

Assessment of Voluntary HIV Counseling and Testing Service Utilization and Associated Socio-Demographic among Secondary School Teachers in Nyando, Kisumu County Kenya: A Descriptive Cross Sectional Survey

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Abstract

Voluntary HIV counseling and testing (VCT) is one of the key tools in the HIV/AIDS prevention and control programs in Kenya. But utilization of VCT services among out secondary school teachers in Kenya is low. The aim of this study was to assess Voluntary HIV Counseling and Testing Service utilization and associated socio-demographic factors among secondary school teachers since most school-based HIV interventions in sub-Saharan Africa rely on teachers as behavior formation and behavior-change agents to deliver prevention messages to school children. The study sample consisted of 255 secondary school teachers (36% females and 64% males) out of a total of 753 teachers from 73 secondary schools in the seven divisions in Nyando district. Stratified sampling was used to select the number of schools per division to be included in the study while simple random sampling was used to select schools in each division. Self-administered questionnaires and focus group discussions were used to estimate the prevalence of VCT service utilization and to assess associated socio-demographic factors among the secondary school teachers. Cross tabulation was used to show relationships between the independent and the dependent variables, and chi-square was used to test for existence of relationships between the variables, $p < 0.05$ was considered statistically significant. Information from in-depth discussions was analyzed manually using qualitative methods. The data was presented descriptively and through the use of frequency tables and bar graphs. The study found significant relationships between utilization of VCT services and gender ($p = 0.003$) and age ($p = 0.004$), but not level of education, marital status, religious affiliation or area of residence. Spousal approval of VCT utilization emerged as the most significant social factor affecting utilization of VCT services ($p = 0.019$). HIV/VCT utilization among secondary school teachers in Nyando County remain low especially among male teachers. HIV/AIDS prevention and control programs among secondary school teachers in Nyando County should focus on the above areas.

Key words: HIV testing, VCT utilization, Knowledge, Secondary school teachers, Nakuru Kenya.

1. Introduction

Sub-Saharan Africa remains the most heavily affected region in the global HIV epidemic (UNAIDS 2012). In 2011 for example; an estimated 23.5 million (22.1–24.8 million) people living with HIV resided in Sub-Saharan Africa, representing 69% of the global HIV burden (UNAIDS 2012). East and Southern Africa is one of the region's hardest hit by HIV as it is home to 19.4 million people living with HIV, a figure that is over 50% of the total number of people living with HIV in the world (UNAIDS AIDS info 2017).

The HIV epidemic in this region is generalized but young women, men who have sex with men, sex workers, prisoners and people who inject drugs are at an increased vulnerability to infection (UNAIDS AIDS info 2017). Kenya is one of the Sub-Saharan Africa countries (SSA) that has been affected by a generalized and a concentrated HIV epidemic, where the epidemic is deeply rooted among the general population while there is also concentration of very high prevalence among key populations for example sex workers, their clients, and men who have sex with men (NACCK 2012). HIV/AIDS epidemic in Kenya had the joint fourth-largest HIV epidemic in the world (alongside Mozambique and Uganda) (UNAIDS 2013).

The first case of HIV in Kenya was detected in 1984, and by the mid-1990s it was one of the major causes of mortality in the country putting huge demands on the healthcare system as well as the economy (NACCK 2012). HIV prevalence peaked at 10.5% in 1996, and had fallen to 6% by 2013 mainly due to the rapid scaling up of antiretroviral treatment (ART) (Mugo *et al.* 2010).

Like all members of the population, however, teachers are susceptible to HIV. Early in the epidemic it was

thought that teachers were at relatively high risk of HIV infection due to their high levels of social mobility. The majority of evidence now available, however, seems to indicate that prevalence rates among teachers are similar to those found in the general population (Boler 2004).

Even though there is no comprehensive data about AIDS-related deaths among teachers, available information suggests that deaths among teachers has been increasing over the past two decades, with AIDS being the largest hypothesized contributor (Kiragu et al. 2008). However is estimated that the number of teacher deaths in Kenya tripled between 1995 and 1999, with HIV and AIDS thought to be the largest contributor to teacher mortality (Kelly 2000). An analysis by the International Labor Organization on the impact of HIV and AIDS on human capital suggested that Kenya was second only to South Africa in the sheer number of teachers dying from HIV infection by 2010, well ahead of Nigeria, Zimbabwe, and Uganda (Cohen 2002). The Kenya's teaching profession was estimated at 240,000-strong a few years ago; including 10,000 teachers who were HIV of which 3,000 had gone public about their status and participated in the support group 'Teachers with AIDS' (Barimbui & Miller 2008).

