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# Traditional birth attendants knowledge of delivery and its danger signs: a one-on-one interview

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## Abstract

**Introduction** Traditional Birth Attendants (TBAs) remain widespread across the country, despite the availability of skilled birth attendants.

**Aim** The aim of our study was to conduct a one-on-one interview with traditional birth attendants to assess their knowledge of delivery and its danger signs.

**Method** This was a qualitative ethnographic study with purposive sampling using a semi-structured interview questionnaire and one-on-one interview to collect data from thirty (30) traditional birth attendants in Ilorin, Kwara State. Ethical approval was obtained from the Kwara State Ministry of Health Ethics Committee with ethical approval number- MOH/KS/EV/777/VOLII/081. Quantitative evaluations were limited to the compilation of descriptive statistics to characterize the study sample and the reporting of frequencies and percentages in-text for demographics. The transcriptions were analyzed thematically, both inductively and deductively, and then rated for consistency and divergence. The final themes arose from the data, which included what participants said in answer to interview guide questions, questions asked to probe responses, and questions asked to clarify what was said.

**Results** In total, 30 one-on-one interviews were conducted for the TBA who gave their consent to participate. Participants' ages ranged from 25 to 65 years, with a mean age of 42.83 ± 9.9. The majority were female (29, 96.7%) and within the age range of 40–49 years (10, 33.3%). Although TBAs were able to take delivery properly, they were not aware of the danger signs of labor and were involved in a number of unhealthy practices.

**Conclusion** The findings underscore the urgent need for comprehensive training programs aimed at improving the knowledge and practices of TBAs regarding the recognition of danger signs and appropriate emergency responses. Training should focus on enhancing TBAs' ability to identify critical symptoms and emphasize the importance of timely referrals to healthcare facilities.

**Keywords** Traditional birth attendant, Danger signs of labor, Active management of the third stage of labor

## Introduction

Labor can be defined as a sequence of genital organ-related procedures that expel fetuses from the uterus via the vagina and into the outside world. The labor process consists of four steps. The first and second stages last until the cervix fully dilates and begin with the onset of actual labor. The third stage of labor, which lasts five to fifteen minutes, is the most dangerous due

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to the risk of severe bleeding. It is marked by the delivery of the fetus and the ejection of the placenta and membrane [1]. Postpartum hemorrhage (PPH) is the most frequent birth-related complication, occurring in 2–4% of vaginal deliveries. Because the uterus may not contract normally after giving birth, the third stage of labor is the time when the risk for PPH is highest [1].

Globally, there is an obvious variation in the proportion of deliveries performed in a health institution by skilled birth attendants (SBAs) between high- and low-income nations. This disparity could be explained by the high community patronage of traditional birth attendants (TBAs) in low-income countries, which is probably due to factors including accessibility, affordability, and availability [2].

Economic, social, physical, cultural, or institutional factors may drive delivery outside of hospital settings in Nigeria. Outside of hospitals, women may receive assistance from unqualified attendants. The attendant may be a traditional birth attendant (TBA), community midwife, family member, or neighbor [3].

Furthermore, almost 80% of the population lives in rural regions, and according to Nigeria's Millennium Developmental Goal (MDG) endpoint report, women living in rural areas are 77% more likely to give birth at home than in a healthcare facility [3]. This phenomenon may also explain why the use of TBAs remains widespread across the country, despite the availability of skilled birth attendants who are trained and have reasonably modern equipment [3]. The recently announced Sustainable Development Goals (SDGs) have two primary health-related objectives: achieving universal health coverage and lowering the global burden of maternal and newborn mortality [4].

The aim of our study was to conduct a one-on-one interview with traditional birth attendants to assess their knowledge of delivery and its danger signs.

## Method

### Study area

The study was carried out in Ilorin, Kwara State. Ilorin is located at latitude $80^{0}30$'N and longitude $40^{0}35$'E of the Greenwich Meridian and spans roughly 100 $km^2$. Ilorin has a tropical wet and dry climate, with an average annual rainfall of 1,200 mm [5]. The temperature ranges from $25^{0}$ to $30^{0}$C in March, the hottest month. Ilorin, one of Nigeria's fastest-growing cities, saw a population increase from 40,990 in 1952 to 208,546 by 1984. Since the 1991 census, the city's population has grown from 552,088 to 3,518,771 in 2020 [6, 7].

