An Analysis of HIV Risky Behaviors of College Students in Malawi: A Case Study of Bunda and the Polytechnic

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Abstract

Malawi's first case of HIV was identified in 1985. Since then the Government, assisted by international aid organizations, has mounted campaign to promote HIV&AIDS awareness, offer Voluntary Counseling and Testing (VCT), and to prevent the spread of the Human Immunodeficiency Virus (HIV), which causes AIDS. The 2010 UNAIDS Report on Malawi shows that the spread of the epidemic has stabilized and even may be declining. The concern, however, is whether young men and women, who constitute the high-risk population of contracting the disease, such as college students, are paying heed to the campaign. This study of a small group of students at the Polytechnic and Bunda College campuses of the University of Malawi in 2008 examined the propensity of the students to engage in behaviors likely to expose them to HIV & AIDS. The study found that at least 20 percent of those studied exposed themselves through risky behavior, such as high alcohol consumption, unprotected sex and use of drugs, even though 80 percent were aware that such behaviors were likely to predispose them to the disease. Since the sample size was very small, we did not generalize our study to all university students in Malawi or even to all students on the campuses where the study was conducted. Furthermore, we recommend a broader study

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covering all constituent colleges of the University of Malawi, before significant recommendations can be made. The study, however, points to significant problems that need to be addressed before they get out of control, such as alcoholism and sex without condoms.

Key words: *Malawi, AIDS, HIV, University of Malawi, college students*

Introduction

Universities in developing countries present a high-risk environment for the spread of HIV & AIDS due to the high population of young people. The situation is especially serious in countries with a high incidence of HIV,, such as Malawi, where one out of 14 people is HIV positive (UNAIDS, 2010). The potential for HIV spread is also serious in the presence of fueling factors, such as the use of alcohol, prostitution, and failure to use condoms. This study was conducted at two branches of the University of Malawi, namely, Bunda College and The Polytechnic, to assess perceived risky behaviors likely to expose students to HIV.

Problem Statement

The Human Immunodeficiency Virus (HIV), which causes AIDS, is a significant public health problem, particularly in sub-Saharan Africa. According to the World Health Organization (WHO, 2009), approximately 9 million people in the sub-continent are infected annually. The WHO noted further that Sub-Saharan Africa had the most HIV infections and HIV-related mortality in the world. It also noted that of the world population living with HIV, 67 percent of people were in the region and of the global Acquired Immunodeficiency Syndrome (AIDS) deaths, 65 percent of occurred in the region.

Malawi is one of the sub-Saharan African countries with a high incidence of the disease. Although as a result of a concerted effort by the Government and international aid organizations, the spread may have peaked and is even beginning to decline, the number of people living with HIV in Malawi remains high, at 11 percent of the total population of nearly 15 million (UNGASS, 2010). AIDS is the leading cause of death among adults in Malawi and the main factor for the low life expectancy of 54 years (CIA, 2009; UNAIDS, 2010). While HIV affects men and women of all ages of people the young population, especially young women, are especially impacted. For example, 60% of adult HIV cases are women (UNAIDS, 2008). Young people between the ages of 13 and 24 are at highest risk for HIV infection in Malawi (UNAIDS, 2010). The majority of HIV cases result from heterosexual transmission. Homosexuality is illegal in Malawi, so there is no data on its prevalence or the prevalence of HIV infections transmitted between men.

The relationship between condom use and HIV acquisition is well documented. As such, encouraging condom use among at-risk populations has been the focus of HIV&AIDS campaigns. Two factors that influence condom use are access to condoms and attitudes about them. Several Non-Governmental Organizations (NGOS) have conducted extensive social marketing campaigns to improve access to condoms in Malawi. Between 1992 and 2004, the contraception prevalence rate,

defined as the percentage of married women using any form of modern contraception, increased from 7% to 28% in Malawi (Malawi Government, 2005).

In Malawi, sex and condom use is seen largely as the responsibility of the male, especially in the rural areas and among less educated women, which has prompted the United Nations (UN) to fund programs aimed at empowering women to use condoms. A 2008 project distributed female condoms and HIV prevention messages through trained staff in female beauty salons and was largely successful (Kaiser Family Foundation, 2008). However, women's subordination to men makes it hard for them to negotiate for safe sex even if they have condoms. Research in Botswana explored women's attitude towards condoms and found that women who do not believe that condoms reduce risk of HIV acquisition were less likely to use them. Furthermore, women were less likely to use condoms if they had sex while intoxicated or if their sex partners were older (Dintwa, 2010).

