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TOWARDS INFECTION PREVENTION AND CONTROL PRACTICES IN A  
SOUTHWESTERN NIGERIA COMMUNITY**

## **THE KNOWLEDGE AND ATTITUDE OF TRADITIONAL BIRTH ATTENDANTS TOWARDS INFECTION PREVENTION AND CONTROL PRACTICES IN A SOUTHWESTERN NIGERIA COMMUNITY**

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### **ABSTRACT**

**Introduction:** Traditional birth attendants (TBAs) are an essential component of the social, cultural, and religious fabric of many Nigerian communities. For care throughout pregnancy and labor, they are generally acknowledged and used. They play a significant role in maternal and child health, and their practice of perinatal infection control is important in ensuring healthy childbirth. The study aimed to assess the knowledge and attitude of TBAs about infection prevention and control in Nigeria.

**Methods:** This study was a descriptive cross-sectional study design conducted among two hundred TBAs in Ede town, Osun State. A multistage sampling technique was used and structured questionnaires were administered to all eligible and consenting TBAs. Data were processed using IBM SPSS version 25. The data was presented using frequency distribution tables, graphs and charts while

statistical significance was determined at  $p < 0.05$ .

**Results:** The majority ( $n = 185$ ; 93.9%) of the respondents had heard of infection control practices. Most ( $n = 131$ ; 66.0%) had overall good knowledge about infection prevention and control measures while about a third ( $n = 66$ ; 34.0%) had poor knowledge regarding infection control measures. Also, 122 (62.0%) of the respondents had a positive attitude towards infection control practice while 75 (38.0%) had a negative attitude.

**Conclusion:** Traditional birth attendants in this study had a high level of knowledge of the mode of transmission and risk factors for infections during birth but were deficient in appropriate and clinically proven preventive measures. Overall, most of the respondents had good knowledge and all the tested demographic characteristics (including age,

sex, level of education, and years of practice) were significantly associated with their knowledge about infection control practices.

**Keywords:** Knowledge, Attitude, Traditional Birth Attendants, Infection, Prevention Practices

## INTRODUCTION

Traditional birth attendants (TBAs) are an essential component of the social, cultural, and religious fabric of many Nigerian communities. For care throughout pregnancy and labor, they are generally acknowledged and used. Infections of various sources are often common among women attended to by traditional birth attendants (TBAs), especially in geographically isolated rural communities. These infections are associated with poor quality of life for the women and babies and in extreme cases, result into death. It has been reported that 53% of women in Nigeria give birth at home.<sup>1</sup>

Nigeria's maternal mortality rate (MMR) is 814 (per 100,000 live births), according to the World Health Organization (WHO). Nigerian women have a 1 in 22 lifetime chance of dying during pregnancy, delivery, postpartum, or after an abortion, compared to a 1 in 4900-lifetime risk in developed countries.<sup>2</sup> Maternal mortality remains a major threat for women of childbearing age in Nigeria. Nigeria accounted for 14% of the worldwide maternal death burden in 2008. Despite attempts to lower maternal deaths, the national maternal mortality ratio has remained high with the country currently accounting for about 20% of global maternal deaths with health inequalities across various regions in the country.<sup>2</sup> A study identified that many maternal and infant morbidities could be prevented if the TBAs are well-trained on infection prevention practices, supervised and monitored.<sup>3</sup> To protect innocent women in

labour, the knowledge and understanding of all issues surrounding infection modes of transmission, signs and symptoms as well as infection control are very crucial.<sup>4</sup>

Previous researches have shown that some practitioners' knowledge of the modes of transmission of infectious diseases was inadequate, including a lack of knowledge of the existence of infections, the ability to treat these infections and confusion of such diseases with other conditions.<sup>4,5</sup> Traditional birth attendants practice is a source of public health concern due to high rates of infection among women and babies and documented concerns regarding observed poor infection control practices, especially in remote settings where home deliveries predominate.<sup>6</sup>

