



Original Article

## Knowledge and practice of antenatal care among traditional birth attendants in Southern Cross River State, Nigeria

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### ABSTRACT

**Objective:** The purpose of this study was to determine the knowledge and practice of antenatal care, among traditional birth attendants (TBAs) in the Southern Cross River State, Nigeria. The research utilized a descriptive survey design and Yaro Yamane's formula was used to select the 191 TBAs from the four local government areas in the study area.

**Materials and methods:** A validated questionnaire constructed by the researchers was used to obtain data. Information obtained from the questionnaire was subjected to descriptive statistics using percentages. The data were analyzed with the aid of the software program Statistical Package for the Social Sciences version 18.

**Results:** Although the findings from the study showed that the majority of the TBAs had adequate knowledge and they carried out good practices their knowledge and practice can be contested as those without adequate knowledge 18 (19.5%) for health education on nutrition, danger signs of pregnancy, 76 (44.4%) for a number of antenatal visits the pregnant women needs and 36 (21.1%) do not know the importance of tetanus toxoid while 12 (7.0%) have no idea about folic acid tablet; a routine drug given during pregnancy to prevent anemia indicate clearly the risk the women face when they seek care services from such TBAs. The findings also revealed that there is no significant relationship between any of the socio-demographic variables and their knowledge of antenatal care, labor, and postpartum except religious denomination and their settlement ( $P > 0.05$ ). There was also no significant ( $P > 0.005$ ) association between practice distribution and sociodemographic variables.

**Conclusion:** This study concludes that although the TBAs were observed to have some good knowledge and practice of antenatal care based on the questions asked, the information provided is not sufficient enough to warrant them to care for the pregnant women alone.

**Keywords:** Knowledge, Attitude, Antenatal, Traditional birth attendants

### INTRODUCTION

Skilled attendants at birth are proven interventions to improve maternal and newborn health outcomes and have been one of the consistently highlighted as an area for greater attention by global health organizations. This has been done through various efforts aptly emphasized in the Millennium Development Goals 3 and the sustainable development goals (SDGs).<sup>[1,2]</sup> Increasing women's access to focused antenatal care and health facility birthing with skilled birth attendants are effective strategies to achieve (SDGs 3.1).<sup>[2]</sup> In many developing countries where there is often a shortage of trained biomedical personnel, maternal care is usually provided by Traditional

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birth attendants (TBAs).<sup>[3]</sup> The World Health Organization (WHO) defines TBA as “a person who assists a mother during childbirth and initially acquired her skills by delivering babies herself or through an apprenticeship to other TBAs” and skilled birth attendant.<sup>[4]</sup> One key intervention to improve maternal health is to ensure that all women have access to skilled care during labor and delivery. Unfortunately, <40% of Nigerian women give birth with a skilled attendant. This suggests that over 60% of Nigerian women are at excess risk of maternal death, as they do not have access to or utilize available lifesaving services.<sup>[5]</sup> Throughout history, TBAs have been the main human resource for women during pregnancy; their roles vary across cultures and times, but even today, they attend to the majority of pregnant women in the rural areas of developing Countries.<sup>[6]</sup> Egharevba *et al.*<sup>[7]</sup> opined that TBAs are accessible, culturally acceptable, and are known to influence women’s decisions about using their care settings. There is little doubt that they have a significant role when it comes to cultural competence and psychosocial support during pregnancy, all of which are important benefits for the woman and also the newborn baby.<sup>[8]</sup> The WHO<sup>[9]</sup> observes that TBAs can potentially improve maternal and newborn health at the community level and while the role of TBAs in caring for pregnant women and conducting deliveries is acknowledged, they are generally not trained. The WHO further reports that TBAs and community midwives have a key role to play in midwifery practice. They are often the only available source of basic prenatal care and family planning services in isolated communities and are generally the main source of help in pregnancy and childbirth. They are highly respected members of the community and have proven asserts in addressing poor maternal outcomes.<sup>[7]</sup> Studies in developing countries such as Bangladesh, Turkey, South Asia, and Nigeria revealed that TBAs are generally older, non-literate women who have learned the care of pregnant women, delivery, and postpartum care through apprenticeship.<sup>[10]</sup>

