

KNOWLEDGE, ATTITUDES AND PRACTICES OF TRAINED TRADITIONAL BIRTH ATTENDANTS ON HIV/AIDS, KENYA

Seroney, G.C. ^{1*}, Minnie, K. ², Otieno-Ayayo, Z.N. ³, Mulaudzi, F.M. ⁴, and Nyangena, E. ¹

¹Department of Nursing of the School of Health Sciences of the University of Eastern Africa, Baraton, P.O. Box ²500, Eldoret-30100, Kenya.

²School of Nursing Science, North-West University, Private Bag X 6001, Potchefstroom, 2520 South Africa.

³Department of Biological Sciences, University of Eastern Africa, Baraton, P.O Box 2500 Eldoret-30100, Kenya.

⁴Department of Nursing, faculty of health sciences, University of Pretoria, P.O Box 323. Arcadia 0083, South Africa.

*Corresponding author

Email: seroneyg@ueab.ac.ke

Abstract

HIV and AIDS is a global pandemic with cases being reported from virtually every country in the world. There is a growing awareness in many African countries that the Trained Traditional Birth Attendants (TTBAs) have a major role to play in the transmission and prevention of HIV and AIDS. This is because of the bigger proportion of TTBAs attending to mothers at birth compared to trained health workers.

The purpose of the study was to determine the knowledge, attitudes and practices of TTBAs on HIV/ AIDS transmission and prevention. A cross sectional survey was conducted. The study population consisted of 64 TTBAs from Kosirai Division, Nandi Central, Kenya.

Structured questionnaires were used to collect data on knowledge, attitudes and practices on HIV/AIDS transmission and prevention from August 15 to September 11, 2008.

The study revealed that TTBAs had good knowledge, tend to have positive attitudes, and safe practices on HIV/AIDS transmission and prevention. There exist significant relationships between knowledge and practices ($p=.018$), and practices and attitudes ($p=.022$) of TTBAs on HIV/AIDS transmission and prevention, but there is no significant relationship between knowledge and attitudes ($p=.994$) of TTBAs on HIV/AIDS transmission and prevention.

Considering the roles of TTBAs in maternal child health as revealed by this study, the study therefore recommends to the government and non-governmental organization to appreciate the role of the TTBAs in health care delivery system.

Key words: Traditional Birth Attendant, HIV/AIDS, Africa, Knowledge, attitudes and practices.

Introduction and Literature Review

HIV infection is common health problem complicating pregnancy in many countries. The severity of mother-to-child transmission (MTCT) problem in Sub-Saharan Africa is due to high rates of HIV infections in women of reproductive age (UNAIDS, 2010). In 2010 around 390,000 children under 15 years of age became infected with HIV, mainly through Mother-To-Child Transmission globally (Avert.org, 2010). About 90% of children living with HIV reside in Sub-Saharan Africa. Where in the context of high mortality rates, AIDS account for 8% of all under-five deaths in the region. Around 15-30% of babies born to HIV infected mother will become infected during pregnancy and delivery. A further 5%-20% will become infected during breastfeeding (UNAIDS, 2010).

According to Avert.org (2010), Kenya's statistics indicated that an estimated 180,000 children were living with HIV in 2009, with approximately 19,000 new child infections in 2010. It is believed these high rates account for the high infant mortality rates in Kenya.

In many sub-Saharan countries of Africa it has been acknowledged that traditional birth attendants still conduct a high number of deliveries in their communities. This is because of the significant proportion of trained traditional birth attendants (TTBAs) attending to mothers at birth compared to trained health workers (Ministry of Health Kenya, 2001). There is a growing awareness in many African countries that trained traditional birth attendants have a major role to play in the prevention of HIV/AIDS (Silbeyetal.,2007), therefore prevention services for pregnant women must continue to grow as HIV transmission from MTCT is still high; an estimated 1 in every 5 babies born to HIV- infected mothers are infected.