Notably lacking infection control practices among TBAs include correct hand washing technique, appropriate and frequency of hand washing, maintaining cleaning schedule of their facility, hygienic cleaning of hands, cords and delivery area, cleaning and maintaining of delivery area, using local unhygienic material to cut and tie the cord, cleaning of instruments, waste management and housekeeping and lack of personal protective equipment (PPE) such as gloves, during the birth process.<sup>7</sup> During the birth process, there could be multiple points for transmission of infections including mother-to-care provider, care provider-to-mother, mother-to-child, and care provider-to-community.<sup>8</sup>

Traditional Birth Attendants (TBAs) play a significant role in maternal and child health. As long as a high proportion of births occur outside health care facilities in Nigeria, there will be a need for TBAs. It is important that TBAs be knowledgeable about infection prevention and control practices if Nigeria is



to reduce and eliminate transmission of perinatal infections.<sup>9</sup> Thus, this study aimed to assess the level of knowledge of TBAs and their attitude towards prevention and control of infections during child delivery.

## **METHODS**

### **Study Design**

This study was a descriptive cross-sectional study design conducted among two hundred TBAs in Ede town, Osun State.

### **Sampling Technique**

A multistage sampling technique was used to select the study participants.

**Stage 1:** Eight wards were randomly selected from the 10 wards in the local government area, through a simple random sampling method (balloting technique). The selected areas included Olaba/Atapara, Abogunde/Sagba, Olusokun, Alusekere, Sabo/Agbongbe II, Isibo/Buari-Isola, Asunmo and Bara Ejemu.

**Stage 2:** A list of all the communities/settlements in each selected ward was obtained including the respective heads of the traditional birth attendants from the local government secretariat. A total sampling of all attendees of monthly meetings in each of the eight selected wards was done.

Validated and pretested questionnaires were administered to all eligible and consenting TBAs. This was done across all the LGAs till the calculated total sample size was reached.

### **Data Analysis**

Data were processed and analyzed using IBM SPSS version 25. The data was presented using frequency distribution tables, graphs and charts. Association between categorical variables was measured using Chi-square and continuous variables using T-test. Statistical significance was determined at  $P < 0.05$ .

### **Measurement of Outcomes**

Questions on knowledge were allotted scores, each correctly answered question scored “one” while incorrect responses scored “zero”. The sum of the scores on knowledge was further classified into good (75% - 100%), fair (50% - 74%) and poor (0 - 49%).

Qualitative variables like attitude were measured with a Likert-type scale. Questions on attitude were measured using a five-point Likert scale where 1 = strongly disagree, 2 = disagree, 3 = undecided, 4 = agree, 5 = strongly agree. For positively worded questions, those who chose 1 and 2 were classified as having good attitude to the questions asked while those who chose 3, 4 and 5 were classified as having bad attitude towards the subject in the questions asked; and vice versa for negatively worded questions. The scores on attitude were summed and a grading system was used to classify them into: good, fair and poor. The practice was measured using a two-point scale, 1 = good practice, while 0 = poor practice. The items were adapted from a previous study.<sup>10</sup>

### **Ethical Approval**

Ethical Clearance was obtained from the Health Research Ethics Committee of UNIOSUN Teaching Hospital, Osogbo. Permission was obtained from the community overall head of traditional birth attendants who was also the representative of the local association which is the umbrella body for all the TBAs providing health care. Confidentiality was ensured at all stages of the research as names of the participants were not required or written on any document throughout the study.

