A methodological nuance is that tertiary education is rare in the sample (6.1%), so the reference category is relatively small. While the direction and magnitude are plausible and consistent, small reference groups can produce less stable estimates and wider confidence intervals; this should be acknowledged as a limitation. Relative to $\geq \text{₦}50,000$, women earning $< \text{₦}20,000$ had nearly threefold higher odds of TBA use (AOR = 2.89; 95% CI: 1.74–4.80; $p < 0.001$). The $\text{₦}20,000$ – $\text{₦}50,000$ group had a borderline association (AOR = 1.74; $p = 0.067$). These results align directly with Table 4, where affordability is the most frequently endorsed reason for choosing TBAs.

Parity ≥ 4 significantly predicted TBA patronage (AOR = 2.23; 95% CI: 1.38–3.60; $p = 0.001$), whereas parity 2–3 was not significant (AOR = 1.41; $p = 0.171$). This suggests a threshold effect in which very high parity is associated with meaningful shifts in delivery-care preference. However, due to the parity inconsistency noted above, this finding should be interpreted cautiously until the underlying tabulations are verified. Travel time > 30 minutes was a strong independent predictor (AOR = 2.67; 95% CI: 1.65–4.32; $p < 0.001$). This finding reinforces that geographic and transport barriers remain key drivers even after accounting for age, education, income, and parity. It also matches the high endorsement of accessibility/proximity in Table 4.

Taken together, Tables 1–6 indicate that TBA utilization in Akoko is both prevalent and often habitual, driven by a combination of structural disadvantage (low education, low income, geographic barriers) and culturally embedded preferences (cultural congruence, spiritual reasons,

relational support). The multivariable model confirms that the social gradient persists after adjustment, with particularly strong effects for low education, poverty, and distance.

From an intervention perspective, these findings suggest that simply increasing facility availability may be insufficient if affordability, transport constraints, and the

perceived relational and cultural safety of care are not addressed. Programs that strengthen respectful maternity care, reduce financial barriers, improve transport/referral readiness, and engage cultural-spiritual considerations in a safe, system-linked manner are more likely to shift established delivery patterns.

Table 6. Predictors of TBA Patronage (Logistic Regression Analysis)

Predictor	Category	AOR	95% CI	p-value
Age group	15–34 years (Reference)	1.00	–	–
	≥35 years	2.45	1.52–3.95	<0.001
Educational level	Tertiary education (Reference)	1.00	–	–
	Secondary education	1.86	0.92–3.74	0.083
	Primary education	2.97	1.45–6.08	0.003
	No formal education	4.12	2.28–7.45	<0.001
Monthly income	≥₦50,000 (Reference)	1.00	–	–
	₦20,000–₦50,000	1.74	0.96–3.14	0.067
	<₦20,000	2.89	1.74–4.80	<0.001
Parity	0–1 birth (Reference)	1.00	–	–
	2–3 births	1.41	0.86–2.32	0.171
	≥4 births	2.23	1.38–3.60	0.001
Distance to health facility	≤30 minutes (Reference)	1.00	–	–
	>30 minutes	2.67	1.65–4.32	<0.001

Reference categories: age 15–34 years, tertiary education, monthly income ≥₦50,000, parity 0–1, and travel time ≤30 minutes to the nearest health facility.

DISCUSSION

This study examined socio-demographic predictors of Traditional Birth Attendant (TBA) utilization among women in the Akoko area of Ondo State, Nigeria. Overall, 38.4% of respondents reported that their most recent delivery was attended by a TBA, while 61.6% delivered in a health facility (44.7% in government facilities and 16.9% in private facilities). Among those who used a TBA, nearly three-quarters (72.4%) reported that TBAs were their usual place of delivery, suggesting that TBA utilization in this setting is not merely episodic but reflects an established pattern of care-seeking.

From a health-systems perspective, the observed prevalence remains consequential because global guidance defines “skilled health personnel” at birth as accredited and competent professionals (e.g., midwives, nurses, doctors) able to provide evidence-based intrapartum care and manage or refer complications appropriately. Persistent reliance on TBAs therefore signals enduring gaps in effective coverage of skilled birth attendance—gaps that are particularly salient in high-burden contexts for maternal mortality. Although the proportion of TBA-assisted delivery in this study is broadly consistent with prior Nigerian evidence highlighting shortfalls in skilled birth attendance (Ugboaja et al., 2018), the pattern is best interpreted not as a knowledge deficit alone, but as the outcome of interacting “predisposing” and “enabling” factors that shape health service use (Andersen, 1995).