While the relationship between condom use and HIV risk is well-documented, the relationship between attitudes about condoms and participation in risky behaviors, including but not limited to unprotected sex, is not well understood. This study, which focused on students at two campuses of the University of Malawi, examined whether a person's attitude about condoms is associated with their self-reported risky behaviors. The main purpose of the study was to analyze student behaviors likely to predispose them to HIV & AIDS. The specific objectives were:

- To examine the demographic characteristics of students, such as their campus, age, year in school, and religion;
- To analyze personal factors perceived as risky behaviors, such as the propensity to consume alcohol and drugs, and failure to use condoms;
- To assess perceived awareness of HIV & AIDS, condom usage and role of religion on self-reported behavior towards risky factors; and
- To examine measures of association between selected demographic characteristics and the propensity for risky behavior.

Literature Review

The HIV crisis in Sub-Saharan Africa has became a pandemic and several intervention strategies have become common place, such as condom use and avoidance of behaviors that might predispose one to the disease. One of the primary strategies is HIV prevention through education, and starting from as low as primary school (Grunsheit, 1997). In addition to these school-based educational programs, mass media campaigns have been instituted to educate the public (Keating et al, 2006). Educational programs vary widely, with some focusing primarily on increasing knowledge and others aimed at changing behavior. Gallant & Maticka-Tyndale (2004) examined eleven school-based educational programs and found that ten of the eleven programs increased knowledge. The studies found that while it was relatively easy to change knowledge and attitude about the disease, changing behavior was much more difficult. For example, the researchers found that although 100 percent of respondents said they would change their attitudes, behavioral change rates ranged only

from 33 to 50 percent. These low rates suggest that knowledge and attitudes may be more easily changed than behaviors (Gallant & Maticka-Tyndale, 2004).

Mass media campaigns have also been found to have to have an impact on individual knowledge and behavior. An analysis of the VISION project, a mass media educational campaign implemented in Nigeria by the United States Agency for International Development (USAID), found that the project reached a large proportion of the Nigerian population and was effective at increasing awareness. The campaign had a small, but significant, effect on knowledge of the ability of condoms to reduce HIV risk and on an individual's likelihood of contracting HIV/AIDS from a partner, however, it had no effect on condom use (Keating et al, 2006).

Malawi is a religious country with only 4.3% of the population having no religion (CIA, 1998). Christianity is the primary religion with 60 percent being Protestant and 15 percent, Catholic. Another 15 – 20 percent of the population is Muslim. There are indigenous religions still practiced by 5 percent of the population, and African traditions can be found intertwined in all of the religions. For example, even though a Malawi man might practice Christianity, it is not uncommon that he would be polygamous or have mistresses (Friends of Malawi, 2004).

In light of the large influence of religion on Malawi and considering that Malawians have regular contact with religious leaders and organizations, there is value in exploring the effect of religion on HIV, which could reveal the potential for religious organizations as resources for increasing HIV awareness and prevention (Trinitapoli, 2009). Studies show that abstinence and less risky behaviors are practiced by more conservative religious groups compared to those not as conservative (Agha, Hutchinson, & Kusanthan, 2006; Muula, 2010). Gyimah et al. (2010) and Trinitapoli (2009) found that socio-demographic factors, such as age and education have a greater influence than religion on abstinence, faithfulness, risky sexual behavior, and condom use. Studies have shown that those with more education tend to be older and are more likely to engage in risky sexual behavior (Gyimah et al., 2010; Dintwa, 2010; Trinitapoli, 2009). However, "condom use is positively associated with socioeconomic status (household goods) and education" (Trinitapoli, 2009, p.207).

The direct relationship between risky behaviors and HIV status has been well documented. Recent research in Tanzania found that individuals who reported multiple sex partners, casual sex, alcohol abuse, or transactional sex were at greatest risk for STI (Ghebremichael, 2009; Norris, 2009). Additional research in other sub-Saharan African countries reported increased STI risk for those reporting anal sex or with increasing numbers of sexual partners (Kapiga, 2009). Given this well-documented relationship between behavior and HIV status, we aimed to conduct preliminary analysis to explore the prevalence of risky behaviors, knowledge of risky behaviors, and associations between these two outcomes and various demographic and attitudinal variables in a sample of young adults, namely, college students.