The TBAs consider themselves to be the private practitioners who respond to requests for services. TBAs receive some compensation for their services, mostly in kind and some accept whatever monetary amount is given to them by the families.<sup>[11,12]</sup> The TBAs also have a variety of names depending on where they are operating; rural or urban areas all over the world, and often render services in their homes or churches as the case may be; these practices have gained momentum by the day, as their services could be accessed widely. Frequently, their services include helping with household chores, massage of the woman’s body, antenatal care, deliveries, care of the neonates, and family planning services.<sup>[13]</sup> However, TBAs have no formal training on how to attend to pregnant women, including how to recognize and respond appropriately to complications of pregnancy, for this reason, the way many attend to delivery has been observed to be traumatic, resulting in disability, leading to poor health outcomes and even death.<sup>[9,14]</sup> Although the majority

of TBAs are illiterates who learn their skills through experience, they are also described as members of the community; who share cultural and health beliefs with the women they serve and have strong ties with the community.<sup>[15]</sup> These cultural ties give them an edge over the use of government facilities, even with skilled birth attendants.<sup>[16,17]</sup> Certain characteristics among TBAs have been reported to draw pregnant women to seek their care. These include, among others a strong personality, stable emotional state, understanding of the culture, and patience that enables the birthing woman to move through the event with courage, power, and ease.<sup>[4,18-20]</sup>

There is a growing awareness in many African Countries that TBAs have a major role to play in the prevention of HIV and maternal death through first improved antenatal practices and their use of the language spoken and understood by the women based on cultural practices.<sup>[21-23]</sup> This is also because of their accessibility to communities and the relationship they share with women in local communities, especially if the women are unable to access biomedical skilled services irrespective of their harmful cultural practices that result in poor health outcomes.<sup>[24,25]</sup>

Many studies have advocated for the training of the TBAs to improve their skills and knowledge to help utilize sterile equipment during care and actively involve them as assistants in disseminating information to the community since they are already known and utilized in the community. This action will help them do referrals appropriately.<sup>[26]</sup> These critical steps to improving the care of pregnant women at the community level are important because each pregnant woman is expected to be attended to by trained personnel “skilled attendants” who have been trained and licensed to manage normal deliveries, diagnose, manage, or refer complications as well as give the necessary supervision and care during pregnancy, labor, and the postpartum period.<sup>[27]</sup> It is surprising to see that even though the TBAs are reported to lack the knowledge of focused antenatal care,<sup>[5,9,19,23]</sup> the women in the community still prefer patronizing them because most women based on cultural beliefs attribute pregnancy-related complications to be caused by witchcraft, think the TBAs always stay with women and help them deal with the physical and psychological challenge while they perceive the health facility to be a harsh setting for women during pregnancy due to the attitude of the health-care providers. Ogunyomi and Ndikom<sup>[28]</sup> reported that many TBAs have expressed some of the dilemmas and challenges, they face during caring for pregnant women considered to be at risk for referral to health facilities. Some of the challenges include Transportation, poor road infrastructure, cost of care, and the abusive attitude of the healthcare providers at the reference point.<sup>[10,12,14,29-31]</sup>

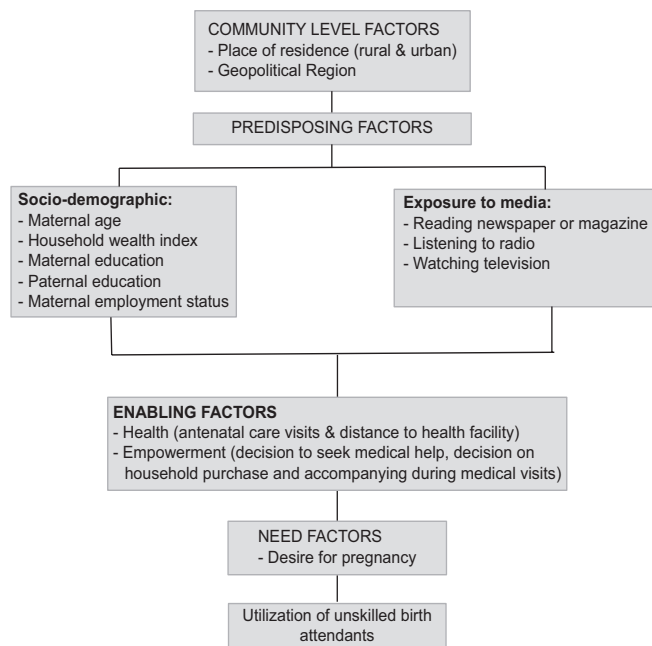
Maternal outcomes have continued to be a major public health challenge in developing countries; irrespective of the government, and other agencies’ efforts to improve the