### Study population

The study population included traditional birth attendants in three local governments: Ilorin East, West, and South.

### Study design

This was a qualitative ethnographic study with purposive sampling using a validated semi-structured interview questionnaire [8–12] and a one-on-one interview to collect data from traditional birth attendants in Ilorin, Kwara State. The study was a total sampling of consenting participants.

### Selection of participants

The study was carried out among men and women who were traditional birth attendants in the selected local government. Purposive sampling was used, and participants had to have lived in the selected local government community for over a year. Those who have been TBA for less than a year and trainee TBA were excluded. A total of 30 consenting participants was recruited for the study.

### Method

We knew of a TBA who resided in Ilorin South Local Government Area, whom we spoke with about our research study. The TBA gave us the contact details of the head of the TBA in Ilorin, whom we then contacted via a phone call, and we were invited to the TBA's residence for further discussion. We were told TBAs in Ilorin usually have their meetings every first Monday of the month; we could come during the meeting to introduce ourselves and inform them of the objectives of our research and collect their individual consent and contact details for our interview. The contact TBA also mentioned that not all TBAs within Ilorin metropolis may be present for the monthly meetings. Two weeks later, we arrive at their general meeting on the 1 st Monday of August 2024. We spoke about our research objectives and collected their contact details from a total of 30 consenting TBAs. Our consultant obstetrics and gynecology researcher (A.M.) and pharmacist/researcher (A.F.O.) developed the semi-structured questionnaire, while our research assistant (K.T.) performed semi-structured interviews to obtain spontaneous information about the delivery experience. Each interview was audio-recorded, transcribed, and anonymized. The survey was interviewer-administered and took approximately 20 min to complete. The total duration of the study was three (3) days (01/08/2024—03/08/2024).

### Analysis

The analysis was performed in two parts (deductive and inductive analysis). First, each participant's responses to the study questions raised during the interview were coded. The coded responses were then combined and contrasted with the full sample. During the first stage of deductive analysis, three of the four study team members independently coded each transcript: A.F.O. and A.M., who developed the semi-structured interview questionnaire, and K.T., who conducted the interviews. Coding entailed finding themes related to the research objectives and categorizing, or"coding"the relevant participant quotes in each transcript. The study team met to harmonize the codes (i.e., evaluate and consolidate any comparable codes) and identify preliminary themes for further investigation.

Three researchers (A.F.O., K.T. and A.M.) separately analyzed the transcriptions thematically and deductively using our preconceived themes (knowledge of labor signs, postpartum hemorrhage, danger signs of labor, delivering the placenta, and clamping and cutting the placenta) and then rated them for consistency and divergence, while other themes arose from inductive analysis (in case of emergency, sterile equipment and training). The final themes that arose from the data are as below. [Table 1].

### Ethical approval

Ethical approval was obtained from the Kwara State Ministry of Health Ethics Committee with ethical approval number MOH/KS/EV/777/VOLII/081. Informed consent was obtained from each participant. The study adhered to the Declaration of Helsinki [13].

### Statistical analysis

In this study, quantitative evaluations were limited to the compilation of descriptive statistics to characterize the study sample and the reporting of frequencies and percentages in-text for demographics. A limited sample size was expected for this investigation; hence, no a priori statistical tests were specified.

## Result and discussion

In total, 30 one-on-one interviews were conducted with the TBA who gave their consent to participate. Participants' ages ranged from 25 to 65 years, with a mean age of 42.83 ± 9.9. The majority were female (29, 96.7%) and within the age range of 40–49 years (10, 33.3%). [Table 2].

**Table 2** Socio-demographics

| Variable | | Frequency % (*n* = 30) |
|---|---|---|
| Gender | Male | 1 (3.33) |
| | Female | 29 (96.7) |
| Age | 20–29 | 1 (3.3) |
| | 30–39 | 9 (30.0) |
| | 40–49 | 10 (33.3) |
| | 50–59 | 6 (20.0) |
| | 60–69 | 4 (13.3) |
| | Mean | 42.83 ± 9.9 |
| Marital status | Married | 29 (96.7) |
| | Widowed | 1 (3.33) |
| Educational level | Tertiary | 1 (3.3) |
| | Secondary | 14 (46.7) |
| | Primary | 7 (23.3) |
| | Non-formal | 8 (26.7) |
| Occupation | TBA | 28 (93.3) |
| | Native doctor | 2 (6.7) |
| Years of experience | 1–5 years | 2 (6.7) |
| | 6–10 years | 4 (13.3) |
| | Above 10 years | 24 (80.0) |
| Approx. number of deliveries per month | 1–5 | 4 (13.3) |
| | 6–10 | 2 (6.7) |
| | More than 10 | 24 (80.0) |

