# Factors Associated with the Use of Traditional Birth Attendants in Nigeria: A Secondary Analysis of 2013 Nigeria National Demography and Health Survey

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## Abstract

**Background:** A large number of women in Africa deliver without skilled birth attendants with profound consequences for maternal and perinatal outcomes. This study evaluated the factors associated with traditional birth attendants in Nigeria. **Methodology:** We conducted a weighted analysis of data from the 2013 Nigeria Demographic and Health Survey that included women aged 15–49 years using STATA software, version 12.0 SE (Stata Corporation, TX, USA) to investigate the factors associated with the utilization of traditional birth attendants in Nigeria using logistic regression models. The result was presented in odds ratio and 95% confidence interval (CI). **Results:** The rate of delivery with Ttaditional birth attendants among the respondents was 23.4% ($n = 7,267$), and this was significantly associated with low maternal education (adjusted odds ratio [aOR]: 1.75;95% CI: 1.49–2.06), rural residence (aOR: 1.3 95% CI: 1.12–1.51), poor family wealth index (aOR: 1.29; 95% CI: 1.09–1.54), unemployed status (aOR: 3.01; 95% CI: 1.50–6.03), and having >5 living children (aOR: 1.23; 95% CI: 1.06–1.44). Factors that significantly reduced the rate include age category 35–44 years (aOR: 0.82; 95% CI: 0.69–0.98), having visited a health facility in the past 12 months (aOR: 0.86; 95% CI: 0.76–0.98), and watching television at once a week (aOR: 0.75; 95% CI: 0.64–0.88). **Conclusion:** The risk factors for delivery with traditional birth attendants in Nigeria include low maternal education, large family size, rural residence, and noninvolvement of women in decision about their health care while exposure to media and contact with a health facility reduced the risk. Women empowerment through education and employment may reduce the rate of use of traditional birth attendants at delivery.

**Keywords:** Antenatal services, delivery, maternal mortality, skilled birth attendants, traditional birth attendants

## Introduction

Maternal mortality ratio has remained unacceptably high among the developing countries despite several global interventions. It is reported that every day, about 830 women die from pregnancy or childbirth-related complications around the world.[1] In 2015, approximately 303, 000 women died either during or following pregnancy and childbirth with 99% of these deaths occurring in the low-resource countries.[1] These deaths occur as a result of unavailable, inaccessible, unaffordable, or poor quality care, especially at the point of delivery.

Several interventions have been developed over the years to help reduce the number of women and children dying from pregnancy-related causes with varying results. The last global move toward improving the social and economic conditions of developing countries within the context of Millennium Development Goals specifically targeted the reduction of maternal and child mortality achieved some progress. As a result, between 1990 and 2015, maternal mortality worldwide dropped by about 44%.[1] Encouraged by this result, nations have united under the current Sustainable Development Goals to set the target of further reducing maternal mortality ratio to <70/100,000 live births between 2016 and 2030.

Current efforts at reducing maternal mortality ratio among the low-resource countries emphasize the provision

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skilled care at delivery as a key intervention. But at present, about 60 million births in developing countries occur outside health-care facilities and an estimated 52 million births occur without the assistance of a skilled birth attendant.[2] Therefore, most women in the developing countries give birth outside of health facilities with the help of traditional birth attendants (TBAs).

The World Health Organization (WHO) defines traditional birth attendant (TBA) as "a person who assists the mother during childbirth and initially acquired her skills by delivering babies herself or through an apprenticeship to other TBAs" and skilled birth attendant as an accredited health professional, such as a midwife, doctor, or nurse, who has been educated and trained to proficiency in the skills needed to manage normal (uncomplicated) pregnancies, childbirth, and the immediate postnatal period, and in the identification, management, and referral of complications in women and newborns.[3]