The Kenya Integrated Household Budget Survey (KIHBS) as noted in Ministry of Medical Services (2008) reported a survey conducted in 2006 to determine the number of women who delivered in Kenya's health facilities after attending antenatal clinic and those who were delivered by the TBAs. The results revealed that about 54% of births in Kenya occurred at home, 28.5% of pregnant women were assisted during childbirth by nurses or midwives, 10.5% were assisted by doctors, 27.4% were assisted by untrained traditional birth attendants, 11.7% were assisted by trained birth attendants and 7.3% of the

women delivered by themselves at home. Similar findings were obtained by the Kenya Demographic Health Survey (KDHS) conducted in 2003 (Ministry of Health, 2003); which indicated that almost 60% of all births in Kenya occurred at home. Forty two percent (42%) of pregnant women were assisted during childbirth by doctors or midwives, while 28% were assisted by TBAs and 8% delivered by themselves at home.

While a need assessment study of TBAs serving one area of Kenya was conducted for the purpose of designing an appropriate intervention program (Solomon &Rogo, 1989), and other studies; persistence and challenges of homebirths (Izugbarat al., 2008), Izugbara & Ngilangwa, (2010), no studies have been done to determine the knowledge, attitudes and practices of TTBAs on HIV/AIDS transmission and prevention in Kenya. The purpose of this study was to determine the knowledge, attitudes and practices of trained traditional birth attendants on HIV/ AIDS transmission and prevention.

A traditional birth attendant may be defined as a self-developed community practitioner who assists in the management of the mother during pregnancy, labor, delivery, postnatal period and care of the baby (Ministry of Health Kenya, 2001). According to Mathole, (2005), TBAs regarded themselves as counselors, community teachers and advisors of women and pregnant women in particular. A trained traditional birth attendant is one who is empowered with necessary knowledge and skills such as early recognition of obstetric complications and referral, prevention of HIV transmission from mother-to-child (Shangaseetal.,2006).

According to Sibley &Sipe, (2006) the broad goals of TBAs' training programs are to reduce maternal and child mortality and morbidity and improve the reproductive health of women. The objectives include: enhancing the linkages between the modern health system and community, increasing the number of TTBAs attended birth, and improving the skills and stature of TBAs.

The Government of Kenya through the Ministry of Health developed the first curriculum for traditional birth attendants (TBAs) in 1981 and revised it in 1991 and 2001. This was done with the aim of adopting a primary health care approach to attain Health for all by the year 2000. The curriculum was also developed because mothers and children were a priority target group and safe delivery was an important objective. Traditional birth attendants

were thus an important resource for the achievement of better health for all (Ministry of Health Kenya, 1991).

According to Safe motherhood policy alert No.4, (2003) and Mulama,(2006),it is noted that the ministry of health is working on setting a code of practice for them to ensure that TTBA's operate within the set standards.

Kenya's second National Health Sector Strategic Plan (NHSSP II-2005-2010) defined a new approach to the way the sector will deliver health care services to Kenyans; it is mentioned that the Kenya Essential Package for Health (KEPH) introduced six life - cycles cohort and six service delivery levels. One of the key innovations of KEPH is the recognition and introduction of level 1 service, which are aimed at empowering Kenyan households and communities to take charge of improving their own health. The level 1 care unit was established to serve a local population of 5,000 people instituting a cadre of well trained community- owned resource persons (CORPs), among whom trained traditional birth attendants are included. These CORPs will work under the supervision of the Community Health Extension Workers (Ministry of Health, 2006).

Silbey&Sipe(2004) reported that in the 1990's it became widely accepted that training of traditional birth attendants was likely to cause reduction in maternal mortality, but due to lack of evidence to demonstrate that trained traditional birth attendants can reduce maternal mortality led to controversy over training in relation to safe motherhood and a policy shift to skilled birth attendants (Sibley&Sipe,2006). Recent reviews suggest that training of TBAs may improve their knowledge, attitudes and behavior, according to Saravana et al., (2011), where the practices of trained traditional birth attendants and untrained were compared, the results indicated positive post training practices.