**Table 1** Themes that emerged from the interview via a semi-structured questionnaire

| Topic areas | Themes |
|---|---|
| TBA knowledge of labor signs | Knowledge of signs of labor, fetal monitoring, drug management, and taking of vital signs |
| Delivering the placenta | How to deliver the placenta, how many minutes does it take for the placenta to be delivered? |
| Post-partum | Clamping and cutting the placenta |
| Post-partum hemorrhage | Knowledge, management, and complications of postpartum hemorrhage |
| Danger signs of labor | Vaginal bleeding, severe lower back pain, infection, nausea and vomiting, convulsion |
| In case of emergency | What do you do? |
| TBA Practice | |
| Sterile equipment | Examination gloves, clean environment, |
| Training | Training received for delivery, further support |

### TBA knowledge of labor signs

Although all of the TBAs were not aware of the stages of labor, they were able to identify that frequent painful contractions and "water loss" (understood to be amniotic fluid) herald labor, but they vary in the amount and presence of blood during labor. While 46.7% (14) of the respondents reported that the presence of blood during labor matters, 53.3% (16) were indifferent about the presence and quantity of blood. All the TBAs declared they perform vaginal exploration. They were all able to correctly describe cervical dilation and effacement in their own words:

> *"When I insert my second and middle fingers in, if I can fit them in, that means she's getting ready, and from time to time I insert my two fingers, and when it is very wide open and I can feel the baby's head, it means she is almost ready to deliver."*

When asked how they would know if the fetus is at the cephalic position during labor, only two (2, 6.7%) of the 30 TBAs usually would ask their patients to go for an ultrasound scan to determine the fetal position; the remaining (28, 93.3%) revealed that during labor, if they cannot feel the baby's head at the cephalic position, they will use incantation and herbal remedies given orally, which they claim can be used to change the fetal position; however, they were evasive about what herbs they use. There are no evidence indicators that contradict this rating of TBAs'work. All the TBAs in this study indicated giving herbal oxytocic remedies to induce labor. The most common herbs used are *Ocimum gratissimum* (commonly known as African basil or scent leaf), *Vernonia amygdalina*, and *Jatropha curcas*. Out of all the TBAs, only two (6.7%) indicated they sometimes call a community health extension worker (CHEW) to take their patients' vital signs (blood pressure only).

### Delivering the placenta

All the TBAs revealed they massage the uterus and give herbal oxytocic remedies orally before delivery of the placenta. Three TBAs particularly mentioned that.

> *"If the placenta does not come out on time, she asks the woman to blow hard on a glass bottle."*

Another said, *"If the placenta does not come out on time, I use herbal soap to rub the uterus."*

And a third TBA revealed, *"If the placenta does not come out on time, I apply red (palm) oil to the uterus."*

Ten respondents (10, 33.3%) indicated they give both herbal oxytocic remedies orally and misoprostol per vagina. And of the ten who give misoprostol, two of them indicated that sometimes they call a community health extension worker (CHEW) to give intramuscular ergometrine.

### Postpartum: clamping the umbilical cord

In response to the question of how they cut and clamp the placenta, *"We use a new razor blade; we do not use an old razor blade to cut the placenta, and after cutting, we use cloth to tie the placenta."*

All the TBAs indicated using a new razor blade to cut the placenta and tie it with a piece of unsterile cloth; only two (2, 6.7%) indicated using a cord clamp after cutting the placenta with a blade.

### Postpartum hemorrhage

All TBAs in this study were aware of excessive bleeding after delivery (PPH), and when inquiries were made about how much blood loss was excessive, all noted that when a woman uses more than three sanitary pads after delivery, it is indicative of excessive bleeding. Furthermore, all the interviewed TBAs typically prepare herbal oxytocic remedies for their patients to take orally postdelivery, and they all assert that none of their patients have ever experienced excessive bleeding. There are no evidence indicators that contradict this rating of TBAs'work. Additionally, the study did not consider the perspectives of women who consult with TBAs.

