

**Original Article**

**Knowledge, attitudes, and practices related to voluntary counseling and testing (VCT) for HIV among nursing students in Zambia**

Luyando Hamukang'andu <sup>1</sup>, Lila C. Fleming <sup>2</sup>, Felix Silwimba <sup>1</sup>, and Kathryn H. Jacobsen <sup>2</sup>

<sup>1</sup> University of Lusaka, Lusaka, Zambia

Department of Global & Community Health, George Mason University, Fairfax, Virginia, USA

---

**Abstract**

Access to voluntary counseling and testing (VCT) services has become an important tool in the treatment and prevention of HIV infection. A cross-sectional knowledge, attitudes, and practices (KAP) study was conducted with 50 nursing students in Zambia. All students were aware of where to go for VCT, and 80% had reported using VCT services. However, the participants expressed concerns about privacy and confidentiality related to testing, with most students preferring to seek future VCT at a facility far from their workplace. This ongoing fear of stigma associated with HIV testing was similar to the findings of a recent KAP study conducted among young adults in Bo, Sierra Leone.

---

Keywords: HIV, VCT, KAP, Young Adults, Attitudes

---

\*Corresponding Author Email: [kjacobse@gmu.edu](mailto:kjacobse@gmu.edu); Tel:+1703-993-9168

---

## **Introduction**

Globally, about 40% of people infected with HIV are unaware of their status (UNAIDS, 2015). Voluntary counseling and testing (VCT) services for HIV increase awareness of HIV status. Participants in VCT receive counseling before and after an HIV test along with referral to medical services for those with positive test results (Fonner et al., 2012). To reduce psychological stress and increase the proportion of tested individuals who receive the results of their tests, the entire process of pre-test counseling, testing, and post-test counseling to discuss the results is often conducted the same day (Bakari et al., 2000). VCT has become an important part of HIV control strategies in many countries, since VCT increases access to treatment for people with previously-undiagnosed HIV and allows those individuals to take actions that will reduce the risk of passing the virus on to their sexual partners (Fonner et al., 2012). VCT counselors ideally provide education not only about abstinence, monogamy, and condom use, but also about encouraging partners to undergo VCT and share their results (Levey and Wang, 2014). Zambia was one of the first countries to implement VCT programs, in 1987, and they continue to be widely available (Simbaya and Moyer, 2013). However, VCT services remain underutilized in Zambia (Musheke et al., 2013; Zambia MOH, 2015).

Previous studies of VCT in sub-Saharan Africa have found that many adults who report a willingness to be

tested for HIV have not done so because of the stigma associated with an HIV diagnosis. In Zambia, willingness to undergo VCT has generally been found to be higher among those who are able to seek VCT at distant clinics rather than their local clinic (Fylkesnes and Siziya, 2004). VCT uptake is highest in places where home-based testing is available and test-seekers do not have to risk the loss of privacy that would result from being seen at a VCT clinic or invest time and money in traveling to a clinic (Fylkesnes et al., 2013; Hensen et al., 2015a; Hensen et al., 2015b). For Zambians, the benefits of accessing treatment are often perceived to be outweighed by the risks of HIV-associated stigma (Jürgensen et al., 2012). The ability to have open conversations about HIV with family, friends, and sex partners are associated with more willingness to undergo VCT (Denison et al., 2009), while fears of disapproval from these influential individuals are a major barrier to accessing testing services (Denison et al., 2008). Fears of breeches in confidentiality remain, even though the staff who provide counselling are trained to ensure informed consent is granted prior to testing and that confidentiality is assured after testing (Jürgensen et al., 2013).

This paper presents the results of a study of knowledge, attitudes, and practices (KAP) toward VCT among nursing students in Zambia that was inspired by a survey of young adults in Bo, Sierra Leone, that was conducted in 2012 (Bhoobun et al., 2014). Rates of HIV knowledge and VCT use in Sierra Leone

are low (Brima et al., 2015), but VCT still plays a key role in making HIV diagnosis accessible to residents (Kouyoumdjian et al., 2010). In the VCT study in Bo, most participants expressed a willingness to be tested for HIV but few had actually undergone testing (Bhoobun et al., 2014). The continuing presence of stigma associated with HIV was a major barrier to testing. Participants in the Bo study reported that healthcare workers were strong influences on their decisions to seek VCT. This suggests that it is important for nurses and other clinicians not only to be knowledgeable about HIV and VCT, but also to have supportive attitudes that assure patients that they will be respected throughout the testing process and, if they test positive, as they receive treatment for their infection. The specific aims of this study in Zambia were to determine levels of knowledge about HIV VCT among nursing students, to evaluate attitudes toward VCT in this population, and to understand the practices related to VCT among these nurses-in-training.