TBAs in Zimbabwe have been incorporated into the health care system and are trained on imparting biomedical knowledge and skills in maternal health care such as identifying and referring women at risk. The training is expected to strengthen the role of TBA in reducing maternal and infant mortality and morbidity through improved practices. Mathole,(2005), however, reported that the TBAs expressed the dilemmas and challenges faced when implementing the skills acquired; for example, referring women categorized as being at risk because of lack of transportation, transport costs and unpleasant

encounters with professional providers.

To strengthen the collaboration between traditional birth attendants and the Department of Health, the South African government developed a training curriculum on traditional birth attendants and HIV/AIDS. The training manual was piloted and evaluated in a number of training sessions in the Eastern Cape. The South African manual went on to state that TTBA's have the potential to improve maternal and neonate health at community level. The role of traditional birth attendants in caring for pregnant women and conducting deliveries is acknowledged because home deliveries are still prevalent (40%-50%) in some parts of South Africa. Moreover, home deliveries still contribute to a certain percentage of maternal deaths (Shangase et al.,2006).

The tasks of a TTBA as listed in Kenya (Ministry of Health, 2001; 2003; Mathole,2005; Silbey et al., 2007) include the following: conducting deliveries in case of emergency, help with initiating breastfeeding, providing information on reproductive health and nutrition, and visiting mothers during and shortly following delivery making and keeping record and reports of number of deliveries, and perinatal deaths, prevention of STI/HIV and AIDS by promoting awareness to mothers and family on the need to prevent and control STI/ HIV and AIDS.

Interestingly, as noted by Cotter et al., (2006), a minority of women believe that child birth-related complications are caused by witchcraft, and TBAs are perceived as better equipped to intervene in these cases. The health facility is perceived to be a harsh setting for child birth; whereas the TBA stays with the mother and helps her to deal with the pain, the skilled birth attendants at the health facility leave the mothers alone during their labor pains (Cotter et al., 2006). According to Tami et al., (2011), recent study in Bangladesh indicated that 88% of deliveries occur at home. Renewed interest in community-based approaches and the urgent need to improve birth care has necessitated a re-examination of how provider training should be conducted and evaluated.

Materials and Methods

A quantitative, descriptive survey design was used in this study to collect and analyze data on TTBA's knowledge, attitudes and practices on HIV/AIDS.

The knowledge attitudes and practices (KAP) surveys were originally developed to assist in the development and implementation of family planning

programmes (Katzenellenbogenetal., 2005). The extensive use of these surveys in the field population led to the concept of the KAP gap. KAP surveys have been applied in a wide range of problems, including tobacco and alcohol consumption, adherence to medications schedules use of preventive health services, and traffic safety. These kind of surveys re-emerged strongly in the 1980s in response to the need to curb and prevent the spread of HIV infections. The eruption of AIDS pandemic called for the need to get baseline information to measure the outcome of intervention.

The target population comprised of 104 trained traditional birth attendants of Kosirai Division, in Nandi North District, Rift Valley province of Kenya, part of the division is situated along Eldoret- Kisumu road, latitude 0.28 degrees and longitude 35.1 degrees. This district covers an area of approximately 195 square km with a population of 45,765 thousand as per 2008 estimates /census. All the TTBA's who are trained on conducting safe deliveries and on HIV/AIDS prevention and are working under one organization called Academic Model for the Prevention and Treatment of HIV/AIDS (AMPATH) were included, based on the register kept by their coordinator.

Since the population of trained traditional birth attendants is not very large (104), the total population was used as the sample for the study so as to have a full representation and to make more accurate conclusions as suggested by De Voset al.,(2005). Thirty (30) TTBA's participated in the pilot study. From the remaining population of 74 TTBA's, 64 TTBA's consented to participate in the study, it is not easy to tell why the remaining 10 did not participate in the study because the respondents have autonomy to participate, and others did not turn up when the questionnaire was being administered.