A key implication is that contact with formal services during pregnancy does not guarantee facility delivery. This aligns with evidence from Nigeria showing that women may engage with antenatal care while still preferring TBAs for delivery (Lawal et al., 2023) and related rural Nigerian

evidence documenting persistent TBA reliance despite awareness of biomedical services (Ebuehi, 2012). These patterns are consistent with broader sub-Saharan African literature indicating that decisions about delivery location are shaped by perceived quality, costs, norms, and access—not merely “service availability” (Gabrysch & Campbell, 2009).

Respondents most frequently cited affordability/lower cost (72.4%), cultural congruence (65.0%), spiritual reasons (62.3%), proximity (58.9%), and respect/emotional support (52.1%) as motivations for TBA patronage. These reasons are coherent with long-standing Nigerian evidence that TBAs are often viewed as culturally acceptable and financially feasible options (Izugbara & Afangideh, 2005). They also align with findings that women’s choices are embedded in household authority structures and community norms, where family or spouse influence can be decisive (45.4% in this study) (Aturaka et al., 2024; Taye et al., 2022; Adongo et al., 2020).

Importantly, the prominence of “respect and emotional support” should not be minimized. A growing body of evidence indicates that negative experiences in facilities—including disrespectful or abusive care—can deter facility delivery and reinforce preference for familiar, relational alternatives (Bohren et al., 2015). Even though only 12.3% of TBA users explicitly reported prior negative facility experience in this study, social desirability and normalization of poor treatment may lead to underreporting; therefore, experiential quality remains a plausible mechanism linking preferences to place of delivery. WHO recommendations on intrapartum care emphasize not only clinical effectiveness but also a positive childbirth experience, including respectful care—an

emphasis that directly intersects with the “relational advantage” TBAs may hold in many rural communities.

The multivariable results clarify that TBA patronage is patterned by structural disadvantage and access barriers. Five predictors remained statistically significant after adjustment: older age (≥ 35 years), lower educational attainment, low income, higher parity (≥ 4 births), and travel time > 30 minutes to the nearest facility. Women aged ≥ 35 years had 2.45 times higher odds of using TBAs (AOR = 2.45; 95% CI: 1.52–3.95). This finding supports the interpretation that accumulated childbirth experience may increase confidence in non-facility delivery, particularly when prior births were uncomplicated. It is consistent with evidence that maternal age shapes delivery decisions through experience-based risk perceptions and social position within households (Lawal et al., 2023; Aturaka et al., 2024). Where older women also carry greater domestic responsibilities, the perceived convenience and continuity offered by TBAs may further strengthen preference for home- or community-based delivery.

Education showed the strongest gradient. Compared with women with tertiary education, those with no formal education had over four times the odds of TBA use (AOR = 4.12; 95% CI: 2.28–7.45), while those with primary education also had elevated odds (AOR = 2.97; 95% CI: 1.45–6.08). Secondary education was directionally higher but not statistically significant (AOR = 1.86; $p = .083$), suggesting a possible threshold effect whereby completing higher levels of schooling more decisively shifts navigation toward facility-based delivery. These patterns are consistent with literature showing that education improves health literacy, risk recognition, and ability to negotiate service access (Sialubanje et al., 2015; Budu et al., 2021; Afape et al., 2024) and with evidence linking women’s education to improved maternal health outcomes and service utilization (Souza et al., 2024).

Financial vulnerability remained central. Women earning $< \text{₦}20,000$ monthly had nearly three times higher odds of using TBAs (AOR = 2.89; 95% CI: 1.74–4.80). The middle-income category ($\text{₦}20,000$ – $\text{₦}50,000$) again showed a marginal association (AOR = 1.74; $p = .067$), reinforcing the likelihood of a dose–response relationship. These findings support prior Nigerian and regional evidence that cost—both direct fees and indirect expenses such as transport—pushes women toward lower-cost informal providers (Ugboaja et al., 2018; Adongo et al., 2020). In settings where out-of-pocket expenditure dominates maternity care financing, the “affordability advantage” of TBAs may remain decisive even when women recognize clinical benefits of skilled attendance.