## Methods

A cross-sectional study design was used to conduct a knowledge, attitudes, and practices (KAP) survey related to volunteer counseling and testing services (VCT) for HIV among nursing students at a college of nursing and midwifery in rural Zambia in 2016. Approximately 260 students (two-thirds female) attend the college. A purposive sampling approach was used to reasonably align this study's

population with the young adults (ages 19-35 years) who were eligible for the comparison study conducted in Bo, Sierra Leone (Bhoobun et al., 2014). A total of 50 students (two-thirds female) ages 19 through 38 participated in the study. Data were collected through a self-administered survey containing questions drawn from the KAP questionnaire used in Sierra Leone (Bhoobun et al., 2014). Questions about sociodemographic characteristics (age, sex, marital status, course, and year of study), knowledge about VCT (including awareness of the availability and location of VCT services), attitudes about VCT (including questions about the importance of VCT, motivators to undergo VCT, and stigma toward people with HIV), and practices related to VCT (including personal testing history) were included in the survey instrument. Data were analyzed using descriptive statistical functions in SPSS and Epi Info. Informed consent was obtained from each study participant before the questionnaire was distributed and completed. Ethical approval for the study was obtained from the research and ethics committee at the University of Lusaka, in Zambia, prior to initiation of data collection.

## Results

The demographic characteristics of study participants are shown in Table 1. Most of the participants were less than 25 years old (68%), female (68%), and unmarried (88%). Most were in nursing programs (82%) rather than pursuing specialized study in nurse midwifery. The

students represented all years of nurse training.

**Table 1. Demographic characteristics of study participants.**

Characteristic		%
Age (years)	<25	68%
	≥25	32%
Sex	Female	68%
	Male	32%
Marital status	Single	88%
	Married	12%
Course of study	Nursing	82%
	Nurse midwifery	18%
Year of study	1 <sup>st</sup>	38%
	2 <sup>nd</sup>	38%
	3 <sup>rd</sup>	24%

The participants reported high levels of knowledge about VCT for HIV (Table 2). Almost all of the nursing students knew what VCT is (100%), knew where VCT services are offered (100%), and correctly indicated that VCT services are available at the hospital affiliated with the nursing college (94%). The participants also reported that VCT is important at post-secondary educational institutions (98%), including their own nursing college (96%), and they reported considering it important for nursing students to learn about VCT (96%).

However, the participants also reported a variety of barriers to seeking VCT services. While nearly all the students reported that they would go for VCT if they

knew that treatment for HIV would be made available to them (96%), many of the nursing students would not seek testing for themselves even following a known exposure. About 1 in 5 (18%) would not go for VCT after a needle stick, about 1 in 4 (24%) would not go for VCT even if it was a requirement for entry to nursing school, and about 1 in 3 (32%) would not go for VCT if advised to do so by a doctor.

The participants' answers to questions about testing preferences revealed a fear of stigma. The vast majority (86%) of nursing students would want VCT to be conducted in a private place. Most (78%) would want VCT to be conducted in a place where nobody knew them. Some students (30%) would prefer VCT to be conducted within the nursing school, among peers, rather than at the hospital where they might have less assurance of privacy and more risk of gossip. Although the students rated the efficiency and effectiveness of VCT services at the hospital as high (90%), they acknowledge that the services are not well used by nursing students (26%).

Despite these concerns and fears about VCT, the majority of the participants (80%) said they had undergone VCT for HIV at least one time. This indicates good practices, since routine use of VCT services is recommended for adults in Zambia, and VCT may be especially important for healthcare workers who might have occupational exposures to HIV. Half (50%) of the participants had undergone VCT at the hospital affiliated with the

Table 2. Nursing students’ responses to questions about VCT.