knowledge and practices of TBAs. Despite these numerous efforts made through training programs and procurement of equipment necessary for care during pregnancy, maternal outcomes continue to be a major public health challenge in developing Countries. This challenge implies that antenatal care services will lose their value as many pregnant women will be presenting with poor health conditions during pregnancy, such as anemia, preeclampsia, and eclampsia, which can result in maternal and fetal death. In Cross River State, antenatal care is free for all pregnant women. It is worthy of note that even though these care services offered free; pregnant women still go to the TBAs for care. It is based on this premise that the researchers undertook this study on knowledge and practice of antenatal care among the TBAs. The Anderson behavioral model modified by Ogbo *et al.*<sup>[15]</sup> was adopted to guide the study as shown in [Figure 1].

The purpose of the study thus was to determine the knowledge and practice of antenatal care among TBAs in the Southern Cross River State with the following specific objectives to: Assess knowledge of antenatal care among the TBAs, determine the attitude of TBAs toward antenatal care, establish the influence of sociodemographic variables on the knowledge of antenatal care among the TBAs, ascertain the influence of socio-demographic variables on knowledge and the practice of antenatal care among the TBAs.

The findings from this study that we hope will give a better understanding of how maternal and fetal outcomes can be

improved in the community, especially among those utilizing the TBAS, and contribute significantly to the growing body of scientific knowledge on best practices for antenatal care. Feedback will be given to the women in these communities



**Figure 1:** The conceptual Model for the use of unskilled birth attendants in Nigeria. Adopted from Ogbo *et al.*<sup>[15]</sup>

**Table 1:** Sociodemographic characteristics of respondents.

Variables	Frequency	Percentage
Age <i>n</i> =171		
15–25 years	12	7.0
26–34 years	38	22.2
>35 years	121	70.8
Gender <i>n</i> =171		
Male	8	4.7
Female	163	95.3
Religion <i>n</i> =171		
Christianity	170	99.4
Traditional worship	1	0.6
Christian denomination <i>n</i> =171		
Catholic	25	14.6
Protestant	85	49.7
Pentecostal	61	35.7
Education status <i>n</i> =171		
No formal	69	40.4
Primary	67	39.2
Secondary	30	17.5
Tertiary	5	2.9
Occupation <i>n</i> =171		
Housewife	51	29.8
Business/Trading	78	45.6
Retiree	14	8.2
Pastors wife/Prophetess	9	5.3
Student	8	4.7
Farmer	6	3.5
Civil servant	5	2.9
TBA trainer		
Mother	64	37.4
Mother-in-law	21	12.3
Relative	61	35.7
Healthcare provider	19	11.1
Self (from childhood)	6	3.5
Number of children delivered in the last 2 years (approximated to the nearest tens) <i>n</i> =171		
10 Births	22	12.8
20 Births	43	25.1
30 Births	72	42.1
40 Births	24	14.0
50 Births	10	5.8
Settlement <i>n</i> =146		
Urban	92	53.8
Rural	79	46.2
Years of practice (experience) <i>n</i> =171		
<5 years	8	4.7
6–10 years	54	31.6
11–15 years	58	33.9
>15 years	51	29.8

**Table 2:** Influence of sociodemographic variables on the knowledge of antenatal, care among the TBAs.

	Knowledge of antenatal care		Fishers exact test P-value
	Poor	Good	
Age			
<35 years	9 (5.3)	38 (22.2)	0.942
>35 years	26 (15.2)	98 (57.3)	
Total	35 (20.5)	136 (79.5)	
Gender			
Male	1 (0.6)	7 (4.1)	1.000
Female	32 (18.7)	131 (76.6)	
Total	33 (19.3)	138 (80.7)	
Denomination			
Catholic/Protestant	18 (10.5)	92 (53.8)	0.004
Pentecostals	16 (9.4)	45 (26.3)	
Total	34 (19.9)	137 (80.1)	
Education			
<Primary	32 (18.7)	104 (60.8)	0.163
>Secondary	3 (1.8)	32 (18.7)	
Total	35 (20.5)	136 (79.5)	
TBA trainer			
Non-health provider	32 (18.7)	120 (70.2)	0.322
Health provider	1 (0.6)	18 (10.5)	
Total	33 (19.3)	138 (80.7)	
Number of deliveries conducted in the past 2 years			
<30	11 (6.4)	58 (33.9)	0.607
30+	23 (13.5)	89 (52.0)	
Total	24 (19.9)	147 (85.9)	
Settlement			
Urban	13 (7.6)	79 (46.2)	0.037
Rural	15 (8.8)	64 (37.4)	
Total	28 (16.4)	143 (83.6)	
Years of practice			
≤10 years	14 (8.2)	47 (27.5)	0.847
>10 years	21 (12.3)	89 (52.0)	
Total	35 (20.5)	136 (79.5)	