The roles of traditional birth attendants vary and often depend on local customs, interests, and expertise. These tasks can range from the provision of intrapartum and postnatal care to domestic chores. The traditional birth attendants are respected within the communities because of their expertise and roles in childbirth. Beginning in the 1970s, the WHO advocated for the training of TBAs as a strategy to reducing the maternal and neonatal mortality and morbidity occurring in low-resource settings during home deliveries. However, in the 30 years following the WHO's recommendation, the majority of reviews on the impact of TBA training did not find compelling evidence to promote it as a strategy to reducing maternal mortality.[4] In light of these studies, a consensus emerged in the late 1990s that TBAs should no longer be trained in delivery skills and should instead be incorporated into the skilled birth attendant strategy as promoters of facility-based care.[5]

The safe motherhood initiative launched in Nairobi, Kenya, and other subsequent global interventions thus began advocating for skilled birth attendants (SBAs) at every birth and increased access to emergency obstetric care in low-resource settings.[5] Unlike most TBAs, the SBAs receive formal medical training and are better equipped to manage complications. However, many years after the launching of safe motherhood initiative, most of the births within the developing countries take place outside the formal health institutions with the TBAs. The reason why most women in the resource-poor countries, especially in the rural areas prefer to deliver outside the hospitals includes financial, cultural, and physical barrier to access to health care.[6-12]

In view of the significant number of deliveries that take place with the TBAs, most African countries have focused on training and integration of TBAs into the existing maternal health-care delivery system.[13-16] These trainings have led to improvements in maternal and perinatal mortalities and morbidities among deliveries conducted by these trained TBAs. For instance, in Lufwanyama, a province in Zambia, when 127 traditional birth attendants were trained in a modified version of the neonatal resuscitation protocol, and single-dose amoxicillin coupled with facilitated referral of infants to a health center, it was found that mortality at day 28 after birth was 45% lower among liveborn infants delivered by intervention birth attendants than control birth. Deaths due to birth asphyxia were reduced by 63% among infants delivered by intervention birth attendants.[15] Even when the government's interest was in changing their roles to mainly referral and accompaniment of women in labor, the TBAs were found willing to participate in those roles so as to improve maternal and neonatal outcomes.[16]

Nigeria constitutes about 1% of the world population but accounts for 10% of the world's maternal and under-five mortality rates.[17] It is estimated that 52,900 Nigerian women die every year from pregnancy-related complications and a woman's chance of dying from pregnancy and childbirth in Nigeria is 1 in 13. Only about 39% of all births in the country are assisted by skilled birth attendants.[17]

The current thrust of government's efforts at reducing maternal mortality is the provision of skilled birth attendants at the points of delivery, especially the rural areas using the primary health centers located in the rural areas of the country. This is being done under the "Midwives Service Scheme."[18] This initiative seeks to provide an emergency stopgap to the shortage of skilled attendance in the primary health-care system. The scheme recruits both fresh midwifery graduates and retired midwives who are deployed to MSS designated PHC facilities. These midwives are specially trained to offer emergency obstetric and neonatal care services at the various primary health-care facilities where they will be posted. Renovation of the facilities and provision of adequate consumables are also part of the plan.

The targets of the scheme include increasing the proportion of primary health-care facilities offering a 24 h, qualified midwife-managed service, to increase the proportion of pregnant women receiving antenatal care, to increase the proportion of primary health-care facilities providing essential/emergency obstetric care, and to increase the proportion of deliveries attended to by Skilled Birth Attendants. Since the inception of the scheme, more than 2600 midwives have been deployed to over 650 rural health centers across Nigeria, and 2300 midwives have been trained in life-saving skills.[18]

However, the MSS scheme has not been very operational for the past 2 years in Nigeria.

Many reports from Nigeria show good appreciation of the roles of the TBAs in the communities, but outside their integration into the prevention of mother-to-child transmission of HIV infection program in the rural areas with proven improved outcomes, the main role of the TBAs in Nigeria appears to be referral and accompanying the women in labor to the health centers in the rural areas.[19-21]

Although many authors have reported on the perceptions and use of TBAs in Nigeria among pregnant women, most of them

are either subregional or regional. There is, therefore, a need for a national survey on the use of TBAs in Nigeria, and the associated factors with a view to scaling up the utilization of skilled birth attendants at delivery. This study, therefore, was aimed at evaluating the factors associated with the use of TBAs among Nigerian women. The findings will help in fashioning strategies to reduce maternal mortality ratio in the country.

