

# Motivating Positive Condom Use Intentions among High School Students Through Teacher-Student Led HIV/AIDS Education Program in a Rural District of Ghana

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**Abstract:** HIV/AIDS continues to impact young adults globally despite the gains achieved globally in infection and mortality reductions but the impact is greatest on youth in sub-Saharan Africa (SSA). Rural youth in developing countries of SSA countries are equally impacted by HIV/AIDS and the major ways of preventing continuous infection and spread have been to inform and encourage consistent condom use. What is least studied as an initial step in the prevention of HIV infection globally and especially among rural youth in Ghana is condom use intention. The objective of this study was to evaluate the effectiveness of a culturally appropriate HIV/AIDS prevention intervention to motivate positive condom use intention with future sexual partners among high school students in a rural district of Ghana. Two hundred and fourteen (214) students of both sexes from a rural High School in the Nankumbi District of Ghana were randomly selected into a two-week HIV/AIDS education intervention. Pre and post intervention survey was conducted to evaluate the impact of the intervention on condom use intentions of the students with their future sexual partners. Descriptive statistics, Chi square test ( $\chi^2$ ) of significance, and binary logistic regression were used to analyze data. Statistical package for social sciences (SPSS) was used to conduct the analysis at 95% confidence level. Results showed that condom use intentions positively changed following participation in the HIV/AIDS education intervention. A Pearson  $\chi^2$  test revealed that the percentage change in condom use intentions from baseline to follow-up was statistically significant ( $\chi^2 (2) = 18, p < 0.001$ ). Results of binary logistic regression showed that perception of severity of HIV/AIDS was the strongest predictor of intention to use condoms with sexual partners followed by gender where being a male over a female significantly predicted intention to use condom with sexual partners. Knowledge of HIV/AIDS, perception of HIV infection vulnerability and self-efficacy for condom use had no association with intention to use condoms. Findings from the study show that culturally appropriate HIV/AIDS education programs can positively impact safer sexual intentions and behaviors in the continuous fight against HIV/AIDS in rural settings.

**Keywords:** Condom Use Intention, Rural Youth, Ghana, HIV/AIDS

## 1. Background

The year 2011 marked three decades of dealing with HIV/AIDS and the epidemic is still considered a major public health burden worldwide. In 2011, the United Nations (UN) Secretary-General announced that more than 25 million people lost their lives due to AIDS related causes, and more than 60 million people had become infected with HIV [1].

According to World Health Organization (WHO), by the end of 2015, the number of people infected with HIV since its emergence reached 70 million globally [2]. Although there are reports of significant declines in HIV infections, HIV is still a huge public health challenge. In 2015 alone, there were 2.1 new HIV infections globally [3]. While every corner of

the world has had its share of the HIV/AIDS epidemic and its deadly consequences, sub-Saharan Africa (SSA) has been hit the hardest [2]. This is because sub-Saharan Africa suffered and continues to suffer disproportionately higher infections, morbidity, and mortality rates due to HIV/AIDS related causes [2, 3]. For instance in 2015, one in every 25 people was living with HIV in SSA and had 70% of people living with HIV (PLWHA) globally [2]. The disease burden of HIV/AIDS affects societies as a whole and youth in their productive ages are not left as they may be impacted directly or indirectly. Of all those living with HIV/AIDS globally, 23% were under 24 years old while 34% of newly infected were between ages 15 and 24 years old [1]. Sub-Saharan African countries have the largest number of people living with HIV/AIDS especially South Africa, Swaziland, and Botswana among many others [4].

Individuals and organizations have expended great interest to control the spread of HIV in Ghana, as reflected by the HIV basic knowledge in Ghana and as reported in the 2014 Ghana Demographic and Health Survey (GDHS) [5]. The prevalence rate of HIV dropped from 3.1 % in 2003 to 2.0 in 2014 according to the GDHS report [5]. However, HIV/AIDS remains a major public health burden in Ghana as demonstrated in the most recent report of HIV sentinel surveillance [6]. According to Ghana AIDS Commission (GAC), the documented number of new HIV infections in Ghana in 2013 was 7,323 consisting of 90% adults and 10% children [6]. Of the 7,323 new infections, 2,044 (28%) were young people ages 15 to 24 years. It is important to note that the number of new infections in 2013 was a significant reduction from 12,077 new infections recorded in 2011 according to Ghana Health Service (GHS) [7]. The United Nations Children Fund (UNICEF) also reported that by the end of 2009, the number of children between the ages of 0 and 17 years orphaned by AIDS in Ghana was 160,000 [8]. These figures represented only documented cases, and anecdotal evidence indicated that there were many more undocumented cases.