The study utilized a structured questionnaire to expose depth of knowledge, attitudes and practices of respondents concerning HIV/AIDS transmission and prevention. The questionnaire was self administered and researcher assisted in cases where TTBA's were unable to interpret the questions because of their level of formal education (Mugenda&Mugenda,2003), the questionnaire was interpreted with the assistance of the AMPATH training coordinator who spoke the same language with the participants.

The questionnaire contained knowledge questions on modes of transmission of HIV, risk of transmission related to the services they render to the

community and whether there is cure to infections due to HIV/AIDS or not. The attitudes of the TTBA's towards the infected persons and HIV/AIDS preventive practices that they utilize during prenatal, natal and post natal period were addressed.

A pilot study was conducted in June, 2008 utilizing 30% of the TTBA's population from the same study population. The data from the pilot study was used to establish the reliability of the questionnaire using the Cronbach alpha coefficient (Tredoux&Durrheim,2002). The reliability coefficient of 0.5330, 0.4075 and 0.4813 were obtained for knowledge, attitudes and practice respectively. The scores were probably low because the study sample was homogeneous, that means the TTBA's had the same characteristics that they had been trained on PMTCT of HIV/AIDS. Since the score was low for all the three variables of knowledge, attitudes and practices, some questions in the questionnaire were removed and others were modified to raise reliability to an acceptable level.

To ensure consistency, all respondents received the questionnaires at the same time during their monthly meetings, after the research had been explained and their consent obtained.

Prior to conducting the study, permission was obtained from the Ministry of Education, District Medical officer of Health Nandi North District and District Educational officer, Nandi North District and the office of graduate studies at University of Eastern Africa, Baraton.

Consent was obtained from the TBAs participating in research in order for them to make an informed decision about participating or not. An informed consent contained the purpose to the research study, any foreseen risks if any, a guarantee of anonymity and confidentiality, identification of the researcher, benefits and compensation or lack of them.

Results

Sixty four (64) participated in the study. This was a response rate of 86.4%. All the participants in the study were female.

The minimum age grouping of the trained traditional birth attendants is 21-30 years (3.1%) and the majority of respondents were over 51 years (64.1%). Majority (53.1%) had worked as TTBA's for over twenty one (21) years. Forty one (41) TTBA's which account for sixty four point one percent (64.1%) attained primary school level of education only while

twenty one point nine percent (21.9%) did not have any formal education.

Thirty four (34) TTBA's (53%) were trained less than 6 months earlier. Sixteen (16) TTBA's (25%) were trained between seven (7) to twelve (12) months earlier. Eleven (11) TTBA's (17.2%) were trained more than nineteen (19) months prior to the study. Ninety point six percent (90.6%) of TTBA's knew their HIV/AIDS status while nine point four (9.4%) did not know.

Figure 1 indicates the number of deliveries conducted by respondents and number of referrals sent to the health facilities per month. From these findings, TTBA's in Kosirai Division conduct between 54-270 deliveries in a month and refer 52-270 women in labor to health facilities every month.

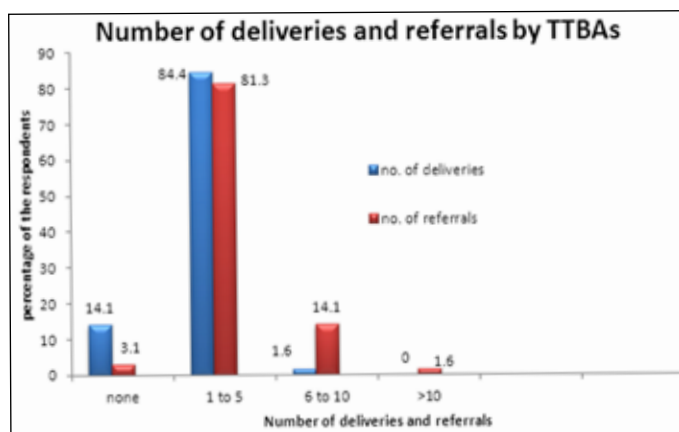


Figure 1
TTBA's number of deliveries and referrals. (N=64)

Knowledge of HIV and AIDS

The average knowledge level of participants was 3.97 (out of 4.0 scale) with a standard deviation of 0.43. Table 1 indicates TTBA's aspects of poorest knowledge. The items on which more than 2% of TTBA's gave an incorrect response are listed. Two of these items dealt with the issue of a cure (4 and 17), three dealt with ant-retroviral therapy (15, 16 and 17), while another three dealt with prevention and transmission (5, 7 and 19). Three of the items dealt directly with pregnancy and childcare (18, 20 and 21).