### Aim

The aim is to evaluate the factors that influence the use of TBAs at delivery among women in Nigeria.

### Specific objectives

1. To determine the influence of sociodemographic and economic factors on utilization of TBAs at delivery in Nigeria
2. To determine whether exposure to media influence utilization of TBAs at delivery in Nigeria.

## METHODOLOGY

The data used for this analysis were the dataset for the Nigerian NDHS 2013 survey which was downloaded from the DHS measure website after registration and obtaining permission.

The survey used 3-stage stratified cluster sampling technique designed to provide population and health indicator estimates at national, regional, and state levels. The sampling frame used was the list of households from the enumeration areas prepared for the 2006 Population Census of the Federal Republic of Nigeria, provided by the National Population Commission. Administratively, Nigeria is divided into states. Each state is subdivided into local government areas (LGAs), and each LGA is divided into localities. In addition to these administrative units, during the 2006 population census, each locality was subdivided into census enumeration areas (EAs). The primary sampling unit, referred to as a cluster in the 2013 NDHS, is defined on the basis of these EAs from the 2006 EA census frame.

A complete listing of households and a mapping exercise were carried out for each cluster from December 2012 to January 2013, with the resulting lists of households serving as the sampling frame for the selection of households. All regular households were listed. The NPC listing enumerators were trained to use global positioning system receivers to calculate the coordinates of the 2013 NDHS sample clusters.

There were 904 clusters consisting of 372 in urban areas and 532 in rural areas. A fixed sample of 45 households was selected per cluster. The respondents included all women age 15–49 who were either permanent residents of the households in the 2013 NDHS sample or visitors present in the households on the night before the survey. In a subsample of half of the households, all men aged 15–49 who were either permanent residents of the households in the sample or visitors present in the households on the night before the survey were also included in the interview.

The detailed description of the methodology for the Nigeria National Demographic and Health survey study has been described elsewhere.[16]

### Variables

The primary outcome variable for this study is the use of a TBA at last delivery in Nigeria. From 2013 Nigeria DHS, the following factors were identified as potential determinants for delivery with a TBA: maternal age at birth of last child; maternal and spousal level of education; maternal occupational statuses; household wealth level; level of participation in household decision-making; exposure to source of health information (through the three media channels of radio, television, and newspaper/magazine); geopolitical zone; place of residence; insurance cover and the family size.

### Data analysis

Weighted data analysis was done using STATA software, version 12.0 SE (Stata Corporation, TX, USA) after data cleaning and recoding. Three levels of analysis were done. First, descriptive statistics were done to determine the frequencies of delivery with TBA, sociodemographic, socioeconomic, and media exposure of the respondents. This included cross-tabulation to determine the overall distribution of possible predictor variables for delivery with TBA. This was then followed by univariate logistic regression at the second-level analysis. Significance at univariate logistic regression was set at a $P < 0.05$ at 95% confidence interval (CI).

Third, all the variables that were found to be significant at univariate logistic regression were then introduced into the multiple logistic regression models to control for confounders. Significance was set at a $P < 0.05$ and 95% CI. The result is presented in odds ratios, adjusted odds ratios with 95% CIs. Factors that show strong colinearity were dropped from the final model.

### Ethical approval

This study is a secondary analysis of 2013 Nigerian Demographic and Health Survey and as such, requires no ethical approval. We registered and obtained permission to download the requested datasets from DHS measure website. The data were handled with confidentiality, and no request was made for the identification of individual respondents

## RESULTS

### Sociodemographic characteristics of the respondents

The rate of delivery with TBAs among the respondents was 23.4% (*n* = 7267). The modal age group of the respondents was 25–34 (49.9%) and majority of the women resided in rural areas (67.1%). Most of the women had less than secondary education (67.3%) were currently working (68.9%) and from a poor economic background (45.9%). Majority (71.0%) of the women had at least four antenatal clinic visits. The summary of the sociodemographic and predictor variables is presented in Table 1.