Teachers play a key custodian role within the education system as they are not only role models, mentors and guardians; but they are also central to efforts to achieve the Education for All (EFA) and Millennium Development Goals (MDGs), as education is seen both as a right and as a central pillar of efforts to eradicate poverty (UNESCO and EI-EFAIDS 2007). Teachers in countries with high HIV prevalence rates are both infected and affected by the virus. Every month, 100 Tanzanian primary school teachers are estimated to die of AIDS-related illnesses and in 2006 alone an estimated 45,000 additional teachers were needed to replace those lost to the epidemic (Beckmann & Rai 2004). Most school-based HIV interventions in sub-Saharan Africa rely on teachers as behavior formation and behavior-change agents to deliver prevention messages to children. Most school-based HIV interventions in sub-Saharan Africa rely on teachers as behavior formation and behavior-change agents to deliver prevention messages to children (Kiragu et al. 2006). Seven thousand additional teachers will need to be trained in Swaziland by 2020 to compensate for AIDS deaths among teachers (UNESCO and EI-EFAIDS 2007). In Kenya, over 14,500 teachers are thought to be HIV-positive (UNESCO and EFAIDS. 2006).

In some countries, a tenfold increase in teacher mortality and absenteeism due to HIV and AIDS has severely reduced both teaching time and quality taking into account that, permanent or temporary absenteeism of one teacher can have strong repercussions on up to 100 children (Rispel 2006). HIV and AIDS are reported to account for up to 77% of teacher absenteeism in countries with high prevalence rates (Global Campaign for Education (GCE) 2006).

The Government of Kenya, with other stakeholders, developed a national HIV/AIDS strategic plan that identified strategies to alleviate the spread of HIV/AIDS (NACCK 2012). One of the key strategies since 2001 has been the establishment of Voluntary Counseling and Testing (VCT) services, which has spread rapidly throughout the country (UNAIDS 2016). HIV Counseling and Testing has been a major focus of the response in Kenya with the country adopting multiple strategies including provider initiated testing, outreach testing, home based Counseling and Testing, and integration of testing and counseling in ANC, STI and SRH services (NACCK 2012).

Voluntary counseling and testing is an effective strategy for preventive effects on HIV transmission and serves as a gateway to most HIV/AIDS related services (Tesfaye et al. 2012). In addition, VCT is an important entry point to other HIV/AIDS prevention services, including emotional support, increasing motivation to avoid risky behaviors, access to HIV specific treatment, care and support (Fisher et al. 2007).

But the uptake of VCT services in Sub-Saharan Africa has been disappointingly low, with reports of 12% to 56% among couples or the general population (UNAIDS 2001). Other reports have supported the findings that despite the potential benefits of VCT, the uptake is often poor regardless of the availability of the services (WHO 2003, Matovu & Makumbi 2007, NASCOP 2007). In Kenya for instance, only 72% of adults aged 15-64 years reported having ever been tested for HIV in 2012, (Irungu et al. 2008).

HIV infection is highest in the 24-55 years age bracket, which forms the bulk of the workforce and where investments in education begin to pay off (Kiragu et al. 2008.) AIDS-related morbidity and mortality strike at the prime years of life; thus, impairing the earning capacity and resulting to socio-economic devastation at the individual, community and national levels (Kiragu et al. 2008). Teachers living with HIV have an important role to play, both in efforts to prevent new infections and in helping to address the impact of HIV and AIDS on individuals, institutions and communities. For example, 75% of teachers recently surveyed in Kenya stated they did not know their HIV status and 60% of those not tested indicated that they did not want to know their status because they feared discrimination (UNESCO and EI-EFAIDS. 2007). In Thika district in Kenya HIV-VCT service utilization was found to be only 30.5% (Merita et al. 2011). These researchers also found that those teachers who were scared by the HIV prevalence in their area were three times less likely to utilize HIV-VCT services.

Stigma and discrimination, may also, pose barriers to their involvement and the support available.