Methodology

The study was done in October/November 2008. The lead author sought permission for the study from the Offices of Student Services of three constituent colleges of the University of Malawi, namely, Bunda College of Agriculture, Chancellor College, and The Polytechnic. However, there was only participation from Bunda College of Agriculture and The Polytechnic (See Table 1.). Perhaps the main limitation of the study is that the researchers had no control in the selection of respondents. The Registrars' Offices of the two colleges assumed responsibility for inviting students in each rank to complete the survey, if they wanted to. Thus, participation was strictly voluntary and no monetary or other incentives were given. However, the researchers instructed the administrators to include male and female students and to ensure that a proportionate number of students in each rank, first, second, third, and fourth years were included. The students were not required to include their names on the survey. The registrar's offices ensure that students are not overwhelmed with surveys by adopting this method. They review the questionnaire to ensure it is appropriate for students. Thus, the administrators of student services will not permit the survey if they deemed it harmful to the students.

The survey was developed and pilot tested with 25 Malawi students in a class of the lead author's who was a Fulbright Scholar and faculty member at Bunda College of Agriculture at the time. Attempts to prevent bias in the survey questions were accomplished with a thorough expert review of the questionnaire and pilot testing. The colleges where the study was conducted had significantly small numbers of student populations. For example, the enrollment at Bunda College was less than a thousand. Therefore there was a chance that the Office of Student Services staff might know a number of the students. However, there is no reason this could have biased the study since the students completed the surveys on their own with no incentives of any kind provided. No benefit or harm was done to the students and none was reported after the data collection.

Data analysis was conducted using SAS (Version 9.2, Cary NC). The frequencies of responses were calculated for four demographic variables: a) campus, b) year in school, c) age, and d) religion (survey questions 2, 4, 8, 9). To evaluate their association with outcome variables in subsequent analysis, categories were collapsed for age and religion as a cell size of zero prevented measures of association from being calculated.

The attitudinal and behavioral change measures included four items about HIV/AIDS education (Cq1-Cq4), four items about condom use and attitudes (Cq14, Cq15, Cq17, and Cq24), and four items about the role of religion in participants' lives (Cq47, Cq50, Cq51, Cq52). These items were all answered using a likert scale. The mean response, the mode response, and the standard deviation were calculated for each item. These item responses were dichotomized, where likert scale responses of 1-3 were classified as "disagree" and likert scale responses of 4-6 were classified as "agree," for subsequent analysis.

The outcome variables for the first set of analysis were self-reported risky sexual behaviors, as reported in question 8 of the survey. This question asked participants to indicate which of risky behaviors he/she had ever engaged in. Each participant had a list of fifteen behaviors and was allowed to circle as many as were applicable. The association between each of these behaviors and three demographic variables (campus of enrollment, age, and religion) were evaluated individually using a Fisher's Exact Test. The association between year in school and sexual behaviors was evaluated using a Likelihood Ratio Test. The association between reported risky behaviors and the dichotomized education, condom, and role of religion items were also evaluated individually using a Fisher's Exact Test. The association was considered significant if the p-value was less than 0.05.

The outcome variables for the second set of analysis were the behaviors perceived as HIV/AIDS risk factors (question 7 in survey). Each participant was asked to identify any risky behaviors from a list of ten practices. We evaluated the association between each of these items and the dichotomized education questions using a Fisher's Exact Test. We concluded a significant association existed if the resulting p-value was smaller than 0.05.

Results

This section reports the findings of the study relating to the four main objectives as follows:

1. **Demographics: Campus, Age, Year in School & Religion**

Demographics of the study population are presented in Table 1. The vast majority (80%) of participants were from The Polytechnic. Participants were fairly evenly distributed over year in college, with no representatives from the graduate level. Over 90% of participants were aged 18-25, with only two students falling outside of that age range. The majority of respondents were Christian (89%). The remaining 11% were Muslim (9%) or reported no religion (2%).

2. **Personal Factors: Perceived Risky Behaviors & Participation in Risky Behaviors**

Responses to the question that asked participants to identify behaviors that are "risky," meaning they could expose a person to HIV/AIDS, are detailed in Table 2. Notably, nearly 33% of respondents reported that condom use was risky and nearly 22% reported that sharing needles and other piercing objects were not risky. Only 15% of respondents identified pressure from people in authority as risky.