## Table 1: Sociodemographic and economic characteristics of the respondents

| Sociodemographic/obstetrics characteristics of the respondents | Frequency (%) |
| --- | --- |
| Age group | |
| 15-24 | 7614 (24.1) |
| 25-34 | 15,698 (49.9) |
| 35-44 | 7267 (23.1) |
| 45 and above | 903 (2.9) |
| Educational status of the respondents | |
| Less than secondary | 21,194 (67.3) |
| At least secondary | 10,288 (32.7) |
| Religion | |
| Christianity | 12,654 (40.2) |
| Islam | 18,354 (58.3) |
| Traditionalist | 302 (1.0) |
| Others | 172 (0.6) |
| Marital status | |
| Married/living with a partner | 1492 (4.7) |
| Not married/living with a partner | 29,990 (95.3) |
| Number of living children | |
| ≤5 | 25,491 (81.0) |
| >5 | 5991 (19.0) |
| Place of residence | |
| Urban | 10,351 (32.9) |
| Rural | 21,131 (67.1) |
| Region | |
| Northcentral | 4614 (14.7) |
| Northeast | 6517 (20.7) |
| Northwest | 9906 (31.5) |
| Southeast | 2816 (8.9) |
| South South | 3747 (11.9) |
| Southwest | 3882 (12.3) |
| Family wealth index | |
| Poor | 14,462 (45.9) |
| Middle/medium | 6272 (19.9) |
| Rich | 10,748 (34.1) |
| Respondent currently working | |
| No | 9785 (31.1) |
| Yes | 21,697 (68.9) |
| Husband's education | |
| Less than secondary | 17,595 (57.0) |
| At least secondary | 13,283 (43.0) |
| Earn less than the husband/partner | |
| No | 2295 (11.8) |
| Yes | 17,156 (88.2) |
| Covered by health insurance | |
| No | 30,826 (98.3) |
| Yes | 536 (1.7) |
| Involvement of respondents in decisions concerning her health care | |
| No | 10,874 (36.3) |
| Yes | 19,117 (63.7) |
| Frequency of reading newspaper or magazine | |
| Not at all | 26,874 (85.87) |
| Less than once a week | 2506 (8.01) |

*Contd...*

## Table 1: Contd...

| Sociodemographic/obstetrics characteristics of the respondents | Frequency (%) |
| --- | --- |
| At least once a week | 1917 (6.13) |
| Frequency of listening to radio | |
| Not at all | 12,944 (41.28) |
| Less than once a week | 7697 (24.54) |
| At least once a week | 10,718 (34.18) |
| Frequency of watching television | |
| Not at all | 17,060 (54.43) |
| Less than once a week | 5357 (17.09) |
| At least once a week | 8925 (28.48) |

## Determinants of use of traditional birth assistant at last delivery among Nigerian women

On bivariate analysis, the following factors were significantly associated with delivery with TBAs: maternal education less than secondary (odds ratio [OR]: 3.00; 95% CI: 2.78–3.18), husbands education less than secondary (OR: 2.36; 95% CI: 2.20–4.50), rural residence (OR: 2.6 95% CI: 2.44–2.78), poor family wealth index (OR: 2.91; 95% CI: 2.72–3.11), lack of insurance cover (OR: 4.5; 95% CI: 3.20–6.38), and unemployed status (OR: 1.41; 95% CI: 1.34–1.49). Others are shown in Table 2.