## **RESULTS**

Two hundred (200) questionnaires were administered and one hundred and ninety-

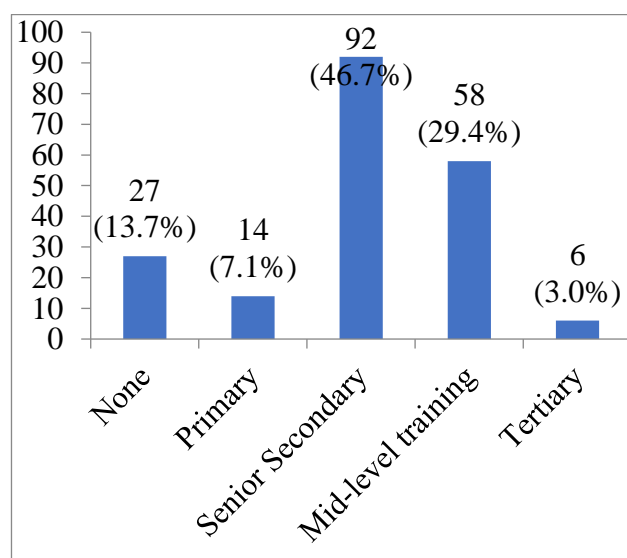
seven (197) were retrieved, giving a response rate of 98.5%.

Table I shows that more than half 104(52.8%) of the respondents were less than 35 years old and 110(55.8%) were male while 156(79.2%) belonged to the Yoruba ethnic group. The majority of the respondents 162(82.2%) were married.

**Table I: Socio-demographic characteristics of respondents (N=197)**

Variables	Frequency (n=197)	Percentage (%)
<b>Age (years)</b>		
≤35	104	52.8
36-45	50	25.4
46-50	22	11.2
>50	21	10.7
<b>Gender</b>		
Male	110	55.8
Female	87	44.2
<b>Religion</b>		
Christianity	86	43.7
Islam	111	56.3
<b>Ethnic group</b>		
Yoruba	156	79.2
Hausa	25	12.7
Igbo	9	4.6
Others	7	3.6
<b>Marital status</b>		
Married	162	82.2
Single	26	13.2
Divorce	9	4.6

Mean age=34.16±13.6years



**Figure 1: Respondents' highest educational status**

Figure 1 shows that majority of the respondents 92(46.7%) attained secondary school education, 58(29.4%) had up to mid-level educational training as auxiliary nurses and CHEWs, 14(7.1%) had primary education while only very few 6(3.0%) attained tertiary education. However, 27(13.7%) of the TBAs did not attend any formal school. The auxiliary nurses and CHEWs (predominantly J-CHEWs) in this study had completed their secondary education but were still in training for TBAs and yet to become licensed hence considered 'mid-training' in the context of this study.

Table II shows that 90(45.7%) were formerly auxiliary nurses. Considerable proportions 89(45.2%) said their training as an apprentice lasted for less than 5 months and 78(39.6%) had been working for 6-10 years while 66(33.5%) resided in the same area where they practiced. One third (n= 64; 32.5%) of the respondents earned more than 30,000naira monthly and more than two thirds 116(74.8%) charged more than 2500naira on each delivery while few 9(5.8%) charged more than 1001-1500naira per delivery. Many of them (n= 181; 91.9%) owned the premises used for the practice and close to half (n= 97; 40.9%) had delivered more than thirty-five children since they started their practice; while the same proportions had lost three children since they started practicing. About a third (n= 55; 27.9%) of the studied populations were registered with the government and only a few (n= 106; 53.8%) delivered less than five babies per month.

Table III shows that majority (n= 185; 93.9%) of the respondents have heard of infection control practice and 181(91.9%) of them acknowledged that sexual intercourse is one of the routes of infection transmission; and from an infected mother to her child (n=138; 70.1%). The majority (n=144; 73%) claimed that infection transmission is preventable and