HIV/AIDS is mostly a disease of risky sexual behaviors. Multiple sexual partners, serial and concurrent, lack of consistent condom use, and alcoholism are behaviors which can result in the spread of HIV. The proven method to combat HIV is through prevention of infection and to achieve this, individual perceptions and behaviors need to change. This change should translate into responsible and safer sexual behaviors and practices propelled by the acquisition of comprehensive, not basic, knowledge of HIV/AIDS. Prevention was a top priority of President Bush's Emergency Plan for AIDS Relief (PEPFAR) and President Obama's Global AIDS Initiative [9]. Behavioral change in this regard concerns actions in terms of protective sexual practices and decision-making, especially consistent condom use [1].

In Ghana, sexual behavior among young people is also worrying even though the reported rates are considered better than other countries. The age of sexual initiation can be a potential risk factor for HIV infection and it is important to be cognizant of this variable. According to the report of the

2014 GDHS, young women in rural areas generally initiate sexual intercourse earlier than their urban counterparts whereas there was no significant difference reported between rural and urban young men [5]. For instance, the 2014 GDHS reported median ages for initiation of sexual intercourse for rural and urban women as 17.8 years and 18.8 years respectively [5]. The report however indicated that young men in the Northern Region were more likely to delay sexual debut with 7% initiating sex by age 18 and only 2% by age 15 [5]. This can be attributed to the strict controls of sexual behavior in the predominantly Muslim society of Northern region. The ABC of HIV prevention in Ghana stands for abstinence, being faithful to one HIV-negative partner and condom use, are important indicators for HIV risk for young people in the country and these were examined in the 2014 GDHS.

However, among sexually active young men and women ages 15-24 high risk sexual behaviors were reported including low condom use. More specifically, condom use was only 11% among young women and 19% among young men respectively during their last sexual encounter which is a reduction from 25% and 32% for women and men respectively reported in GDHS of 2008 [5]. One form of higher-risk sexual behavior defined in the 2014 GDHS was having sex with someone other than a married partner or usual cohabited partner. The report showed that 11% of women and 14 of men ages 15-49 engaged in sexual activity with persons other than their usual sexual partner [5]. This translated into life time sexual partners of 2.3 and 7.3 for women and men respectively [5].

More disturbing also is that research has shown fewer precautions taken by people already infected and this is worrisome as further spread and re-infection could be accelerated through this negative behavior. In a cohort study of HIV positive and negative young people in Uganda, researchers followed and compared contraceptive and condom use between the two groups for a year [10]. The researchers found that while consistent condom use among HIV negative youth was 38%, it was only 24% among the HIV positive group throughout the year [10]. Also, in a cross sectional study to examine risky sexual and related factors among 601 antiretroviral treatments attendees in Addis Ababa, researchers found that 36.9% engaged in risky and unprotected sexual practices putting them at risk of second infection of another type of HIV and/or other sexually transmitted disease [11]. These risky behaviors by the participants seemed conscious as reasons given by the participants included refusal of partners to use condoms and that both partners were already HIV positive. In examining the determinants of condom use intentions with university students in Turkey, researchers noted that almost all sexually active participants were aware that condoms reduced the risk of HIV infection [12]. Conversely, only 18% of sexually active students consistently used condoms and 30% either rarely or never used condoms, according to the researchers [12].

Sexual behavior intentions including condom use

intentions among young adults have not been extensively studied especially among rural youth in developing countries like Ghana. Studying and understanding the condom use intentions is critical since the most common route of HIV infection and spread by far through unprotected sex and condoms protects against such [13]. In countries with generalized epidemics, low and inconsistent condom use in addition to sexual networking is sufficient to sustain the HIV epidemic [13]. In Accra, Ghana, researchers used a generalized self-efficacy scale, a 10-item psychometric scale that assesses how optimistic self-beliefs help in coping with difficult conditions, to examine sexual intentions of young people aged 14 to 22 years [14]. The researchers found that HIV/AIDS stigma and generalized self-efficacy predicted sexual intentions but differently in that high stigma led to unsafe sexual intentions because young avoid protective measures to prevent being stigmatized; whilst higher generalized self-efficacy led to safer sexual intentions [14].