### Danger signs of labor

The TBAs demonstrated limited understanding and recognition of critical warning signs that could indicate complications during labor. These danger signs include the following:

Protracted labor: All the TBAs in this study knew that prolonged delivery of the fetus is an alarming sign. However, they did not know that it requires urgent action and immediate referral to a hospital.

Vaginal Bleeding: The TBAs do not recognize excessive vaginal bleeding as a potentially life-threatening condition during labor.

Infection: The concept of infection as a danger sign during labor is not well understood by the TBAs. They did not identify signs such as fever, foul-smelling discharge, or other indicators of infection as reasons for concern or referral to higher medical care.

Severe Back Pain/Severe Abdominal Pain: While pain is often expected during labor, the TBAs were not aware that severe back pain or abdominal pain could be indicative of underlying complications such as obstructed labor or uterine rupture.

Nausea and Vomiting: Nausea and vomiting during labor were not recognized as potential danger signs by the TBAs.

#### In case of emergency

This study revealed that when faced with complications, the majority of TBAs indicated a preference for consulting their fellow TBAs rather than immediately referring the case to a higher-level medical facility. The majority, 83.3% (25), stated that they would first call on another TBA for assistance if they encountered challenges during labor. Only 5 (16.7%) TBAs reported that they would refer a patient directly to a government hospital in the event of an emergency.

#### Sterile equipment

This study revealed that all TBAs not only use non-sterile latex gloves but also reuse them each time they perform vaginal exploration for women in labor. When asked why they reuse the latex gloves, they responded, mostly to save cost. They were not aware of the potential dangers and complications associated with the use and reuse of non-sterile latex gloves for vaginal examination during labor.

#### Training

When asked who and where they were trained to take delivery, the majority (96.7%) of the TBAs had a family member who also had been trained in the art of delivery and acquired their knowledge through two to three years of apprenticeship-style instruction, only one (3.3%) was trained by a nurse practitioner. They all indicated their willingness to undergo further training by the government or any non-governmental organization (NGO).

## Discussion

While pregnancy is a natural physiological process that leads to the outstanding outcome of giving birth [14], labor is the process by which a fetus and placenta are delivered from the uterus via the vagina. Human labor is divided into three stages. The initial step is separated into two phases. Successful labor is determined by three factors: maternal efforts and uterine contractions, fetal features, and pelvic anatomy. This trio is traditionally known as the passenger, power, and passage. Clinicians often utilize a variety of methods to monitor labor. Serial cervical examinations indicate cervical dilation, effacement, and fetal position, commonly known as the station [12]. Although all of the TBAs were not aware of the stages of labor, they were able to identify that frequent painful contractions and "water loss" (understood to be amniotic fluid) are recognized by western medicine as indicators of labor. Also similar to a study by Camey and colleagues (1996), TBAs in this study declared they perform vaginal exploration during labor and give herbal oxytocic remedies for ingestion to induce and sustain the labor [8]. During pregnancy and childbirth, traditional medicine relies on the use of various herbs for their positive benefits to tone the uterus muscle, induce labor, remove a retained placenta, and manage post-partum bleeding [15]. The most common herbs used are *Ocimum gratissimum* (commonly known as African basil or scent leaf), *Vernonia amygdalina*, and *Jatropha curcas*. These herbs have been documented to have uterotonic properties [15, 16]. However, a study revealed that in the first few months following sowing, *Jatropha curcas* can phytoextract a significant amount of heavy metals (Lead, Cadmium, and chromium); with results showing that this metal translocation can occur in the plant's aerial portions [17] and roots [18]. A case–control study in neonates with respiratory distress syndrome showed a high level of heavy metals in neonate placenta after delivery [19]. A study by Abdulbaki et al., [20] in Ilorin revealed a high incidence of congenital anomalies, especially among pregnant women with medical disorders in pregnancy and in women who ingested herbal medication during pregnancy [20]. Although studies have shown that the herbal plants contain oxytocic property, since they are unrefined, they may not be fit for human consumption.

Uterine massage, controlled cord traction, and prophylactic uterotonic medication delivery are three associated but distinct components of active management of the third stage of labor [1]. Given that half of all births in low-income countries occur at home or in peripheral health facilities, the active management of the third stage of labor (AMTSL) must be adapted for usage outside of hospital settings. In the absence of AMTSL, WHO recommends that an uterotonic medication be administered by a health practitioner skilled in its use to avoid PPH [17]. Although all the TBAs in this study indicated they massage the uterus and give herbal oxytocic remedies orally before delivery of the placenta, ten respondents (10, 33.3%) revealed giving both herbal oxytocic remedies orally and misoprostol per vagina. And of the ten who give misoprostol, two indicated sometimes calling a CHEW to give intramuscular ergometrine.