Table 1
Knowledge of TTBA's on HIV/AIDS in Kosirai division.

While more than 80% of TTBA's reflected positive attitudes on 5 and 9 items, a larger group (62.5%) were afraid of contracting HIV from infected mothers

(item2), while at the same time believing they were less likely than other people to contract get HIV (39.1% in item 4).

Table 1
Knowledge of TTBA's on HIV/AIDS in Kosirai division.

Item	Statements of knowledge	Yes
1	HIV is a virus that lives in the human body cell	100%
2	HIV is transmitted from one person to another	98.4%
3	HIV weakens the immune system which fights infection in the human body	98.4%
4	HIV infection cannot be cured	95.3%
5	Sex abstinence the risk of contracting HIV from person to person	95.3%
6	Being faithful to one partner reduces the risk of contracting HIV	98.4%
7	Using a condom during sex. reduces the risk of contracting HIV	95.3%
8	Sexually transmitted infections increases the possibility of HIV transmission	100%
9	The only way to know for sure that someone has HIV is to get an test done	100%
10	Unsafe or unprotected sexual intercourse is the most common mode of HIV transmission	100%
11	HIV is transmitted through contaminated blood or blood products	98.4% 1.
12	HIV can be transmitted from infected mother to the child through breastfeeding	100%
13	HIV can be transmitted from infected mother to the child during child birth process	98.4% 1.
14	Anti-retroviral therapy lowers the amount of virus in the body	98.4% 1.
15	Anti-retroviral therapy increases the number of immune cells to help fight infections	96.9% 3.
16	Anti-retroviral therapy must be taken for the rest of the person's life or virus can grow stronger	98.4% 1.
17	Anti-retroviral therapy does not cure HIV	93.8% 6.
18	Exclusive breast feeding for the first six months, then stopped at once and start the baby on other feeds reduces the risk of contracting HIV/AIDS from mother to child.	90.9%
19	A person can be infected with HIV/AIDS but not have symptoms	89.1%
20	Offering anti-retroviral therapy in pregnancy to HIV infected mother reduces mother to child transmission of HIV	96.9%
21	Offering anti-retroviral medication during labor to HIV infected mother reduces mother to child transmission of HIV	93.8%

Table 2

Attitudes of TTBA's on HIV/AIDS in Kosirai division.

Statements of attitudes	Disagree	Tend to		Agree
		disagree	to agree	
1 I could not conduct a delivery to a known HIV infected mother	82.80%	1.60%	1.60%	14%
2 I am afraid of contracting HIV from infected expectant mother	34.40%	1.60%	1.60%	62.50%
3 People infected with HIV should not have sex	45.30%	3.10%		51.60%
4 I am less likely than most people to get HIV	57.80%	3.10%		39.10%
5 I would rather conduct a delivery of a mother suffering from other diseases than HIV/AIDS	64.10%	3.10%	1.60%	31.30%
6 I have heard enough about HIV/AIDS and I don't want to hear anymore about it	85.90%			14.10%
7 Radio programs on HIV/AIDS should be aired more often	7.80%			92.20%
8 People with HIV/AIDS are already dead and they should not be given ARVs or any treatment	90.60%			9.40%
9 I am comfortable discussing with someone about HIV/AIDS	6.30%			93.80%

The fear of contracting HIV might also explain why many of them (31.3% in item 5) would rather work with other diseases. The very punitive attitude about sex in item 3 was held by the majority (51.6%) of the TTBA's.