## Core determinants of use of traditional birth assistant at last delivery among Nigerian women

The result of multivariate analysis to control for confounders for delivery with TBAs among the respondents is presented in Table 3. Delivery with TBAs was significantly associated with low maternal education (adjusted OR [aOR]: 1.75; 95% CI: 1.49–2.06), rural residence (aOR: 1.3 95% CI: 1.12–1.51), poor family wealth index (aOR: 1.29; 95% CI: 1.09–1.54), unemployed status (aOR: 3.01; 95% CI: 1.50–6.03), and having more than 5 living children (aOR: 1.23; 95% CI: 1.06–1.44). Factors that significantly reduced the rate include age category 35–44 years (aOR: 0.82; 95% CI: 0.69–0.98), having visited a health facility in the past 12 months (aOR: 0.86; 95% CI: 0.76–0.98), and watching television at once a week (aOR: 0.75; 95% CI: 0.64–0.88).

## DISCUSSION

This study on the determinants of the use of TBAs in Nigeria found that women who delivered with TBA in their last childbirth were likely to have less than secondary education, reside in the rural areas, have poor family wealth index and were unemployed at the time of interview. Women who belong to the age category of 35–44 years, visited a health facility in the past 12 months and watched television at least once a week were less likely to deliver with TBA. The rate of use of TBA at the last delivery among the women was 23.4%.

The association of increased use of TBA with low maternal education is similar to the previous reports.[9-12] This is not surprising as low maternal education has been reported

**Table 2: Bivariate logistic regression analysis for the determinants of the use of Traditional birth attendants (TBA) at last delivery among the respondents**

| Sociodemographic/other determinants | Use of TBA at last delivery | | |
| --- | --- | --- | --- |
| | **Crude OR** | ***P*** | **95% CI** |
| Age category | | | |
| 15-24 (reference) | | | |
| 25-34 | 0.75 | <0.001 | 0.71-0.80 |
| 35-44 | 0.78 | <0.001 | 0.72-0.84 |
| 45 and above | 0.79 | <0.01 | 0.67-0.93 |
| Highest educational status | | | |
| Secondary and above (reference) | | | |
| Less than secondary | 2.98 | <0.001 | 2.79-3.18 |
| Husband's highest educational status | | | |
| Secondary and above (reference) | | | |
| Less than secondary | 2.36 | <0.001 | 2.23-2.50 |
| Wealth index | | | |
| Rich | | | |
| Poor | 2.91 | <0.001 | 2.73-3.11 |
| Medium | 1.87 | <0.001 | 1.72-2.03 |
| Marital status | | | |
| Married (reference) | | | |
| Not married | 1.07 | 0.25 | 0.95-1.21 |
| Last pregnancy wanted | | | |
| Yes | | | |
| No | 1.62 | <0.001 | 1.32-1.98 |
| Insurance cover | | | |
| Yes | | | |
| No | 4.50 | <0.001 | 3.18-6.38 |
| Place of residence | | | |
| Urban (reference) | | | |
| Rural | 2.60 | <0.001 | 2.44-2.78 |
| Region | | | |
| Northcentral (reference) | | | |
| Northeast | 5.89 | <0.001 | 5.04-6.89 |
| Northwest | 13.40 | <0.001 | 11.53-15.55 |
| Southeast | 2.14 | <0.001 | 1.76-2.60 |
| South South | 14.74 | <0.001 | 12.60-17.27 |
| Southwest | 2.42 | <0.001 | 2.03-2.90 |
| Currently working | | | |
| Yes (reference) | | | |
| No | 1.41 | <0.001 | 1.34-1.49 |
| Currently earns less than the husband/partner | | | |
| Yes (reference) | | | |
| No | 1.52 | <0.001 | 1.35-1.71 |
| Listening to radio at least once a week | | | |
| Yes (reference) | | | |
| No | 1.55 | <0.001 | 1.46-1.64 |
| Watching television at least once a week | | | |
| Yes (reference) | | | |
| No | 2.57 | <0.001 | 2.40-2.75 |
| Antenatal care at last pregnancy | | | |
| Yes (reference) | | | |
| No | 4.34 | <0.001 | 4.04-4.65 |
| Involvement of respondent in decision on her health care | | | |
| Yes (reference) | | | |
| No | 1.89 | <0.001 | 1.78-2.01 |