High parity (≥ 4 births) predicted higher TBA use (AOR = 2.23; 95% CI: 1.38–3.60), whereas parity 2–3 was not significant (AOR = 1.41; $p = .171$). This pattern is consistent with the argument that multiparous women may normalize childbirth as routine and therefore discount the marginal benefit of facility delivery—particularly if previous deliveries were uncomplicated (Taye et al., 2022; Sialubanje et al., 2015). The result also underscores the need to target multiparous women with risk communication that emphasizes that obstetric complications can occur unpredictably across pregnancies.

Women living more than 30 minutes from a facility had 2.67 times higher odds of using TBAs (AOR = 2.67; 95% CI: 1.65–4.32). This is consistent with extensive evidence that distance and travel time meaningfully reduce skilled birth attendance (Sageer et al., 2019; Gabrysch & Campbell, 2009). A useful interpretive frame is the “Three Delays” model, wherein distance and transportation constraints

contribute to delays in reaching care, while education and income shape delays in deciding to seek care. In this study, the co-occurrence of enabling constraints (distance, income) with predisposing disadvantages (low education) provides a coherent explanation for sustained TBA reliance.

The descriptive statistics for knowledge among TBA users (mean = 25.82; SD = 3.49) suggest that, even among women who used TBAs, there is measurable awareness related to TBAs. This reinforces a critical programmatic point: information exposure alone may be insufficient if affordability, distance, social norms, and trust dynamics continue to favor TBAs. In Andersen’s terms, enabling resources and perceived service acceptability can override knowledge-based intentions (Andersen, 1995).

Implications for policy and practice

Taken together, the findings support a dual strategy: (1) reduce structural barriers to skilled delivery (financial protection, transport, and geographic access), and (2) improve the perceived and experienced quality of facility-based care (respectful maternity care, responsiveness, and continuity). Efforts to “replace” TBAs without addressing why they are trusted and chosen are unlikely to succeed—consistent with observations that integration or substitution policies often underperform when they do not align with community realities (National Primary Health Care Development Agency, 2020). In pragmatic terms, community-based interventions may benefit from: strengthening referral linkages between TBAs and facilities; engaging spouses and family decision-makers; implementing transport/rapid referral mechanisms for obstetric emergencies; and ensuring respectful, culturally sensitive maternity care in facilities (Bohren et al., 2015; Aturaka et al., 2024).

This study demonstrates that TBA utilization in Akoko is substantial and patterned by age, education, income, parity, and travel time. The results argue for interpreting TBA reliance as a rational response to intersecting social, economic, cultural, and infrastructural constraints—rather than as mere “noncompliance” with biomedical recommendations. Addressing these drivers is essential to accelerate progress toward safer deliveries supported by skilled health personnel.

LIMITATIONS

This study has several limitations. First, the cross-sectional design limits causal inference, as it only establishes associations among variables. Second, the reliance on respondents’ recollection of birth events from up to five years prior may have introduced recall bias. Third, socially desirable responding is possible, particularly for items related to spiritual or cultural beliefs, which may have influenced the accuracy of self-reported data. Finally, because the study was conducted exclusively in the Akoko region, the findings may not be generalizable to other parts of Ondo State or Nigeria.

CONCLUSION

In conclusion, the study revealed that the factors that significantly predicted women’s use of Traditional Birth Attendants in the Akoko area included older age, low

educational level, low income, high parity, and greater distance to health care facilities. Several factors influenced the choice of TBAs which included low cost, cultural and spiritual beliefs, ease of access, and the respectful, supportive care provided by TBAs. To address TBA patronage and improve safe delivery practices, there is a need for improvements in women's education, women's economic empowerment, and the availability of quality maternal health care that is sensitive to the cultural needs of women in the region.

DECLARATION

Ethics approval and consent to participate

Approval was granted from the Ondo State Primary Healthcare (OSHREC/2025/45A). Participants provided informed consent in writing. Minors (<18 years) had assent along with consent from their parents/guardians. The confidentiality of the participants was guaranteed and observed during the entire research process.

Artificial Intelligence-Assisted Technology

During the preparation of this article, the author used AI-assisted technologies for language editing and reference formatting, specifically Grammarly and ChatGPT. The author is solely responsible for all the article content. The author confirm that the use of AI-assisted technology aligns with the publication ethics guideline and does not substitute for intellectual contributions.

Consent for publication

All participants provided informed consent for participation and publication of the study findings. They were assured that information obtained would be treated with strict confidentiality and used solely for research purposes. No identifying personal details of any participant were disclosed in the report.