Behavior is, however, dependent on several factors including comprehensive knowledge of infection routes, prevention methods, and consequences of HIV/AIDS. While basic knowledge in this study is ever hearing of HIV/AIDS, comprehensive HIV/AIDS knowledge is expressed at least in extensive understanding of the differences between HIV and AIDS, the routes of HIV infection, risk behaviors for HIV infection, and effective ways of preventing HIV infection and spread. This is even more important for the youth as they are mostly affected and the future of communities and nations depend on them. In Ghana differences exist between awareness and comprehensive knowledge of HIV/AIDS where more people have basic awareness of the disease but few people demonstrate comprehensive understanding the disease. For instance, in 2014 GDHS 98% and 99% of women and men respectively reported hearing of and knowing HIV/AIDS exist but only 34% and 25% of men and women respectively demonstrated comprehensive knowledge of infection routes and prevention methods of HIV/AIDS [5]. The GDHS report indicated that younger women, those women who had never had sex, women from rural areas, and women living in the Northern and Upper West regions were less likely than other women to report or possess comprehensive knowledge (beyond just ever hearing of HIV and condom use) about HIV [5].

Specific data on the level of HIV/AIDS knowledge and sexual behavior in the Nanumba districts is nonexistent and no empirical study had ever been conducted to examine them. However, the Northern Region where the Nanumba districts are located reported the lowest percentage of comprehensive knowledge of HIV/AIDS among young people between the ages of 15 and 24 in the 2014 GDHS [5]. HIV sentinel survey results are the primary data source for the estimation and projection of HIV infection in the general population [7]. HIV prevalence rate was 0.8% in 2014 in the Northern Region, a decrease from 1.1% in 2008 [5]. These percentages were only documented cases and did not take into consideration those that may have been undocumented [7].

In the Nanumba districts of the Northern region of Ghana,

no study had been conducted on either knowledge of HIV/AIDS or the reflected sexual behaviors such as condom use. The goal of this observational study was therefore, to examine the effect and role of comprehensive HIV/AIDS knowledge on condom use intentions among young adults in the Nanumba District of Ghana. Examining the sexual intentions of young adults is critical to planning and implementing HIV/AIDS program and policy development. Even though sexual behavior can occur by impulse, sexual intentions usually occur before the actual behavior takes place. The specific objectives were to improve comprehensive knowledge of in-school rural youth about HIV/AIDS through participation in a school-based HIV/AIDS education program in the Nanumba districts of Ghana. The second objective was to motivate safer sexual behavior intentions, specifically positive condom use intentions with future sexual partners. To this end, the research question that guided the study was whether or not there will be significant differences in condom use intentions before and after participation in a school-based HIV/AIDS program among the participants.

## 2. Methods

This was an observational study where pre and post intervention design was employed. Pre implementation survey was conducted to assess the level of knowledge of HIV/AIDS and condom use intentions among 234 randomly sampled rural high school students in Wulensi Senior High School in the Nanumba South District of Ghana.

### 2.1. Study Setting and Population

The target population for the study was high school students in selected district of the Northern Region of the Republic of Ghana, which was a rural community. The district was relatively new at the time of this study as it was created in 2004 when a larger district was divided into two. The population of the district, according to the 2010 Ghana population and housing census, was 93,464 constituting 46,688 female and 46,776 male residents (GSS, 2012). The population was youthful with 54% under 18 years and 46% 18 years and older. The average household size of the district was 7.7 according to GDHS of 2008 (GSS, 2009). The major economic activity in the district was agriculture, which was largely peasant farming. About 85% of the district's population engaged in the agricultural sector as reported in the 2010 population and housing census (GSS, 2012). Health facilities are lacking and the number of health care personnel not enough to cover the need, making preventive care a public health problem. There is only one hospital located 18 miles outside the district capital along with a few unequipped health centers. Actual distance to the hospital ranged from a couple of hours to days due the poor transportation network and the fact that the population was sparsely distributed across a vast land.

Annually, the majority of students graduating from junior high schools in the rural district would remain to attend the

only senior high school in the district. A small number would go to senior high schools in different districts within the Northern Region. Therefore, the study population constituted high school students studying in the selected district only. Currently, the school that served as the research site was the only senior high school in the district and had a student population of 1,346 made up of 796 (59%) boys and 550 (41%) girls according to data provided by the school's administration. This number was therefore the study population.