Cutting and clamping the umbilical cord separates the newborn from the mother. Umbilical cord cutting is the process of tying the cord using nippers to interrupt the placenta's blood flow to the fetus [21]. All the TBAs indicated using a new razor blade to cut the placenta and tie it with a piece of unsterile cloth, only two (2, 6.7%) use a cord clamp after cutting the placenta with a blade. Camey and colleagues (2019) also reported the TBA firstly tying the placenta with sterile umbilical cane thread and then proceed to cut it with blade, knife, or scissors; in contrast, our study participant uses a piece of non-sterile cloth to tie the placenta and then cut it with a new blade [8].

Postpartum hemorrhage (PPH) accounts for 25% of all maternal deaths globally, and it has been promoted as

part of efforts to reduce maternal mortality. These deaths often occur in the postpartum period, which is more common in low- and middle-income countries where there are fewer or unequipped delivery attendants to undertake active management of the third stage of labor. PPH is defined as total blood loss of ≥ 1000 ml within 24 h of delivery (including intrapartum loss), independent of the route of delivery [1]. All TBAs in this study were aware of excessive bleeding after delivery (PPH), and they were asked how much blood loss was excessive; all noted that when a woman uses more than three sanitary pads after delivery, it is indicative of excessive bleeding. Furthermore, all the interviewed TBAs usually prepare herbal oxytocic remedies for their patients to take orally post-delivery, and they all claim that with the herbal mixture given to their patients, none of them had ever experienced excessive bleeding. However, a study by Ilori and colleagues (2023) in north central Nigeria revealed that of the women who delivered with a TBA, 89.4% had complications of excessive bleeding, 43.4% had infection as a complication, and 13.2% had damage to their reproductive organ [22].

The most common danger indicators during pregnancy include significant vaginal bleeding, swelling of the hands or face, and hazy eyesight. While the most common danger indicators during childbirth include significant vaginal bleeding, protracted labor, seizures, and retained placenta; significant bleeding, loss of consciousness, and fever are the most common risk indicators occurring during the postpartum period [23]. It became evident that there was a significant gap in their awareness and knowledge regarding the danger signs of labor. Specifically, the TBAs showed limited understanding and recognition of critical warning signs that could indicate complications during labor. These danger signs include the following:

Protracted labor: All the TBAs in this study knew that prolonged delivery of the fetus is an alarming sign during. However, they did not know that it requires urgent action and immediate referral to a hospital.

Vaginal Bleeding: The TBAs do not recognize vaginal bleeding as a potentially life-threatening condition during labor. This lack of awareness could lead to delays in seeking necessary medical interventions, thereby increasing the risk of maternal and fetal complications.

Infection: The concept of infection as a danger sign during labor is not well understood by the TBAs. They did not identify signs such as fever, foul-smelling discharge, or other indicators of infection as reasons for concern or referral to higher medical care.

Severe Back Pain/Severe Abdominal Pain: While pain is often expected during labor, the TBAs were not aware that severe back pain or abdominal pain could be indicative of underlying complications such as obstructed labor or uterine rupture. This misunderstanding could lead to inappropriate management and delayed interventions.

Nausea and Vomiting: Nausea and vomiting during labor were not recognized as potential danger signs by the TBAs. This lack of recognition could prevent timely identification and management of conditions such as pre-eclampsia or other complications associated with labor. These findings highlight the urgent need for enhanced training and education for TBAs in the recognition of danger signs during labor. Without this critical knowledge, TBAs may inadvertently contribute to adverse maternal and neonatal outcomes by not identifying and responding to complications in a timely manner.

Since the beginning of the HIV pandemic, there has been a focus on protective apparel, especially gloves, to prevent cross-infection. Since the establishment of universal precautions (Centers for Disease Control, 1987), healthcare professionals have been urged to wear disposable gloves when handling blood or bodily fluids [23, 24]. Vaginal examinations are frequently performed using single-packaged sterile gloves [25]. A study by Jackson and colleagues (2010) revealed that nine out of ten open boxes were contaminated with bacteria, however, none were highly virulent, while the sterile gloves did not show any bacterial growth [25]. This study revealed that all of TBAs not only use non-sterile latex gloves but also reuse them each time they perform vaginal explorations for women in labor. When asked why they reuse the latex gloves, most responded it was mostly to save cost. They were not aware of the potential dangers and complications associated with the use and reuse of non-sterile latex gloves for vaginal explorations during labor.