**Table II:** Respondents' source/ status of training/practice and experience. (n=197)

Variables	Frequency (n=197)	Percentage (%)
<b>Means of acquisition of TBA skills/ training</b>		
Formerly an auxiliary nurse	90	45.7
Via a Friend	16	8.1
Learnt from a Maternal/Relative	27	13.7
Formal trained	53	26.9
Skills learnt from a doctor	11	5.6
<b>Period of training/ apprenticeship (months)</b>		
<5	89	45.2
≥5	108	54.8
<b>Length of years of practicing</b>		
≤5	50	25.4
6-10	78	39.6
11-15	38	19.3
>15	31	15.7
<b>Do you reside in the same place you practice</b>		
Yes	66	33.5
No	131	66.5
<b>Estimated/Average monthly income (naira)</b>		
1000- 5000	11	5.6
5001-10000	17	8.6
10,001-20,000	54	27.4
20,001-30,000	51	25.9
Above 30,000	64	32.5
<b>Amount charged on each delivery(naira)(n=155)</b>		
<1000	16	10.3
1001 – 1500	9	5.8
1501 – 2000	14	9.0
>2500	116	74.8
<b>Ownership of the facility used for delivery</b>		
Yes	181	91.9
No	16	8.1
<b>Estimated number of children ever delivered since start of practice as a TBA</b>		
≤15	12	7.1
16-25	48	26.8
26-35	40	25.2
>35	97	40.9
<b>Number of children lost since started practicing</b>		
0	82	41.6
1	6	3.1
2	37	18.8
≥3	72	36.5
<b>Registered with the government</b>		
Yes	55	27.9
No	142	72.1
<b>Average number of deliveries per month</b>		
0	10	5.1
1-5	106	53.8
≥5	81	41.1

125(63.5%) knew that HIV Testing & Counselling was important for pregnant women while a third of them 66 (33.5%) were not aware of the referral services or points. A few of them claimed traditional medicine (n=10; 5.1%), herbal concoctions, scarification and traditional rituals (156; 79.2%) could be effective in the prevention of mother-to-child transmission and cure of HIV.

Table IV shows that the majority of the respondents (n= 153; 77.7%) use burning method to dispose of waste after taking delivery and the commonest method of waste disposal method known by the respondents is burning (n= 89; 70.1%). Majority (n= 122; 61.9%) of the respondents always wash their hands before taking delivery. Majority (n= 148; 75.1%) always wore gloves when taking delivery while 9(4.6%) had never worn gloves for delivery in the past. More than half of the respondents (n= 116; 58.9%) said they never sterilize their equipment before use. However, few of the respondents (n= 21; 10.7%) used traditional means of protection to protect the patient and themselves.

Figure 2 shows that majority (n= 131; 66.0%) of the TBAs had good overall knowledge about infection control measures while about a third (n=66; 34.0%) had poor knowledge about infection control measures.

Table V shows that the majority (n=137: 69.5%) of the respondents strongly agreed that infection can be transmitted from a mother to her unborn child during pregnancy and delivery and (n= 148, 75.1%) agreed that it can be transmitted from a mother to her unborn child during breastfeeding. Two third 131(66.5%) strongly agreed that one must wear gloves during every delivery and the same proportions agreed that sharps and other

**Table III:** Knowledge of infection prevention control among TBAs (n=197)

Variables	Frequency (n=197)	Percentage (%)
<b>Ever heard of infection control and practice</b>		
Yes	185	93.9
No	12	6.1
<b>*Route (s) of infection transmission</b>		
Sexual intercourse	181	91.9
Contaminated sharps	151	76.6
Infected mother to child transmission	156	79.2
Blood transfusion	139	70.6
Kissing an infected person	46	23.4
Eating with an infected person	10	5.1
Sharing the same toilet facility with an infected person	6	4.7
<b>Timing of mother to child transmission is associated more with:</b>		
During pregnancy	138	70.1
During delivery	39	19.8
During breastfeeding period	20	10.2
<b>Infection transmission from mother to child is preventable</b>		
Yes	144	73.1
No	53	26.9
<b>HIV Counseling and Testing is important for pregnant women</b>		
Yes	125	63.5
No	72	36.5
<b>Aware of infection services referral point for pregnant women for care</b>		
Yes	131	66.5
No	66	33.5
<b>Options are available to reduce the risk of infection transmission from mother to child include*</b>		
proper hand washing	159	80.7
use of hand glove	28	14.2
Traditional medicine	10	5.1
<b>Infection control measures which can prevent transmission of infection from mother to child are*:</b>		
Use sterile instrument all the time	61	48.0
Always use new razor to cut umbilical cord	123	96.9
Always use a new pair of sterile gloves for a new procedure	54	42.5
<b>Child from infectious mother need special treatment</b>		
Yes	124	62.9
No	73	37.1
<b>Herbal concoctions, scarification and traditional rituals can be effective in PMTCT of HIV and its cure</b>		
Yes	156	79.2
No	41	20.8