TBAs: Traditional birth attendants

to help them make an informed choice of whom and where to receive antenatal care services. The study will also be made available to the general public through publication.

## MATERIAL AND METHODS

The study was conducted in the Southern Senatorial Districts of Cross River State made up of seven Local Government Areas, Calabar South, Calabar Municipality, Akpabuyo, Bakassi, Biase, Odukpani and Akamkpa Local Government Areas. The population of this study consisted of 371 TBAs who care for women during pregnancy, labor, and the third stage of labor periods. The sample size for the study consisted of 191 TBAs which reflected 52% of the entire population size. The size was determined using Yaro Yamane's formula (Minimum Sample size formula) for estimating a simple finite proportion. The sample was obtained as follows:

$$n = \frac{N}{1 + N(e)^2}$$

Where,  $n$  = Sample size

$N$  = Population

$e$  = Level of error = 0.05

$$n = \frac{371}{1 + 371(0.05)^2}$$

$$n = \frac{371}{1 + 371(0.0025)}$$

$$n = \frac{371}{1.9325} = 191$$

$$n = 191$$

### **Inclusion criteria**

TBAs who were between the ages, 15 and 55 years (reproductive age group), have had up to 20 deliveries in the past 2 years, are residents in the Southern part of Cross River State, and are registered as TBA in their respective LGAs were included in the study.

### **Exclusion criteria**

TBAs who were ill or had other underlying medical or surgical conditions and not registered were excluded from the study.

### **Sampling procedure**

A multistage sampling technique was used in this study. First, a simple random sampling technique was used to select four out of the seven local government areas of the Southern Senatorial District (Akamkpa, Biase, Calabar Municipality, and Calabar South). Thereafter, a list of the communities in each selected LGA was made and the TBAs identified. A register containing the list of the TBAs operating in each of the LGA was assigned numbers and every fifth number represented a TBA in the selected communities, 50% of the total numbers of TBAs were selected based on assigned numbers as follows (Akamkpa 45, Biase 34, Calabar Municipality 60, and Calabar South 52, respectively) to give the sample size of 191. Hence, the study was stratified according to local government areas.

### **Instrument for data collection**

The instrument used for data collection was a structured questionnaire. The questionnaire was divided into four sections, Section A has (10 items) and deals with the Bio data of the TBAs. Section B, has (16 items) of (Yes or No) used to elicit responses about knowledge of antenatal, labor, and postpartum care among TBAs. Section C has (25) items, the Likert scale of strongly agree, agree, disagree, and strongly disagree deals with the practices among TBAs during antenatal, labor, and postpartum periods and Section D have 13 questions used to elicit responses on some factors that influence knowledge and practice of antenatal, labor, and postpartum care.

### **Validity of instrument**

The content validity was assured by presenting the draft copy of the questionnaire to three lecturers in the department of Nursing Science who are specialists for scrutiny while the reliability of the instrument was established by a pilot testing using ten women from Southern Senatorial District of Cross River State not included in the real study. Cronbach Alpha reliability method was used to analyze the test.

### **Reliability of the instrument**

To establish the reliability of the instrument, a pilot study of 25 women from the Central Senatorial District of Cross River was used. These women were not included in the real study. The Cronbach Alpha reliability method was used. The coefficient of reliability was 0.817. Therefore, the instrument was reliable.

### **Ethical consideration**

Ethical approval for the study was obtained from the Ministry of Health, Cross River State Ethics Committee to carry out the study. An administrative clearance was also obtained from the Department of Public Health, Local Government Service Commission, Calabar. Written consent was obtained from the participants before data collection. Respondents were informed that they were free to discontinue with the study at any time. To assure them of anonymity and confidentiality, names were not used. The respondent wishes and rights were respected at all times, including the right to discontinue with the study at any time.