(UNESCO and EI-EFAIDS. 2007). While most education ministries have policies related to teachers and HIV & AIDS, in many cases those policies do not transfer to the school level due to lack of implementation and action plans and limited resources for supporting infected and affected teachers.(UNESCO and EI-EFAIDS 2007). In a study on the needs of the Kenya teachers Kiragu et al (2006), found that although well educated, many teachers are confused or uninformed about important aspects of HIV prevention. For example, many teachers are uncertain about the effectiveness of condoms in protecting against HIV infection. Other researchers concluded that some teachers are not likely to advocate for their use despite the existence of a generalized HIV epidemic in Kenya. (Kiragu et al.2006).

It is against this back ground that this study sought to identify socio-demographic factors among secondary school teachers in Nyando, Kisumu County which may affect their utilization of VCT service.

2. Methodology:

2.1 Study Area and Design

The study was done in the former Nyando District, now a division in Kisumu County, Kenya. Nyando District was one of the 12 districts in the former Nyanza Province. The district borders Kisumu District to the west, Nandi District to the north, Kericho District to the east and Rachuonyo District to the south. The district had six Divisions namely: Upper Nyakach, Lower Nyakach, West Nyakach, Nyando, Miwani and Muhoroni. It had a total land area of 1168.4 km² and a population of 332,137; 162,381 males and 169,756 females (ROK 2002). There were 35 health facilities in the district which consisted of 1 Government District Hospital, hospital, 2 sub-district hospitals, 2 private hospitals, 9 health centers, 16 dispensaries, and 5 Nursing/maternity homes. The average distance to the nearest health facility was 5 kilometers with a doctor/patient ratio of 1:50,000. The district had 12 VCT sites. The district was purposely chosen for this study due to its relatively high level of HIV/AIDS prevalence which stood at 7.5% (NACC 2007), (above the national average of 5.1%). The area was also accessible and familiar to the researchers.

Nyando Division had 73 secondary schools with 753 teachers; 473 males and 280 females. Stratified sampling was used to determine the number of schools per administrative unit to be included in the study. Simple random sampling was then used to select the particular schools that participated in the study in each administrative unit. All consenting teachers in the 26 selected schools were eligible to participate in the study.

Questionnaires were administered to this group in the various administrative units during an 8 week period.

2.2 The study population

The study included all secondary school teachers teaching in Nyando District at the time of the study who gave informed consent. All other non-secondary school teachers in Nyando, and those who did not give consent were excluded from the study

2.3 Sample size determination and sampling techniques

Sample size determination

The minimum sample size of respondents was obtained using a formula as used by Fisher *et al.* (1998) shown below:

$$N = \frac{z^2 pq}{d^2}$$

Where; N= the desired sample size, z= normal deviate which corresponds to 95%

Confidence interval, p =0.2 (20%); the proportion of the study population estimated to have utilized VCT services (Kiragu *et al.*, 2006), q=1-p, d =degrees of freedom = 0.05.

Thus, N= $\frac{1.96^2 \times 0.2 \times 0.8}{(0.05)^2}$, this was approximately =246.

2.3 Sampling techniques

Nyando District had six divisions with 73 secondary schools and 753 teachers. This gave an average of about 10 teachers per school. With a minimum sample size of 246, at least 25 secondary schools were needed to obtain a representative sample of the study population. The number was however increased to 26 to cater for attrition and respondents who would be unwilling to participate in the study. Stratified sampling was then used to determine the number of schools per division which were to be included in the study. Simple random sampling was used to select schools from each division. All consenting teachers in the selected schools were eligible to participate in the study.

2.4 Pilot study

A pilot study was conducted in two randomly selected schools in the neighboring Kisumu District, which had similar characteristics as the study area. The main purpose was to ensure the validity and reliability of the data collection instruments and their suitability to the study. After piloting, the data collection instruments were

adjusted accordingly

2.5 Data collection techniques

The questionnaires were personally administered to the respondents by the researchers. This was found necessary in order to avoid the possibility of the respondents discussing the possible responses among themselves, or people not included in the study sample, answering the questions. Focus group discussions (FGDs) were also held with all consenting respondents divided in groups of 8-1

2.6 Data analysis

Data from filled questionnaires was coded and entered into the computer using SPSS version 11.5. Cross tabulation was done to establish the relationships between the independent and the dependent variables. Analysis was done using the chi-square test and $p < 0.05$ was considered statistically significant. Information obtained from in-depth discussions was analyzed manually using qualitative methods

3. Ethical considerations:

Permission for carrying out the study was obtained from the Graduate School of Kenyatta University and the Ministry of Higher Education, Science and Technology. The researchers sought and obtained informed consent from the respondents