The frequencies of self-report of participation in risky behaviors are detailed in Table 3. Self-report of risky behavior was relatively low. However, it is important to note that low prevalence of these risky behaviors in a country with high prevalence of HIV has severe potential ramifications. The behavior reported most (32% of subjects) was sex with a person of equal age. Three risky behaviors stood out, as 21% of respondents admitted having ever practicing them. These included sex without a condom, sharing needles and other piercing objects with a friend, and excessive use of alcohol.

3. **Perceived level of knowledge about HIV & AIDS, condom usage and role of religion on self-reported behavior towards risky factors**

Under this objective we wanted to find out whether a student's knowledge of the dangers of HIV &

AIDS, condom use, and religion affected his or her attitude towards risky behaviors. The mean response, the standard deviation around the mean, and the mode response for each self-reported attitude/behavior are reported in Table 4. With respect to HIV/AIDS education, the majority of respondents reported attendance at HIV/AIDS workshops and lectures and/or reported extensive reading on HIV/AIDS. Most respondents strongly agreed that they knew the HIV/AIDS risk factors. The majority of respondents disagreed with the statement, "I have asked questions at HIV and AIDS workshops/lectures."

Regarding condom attitudes and usage, most participants very strongly agreed that they knew how to use condoms and agreed that condoms are readily available or accessible. They tended to disagree that "a condom does not make the sex act enjoyable" and that "it is hard to use a condom each time I want to have sex."

Many participants reported that going to church affected how they lived their sexual lives. Furthermore, they agreed that abstinence was strongly promoted in their churches and that being a church member enabled them to resist the temptation of having unsafe sex. Many respondents disagreed with the statement, "My church is indifferent to premarital sex."

4. **Measures of Association between selected variables**

Table 5 indicates the significant associations revealed through the analysis. The majority of the attitudinal and behavioral change items were not significantly associated with self-reported risky behaviors. Knowing how to use condoms (Cq14: I know how to use condoms) was significantly associated with reports of having had sex, having sex with a person of equal age, having had sex with a person of older age, having had sex with a person of younger age, and use of drugs. Demographic items were significantly associated with several risky behaviors. Campus of enrollment (Question 2) was significantly associated with having had sex and having had sex with a person of equal age. Year in school was significantly associated with self-report of ever using drugs. The association between year of school and the majority of the self-reported risky behaviors was unable to be evaluated, as quasi-separation occurred in the analysis. Age was significantly associated with ever having had sex and was borderline associated with drug use. Religion was not significantly associated with any risky behaviors. There were no significant associations between the HIV/AIDS education variables (Cq1 [I have attended HIV & AIDS workshops/lectures] – Cq4 [I know the HIV & AIDS risk factors, that is, conditions that will put one at risk of contracting the disease]) and perceived risky behaviors.

Table 1. Demographics of Sample (n=46)			
		Frequency (n)	Percent of Population (%)
Campus			
	Bunda College	9	19.57

	Polytechnic	37	80.43
	Chancellor College	0	0
	Other	0	0
Year in College			
	First Year	14	30.43
	Second Year	7	15.22
	Third Year	16	34.78
	Fourth Year	9	19.57
	Graduate School	0	0
Age			
	17 or younger	1	2.17
	18 - 21	25	54.35
	22-25	19	41.3
	26-30	1	2.17
	31 or older	0	0
Religion			
	Christian	41	89.13
	Muslim	4	8.7
	Pagan	0	0
	None	1	2.17

Table 2. Behaviors perceived as Risky by Participants (n=46)

	Yes, I feel this is a risky behavior (n(%))	No, I don't feel this is a risky behavior (n(%))
7a. Abstinence	0 (0)	46 (100)
7b. Being Faithful	2 (4.4)	44 (95.6)
7c. Excessive drug & alcohol use	39 (84.8)	7 (15.2)
7d. Cultural practices, such as "chokolo"	42 (91.3)	4 (8.7)
7e. Condom use	15 (32.6)	31 (67.4)

7f. Multiple sex partners	44 (95.7)	2 (4.3)
7g. Prostitution	46 (100)	0 (0)
7h. Unprotected sex	44 (95.7)	2 (4.3)
7i. Sharing needles and other piercing objects	36 (78.3)	10 (21.7)
7j. Pressure from faculty/lecturers or people in authority	7 (15.2)	39 (84.8)