### **Procedure for data collection**

With the letter of identification signed by the Head of the Department of Nursing Science, University of Nigeria, Enugu Campus, armed with ethical approval obtained, the researchers briefed the respondents on the importance, purpose, and objectives of the study. Four research assistants were trained on the objectives of the study, the content of the questionnaire, and how to administer and interpret the content of the questionnaire to the non-literate respondents. The questionnaires were distributed and collected by the researchers and four research assistants. Emphasis on the need for confidentiality was made. The data collection lasted for 2 weeks. Out of the 191 questionnaires distributed 174 were correctly answered while 17 were discarded for not answering all the questions.

### **Method of data analysis**

Descriptive statistics were used (this includes, mean, percentage, and standard deviation) to analyze data on the sociodemographic characteristics of the respondents. Simple percentage analysis was used to answer the research questions posed in the study. Data were entered into the computer software program Statistical Package for the Social Sciences version 18. Out of the 191 questionnaires distributed, only 171 were correctly answered with a response rate of 89.5% and an attrition rate of 10.5%.

## **RESULTS**

The results details are presented at the end of the document please in a text box.



### Socio-demographic characteristics of respondents

The socio-demographic characteristics of respondents are presented in Table 1. Most of the attendants were above 35 years (71.3%) and were females (95.2%). Almost all were Christian (99.4%) of which Protestants were more (49.7%). Majority of the respondents never got up to secondary education (79.6%). Predominant among them were in business/trading (45.6%), trained in TBA practice by either their relatives (35.1%) or mother (35.1%), delivered approximately 30 babies in the last 2 years (41.9%), resided in the urban area (63.0%) and have practiced above 5 years (94.3%).

### Socio-demographic variables on the knowledge of antenatal care among the traditional birth attendants

Knowledge distribution across the different groups of the socio-demographic variables [Table 2] indicated that for age: no significant difference existed between the knowledge of younger and older attendants,  $p = .942$ . Likewise, in gender ( $p = 1.000$ ); educational status ( $p = .163$ ); trainer ( $p = .322$ ); number of delivered children in the last 2 years ( $p = .607$ ) and years of practice ( $p = .847$ ), there were no significant difference in the groups. However, significant difference existed between the knowledge of attendants who attended Catholic/Protestant Churches and those who attended Pentecostal Churches,  $p = .019$ ; with higher knowledge being associated with the Catholic/Protestant attendants. Also significant difference existed between the knowledge of urban and rural traditional birth attendants,  $p = .037$ ; with higher knowledge being associated with urban traditional birth attendants. This implies that none of the socio-demographic variable had influence in their knowledge of antenatal care except their denomination and settlement.

### Knowledge of antenatal care among traditional birth attendants

The knowledge of antenatal care among traditional birth attendants is presented in table 3. In antenatal visit, most of the participants knew the need of a pregnant women attending antenatal care even when there is no problem (89.7%); however, about an average knew the minimum antenatal visit expected for them (54.6%). On drugs, most knew the function of tetanus toxoid (79.3%) and the expected number of folic acid a pregnant woman should take daily (93.7%). In management of complications, they knew that severe headache in pregnancy was a danger sign (86.8%) and that bleeding in pregnancy should be referred (97.1%). In labour, fewer than average knew the maximum labour time of a woman who has delivered up to 5 children vaginally (40.8%). However, most of them knew the frequency of checking fetal heart beat (70.1%) and the measure of determining the progress of a woman in labour (84.5%).

**Table 3:** Knowledge of antenatal care among TBAs ( $n=174$ ).

Antenatal care responses	Frequency	Percentage
Understand the need for health education on nutrition, danger signs of pregnancy		
**Yes	153	89.5
No	18	10.5
Number of antenatal visits		
3 visits	10	5.8
**4 visits	95	55.6
5 visits	39	22.8
Don't know/Not sure	27	15.8
Knows the importance of tetanus toxoid to pregnant women and when to get it.		
Prevents tetanus from mother	9	5.3
**Tetanus from mother and baby	135	78.9
Tetanus from baby	20	11.7
Don't know/Not sure	7	4.1
Understand the reason and the number of folic acid tablets a pregnant woman should take daily		
**1 Tablet	159	93.0
2 Tablets	7	4.1
3 Tablets	1	0.6
Don't know/Not sure	4	2.3

\*\*Indicates correct answer, \*\*Indicates good knowledge, TBAs: Traditional birth attendants. Use this to rate your answers: SA: Strongly agree=4, A: Agree=3, D: Disagreed=2, SD: Strongly disagree=1

### Attitude towards TBA

The attitude towards TBA is presented in Table 4. TBAs receive their clients warmly, offer prayers and incantations to their clients to allay the fears and anxiety associated with pregnancy, give client opportunity to choose between paying bills in cash or kind as well as listen to fetal heart and administer hematinic to pregnant women most during each antenatal visits.