4. Results:

Socio-demographic characteristics of the study population

Table 4.1: Socio-demographic characteristics of the study population

Socio-demographic characteristic	Number	Percentage (%)
Gender	Females	36
	Males	64
Level of education	KCSE/Form 4	5
	KACE/Diploma	14
	Degree	74
	Post-graduate degree	7
Age	15-24 years	11
	25-34 years	38
	35-44 years	43
	45 years and above	8
Marital status	Single	19
	Married/cohabiting	75
	Divorced/separated	2
	Widowed	4
Religious affiliation	Protestants	63
	Catholics	34
	Muslims and others	3
Area of residence	Urban	29
	Rural	71

The results in table 4.1 indicate that majority (64%) of the respondents were males, and majority (74%) had degree level of education. The largest proportion of respondents (43%) were aged 35-44 years while only 8% were aged above 45 years. In addition, majority (75%) of the respondents were married or cohabiting, while about 4% were widowed. The results further show that majority (63%) of the respondents were Protestants, and majority (71%) lived in rural areas.

4.2 The level of utilization of VCT services among the study population

Results in figure 4.2 show that only less than half (48%) of the respondents had utilized VCT services.

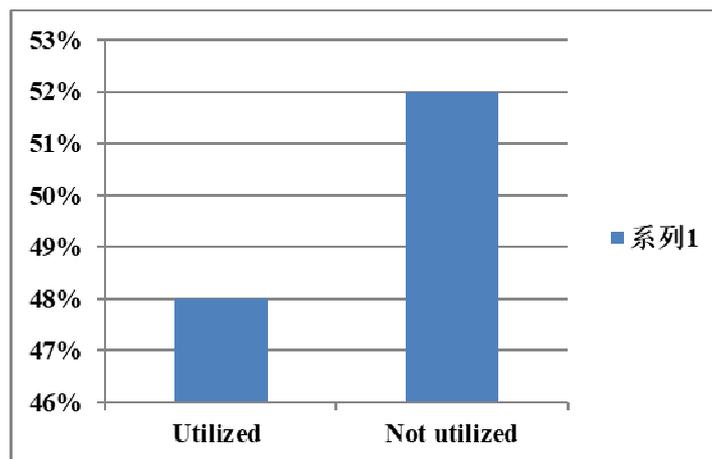


Figure 4.2: The level of utilization of VCT services

Results in figure 4.3 show that, majority (53%) of those who had utilized VCT services had gone for the services only once.

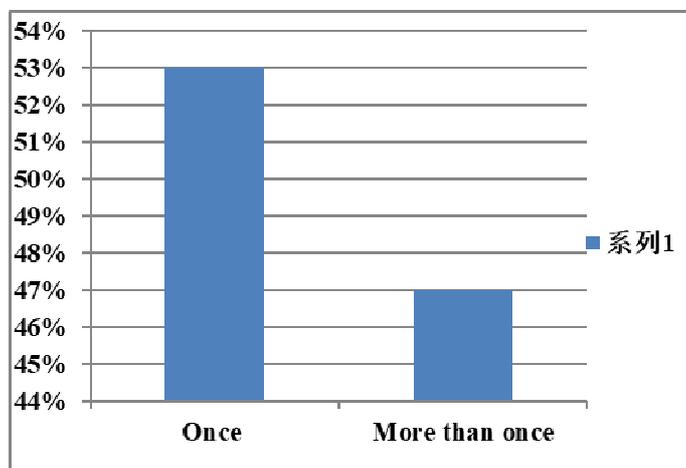


Figure 4.3: Frequency of utilization of VCT services

Table 4.4: Demographic factors and utilization of VCT services

Demographic factors	Utilized VCT	Never utilized VCT	Chi-square statistic
Gender			$X^2=8.808$
Females	55(60%)	36(40%)	$df=1$
Males	66(41%)	95(59%)	$p=0.003$
Total	121(48%)	131(52%)	
Level of education			$X^2=3.344$
KCSE	7(58%)	5(42%)	$df=3$
KACE/Diploma	13(36%)	23(64%)	$p=0.342$
Degree	94(51%)	92(49%)	
Post-graduate degree	7(41%)	10(59%)	
Total	121(48%)	130(52%)	
Age			$X^2=13.36$
15-24 years	17(63%)	10(37%)	$df=3$
25-34 years	54(57%)		$p=0.004$
35-44 years	46(42%)	64(58%)	
45 years and above	4(20%)	16(80%)	
Total	121(48%)	131(52%)	
Marital status			$X^2=3.205$
Single (never married)	28(60%)	19(40%)	$df=2$
Married/cohabiting	86(46%)	101(54%)	$p=0.201$
Widowed/Divorced/ Separated	6(40%)	9(60%)	
Total	120(48%)	129(52%)	
Religious affiliation			$X^2=0.626$
Protestants	78(50%)	78(50%)	$df=2$
Catholics	38(45%)	47(55%)	$p=0.731$
Muslims/others	3(50%)	3(50%)	
Total	119(48%)	128(52%)	
Area of residence			$X^2=3.229$
Urban	42(57%)	32(43%)	$df=1$
Rural	78(44%)	98(56%)	$p=0.072$
Total	120(48%)	130(52%)	