From the summary on table 3, it would seem that more than 90% of TTBA's report safe practices with regard to HIV. The one exception is the education of women about safe feeding options (item 8) which is at 82%.

Correlation of TTBA's Knowledge Attitudes and Practices on HIV and AIDS.

The correlation statistics indicated that there was a positive relationship between TTBA's knowledge and their practices (p=.018) on HIV/AIDS transmission and prevention. Additionally, there was a positive relationship between TTBA's practices

Table 3

Practices of TTBA's on HIV and AIDS.

Statements of practice	Never	Rarely	Sometimes	Always
1 I use a new blade in conducting each delivery	1.60%	1.60%	4.70%	92.20%
2 I conduct deliveries with gloved hands.	1.60%	1.60%	3.10%	93.80%
3 I educate expectant mother at term to carry gloves with them all the time in case of emergency delivery while not at health facility.		3.10%	3.10%	93.80%
4 I educate every pregnant woman to go for HIV/AIDS testing.	1.60%		1.60%	96.90%
5 I promote condom use during pregnancy to infected spouses to prevent re-infection with HIV/AIDS	1.60%	4.70%		93.80%
6 I refer primigravidas for antenatal services.		3.10%		96.90%
7 I offer information on safer sex practices to prevent HIV/AIDS infection in pregnancy.	1.60%	3.10%	1.60%	93.80%
8 I educate infected pregnant mother on infant feeding options.	9.40%	4.70%	3.10%	82.80%
9 To reduce mother to child transmission of HIV/AIDS, I wipe away secretions from the baby's face.	1.60%			98.40%
10 To reduce mother to child transmission of HIV I reduce trauma to the mother during delivery				100%

and their attitudes on HIV/AIDS transmission and prevention (p=.022). The correlation coefficient of 0.284 and 0.286, for knowledge and practices; attitudes and practices respectively suggested a weak relationship. However the relationship was significant. There was no significant relationship between the TTBA's knowledge and their attitudes on HIV/AIDS transmission and prevention (p=.994). See table 4 below.

Discussion and Recommendations

Doyle & Ward, (2001) observed that individual behavior is driven by a multitude of influencing factors. Immediate influences come from personal knowledge, attitudes and beliefs as well as confidence in one's ability to perform a particular health behavior. Whereas Katzenellenbogen et al., (2005) asserted that there is a weak connection between knowledge, attitudes, beliefs, and behavior, the research findings indicate that there is a weak connection but significant relationship between knowledge and practice, attitudes and practice. In support of these findings, Green & Kreuter, (1991) have explained that health knowledge of some kind is necessary before a conscious personal health action can occur. The desired health action will probably not occur unless a person receives a cue strong enough to trigger the motivation to act on that knowledge.

Table 4

Correlation of KAP of TTBA's on HIV/AIDS

Correlations			meanknow	meanprac	meanatti
Spearman's rho	meanknow	Correlation Coefficient	1.000	.294*	.001
		Sig. (2-tailed)	.	.018	.994
		N	64	64	64
meanprac		Correlation Coefficient	.294*	1.000	.286*
		Sig. (2-tailed)	.018	.	.022
		N	64	64	64
meanatti		Correlation Coefficient	.001	.286*	1.000
		Sig. (2-tailed)	.994	.022	.
		N	64	64	64

*. Correlation is significant at the 0.05 level (2-tailed).

Increased knowledge may not always result immediately in a change of behavior or practice but will eventually lead to a change due to value system of a person.

Downie et al., (1996) defined attitude as a 'learned predisposition' (p. 121) in that it might be changed as a result of consciously acquired knowledge, and understanding. This may not however be the case always since 'attitudes are not necessarily consciously learned predispositions. Rather, they might sometimes be more accurately said to be acquired'. Downie et al., (1996) also stated that the relationship between behavior and constructs such as attitudes, beliefs, and values though not completely understood, give ample evidence of their association.