### Practice of antenatal care services

The practice of TBA is shown in Table 5. They have good antenatal, labour and postpartum care practices. They also have good environmental and personal hygiene practices.

### DISCUSSION

This study on the knowledge, attitude, and practice of antenatal care among TBAs in Southern Cross River State, Nigeria, found that sociodemographic variables example age, educational status, and gender did not in any way influence the knowledge of antenatal, labor, and postpartum care as reported by Ugboaja *et al.*, Inyang and Anucha, Egharevba *et al.*<sup>[5-7]</sup> that women who patronized the TBAs were likely to have less than

**Table 4:** Attitude of TBAs towards clients during antenatal care services.

Statement	SA	A	D	SD	M±SD
Clients cooperate with care when they are warmly received	2	113	56	-	2.69±0.49
The local dialect is used in communication	28	139	1	-	3.16±0.38
Bills payment is negotiable	11	139	21	-	2.94±0.43
Bill payment maybe in cash or in kind	50	121	-	-	3.29±0.45
Clients visit time is unscheduled	16	121	34	-	2.89±0.53
Offering prayers/incantations for a safe pregnancy is part of the antenatal care	61	110	-	-	3.35±0.48

TBAs: Traditional birth attendants. SA: Strongly agree, A: Agree, D: Disagreed, SD: Strongly disagree

**Table 5:** Practice of antenatal care services by traditional birth attendants (*n* = 174).

Antenatal care	Responses	Frequency	Percentage
Weighs clients at each visit	Yes	114	66.7
	No	57	33.3
Total		171	100
Gives blood medicine to clients at each visit	Yes	99	57.9
	No	72	42.1
Total		171	100
Checks clients' abdomen and listens to the fetal heart beat at each visit	Yes	111	64.9
	No	60	35.1
Total		171	100
Wash hands and wears gloves before and after each procedure	Yes	94	55.0
	No	77	45.0
Total		171	100
Checks the clients blood pressure	Yes	107	62.6
	No	64	37.4
Total		171	100

secondary education, reside in rural areas, have poor family wealth index, and were unemployed. Religious denomination rather was observed to have a strong influence on the choice of utilizing TBAs as the result revealed that Catholics were found to be more knowledgeable on pregnancy issues based on their earlier affiliations with the colonial masters to utilize health-care facilities and services in their settlement or communities. It was also clearly shown that the learning pattern of the TBAs involves both observation and imitation, in contrast to the instructive style of education of professional midwives. These findings are in disagreement with Babalola and Fatusi<sup>[22]</sup> who opined that a woman's age may act as a proxy for the woman's accumulated knowledge of healthcare services, moreover, a woman acquires her experience and skills with age.

The findings from this study are supported by other studies<sup>[4,10,15,20]</sup> and clearly show that TBAs acquire their knowledge of skills through traditional and informal methods, which include, their own experience as mothers, from assisting other women, family members (mother and other relatives), observation of healthcare personnel and traditional healers. These findings, however, are in disharmony with the studies by Liambila and Kuria,<sup>[13]</sup> Mathole *et al.*,<sup>[29]</sup> who noted that some TBAs claim to have supernatural powers to protect pregnant women against

witchcraft, these groups comprise women who are known as prophetess who are associated with the church and use their prophetic powers to influence women to patronize them.