Domain	Question	% of “yes” responses
Knowledge	Do you know what voluntary counselling and testing (VCT) is?	100%
	Do you know where VCT services are offered?	100%
	Are you aware of the VCT services offered at the hospital affiliated with this nursing college?	94%
Attitudes: VCT importance	Do you think it is necessary to offer VCT services at institutions of higher learning?	98%
	Do you think students at this nursing college require VCT services?	96%
	Is there need for sensitization of VCT by nursing college students?	96%
Attitudes: VCT motivators	Would you go for VCT if you knew there is treatment available at the testing facility?	96%
	Would you go for VCT if you had been exposed to a needle/blade that you though might not be sterile?	82%
	Would you go for VCT if it was a requirement for entry to nursing school?	76%
	Would you go for VCT if you were advised to do so by a doctor?	68%
Attitudes: stigma	Would you like testing facilities to be in a place of privacy?	86%
	Would you like the test to be done somewhere nobody knows you?	78%
	Would you like the VCT facility to be within the nursing school premises rather than being at the hospital?	30%
	Do you think the VCT services offered at the hospital are efficient and effective?	90%
	In your opinion, are VCT services offered well utilized by nursing students?	26%
Practices	Have you ever gone for VCT and gotten the results?	80%
	Have you ever gone for VCT at a testing facility that is not at the nursing school or its associated hospital?	72%
	Have you ever gone for VCT offered at the hospital?	50%

nursing school, even though most of these students reported that they would prefer to be tested in a place where no one knows them, and 72% had been tested at another facility.

### **Discussion**

Both the new study in Zambia and the previous study in Bo, Sierra Leone (Bhoobun et al., 2014), found that even when high knowledge about VCT for HIV is present, fears of stigma remain and the rates of personal testing are lower than the rates of willingness to be tested. The strongest predictor of intention to use VCT among clinicians is attitudes toward HIV and VCT (Abamecha et al., 2013). It is important for healthcare workers to understand their own risks for HIV, some of which are occupational, and to feel comfortable and confident seeking VCT for themselves. Participants in both studies placed a high value on privacy and confidentiality. For nurses, this awareness of the importance of not disclosing their patients' HIV status to other people may make them better practitioners, but their awareness of the stigma associated with an HIV diagnosis may also make them less effective at communicating the value of testing to their patients and their colleagues. High-quality VCT services are rated as accessible, accepting, trustworthy, and supportive in addition to offering privacy and confidentiality (van Dyk and van Dyk, 2003).

Participants in the Zambia study reported a strong preference for being tested far from home and work. This

desire for privacy and confidentiality has been observed in numerous other studies in Zambia (Fylkesnes and Siziya, 2004; Fylkesnes et al., 2013; Hensen et al., 2015a; Hensen et al., 2015b). For healthcare workers, there may be heightened concerns about having coworkers know their status before the person with HIV has had time to accept the diagnosis and disclose it to partners, family, and friends. This concern could be a teaching tool for nurses preparing to counsel patients about HIV prevention, testing, treatment, and risk reduction options.

The small sample size of this study in Zambia limits the generalizability of its findings. However, this study suggests that even though nursing students consider VCT to be important, their attitudes towards HIV testing are similar to those of other young adult populations (Bhoobun et al., 2014). Additional research is necessary to explore how personal attitudes and practices toward HIV and VCT influence the ways clinicians interact with patients with and without HIV and their effectiveness at referring patients to VCT services. Providing more HIV education to nursing students and other healthcare workers may be a pathway for increasing uptake of VCT services in high-risk populations.

### **References**

Abamecha F, Godesso A, Girma E. Intention to voluntary HIV counseling and testing (VCT) among health professionals in Jimma zone, Ethiopia: the theory of

planned behavior (TPB) perspective. *BMC Public Health*. 2013; 13:140. doi:10.1186/1471-2458-13-140.

Bakari JP, McKenna S, Myrick A, Mwinga K, Bhat GJ, Allen S. Rapid voluntary testing and counseling for HIV: acceptability and feasibility in Zambian antenatal care clinics. *Annals of the New York Academy of Science*. 2000; 918:64-76.

Bhoobun S, Jetty A, Koroma MA, Kamara MJ, Kabia M, Coulson R, Ansumana R, Jacobsen KH. Facilitators and barriers related to voluntary counseling and testing for HIV among young adults in Bo, Sierra Leone. *Journal of Community Health*. 2014; 39:514-520. doi:10.1007/s10900-013-9788-4.

Brima N, Burns F, Fakoya I, Kargbo B, Conteh S, Copas A. Factors associated with HIV prevalence and HIV testing in Sierra Leone: findings from the 2008 Demographic Health Survey. *PLoS One*. 2015; 19:e0137055. doi:10.1371/journal.pone.0137055.