It became evident that there was a significant gap in their awareness and knowledge regarding the danger signs of labor. Specifically, the in-depth interview revealed disturbing practices among traditional birth attendants in managing emergencies during labor. When faced with complications, the majority of TBAs indicated a preference for consulting with their fellow TBAs rather than immediately referring the case to a higher-level medical facility. This practice could lead to delays in receiving appropriate care, potentially endangering the lives of both the mother and the newborn. This study led to the observation that 25 (83.3%) out of 30 TBAs indicated they would first call on another TBA for assistance if they encountered challenges during labor. This suggests a reliance on peer support within their community; it also highlights a significant delay in seeking more advanced medical intervention. Only 5 (16.67%) out of 30 TBAs indicated they would directly refer a patient to a government hospital in the event of an emergency. This small proportion of TBAs shows a lack of critical understanding of the need for immediate medical attention

in certain situations, but it also underscores the overall gap in emergency referral practices among the majority of TBAs. This lack of recognition could prevent timely identification and management of conditions such as pre-eclampsia, eclampsia, or other complications associated with labor, thereby increasing the risk of maternal and fetal complications.

However, despite their limitations in handling the complications of childbirth, TBAs are widely accepted and patronized, especially in rural areas. Furthermore, since approximately 80% of the population live in rural areas, and according to Nigeria's MDG endpoint report, 77% of women residing in rural areas are more likely to give birth at home than in a health facility [20], our findings indicate an urgent need for targeted training programs that address these gaps, particularly in recognizing danger signs during labor and improving referral practices.

Our study revealed that the TBAs were not aware of danger signs of labor. The findings underscore the urgent need for comprehensive training programs aimed at improving the knowledge and practices of TBAs regarding the recognition of danger signs and appropriate emergency responses. Training should focus on enhancing TBAs'ability to identify critical symptoms and emphasize the importance of timely referrals to healthcare facilities.

## Conclusion

The findings underscore the urgent need not only for comprehensive training programs aimed at improving the knowledge and practices of TBAs regarding the recognition of danger signs and appropriate emergency responses but also for certification of trained TBAs. Training should focus on enhancing TBAs'ability to identify critical symptoms and emphasize the importance of timely referrals to healthcare facilities.

### Recommendation

This training of TBAs will enhance their skills in safe delivery and neonatal care, identifying danger signs of labor and facilitating urgent referrals to skilled professionals, further reducing maternal and neonatal mortality in Nigeria. Hence, a policy change is imperative to include the training and certification of TBAs to reduce maternal and neonatal mortality rates in Kwara State and Nigeria at large.

### Strength and limitation

This is the first study in Kwara State to explore the knowledge of traditional birth attendants on labor, its danger signs, and management of postpartum hemorrhage. The small number of traditional birth attendants interviewed and the fact that the study is a qualitative study are its limitations. It is possible that the findings of this study may not be sufficient enough to apply to every traditional birth attendant within the state.

#### Abbreviations

| | |
|---|---|
| AMTSL | Active management of third stage of labor |
| CHEW | Community health extension worker |
| HIV | Human Immunodeficiency virus |
| MDG | Millennium development goals |
| PPH | Postpartum Hemorrhage |
| SDG | Sustainable development goals |
| TBA | Traditional birth attendant |

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#### Authors' contributions

A.F.O- substantial contributions to the conception/design of the work; the acquisition, analysis, interpretation of data; have drafted the work or substantively revised it K.T.O- substantial contributions to the conception/design of the work; the acquisition, analysis, interpretation of data; have drafted the work or substantively revised it S.I.B- substantively revised it A.M- substantial contributions to the conception/design of the work; the acquisition, analysis, interpretation of data; have drafted the work or substantively revised it.

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#### Data availability

Data available on reasonable request.

## Declarations

#### Ethics approval and consent to participate

Ethical approval was obtained from the Kwara State Ministry of Health Ethics Committee with ethical approval number: MOH/KS/EV/777/VOLII/081, and all participants gave their written consent to participate.

#### Consent for publication

Not applicable.

#### Competing interests

The authors declare no competing interests.

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