Table 3. Self-report of Risky Behaviors Ever Engaged in By Participants (n=46)			
	Yes, I have engaged in this behavior (n(%))	No, I have never engaged in this behavior (n(%))	
8a. Had sex	14 (30.4)	32 (69.6)	
8b. Had sex with a person of equal age (+/- 3 years)	15 (32.6)	31 (67.4)	
8c. Had sex with a person of older age	4 (8.7)	42 (91.3)	
8d. Had sex with a person of younger age	6 (13.0)	40 (87.0)	
8e. Had anal sex	4 (8.7)	42 (91.3)	
8f. Had oral sex	4 (8.7)	42 (91.3)	
8g. Had sex with multiple partners	8 (17.4)	38 (82.6)	
8h. Had sex without a condom ("puleni")	10 (21.7)	36 (78.3)	
8i. Engaged in prostitution	4 (8.7)	42 (91.3)	

8j. Engaged in homosexuality/lesbianism	2 (4.4)	44 (95.6)	
8k. Used drugs	8 (17.4)	38 (82.6)	
8l. Shared needles and other piercing objects with a friend	10 (21.7)	36 (78.3)	
8m. Had sex with a married man/woman	5 (10.9)	41 (89.1)	
8n. Had excessive use of alcohol	10 (21.7)	36 (78.3)	
8o. Polygamous marriage	3 (6.5)	43 (93.5)	

Table 4. Distribution of Attitudinal & Behavioral Variables among Sample (n=46)			
	Mean	Standard Deviation	Mode
Cq1. I have attended HIV and AIDS workshops/lectures.	3.7	1.82	6
Cq2. I have asked questions at HIV and AIDS workshops/lectures.	3.11	1.81	1
Cq3. I have read extensively on HIV and AIDS.	3.85	1.37	4
Cq4. I know the HIV and AIDS risk factors, that is, conditions that will put one at risk of contracting the disease.	5.42	0.97	6
Cq14. I know how to use condoms.	3.62	1.87	6
Cq15. Condoms are readily available/accessible.	4.62	1.3	4
Cq17. A condom does not make the sexual act enjoyable.	3.58	1.97	1

Cq24. It is hard to use a condom each time I want to have sex.	3.17	1.69	1
Cq47. Going to church has no bearing on how I live my sexual life.	2.43	1.69	1
Cq50. Being in a church organization enables me to resist the temptation of having unsafe sex.	3.7	1.76	4
Cq51. Abstinence is strongly promoted in my church.	5.03	1.17	6
Cq52. My church is indifferent to premarital sex.	3.52	1.75	3

Table 5. Significant Associations Between Demographic & Attitudinal Variables and Risky Behaviors• (n=46)

	8a. Had sex	8b. Had sex with a person of equal age (+/- 3 years)	8c. Had sex with a person of older age	8d. Had sex with a person of younger age	8k. Used drugs	8l. Shared needles and other piercing objects with a friend
Campus of Enrollment	0.0406**	0.0212**				
Year in School					0.0340***	
Age	0.0204**	.0000**				0.0560**
Cq1. I have attended HIV and AIDS workshops/lectures.						
Cq2. I have asked questions at HIV and AIDS workshops/lectures.						
Cq3. I have read extensively on HIV and AIDS.						
Cq4. I know the HIV and AIDS risk factors, that is, conditions that will put one at risk of contracting the disease.						

Cq14. I know how to use condoms.	0.0106**	0.0287**	0.0491**	0.0092**	0.0220**	
Cq15. Condoms are readily available/accessible.						
Cq17. A condom does not make the sexual act enjoyable.						
Cq24. It is hard to use a condom each time I want to have sex.						
Cq47. Going to church has no bearing on how I live my sexual life.						
Cq50. Being in a church organization enables me to resist the temptation of having unsafe sex.						
Cq51. Abstinence is strongly promoted in my church.						
Cq52. My church is indifferent to premarital sex.						
*Associations assessed between all demographic variables (Table 1) and Attitudinal Variables (Table 4) with all risky behavior variables (see Table 3). We are limiting this table to significant relationships.						
**p-value resulting from Fisher's Exact Test						
***p-value resulting from Likelihood Ratio Chi-Square Test						

Discussion

It is worth repeating that the sample size of the study was very small and, therefore, is not reflective of the general population of students. However, the findings reveal several important pieces of information that can be useful in planning future HIV & AIDs research and educational programs. The results are particularly meaningful, as they reflect college-aged young adults in Malawi, one of the most at-risk groups for HIV&AIDS.