Gender

The results in table 4.4 indicate that a larger proportion (60%) of females had utilized VCT services compared to the males (41%). The results ($X^2=8.808$; $df=1$; $p=0.003$) indicated that a significantly larger proportion of female respondents had utilized VCT services compared to their male counterparts.

Level of education

The results in table 4.4 indicate that the largest proportion (58%) of respondents who had utilized VCT services were KCSE holders. Fifty one percent (51%) of degree holders, 41% of post-graduate degree holders and 36% of KACE/Diploma holders had also utilized the services. The results ($X^2=3.344$; $df=3$; $p=0.342$) indicated that there was no significant relationship between the level of education and utilization of VCT services.

Age

The results in table 4.4 indicate that the largest proportion (63%) of the respondents in the age category of 15-24 years had utilized VCT services. Forty two (42%) of respondents in the age category of 35-44 years had also utilized VCT services. In addition, only about 20% of respondents aged over 45 years had utilized the services. The results ($X^2=13.363$; $df=3$; $p=0.004$) indicated that a significantly larger proportion of younger respondents (15-24 years) had utilized VCT services compared to those in the older age categories.

Marital status

The results in table 4.4 indicate that the largest proportion (60%) of the respondents who had utilized VCT services were single (never married). Forty six percent (46%) of the respondents who were married or were cohabiting and 40% of those who were widowed, divorced or separated had also utilized the services. “VCT utilization has never been an issue in our family and I don’t remember ever discussing it with my husband”, said a 35 year-old married female respondent. The results ($X^2=3.205$; $df=2$; $p=0.201$) however indicated that there was no significant relationship between marital status and utilization of VCT services.

Religious affiliation

The results in table 4.4 indicate that among the respondents who had gone for VCT; 50% of the Protestants had visited VCT compared to, 45% of the Catholics, and 50% of the Muslims and other religious groups. (50%). The

area was however predominantly Christian, with very few Muslims or members of other religious faiths. The results indicated that there was no significant relationship between religious affiliation and utilization of VCT services.. *‘Throughout the time I have been a member of my church, I don’t remember any time any member or religious leader has publicly talked to us about utilization of VCT services and I doubt if the church has any policy regarding the same’*, said a 43 year-old respondent.

Area of residence

The results in table 4.2 indicate that a larger proportion (57%) of respondents living in urban areas had utilized VCT services compared to their rural counterparts (44%). However, the results ($X^2=3.229$; $df=1$; $p=0.072$) indicated that there was no significant relationship between area of residence and utilization of VCT services.

5. Discussion

Voluntary Counseling and Testing (VCT) has proven to be one of the most powerful tools in halting the spread of HIV/AIDS, and it is known to be an important component in HIV/AIDS prevention strategies (Fisher et al. 2007). Though various studies have shown low utilization of VCT service particularly in developing countries (Fisher et al. 2007), this study assessed the level of VCT utilization and possible associated socio-demographic factors among secondary school teachers in Nyando, Kisumu County in Kenya. This study found that less than half (48%) of the respondents had utilized VCT services. The level of utilization of VCT services among our study population though low, was still higher than that found in a community study by Kimani et al (2007) of 38% VCT utilization among community members and 20% VCT utilization among Tanzania Teachers (Kakoko et al. 2006).

Socio demographic factors and VCT utilizing

It is important to measure the coverage of VCT uptake among young people including teachers, because of their vulnerability to HIV, and the various challenges they face in accessing the VCT services not only in Kenya but also other countries (Matovu & Makumbi 2007).