From these research findings, it is clear that there is no relationship between TTBA's knowledge on HIV/AIDS and their attitudes. For example 98.4% of the respondents agreed that ART lowers the amount of virus in the body of the HIV infected person, but surprisingly a lower percentage of 90.6% indicated that people with HIV/AIDS should be put on ART. A notable 9.4% stated that there is no need for them to be put on ART. It was expected that an equivalent number of the respondents (98.4%) would advocate that the HIV infected persons be put on ART, but not lower given that they are trained on the importance of ART to HIV infected persons.

The majority of the TTBA's are over the age of 51 with more than 21 years of experiences as traditional birth attendants in their communities. With little or no formal education, TTBA's interact with expectant mothers, conduct a significant number of deliveries and refer a substantial number of expectant mothers to hospital facilities for antenatal care and for safe delivery every month. It is noteworthy that the TTBA's are experienced enough to pre-determine if there could be complications.

The majority of TTBA's have good knowledge of HIV/AIDS in general, the mode of transmission, mother to child transmission, anti retroviral therapy, and preventive measures. Similarly, in a study done in South Africa on TTBA's, Peltzer & Henda, (2006) showed that TTBA's have good knowledge about HIV/AIDS. The good knowledge was explained by the training TTBA's had received on HIV/AIDS.

The responses indicate that some TTBA's don't have adequate knowledge on infant feeding options available to a mother infected with HIV/AIDS while the majorities have adequate knowledge on the use of ART during pregnancy and labor. Inadequate knowledge on exclusive breastfeeding as an infant feeding option available to a mother who is infected with HIV/AIDS poses a risk to children born from HIV infected mothers because the TTBA's will not be in a position to give them the required education on exclusive breastfeeding. The Ministry of Health (2002) guideline on prevention of MTCT of HIV/AIDS has advocated exclusive breastfeeding of the baby for the first six months of life since mixed feeding increases the risk of breast milk transmission of HIV. It is recommended there is a need to improve TTBA's knowledge on infant feeding options available to a mother infected with HIV.

TTBA's seem to have been afraid of contracting HIV from positive mothers. This may be a realistic fear if they do not have the equipment to protect themselves adequately. TTBA's need to be provided with the necessary delivery equipment to protect themselves so that they can be less afraid of contracting HIV while conducting deliveries.

Conclusion

According to the findings from this study, trained traditional birth attendants have adequate knowledge, tend to have favorable attitudes and safe practices on HIV/AIDS transmission and prevention. There is a positive relationship between TTBA's knowledge and their practices (p=.018) on HIV/AIDS transmission and prevention. Additionally, there is a positive relationship between TTBA's practices and their attitudes on HIV/AIDS transmission and prevention (p=.022). While some African governments have tried to ban TTBA's from practicing, it is evident that TTBA's are indispensable until the African countries manage the problem of its infrastructure and poverty.

It is noteworthy that there is still stigma

and discrimination against the HIV/AIDS infected population. The risk of mother-to-child transmission of HIV/AIDS would be reduced if all the expectant mothers were taught on infant feeding options and antiretroviral therapy prophylaxis to their babies in case the mothers are HIV infected when they deliver at home.

In conclusion we can therefore state that TTBA's knowledge on HIV/AIDS did not necessarily change their attitudes towards a person infected with HIV/AIDS, but better knowledge on HIV/AIDS had an influence on their practices on HIV/AIDS transmission and prevention. TTBA's attitudes on HIV/AIDS have a positive relationship on their practices regarding HIV/AIDS transmission and prevention. Considering the roles of TTBA's in maternal child health as revealed by this study and review of other studies, the study therefore recommends to the government and non-governmental organization to appreciate the role of the TTBA's in health care delivery system. Until TTBA's are replaced by skilled birth attendants, they remain the only option to many women of Africa.

Acknowledgement

We wish to thank Prof. Elizabeth Role for assistance with data analysis. This study was carried out with partial financial assistance from University of Eastern Africa, Baraton research grant to S.G.C.

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