Availability of data and materials

The data supporting this research are available from the author on request.

Conflicts of interest Statement

Disclosure of Potential Conflicts of Interest and none was reported

Funding

There was no source of funding for this research.

AUTHOR BIOGRAPHY

Olasunkanmi Rowland ADELEKE Ph.D. is a lecturer at the Department of Human Kinetics and Health Education, Adekunle Ajasin University, Akungba-Akoko, Ondo State. He is a researcher with an emphasis on Reproductive and Family Health Education.

REFERENCES

- Adongo, P. A., Atanga, R. A., Yakong, V. N., & Tabong, P. T.-N. (2020). Demographic characteristics of women that use traditional birth attendants in Bongo District, Ghana. *European Journal of Midwifery*, 4(1), 1–6. <https://doi.org/10.18332/ejm/114884>
- Afape, A. O., Azubuike, P. C., Ibikunle, O. O., & Barrow, A. (2024). Prevalence and determinants of skilled birth attendance among young women aged 15–24 years in Northern Nigeria: evidence from multiple indicator cluster survey 2011 to 2021. *BMC Public Health*, 24(1). <https://doi.org/10.1186/s12889-024-19976-8>
- Amutah-Onukagha, N., Rodriguez, M., Opara, I., Gardner, M., Assan, M. A., Hammond, R., Plata, J., Pierre, K., & Farag, E. (2017). Progresses and challenges of utilizing traditional birth attendants in maternal and child health in Nigeria. *International Journal of Maternal and Child Health and AIDS*, 6(2), 130–138. <https://doi.org/10.21106/ijma.204>
- Andersen, R. M. (1995). Revisiting the behavioral model and access to medical care: Does it matter? *Journal of Health and Social Behavior*, 36(1), 1–10.
- Aturaka, S. O., Eric, Y., Sanni, O. F., Olatunde, A. A., Aniekan, P. T., Christiana, A. E., Augusta, O. N., Modupe, A. A., Olubukola, P. T., & Modupe, S. I. (2024). Factors influencing the utilization of traditional birth attendants among childbearing women in Nigeria. *MGM Journal of Medical Sciences*, 11(4), 668–677. https://doi.org/10.4103/mgmj.mgmj_281_24
- Bohren, M. A., Vogel, J. P., Hunter, E. C., Lutsiv, O., Makh, S. K., Souza, J. P., Aguiar, C., Saraiva Coneglian, F., Diniz, A. L. A., Tunçalp, Ö., Javadi, D., Oladapo, O. T., Khosla, R., Hindin, M. J., & Gülmezoglu, A. M. (2015). The mistreatment of women during childbirth in health facilities globally: A mixed-methods systematic review. *PLoS Medicine*, 12(6), e1001847. doi:10.1371/journal.pmed.1001847
- Budu, E., Chattu, V. K., Ahinkorah, B. O., Seidu, A.-A., Mohammed, A., Tetteh, J. K., Arthur-Holmes, F., Adu, C., & Yaya, S. (2021). Early age at first childbirth and skilled birth attendance during delivery among young women in sub-Saharan Africa. *BMC Pregnancy and Childbirth*, 21(1). <https://doi.org/10.1186/s12884-021-04280-9>
- Clemens, M. A., & Pettersson, G. (2008). New data on African health professionals abroad. *Human Resources for Health*, 6, 1.
- Ebuehi, O. M. (2012). Perception and utilization of traditional birth attendants by pregnant women attending primary health care clinics in a rural Local Government Area in Ogun State, Nigeria. *International Journal of Women's Health*, 4, 25–34.
- Gabrysch, S., & Campbell, O. M. R. (2009). Still too far to walk: Literature review of the determinants of delivery service use. *BMC Pregnancy and Childbirth*, 9, 34. <https://doi.org/10.1186/1471-2393-9-34>
- Izugbara, C. O., & Afangideh, A. I. (2005). Urban women's use of rural-based health care services: the case of Igbo women in Aba City, Nigeria. *Journal of urban health : bulletin of the New York Academy of Medicine*, 82(1), 111–121. <https://doi.org/10.1093/jurban/jti013>
- Lawal, A., Salawu, W., Makanjuola, O., Ambali, A., Alabi, O., Kareem, A., Nnaemeka, C., Akande, M., & Akande, T. (2023). The Knowledge and utilization of Traditional Birth Attendants by Women of Reproductive Age in Alanamu Community Ilorin, Northern Nigeria. *Medical Journal of Zambia*, 50(1), 47–52. <https://doi.org/10.55320/mjz.50.1.34>
- National Primary Health Care Development Agency. (2020). *Policy and implementation guidance on primary health care services in Nigeria* (policy document). Abuja, Nigeria: Author.
- Sageer, R., Kongnyuy, E., Adebimpe, W. O., Omosehin, O., Ogunsola, E. A., & Sanni, B. (2019). Causes and contributory factors of maternal mortality: evidence from maternal and perinatal death surveillance and response in Ogun state,