In our study, 63% of the respondents in the age group 15-24 years had utilized VCT services in contrast to (42%) of respondents in the of 35-44 years age group. In addition, only about 20% of respondents aged over 45 years had utilized the services. The results ($X^2=13.363$; $df=3$; $p=0.004$) indicate that a significantly larger proportion of younger respondents (15-24 years) had utilized VCT services compared to those in the older age categories. These findings are consistent with studies done in Ethiopia and Tanzania where, teachers aged between 20 and 29 years utilized VCT services 3 times better than 40 years and above (Woudneh Gereme Desta et al. 2017). Among teachers in Tanzania a study indicated that teachers who were aged between 21 and 30 years were significantly associated with an increased rate of having been tested for HIV (Kakoko et al.2006). The significant positive association of the younger age group may be due to the fact that they perceive themselves at risk of HIV infection. In our study, 60% of the teachers who had utilized VCT services were single while 46% were married and 40% who utilized VCT services were widowed, divorced or separated.

Our results were consistent with other studies done in Uganda and Ethiopia where married individuals utilized VCT services twice as much as their unmarried counterparts (Bekele 2007, Matovu et al.2005). However in contrast to our findings, their figures indicated that those who were divorced/widowed utilized VCT services 4 times more than unmarried counterparts. In our study, single teachers utilized the VCT services more than their divorced or widowed counterparts.

In this study, 51% of degree holders and 41% of post-graduate degree holders utilized VCT services compared to 36% of KACE/Diploma holders. These findings are similar to a Tanzania study which found that teachers who had a college or university education have been tested for HIV more than those who had secondary or primary education (Kakoko et al. 2006). The Tanzania researchers speculated that the increased uptake of VCT utilization among Tanzanian teachers might be due to the fact that in urban areas those with higher levels of education anticipated reactions of HIV/AIDS related stigma and discrimination less.

In this study the results ($X^2=8.808$; $df=1$; $p=0.003$) indicated that a significantly larger proportion of female respondents (60%) had utilized VCT services compared to their male counterparts (41%) Our study findings are in conformity with some previous studies (Kakoko et al. 2006). The increased uptake of VCT observed among female teachers was probably due to the fact that women in the reproductive age group are offered the VCT service while they visit the health facilities for different health reasons in general and during their antenatal check-up in particular (Wondwoson et al. 2007).

In this study, there was no significant relationship between religious affiliation and utilization of VCT services. This is in contrast to another similar study in Ethiopia, where there was increased uptake observed among the Christianity followers more than Muslims. (Omer & Haidar (2009). However this observation could most likely have been because of the large number of Christians in our study population (Moslems constituted only 26.6% of the total sample size)

In our study, (57%) of respondents living in urban areas had utilized VCT services compared to their rural counterparts (44%). The higher proportion of utilization of VCT services among urban dwellers compared to

their rural counterparts has been attributed to inadequate access to VCT services in rural areas (Kimani et al.2007).A study done in Tanzania among teachers also found similar findings (Kakoko 2006). The researcher attributed the higher VCT utilization among urban residents to the rural-urban differences in terms of availability and accessibility of the VCT services in urban areas.

6. Limitations of the study

- (1) Findings from this study may not be generalized to the whole population of Kenyan teachers because the study involved only secondary school teachers in one County in Kenya.
- (2) As in any cross-sectional study, cause and effect relationship was not possible to establish for the factors dealt with in the study
- (3) Since the study results depended on the responses of the participants and there is a high chance of recall bias.
- (4) The questionnaires used in this study, contained some culturally sensitive inquiries for the respondents in some study areas, for example, about their sexual behavior .This might have influenced the teachers to provide biased information

7. Conclusion

Gender and age emerged as the most significant demographic factors affecting utilization of VCT services. A significantly larger proportion of females than males had utilized VCT services ($p=0.003$). In addition, a significantly larger proportion of younger respondents had utilized VCT services compared to their older counterparts ($p=0.004$).

8. Recommendations

The study recommends that the various groups working on HIV/VCT prevention programs need to put in place innovative and culturally appropriate intervention strategies including the following:

- Initiate VCT promotion programs that will target male teachers especially older ones.
- Promote couple HIV counseling and testing among teachers.

9. Competing interest

The authors declare that they have no competing interests

10. Authors' contributions

AO made significant contribution to the conception and final drafting and revision of the study. JO participated in conception and initial design, drafting, statistical analysis and interpretation of study findings .OP, OA and KM; participated in revision of the manuscript and intellectual input. All authors read, edited and approved the final manuscript.

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