## 2.2. The Intervention (Uncover HIV/AIDS)

The HIV/AIDS prevention intervention was named *Uncover HIV/AIDS* and was designed to help improve comprehensive knowledge of HIV/AIDS for the rural students and to motivate safer sexual behavior with emphasis on condom use intentions, attitudes, and behavior. The implementation or delivery of the intervention involved active participation by all sampled students. Activities included lectures and presentations by professionals who worked and had experience and expertise in HIV/AIDS prevention. Students were engaged in group activities, games, quiz competitions, and safer sex negotiation skill demonstration. The intervention lasted two weeks and different activities were carried out on different days and times of the week. The HIV/AIDS education program was implemented by trained teachers of the school. The intervention was designed by the researchers as external consultants for the high school and selected teachers and students were trained on how to effectively implement the program.

## 2.3. Study Sample

The sample for the study was drawn from second and third year classes of the local senior high school by our research partners. A web-based sample size calculator by Raosoft Inc. and *Open Epi* were used to calculate the sample size for the study. The margin of error or level of variability was set at 5% which is the standard choice for most studies [15]. The confidence level (CI) and response distribution for this study was set at 95% and 50% respectively. Raosoft Incorporated argued that setting the response distribution at 50% is the most conservative assumption and advised that this should be maintained unless one is a statistical expert [15]. A combination of simple random and proportionate sampling was used to select students across grade levels and gender in order to make the sample representative of the students of the rural senior high school. In all, 234 students were sampled randomly into the intervention and participated in the pre and post intervention surveys.

## 2.4. Data Collection and Analysis

The main outcome variable was condom use intention with future sexual partners. Data on condom use intentions at pretest were compared with that of posttest. To measure this outcome variable, three categories of future sexual intentions were formed including no intention to have sex in the next

three months, intention to use condoms with sexual partners, and no intention to use condom with future sexual partners. Participants with no intention to have sex in the next three months were excluded from the analyses. Those who had intentions to have sex in the next three months were recorded as yes with intention to use condoms and no as having no intentions to use condoms. Pre and post intervention surveys were conducted to collect data for the study. Data collection for the two surveys was done using modified standardized questionnaire from the Center for Disease Control (CDC). The modified instrument was pilot tested with sampled students who were excluded from the actual surveys. The same set of questionnaire was used for both pre and post intervention surveys without changes to prevent instrument and testing threats to internal and external validity. Data collected was entered into statistical package for social sciences (SPSS) version 20 for analysis. Descriptive statistics were then used to present responses from both baseline and post intervention surveys in percentages and frequencies. However, to determine the significance of the changes in the responses to condom use intentions between baseline and post intervention, chi square ( $\chi^2$ ) was performed. Logistic regression was performed to determine variables that predicted condom use intentions.

## 2.5. Ethical Considerations

In order to get approval for the study, we sought approval from Walden University IRB and the school administration of the local senior high school in the selected rural district of Ghana where the study was implemented. A letter of cooperation and data use agreement form were issued by the school administration. The letter of cooperation specified the role of the school as the study partners where HIV/AIDS education program, collecting baseline and follow-up data were to be implemented. The school administration as the approved research partner ensured collection of all consent forms as well as parent's consent forms when needed prior to primary data collection. All confidentiality information or data were removed from the dataset prior to any analysis. As such the limited data set used was completely de-identified.

# 3. Results

## 3.1. Descriptive Statistics

Two hundred and thirty-four students (234) participated in the HIV/AIDS education program and so 234 pairs of questionnaire for baseline and follow-up were gathered from the study participants. However, after careful examination, 20 (9%) were excluded from analysis due to substantial incomplete information provided or missing data. As a result, 214 pairs of questionnaire for baseline and follow-up surveys were included in the analysis. Demographically, 116 (54%) were boys and 98 (46%) were girls between the ages of 14 and 22. The mean age of all the participants was 17.66 years ( $SD = 1.50$ ).