\*Multiple responses

delivery equipment need to be washed after every delivery. Many of the respondents (n= 99; 50.3%) agreed that Sharps and other delivery equipment should be sterilized after every delivery and same proportion said that delivery equipment must be washed with water in order to prevent infections respectively. More than half 110(55.8%) of the respondents strongly agreed that proper

disposal of waste product could control and reduce transmission of infection and close to half (n= 98; 49.7%) disagreed that wearing of an apron was not necessary during delivery. A few of the respondents (n= 8; 6.3%) agreed that there was nothing wrong in sharing sharp instruments from one person to another during delivery.

**Table IV: Knowledge of Infection Control practice and methods among respondents' (n=197)**

<b>Variables</b>	<b>Frequency (n=197)</b>	<b>Percentage (%)</b>
<b>Wastes generated after delivery could be disposed of by:</b>		
Burning	153	77.7
Open disposal	13	6.6
Waste management carrier	31	15.7
<b>Safest waste disposal methods</b>		
Burning	89	70.1
Burying	13	10.2
Discarding in river, bush or sea	25	19.7
Discarding in a pit or pit toilet	44	34.6
Flushing inside toilet	7	5.5
<b>Frequency of hands washing before taking delivery</b>		
Always	122	61.9
Often	48	24.4
Only when you remember	27	13.7
<b>What should be done to sharps used during delivery</b>		
Soaked and washed in Jik	10	5.1
Discarded	171	86.8
Others	16	8.1
<b>Which of these agents can be used for sterilization of equipment's (n=81)</b>		
Concentrated bleaching agent (e.g Hypo)	45	55.6
Izal	9	11.1
Bleaching agent (Hypo) diluted with water	27	33.3
<b>Use of new blade for each patient when cutting the cord</b>		
Always	193	98.0
Sometimes	4	2.0
<b>Use of bleaching agent to disinfect equipment(s)</b>		
Always	24	12.2
Sometimes	52	26.4
Never	121	61.4
<b>Use of protective clothing (aprons when taking deliveries</b>		
Always	34	17.3
Sometimes	13	6.6
Never	150	76.1
<b>Use of traditional means of protection to get rid of germs</b>		
Always	21	10.7
Never	176	89.3
<b>Most practiced means of disposing sharps :</b>		
Burying	41	32.3
Discarding in river or nearby bush	57	44.9
Discard in community refuse disposal site	6	4.7
Discard inside pit latrine	13	10.2
Burning	42	33.1

Figure III shows that 122(62.0%) of the respondents had positive attitude towards infection control practice while 75(38.0%) had negative attitude.

Table VI shows that younger respondents (<46 years), male, of the Christian faith, Yoruba ethnic group, had formal education, had less than five years of training and had practiced for less than 11 years had better



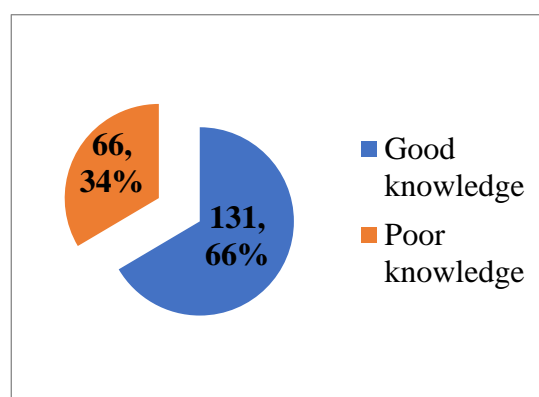
**Table V:** Attitude of TBAs towards infection control practice (N=197)