The majority of the TBAs opined that they know what to do during the antenatal care periods, thus claiming to have good knowledge as shown in [Table 3]. This is partially in agreement with the view of the WHO<sup>[3]</sup> report that TBAs continue to play an important role, in providing antenatal care, assisting during labor and delivery, and initial postpartum care. However, these findings also revealed that 18 (19.5%) of the respondents do not understand the need for health education on nutrition, and the danger signs of pregnancy to prepare the women for any eventuality, 76 (44.4%) have no knowledge of the number of antenatal visit the pregnant women needs. This indicates clearly the risk the women face when they seek care services from such TBAs. 36 (21.1%) do not know the importance of tetanus toxoid to pregnant women and when to get it while 12 (7.0%) have no ideal about folic acid tablet; a routine drug given during pregnancy to prevent anemia. These findings may look insignificant but have a huge impact on women. These observations are supported by the WHO,<sup>[3]</sup> Ganle,<sup>[25]</sup> Nigeria Demographic and Health Survey<sup>[26]</sup> assertions that blamed the TBAs for their lack of knowledge and skills necessary for a safe delivery and in detecting danger

signs or responding effectively to complications of pregnancy, yet most rural women still deliver with the assistance of the TBAs in unhygienic environments.

The result of this study showed that the TBAs receive their clients warmly, offer prayers and incantations to their clients to allay the fears and anxiety associated with pregnancy, give clients an opportunity to choose between paying bills in cash or kind as well as listen to fetal heart and administer hematinic to pregnant women most during each antenatal visits. This agrees with Imogie,<sup>[8]</sup> MacArthur,<sup>[11]</sup> and Ogbo *et al.*<sup>[15]</sup> who assert that abusive attitudes and culturally unacceptable invasive procedures carried out by skilled birth attendants are responsible for the low utilization of health facilities. The use of routine drugs and palpation of the abdomen are indications that TBAs have good antenatal, labor, and postpartum care practices. This affirms what MacArthur<sup>[11]</sup> further stressed that the TBAs also wash their hands and wear gloves to prevent infection and feed the pregnant women with chicken broth and tea which they believe facilitate labor and provide energy for the women. This, however, is not in agreement with Zaraba *et al.*<sup>[24]</sup> who asserted that infection is a major cause of maternal deaths in developing countries since most of the TBAs still operate in unhygienic circumstances which often increase the risk of infection for pregnant women. The findings of this study also revealed that pregnant women who patronize the TBAs are some concoctions to drink, enemas of different kinds with incantations made to fasten the labor and delivery. These actions have been reported to be detrimental to women and their unborn babies. This result is supported by Ogunyomi and Ndikom's<sup>[28]</sup> study on perceived factors influencing the utilization of the TBAs' Services.

A significant relationship between TBA's knowledge of antenatal care, attitudes, and practice was revealed as buttressed by Oshonwoh *et al.*,<sup>[30]</sup> Mathole *et al.*,<sup>[29]</sup> and Ogbo *et al.*<sup>[15]</sup> but disagrees with Falle *et al.*,<sup>[9]</sup> Silbey *et al.*<sup>[31]</sup> who assert that in some countries, formal training programs have been devised for training the TBAs to provide safe birth practices, avoid harmful practices, and improve their techniques, with particular reference to asepsis, and detection of abnormalities that indicates the need for referral, they further, opined that the educational training and skills of TBAs are not sufficient enough to fulfill all the requirements for management of normal pregnancy and for identification and management of complications.

### Implication of the findings

Although the TBAs in this study were observed to have some good knowledge and practice of antenatal care based on the questions asked, the information provided is not sufficient enough to warrant them to care for the pregnant women alone. The delay factors (delays in accessing skilled care at birth, delays in decision-making for referral for appropriate care

by the TBAs, and delays in seeking and receiving care from a skilled attendant) were not considered in authenticating their knowledge. Questions on appropriate and timely management of women with high-risk pregnancies and at risk newborns to reduce the risks associated with identified delays were not asked. These delays have been linked with higher perinatal, child, and even maternal mortality as reported in a study by Mgbekem *et al.*<sup>[32]</sup> The study opined that information using a questionnaire alone cannot be a reliable source to conclude the TBAs' level of knowledge, attitude, and practice. The study also observed that religious denominations and settlements influenced the TBA's knowledge, attitude, and practice of antenatal care and these could contribute negatively to maternal and infant disabilities and death

### CONCLUSION

Although the TBAs in this study were observed to have some good knowledge, positive attitude, and some level of good practices of antenatal care, an in-depth assessment of their knowledge is still required using other research designs to support information from a questionnaire. It is recommended that more studies be conducted to validate the TBAs' true knowledge to help prevent complications often associated with care rendered to pregnant women by the TBAs.

### Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent.

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Nil.

### Conflicts of interest

There are no conflicts of interest.

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