### 3.2. Condom Use Intentions for Baseline and Follow

Condom use intention was the main outcome variable in this study where the rural students were asked to choose one of three responses with regards to sexual intentions following their participation in the HIV/AIDS education program. These responses were no intention to have sex in the next three months, intend to use condom with sexual partners, and do not intend to use condom. In the baseline survey, 121 (56.5%) students indicated they intended to abstain from sexual activity in the next three months to avoid risk of HIV infection, and 55 (25.7%) students did not intend to use condom with their sexual partners. Only 38 (17.8%) students responded that they intended to use condoms with sexual partners in the next three months at baseline. However, at follow-up the frequencies changed where 116 (54.2%) students intended to abstain, 28 (13.1%) students did not intend to use condoms, and 70 (32.7%) students intended to use condoms with their sexual partners in the next three months following their participation in the school-based HIV/AIDS prevention education. These results are presented in table 1 below. From the results, it can be seen that the number of students who chose to abstain from their sexual activity remained fairly the same reducing slightly by two percent. However, in the case of those who chose to be sexually active in the next three months, condom use intentions with sexual partners reversed completely from baseline to follow-up in a positive direction. While 17.8% intended to use condoms at baseline, at follow-up it increased to 32.7% which is 84% increase from baseline. On the other hand, 25.7% did not intend to use condoms at baseline but this reduced to 13.1% at follow-up. A Pearson X<sup>2</sup> test revealed that the percentage change in condom use intentions from baseline to follow-up was statistically significant ( $P < .001$ ).

**Table 1.** A 3x2 Contingency Chi-square Table for Baseline and Follow-up Condom Use Intentions.

	Yes	No	Abstinence	Total
Baseline	38 (17.8%)	55 (25.7%)	121 (56.5%)	214
Follow-up	70 (32.7%)	28 (13.1%)	116 (54.2%)	214
Total	108	83	237	428

### 3.3. Model for Predicting Condom Use Intention

After determining that the changes in condom use intentions from baseline to follow were statistically significant, a model was developed to determine variables that significantly predicted condom use intentions among the rural students. The outcome variable was intention to use condom with sexual partners in the next three months following the intervention. The outcome variable was coded as yes with intervention to use condom in the next three months following the intervention and no otherwise. The outcome variable was dichotomous in nature and therefore multiple logistics regression was used to identify the most parsimonious model to predict condom use intentions among high school students in Nanumba district in Ghana. Five variables were used as predictor variables in the model including gender, total follow-up HIV/AIDS knowledge score, self-efficacy score for condom use, perception of HIV vulnerability, and perception of severity of HIV/AIDS. These variables were included in the model to determine their role in predicting positive condom use intentions. The results show that only perception of severity of HIV/AIDS significantly predicted condom use intention in this study with odds ratios of 11332041848.951 and  $p < .000$  at 95% confidence interval. Gender contributed marginally in predicting condom use intention but not significantly with odds ratio of 2.380 and  $p < .76$ . The results are presented in table 2 below.

**Table 2.** Full Model Variables in the Equation.

		B	S. E.	Wald	df	Sig.	Exp(B)	95% C. I. for EXP (B)	
								Lower	Upper
Step 1 <sup>a</sup>	hivaidssseverity	23.151	13188.548	.000	1	.999	11332041848.951	.000	.
	selfefficacy	-.080	.051	2.470	1	.116	.923	.835	1.020
	totalknowledgescore	.032	.118	.072	1	.788	1.032	.819	1.302
	hivrisk	-.039	.310	.016	1	.901	.962	.524	1.767
	gender	.867	.586	2.189	1	.139	2.380	.755	7.503
	Constant	-.601	1.363	.195	1	.659	.548		

<sup>a</sup>Variable(s) entered on Step 1: hivaidssseverity, selfefficacy, totalknowledgescore, hivrisk, gender.

## 4. Discussion

The objective of the study was to evaluate the impact of the HIV/AIDS education intervention on condom use intentions among the rural students who participated in the two-week program. First, a  $X^2$  test conducted revealed that there was significant improvement in positive condom use intentions in that intention to use condom with sexual partners in the next 3 months significantly changed from baseline to follow-up ( $X^2(2) = 18, p < .001$ ). For instance,

those who intended to use condoms in the next 3 months increased from 17.8% at baseline to 32.7% at follow-up while the percentage of those who did not intend to use condoms decreased from 25.5% at baseline to 13.1% at follow-up. Interestingly those who chose to abstain from sexual activity in the next 3 months remained fairly the same at both baseline (56.5%) and follow-up assessments (54.2%). Even though this study evaluated condom use intentions rather than actual condom use, the findings here are consistent with other findings [16, 17]. For example, in the randomized trial with Korean adolescents, the researchers

reported that condom use among the intervention group rose from 44.4% in 2006 to 61.7% [16] one month after the intervention. Also it was reported in Sierra Leone that there was a substantial improvement in comprehensive knowledge and significant increases in protective sex with condom use among 250 female and 299 male youth who participated in the HIV/AIDS education program [17].