Denison JA, McCauley AP, Dunnett-Dagg WA, Lungu N, Sweat MD. HIV testing among adolescents in Ndola, Zambia: how individual, relational, and environmental factors relate to demand. *AIDS Education and Prevention*. 2009; 21:314-324. doi:10.1521/aeap.2009.21.4.314.

Denison JA, McCauley AP, Dunnett-Dagg WA, Lungu N, Sweat MD. The HIV testing experiences of adolescents in Ndola,

Zambia: do families and friends matter? *AIDS Care*. 2008; 20:101-105. doi:10.1080/09540120701427498.

Fonner VA, Denison J, Kennedy CE, O'Reilly K, Sweat M. Voluntary counseling and testing (VCT) for changing HIV-related risk behavior in developing countries. *Cochrane Database of Systematic Reviews*. 2012; (9):CD001224. doi:10.1002/14651858.CD001224.pub4.

Fylkesnes K, Sandøy IF, Jürgensen M, Chipimo PJ, Mwangala S, Michelo C. Strong effects of home-based voluntary HIV counselling and testing on acceptance and equity: a cluster randomized trial in Zambia. *Social Science and Medicine*. 2013; 86:9-16. doi:10.1016/j.socscimed.2013.02.036.

Fylkesnes K, Siziya S. A randomized trial on acceptability of voluntary HIV counselling and testing. *Tropical Medicine and International Health*. 2004; 9(5):566-572. doi:10.1111/j.1365-3156.2004.01231.x.

Hensen B, Lewis JJ, Schaap A, Tembo M, Mutale W, Weiss HA, Hargreaves J, Ayles H. Factors associated with HIV-testing and acceptance of an offer of home-based testing by men in rural Zambia. *AIDS Behavior*. 2015a; 19:492-504. doi:10.1007/s10461-014-0866-0.

Hensen B, Lewis JJ, Schaap A, Tembo M, Vera-Hernández M, Mutale W, Weiss HA, Hargreaves J, Stringer J, Ayles H.

Frequency of HIV-testing and factors associated with multiple lifetime HIV-testing among a rural population of Zambian men. *BMC Public Health*. 2015b; 15:960. doi:10.1186/s12889-015-2259-3.

Jürgensen M, Sandøy IF, Michelo C, Fylkesnes K, Mwangala S, Blystad A. The seven Cs of the high acceptability of home-based VCT: results from a mixed methods approach in Zambia. *Social Science and Medicine*. 2013; 97:210-219. doi:10.1016/j.socscimed.2013.07.033.

Jürgensen M, Tuba M, Fylkesnes K, Blystad A. The burden of knowing: balancing benefits and barriers in HIV testing decisions: a qualitative study from Zambia. *BMC Health Services Research*. 2012; 12:2. doi:10.1186/1472-6963-12-2.

Kouyoumdjian FG, Seisay AL, Kargbo B, Khan SH. The voluntary HIV counselling and testing service in Kenema District, Sierra Leone, 2004-2006: a descriptive study. *BMC International Health and Human Rights*. 2010; 10:4. doi:10.1186/1472-698X-10-4.

Levey IR, Wang W. Unravelling the quality of HIV counselling and testing services in the private and public sectors in Zambia. *Health Policy and Planning*. 2014;

29(Suppl 1):i30-37. doi:10.1093/heapol/czt036.

Musheke M, Ntalasha H, Gari S, Mckenzie O, Bond V, Martin-Hilber A, Merten S. A systematic review of qualitative findings on factors enabling and deterring uptake of HIV testing in Sub-Saharan Africa. *BMC Public Health*. 2013; 13:220. doi:10.1186/1471-2458-13-220.

Simbaya J, Moyer E. The emergence and evolution of HIV counselling in Zambia: a 25-year history. *Culture, Health and Sexuality*. 2013; 15(Suppl 4):S453-466. doi:10.1080/13691058.2013.794477.

UNAIDS. *How HIV Changed Everything—MDG 6: 15 Years, 15 Lessons of Hope from the AIDS Response*. Geneva: UNAIDS; 2015.

van Dyk AC, van Dyk PJ. “To know or not to know”: service-related barriers to voluntary HIV counseling and testing (VCT) in South Africa. *Curationis*. 2003; 26:4-10. doi:10.4102/curationis.v26i1.1289.

*Zambia: Demographic and Health Survey 2013-2014*. Lusaka: Central Statistical Office (CSO), Ministry of Health (MOH) [Zambia], and ICF International; 2015.