Variables	Strongly Agree	Agree	Undecided	Disagree	Strongly Disagree
Infection can be transmitted from a mother to her unborn child during delivery /childbirth	137(69.5)	36(18.3)	13(6.6)	11(5.6)	0(0.0)
Infections can be transmitted from a mother to her unborn child through breastfeeding	148(75.1)	36(18.3)	13(6.6)	0(0.0)	0(0.0)
Gloves must be worn during every delivery	131(66.5)	53(26.9)	13(6.6)	0(0.0)	0(0.0)
Sharps and other delivery equipment to be washed after every delivery	99(50.3)	65(33.0)	24(12.2)	9(4.6)	0(0.0)
Equipment needed for delivery needs to be sterilized after each use	99(50.3)	72(36.5)	26(13.2)	0(0.0)	0(0.0)
Equipment needed during delivery must be washed with water in order to prevent infections	90(45.7)	63(32.0)	35(17.8)	9(4.6)	0(0.0)
Bleaching agents (Jik or Izal) can kill germs and can help to prevent infection	88(44.7)	89(45.2)	20(10.2)	0(0.0)	0(0.0)
Infection transmission can be controlled and reduced through proper waste disposal	110(55.8)	62(31.5)	16(8.1)	9(4.6)	0(0.0)
Sharing sharp instruments such as blade between patients during deliveries is not risky	8(6.3)	6(4.7)	71(55.9)	42(33.1)	0(0.0)
Wearing of apron and other protective coverings is not necessary during delivery	44(22.3)	9(4.6)	42(21.3)	98(49.7)	4(2.0)

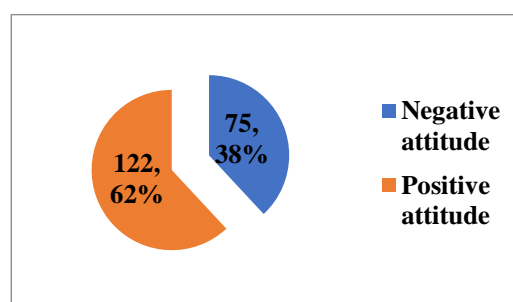
knowledge of infection control measures than their counterparts (p-value <0.05). Respondents who had lost one or two children since they started their practice had good knowledge of infection control measure.

Table VII shows that respondents age (< 35 years) and time since qualification (5 years) were significantly associated with good attitude towards infection control with p-value <0.05.

Also, respondents' income, charges on each delivery, and average number of deliveries normally taken per month were significantly associated with their attitude towards infection control at p-value <0.05.



**Figure 2:** TBAs' overall knowledge of infection control.



**Figure 3:** TBAs' overall attitude score towards infection control practice.

**Table VI:** Association between socio-demographic characteristics, some selected variables and knowledge of respondents on infection control