*Contd...*

**Table 2: Contd...**

| Sociodemographic/other determinants | Use of TBA at last delivery | | |
|---|---|---|---|
| | Crude OR | *P* | 95% CI |
| Number of living children | | | |
| ≤5 (reference) | | | |
| >5 | 1.28 | <0.001 | 1.20-1.37 |
| Visited a health facility in the last 12 months | | | |
| No (reference) | | | |
| Yes | 0.65 | 0.02 | 0.56-0.88 |

TBA: Traditional birth attendants, OR: Odds ratio, CI: Confidence interval

**Table 3: Multivariate logistic regression analysis for the determinants of the use of Traditional birth attendants (TBA) at last delivery among the respondents**

| Sociodemographic/economic variables | Use of TBA at last delivery | | |
|---|---|---|---|
| | aOR | *P* | 95% CI |
| Age category | | | |
| 15-24 (reference) | | | |
| 25-34 | 0.92 | 0.26 | 0.79-1.06 |
| 35-44 | 0.82 | 0.03 | 0.69-0.97 |
| 45 and above | 0.87 | 0.38 | 0.64-1.19 |
| Highest educational status | | | |
| Secondary and above (reference) | | | |
| Less than secondary | 1.75 | <0.001 | 1.49-2.06 |
| Husband's highest educational status | | | |
| Secondary and above (reference) | | | |
| Less than secondary | 1.06 | 0.44 | 0.92-1.21 |
| Wealth index | | | |
| Rich | | | |
| Middle | 1.22 | 0.04 | 1.01-1.49 |
| Poor | 1.29 | 0.01 | 1.09-1.54 |
| Wanted | 1.45 | 0.05 | 0.99-2.13 |
| Currently working | | | |
| No (reference) | | | |
| Yes | 3.01 | 0.01 | 1.50-6.04 |
| Place of residence | | | |
| Urban (reference) | | | |
| Rural | 1.30 | <0.001 | 1.13-1.51 |
| Region | | | |
| Northcentral (reference) | | | |
| Northeast | 4.50 | <0.001 | 3.43-5.91 |
| Northwest | 12.19 | <0.001 | 9.52-15.62 |
| Southeast | 4.58 | <0.001 | 3.30-6.35 |
| South South | 20.12 | <0.001 | 15.42-26.25 |
| Southwest | 4.67 | <0.001 | 3.52-6.21 |
| Currently earns less than the husband/partner | | | |
| No (reference) | | | |
| Yes | 1.22 | 0.02 | 1.03-1.46 |
| Listening to radio - at least once a week | | | |
| No (reference) | | | |
| Yes | 1.05 | 0.49 | 0.92-1.19 |
| Watching television at least once a week | | | |
| No (reference) | | | |
| Yes | 0.75 | <0.001 | 0.64-0.89 |
| No antenatal care at last pregnancy | | | |

*Contd...*

| **Table 3: Contd...** | | | |
|---|---|---|---|
| **Sociodemographic/economic variables** | **Use of TBA at last delivery** | | |
| | **aOR** | **P** | **95% CI** |
| No (reference) | | | |
| Yes | 1.97 | <0.001 | 1.66-2.35 |
| Involvement of respondent in decision on her health care | | | |
| No (reference) | | | |
| Yes | 0.92 | 0.19 | 0.82-1.04 |
| Number of living children | | | |
| ≤5 (reference) | | | |
| >5 | 1.24 | 0.01 | 1.06-1.44 |
| Visited a health facility in the last 12 months | | | |
| No (reference) | | | |
| Yes | 0.86 | 0.03 | 0.76-0.98 |

TBA: Traditional birth attendants, aOR: Adjusted odds ratio, CI: Confidence interval

severally as a major impediment toward accessing skilled care at delivery among the developing countries. In South Sudan, Edu *et al*. reported that educated mothers, those who had at least 3 antenatal visits and those from rich households were more likely to utilize SBAs than their counterparts.[22] Similarly, Tarekegn *et al*.[10] in a national survey in Ethiopia reported that women with lower education, who reside in the rural areas, were more likely to utilize unskilled care at delivery than their counterparts. Educated women are more knowledgeable about the dangers of unskilled care and less likely to be under the influence of sociocultural norms that encourage the use of unskilled care during delivery. These women are also more likely to have good jobs with the attendant ability to access quality health care including maternal health services. Therefore, women's education and empowerment are key interventions in improving skilled care at delivery. Free education with its attendant empowerment, especially for those in the rural areas will go a long way in reducing the rate of use of unskilled care at delivery.