The HIV education campaign in Malawi has been intensive since the first HIV case was detected in 1985. It is, therefore, not surprising that respondents overwhelmingly reported having had HIV & AIDS education. Likewise, for the most part, respondents were able to accurately identify the majority of risky behaviors. Two notable exceptions to this were revealed, however. One is that nearly 33% of respondents stated that condom use was a risky behavior. It is unclear why this might have happened, although it is possible that these individuals were communicating that

abstinence is the only behavior without risk, thus any sex, even when using a condom, is risky. The other is that nearly 22% of respondents felt that sharing needles and other piercing objects was not risky. Since blood is more likely to transmit HIV than any other bodily fluid, this is extremely alarming and warrants further investigation (Avert, 2011). As is evident by our results, while HIV/AIDS education is extremely prevalent, there are important areas that need the attention of future educational programs.

A substantial proportion of the sample reported having had sex. This was significantly associated with age and year of school, as might be expected, indicating that older students were more likely to have engaged in sexual behavior. Interestingly, this was significantly associated with campus of enrollment also, a finding that should be looked into further. Beyond having had sex, there were several risky behaviors reported by a substantial number of respondents. One is excessive use of alcohol. Twenty-two percent of respondents reported excessive use of alcohol. This is an important area for intervention, as previous research has found a significant relationship between alcohol abuse and HIV risk (Norris, 2009). Second is having sex without a condom. It was discovered that twenty-two percent of respondents have had sex without a condom. This is despite high levels of agreement with knowledge of condom use and condom availability. The combination of sex without a condom and use of alcohol create a high-risk environment for HIV spread. Third, twenty-two respondents reported sharing needles or other piercing objects. This is not surprising as a substantial number of individuals did not believe that sharing needles was a risky behavior. These findings provide additional evidence of the need for future programs to address needle sharing and better address barriers to condom use. Lastly, although mentioned by a small group, the presence of prostitution on campuses poses a high risk for all students interested in having sex, especially without condoms. It takes only a small number of prostitutes to spread a disease.

We did not find any significant association between religion and engagement in risky behaviors. However, this is possibly because the overwhelming majority of our sample was Christian, without an adequately sized comparison group. Responses to the religion questions indicated a high level of agreement with the important role of the church in promoting non-risky behaviors. Because of our limited sample size, it is unclear whether religious affiliation might be significantly associated with risky behaviors or if membership in any church provided the same benefits.

These analyses were limited by our small sample size. However, this sample of young adults still provided important preliminary information that can be used to form hypotheses for future research and provided important indicators of gaps in current HIV/AIDS programming. This analysis is also limited by the absence of gender information in the data.

Our findings indicate that additional education is needed, particularly with respect to certain topics, such as needle sharing and the role of pressure from authority in HIV/AIDS risk. In order to best address the diversity within the Malawian population, tailored messages specific for particular groups are necessary for effective HIV education. For instance, HIV education programs targeting communities within Malawi would be most effective if the curriculum is aimed at women, men,

youth, young adults, middle aged people, those with no education, and those with secondary education separately. Tailored HIV education messages are more effective because they are more likely to impact knowledge and behavior changes. Educating individuals and giving them knowledge about HIV prevention only impacts them at a superficial level. In order to actually decrease the spread of HIV the approach must influence the actions of people. According to Fraser & Villet (1994), "communication as a deliberate intervention to effect social and economic change […] holds the most interesting possibilities" (p. 5). Using communication, as the channel to modify behavior, "can reveal people's underlying attitudes, and traditional wisdom, help people to adapt their views and to acquire new knowledge and skills, and spread new social messages to large audiences" (Fraser & Villet, 1994: 5). Thus, communication is a valuable instrument to address individual unique characteristics and enable them to make the necessary changes within their own culture and within their own actions to reduce the transmission of HIV. Communication should be carried out by experts who have been trained in both HIV/AIDS prevention and in communication for development using effective communication skills to collaborate with local people in targeted communities regarding HIV prevention measures. There are no better individuals to lead HIV/AIDS education behavior changes than those who are familiar with the cultural and social components of a community.

Further studies are also needed to examine the needs, problems and concerns of university students, particularly, income earning opportunities, such as on-campus jobs. The presence of prostitutes on campus may be the result of trying to earn income to meet basic needs, such as books, clothing and other essentials. Finally, the level of alcohol consumption at 22 percent is relatively high considering the small size of student populations. It may be due to boredom, as there appears to be few recreational activities for students. There is need for university administrators to provide more recreational facilities, and students can also perform community services to keep them busy.

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