Variables	Knowledge on infection control		$\chi^2$	P-value
	Good	Poor		
<b>Age (years)</b>				
< 35	76(73.1)	28(26.9)	27.398	<0.001*
36-45	21(42.0)	29(58.0)		
46-50	22(100.0)	0(0.0)		
>50	12(57.1)	9(42.9)		
<b>Religion</b>				
Christianity	42(48.8)	44(51.2)	21.367	<0.001*
Islam	89(80.2)	22(19.8)		
<b>Ethnic group</b>				
Yoruba	109(69.9)	47(30.1)	13.336	0.004*
Hausa	16(64.0)	9(36.0)		
Igbo	1(11.1)	8(88.9)		
Others	5(71.4)	2(28.6)		
<b>Marital status</b>				
Married	107(66.0)	55(34.0)	11.765	0.003*
Single	22(84.6)	4(15.4)		
Divorce	2(22.2)	7(77.8)		
<b>Educational status/background training</b>				
None	10(37.0)	17(63.0)	37.965	<0.001*
Primary	13(92.9)	1(7.1)		
Senior secondary	50(54.3)	42(45.7)		
Mid-level training (auxiliary nurse etc)	52(89.7)	6(10.3)		
Tertiary	6(100.0)	0(0.0)		
<b>When qualified and have been doing this work (years)</b>				
<5	42(84.0)	8(16.0)	35.721	<0.001*
5-10	60(76.9)	18(23.1)		
11-15	11(28.9)	27(71.1)		
>15	18(58.1)	13(41.9)		
<b>Lived in the same location of your practice</b>				
Yes	82(62.6)	49(37.4)	2.672	0.069*
No	49(74.2)	17(25.8)		
<b>Estimated/ Average monthly income (naira)</b>				
<5000	9(81.8)	2(18.2)	38.861	<0.001*
5000-10000	9(52.9)	8(47.1)		
10,000-20,000	36(66.7)	18(33.3)		
20,000-30,000	19(37.3)	32(62.7)		
30,000 and above	58(90.6)	6(9.4)		
<b>How much do you charge on each delivery</b>				
<1000	16(100.0)	0(0.0)	29.548	<0.001*
1001 – 1500	1(11.1)	8(88.9)		
1501 – 2000	5(35.7)	9(64.3)		
>2500	85(73.3)	31(26.7)		
<b>Number of children lost since started practicing</b>				
0	12(42.9)	16(57.1)	35.301	0.001*
1	4(66.7)	2(33.3)		
2	30(81.1)	7(18.9)		
>3	46(63.9)	26(36.1)		
<b>Average number of deliveries taken per month</b>				
0	6(60.0)	4(40.0)	15.876	0.044*
<5	69(61.6)	43(38.4)		
>5	53(73.6)	19(26.4)		

**Table VII:** Association between socio-demographic characteristics, selected variables and attitude of respondents on infection control

Variables	Attitude towards infection control		$\chi^2$	p-value
	Negative	Positive		
<b>Age (years)</b>				
< 35	28(26.9)	76(73.1)	12.184	0.007*
36-45	27(54.0)	23(46.0)		
46-50	10(45.5)	12(54.5)		
>50	10(47.6)	11(52.4)		
<b>Religion</b>				
Christianity	34(39.5)	52(60.5)	0.139	0.411
Islam	41(36.9)	70(63.1)		
<b>Educational status</b>				
None	13(48.1)	14(51.9)	3.868	0.424
Primary	7(50.0)	7(50.0)		
Senior secondary	35(38.0)	57(62.0)		
Mid-level training (auxiliary nurse etc)	19(32.8)	39(67.2)		
Tertiary	1(16.7)	5(83.3)		
<b>Live in the same place you practice</b>				
Yes	54(41.2)	77(58.8)	1.646	0.129
No	21(31.8)	45(68.2)		
<b>Estimated monthly income (naira)</b>				
<5000	5(45.5)	6(54.5)	12.460	0.014*
5000-10000	1(5.9)	16(94.1)		
10,000-20,000	28(51.9)	26(48.1)		
20,000-30,000	19(37.3)	32(62.7)		
30,000 and above	22(34.4)	42(65.6)		
<b>Charges on each delivery</b>				
<1000	11(68.8)	5(31.2)	15.289	0.002*
1001 – 1500	4(44.4)	5(55.6)		
1501 – 2500	10(71.4)	4(28.6)		
>2500	36(31.0)	80(69.0)		
<b>Number of children ever delivered since started practicing as a TBA</b>				
<15	4(33.3)	8(66.7)	93.715	<0.001*
16-25	23(47.9)	25(52.1)		
26-35	18(45.0)	22(55.0)		
>35	30(30.9)	67(69.1)		
<b>Number of children lost since started practicing</b>				
none	10(35.7)	18(64.3)	17.346	0.238
1	3(50.0)	3(50.0)		
2	12(32.4)	25(67.6)		
≥3	28(38.9)	44(61.1)		
<b>Average number of deliveries taken per month</b>				
0	2(20.0)	8(80.0)	39.080	<0.001*
<5	52(49.1)	54(50.9)		
≥5	21(25.9)	60(74.1)		