We also found that delivery with a TBA was significantly more among women who reside in the rural areas of the country. This is in line with previous reports from African countries.[9-12] Women living in rural areas face multiple challenges in accessing health care. This includes lack of health facilities, long distance to health facilities, lack of basic amenities, lack of communication as well as widespread poverty and deprivation. In Nigeria, owing to the poor state of social amenities in the rural areas, many health workers including skilled birth attendants do not accept to work in these areas. As a result, many of the women will likely deliver with a TBA.

In addition, because the TBAs live within these rural communities, they know and respect the cultural and social norms of the people and hence are able to win the people's confidence. Adequate scaling up of the utilization of skilled care at the rural areas will require improvement in the social infrastructure within those communities as well training the skilled birth attendants to be sensitive to the cultural norms of the rural dwellers. There is a need for special incentives for the health workers who work in the rural areas. Making maternal health services free is envisaged to go a long way in removing the financial barriers to accessing skilled care at delivery among this population.

Although making maternal health services have led to increased utilization of services and reduction in maternal and perinatal mortality in Nigeria,[22] the identified barriers to utilization are indirect cost of service utilization, poor information dissemination, especially in rural areas, perceived poor quality of care at facilities including drug and consumables stock-outs, geographical barriers, inadequate health workforce, and poor attitude of skilled health workers and lack of trust in the health system. Therefore, in addition to fee-removal, there is a need for government to address other deterrents so as to significantly increase maternal health-care service utilization in the country.[23]

The association of poor family wealth index with the utilization of TBAs is also not surprising. This has also been reported previously.[7-9] Financial constraints have been a major impediment to accessing maternal health services. This is because of the absence of wide coverage health insurance in the country. In this study, women who have no insurance cover were about 5 times more likely to deliver with the TBAs than not.

The dominant health-care financing systems in Nigeria are out of pocket due to poor insurance coverage, especially in the rural areas. One way to improve access to health care within the rural areas is to institute community health insurance schemes, in which rich people in the community contribute to carter for the poor. In Nigeria, this scheme has been shown to improve utilization of maternal health-care services at the primary health centers.[24,25] In addition, making maternal health services including deliveries free has been shown to increase utilization of skill birth attendants at delivery in Nigeria.[22,23] Therefore, a strategy of providing free, accessible, and quality skilled care in addition to improving the economic status of the people through education, employment, and skill acquisition will reduce the rate of patronage for the TBAs.

In this study, we found that lack of decision-making power by the women was associated with increased use of TBAs. Women who were not involved in decision-making about their health were about 2 times more likely to deliver with TBAs. This was similar to the reports of Sialubanje *et al.*[7] who found that women who lack decision-making power regarding childbirth and depended on their husbands and other family members for the final decisions were more likely to deliver with TBAs than those who participate in decision-making in their families. Women's involvement in household decision-making represents their level of empowerment and ability to negotiate and influence the pattern and timing of the use of maternal health services. Women empowerment and emancipation strategies, therefore, are expected to improve the use of skilled care at delivery.

## Conclusion

Delivery with a TBA in Nigeria is influenced and promoted by poor sociodemographic and economic factors. Making services free and improving the socioeconomic base of the populace, especially in the rural areas, is expected to decrease the rate of use of TBAs in the country.

### Limitations

The data used for this study were published 4 years ago. It is possible that some of the variables may have changed between then and now.

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Nil.

### Conflicts of interest

There are no conflicts of interest.

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