- Southwest Nigeria. *BMC Pregnancy and Childbirth*, 19(1). <https://doi.org/10.1186/s12884-019-2202-1>
- Sialubanje, C., Massar, K., Hamer, D. H., & Ruiter, R. A. C. (2015). Reasons for home delivery and use of traditional birth attendants in rural Zambia: A qualitative study. *BMC Pregnancy and Childbirth*, 15, 216. <https://doi.org/10.1186/s12884-015-0652-7>
- Souza, J. P., Day, L. T., Rezende-Gomes, A. C., Zhang, J., Mori, R., Baguiya, A., Jayaratne, K., Osoti, A., Vogel, J. P., Campbell, O., Mugerwa, K. Y., Lumbiganon, P., Tunçalp, Ö., Cresswell, J., Say, L., Moran, A. C., & Oladapo, O. T. (2024). A global analysis of the determinants of maternal health and transitions in maternal mortality. *The Lancet. Global health*, 12(2), e306–e316. [https://doi.org/10.1016/S2214-109X\(23\)00468-0](https://doi.org/10.1016/S2214-109X(23)00468-0)
- Taye, E. B., Mekonen, T., Ayele, T. A., Dadi, T. L., & Abera, A. (2022). Factors associated with utilization of traditional birth attendant during childbirth among women in Ethiopia: A multilevel analysis of the 2016 Ethiopia Demographic and Health Survey. *PLOS ONE*, 17(11), e0277504. <https://doi.org/10.1371/journal.pone.0277504>
- Thaddeus, S., & Maine, D. (1994). Too far to walk: Maternal mortality in context. *Social Science & Medicine*, 38(8), 1091–1110.
- Ugboaja J., Oguejiofor C., Oranu E., & Igwegbe A. (2018). Factors associated with the use of traditional birth attendants in Nigeria: A secondary analysis of 2013 Nigeria national demography and health survey. *Nigerian Journal of General Practice*, 16(2), 45–52. https://doi.org/10.4103/njgp.njgp_27_17
- UNICEF. (2025). *Maternal mortality rates and statistics*.
- World Health Organization. (2014). *WHO recommendations on health promotion interventions for maternal and newborn health*. (http://www.who.int/maternal_child_adolescent/documents/health-promotion-interventions/en/)
- World Health Organization. (2016). *Global strategy on human resources for health: Workforce 2030*. Geneva: WHO.
- World Health Organization. (2018). *WHO recommendations: Intrapartum care for a positive childbirth experience*. Geneva, Switzerland: Author.
- World Health Organization. (2021). *Newborn mortality*; access on <https://www.who.int/news-room/fact-sheets/detail/levels-and-trends-in-child-mortality-report-2025>.
- World Health Organization. (2023). *Trends in maternal mortality 2000 to 2020: estimates by WHO, UNICEF, UNFPA, World Bank Group and UNDESA/Population Division*. Geneva: World Health Organization.
- World Health Organization. (2025). *Maternal mortality (Fact sheet)*.

ADDITIONAL INFORMATION

Correspondence All inquiries and requests for additional materials should be directed to the Corresponding Author.

Publisher's Note Utan Kayu Publishing maintains a neutral stance regarding territorial claims depicted in published maps and does not endorse or reject the institutional affiliations stated by the authors.

Open Access This article is licensed under a Creative Commons Attribution-ShareAlike 4.0 International License (CC BY-SA 4.0), which permits others to share, adapt, and redistribute the material in any medium or format, even for commercial purposes, provided appropriate credit is given to the original author(s) and the source, a link to the license is provided, and any changes made are indicated. If you remix, transform, or build upon the material, you must distribute your contributions under the same license as the original. To view a copy of this license, visit <https://creativecommons.org/licenses/by-sa/4.0/>.

© The Author(s) 2025

This page has been intentionally left blank