Statistically significant &lt;0.05

## DISCUSSION

It was observed among this study's respondents that 47% had their highest

educational attainment as secondary education which is higher when compared with educational level reported from certain low- and middle-income study sites including DRC, Zambia, Kenya, Guatemala, Pakistan

and India in which 70% of TBAs were illiterate and the vast majority had little or no formal schooling.<sup>11-12</sup> Iwu et al, in a Nigerian study reported that slightly above half of respondents (54.4%) had at most secondary education. A study done by Unyime et al among TBAs in Akwa Ibom, Nigeria also reported that most of the respondents had no formal education.<sup>14</sup> The level of educational attainment for TBAs is generally observed to be very low in most rural Nigerian communities. The highest level of education attained by a TBA may have a significant impact on their practice as only a small proportion of the TBAs had tertiary education. It has been reported that respondents with higher educational attainment showed good knowledge and a positive attitude toward infection prevention and control practices compared to those with lower educational levels.<sup>14</sup>

Similar to what was found in this study where majority of respondents identified various routes of infection transmission correctly including during pregnancy, delivery and breastfeeding, a Tanzanian and another Ugandan study recorded high awareness of mother-to-child transmission (MTCT) of infection, with about half of them believing that transmission through breastfeeding was possible and the majority mentioning possibility of infection transmission during delivery.<sup>15,16</sup>

Concerning methods of prevention, more than half of the respondents knew that mother-to-child transmission of infections MTCT infection is preventable and a higher proportion opined that it can be prevented through proper hand washing and sterilization of equipment. However, only a small percentage of respondents (5.5%) ever received training on how to perform HIV Testing and Counseling, despite the fact that

two-thirds of respondents said that HIV Testing and Counseling are crucial for pregnant women. Before testing and counselling, knowledge about health information regarding the method and procedure is important since insufficient understanding may prevent pregnant women from accepting HIV testing.<sup>16</sup>

The knowledge of infection control and infant feeding options was found to be quite low. Half of the respondents use sterile instruments all the time and about half always use a new pair of sterile gloves for each new procedure. Overall, good knowledge did not translate to better attitude when compared with those who had poor knowledge. Seroney et al. reported that adequate knowledge of TBAs on mother-to-child transmission (MTCT) of infections led to safer practices and reduced the risk of MTCT.<sup>17</sup>

The study found that more than half of the respondents ensured routine measures including washing of their hands before, during, or after births, in spite of the fact that very few of them had received training in infection control procedures or blood safety. However, the finding that a large number of TBAs are unaware of preventive measures, as revealed by the study, highlights the need for more infection control awareness campaigns and interventions and training aimed at achieving the "three cleans" (hand-washing with soap, clean cord care, and clean surface) in all aspects of care or hygienic delivery.<sup>18,19</sup>

Some tasks that TBAs could be involved in to help prevent prenatal transmission of infection include dissemination of information about how infection can be transmitted between mother and child and explanation of effective strategies to prevent such transmission; identification of high-risk



pregnancies among clients who patronize these TBAs across various communities and facilitation of the use of available antenatal and maternity care; ensuring that pregnant women and their partners are routinely offered HIV counseling and testing and that their uptake of this is facilitated; reinforcement of health messages during pregnancy; supervision of directly observed treatment of mother and infant; and offering counseling on strategies to prevent HIV.<sup>20</sup>

## CONCLUSION

The traditional birth attendants in this study had a high level of understanding of the method of transmission and risk factors of infections during birth but were inadequate in key preventive strategies. Overall, the majority of the respondents had good knowledge, and all of their examined demographic factors were substantially related to their understanding of infection control methods. A positive attitude toward infection control is associated with younger respondents and those with longer years of practice and good knowledge. More has to be done to address the deficiencies which were identified in the practices of TBAs in this study and to encourage excellent infection control practices in an attempt to reduce the spread of infections and the incidence of MTCT of diseases.

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