In the binary logistic regression described above, total follow-up HIV/AIDS knowledge score, gender, HIV risk perception, perception of severity of HIV/AIDS, and self-efficacy for condom use were used to develop a model for predicting condom use intentions. The results revealed that only gender ( $p = .001$ ) and perception of severity of HIV/AIDS ( $p\text{-value} = 0.001$ ) were the only significant predictors of condom use intentions. Total HIV/AIDS knowledge score ( $p\text{-value} = .181$ ), total self-efficacy scores ( $p\text{-value} = .084$ ), and perception of HIV risk ( $p\text{-value} = .919$ ) failed to predict condom use intentions in this study. The finding that HIV/AIDS knowledge score did not predict the use of condoms with sexual partners is consistent with findings reported in other studies [18, 19].

Self-efficacy for condom use was found to be an insignificant predictor of condom use intention among rural high school students in this study. This is inconsistent with findings of several studies, where self-efficacy as a construct of Health Belief Model (HBM) significantly predicted protective sexual behavior [12, 20]. Self-efficacy was found to strongly predict safer sexual behavior where people with high self-efficacy in using condoms, for instance, end up actually using condoms to protect themselves [14, 21]. A previous study in the capital of Ghana, Accra, found that higher generalized self-efficacy resulted in positive condom use intentions [14]. Strong religious beliefs against condom use in particular and family planning in general in the study community may have contributed to the failure of self-efficacy to influence condom use intentions in this study. This is because the Nanumba district is predominantly Muslim and orthodox Christian groups whose doctrines are against premarital sex and condom use. As indicated above, gender significantly predicted condom use intention in this study, a finding consistent with findings in Cote D'Ivoire [22] that gender and marital status rather than HIV/AIDS knowledge and perception of vulnerability, predicted condom use. In this study, gender was associated with intent to use condoms with a higher impact from males over females.

In summary, participation in the HIV/AIDS program significantly led to improvement in condom use intentions and safer sexual behavior in general. The two important variables that significantly predicted condom use intention are gender and perception of severity of HIV/AIDS. Specifically, being a male rather than female was associated with intention to use condom with odds ratio of 105 ( $P = .002$ ). This was consistent with the report of the 2014 GDHS in which more young men (25%) than young women (23%) reported condom use during the last 12 months preceding the survey [5]. In terms of perception of severity of HIV/AIDS, the highest probability of intending to use

condom with sexual partners among those who perceived HIV/AIDS to be a serious and deadly disease.

## 5. Limitations

A number of limitations were encountered in the conduct of the study which limits the extent to which the findings can be generalized. The first is that our research partners, the rural school's administration sampled the students into the intervention and we cannot be sure if all required procedures were used in sampling and that there were no errors or biases in the sampling. Secondly, the HIV/AIDS intervention was implemented by the school administration and we cannot guarantee the quality of delivery of all intervention activities. The third limitation is that both the baseline and follow-up surveys were conducted by our research partners and so the data was collected and handed to us for analysis and interpretation. As such we cannot guarantee quality of the data and the reliability and validity of the instrument used for data collection as it was modified.

## 6. Conclusion

From the findings and discussion above, it is clear that involvement of rural youth in culturally appropriate HIV/AIDS programs can lead to improved knowledge and safer sexual behaviors. It is critical to perceive that engaging in safer sexual practices begins with safer intentions and supported by other reinforcing factors. The findings in this study provides opportunity for public health and health promotion professionals to develop targeted programs taking into consideration gender differences in condom acceptance and use among sexually active rural youth. The severity of HIV/AIDS in terms of stigma and social cost, morbidity, and mortality needs to be emphasized in HIV/AIDS prevention programs in rural communities by provision of evidence from local and national statistics. Further studies are recommended to find out reasons for consistent failure of HIV/AIDS knowledge to influence safer sexual behaviors among young adults locally and globally.

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## Contribution of Authors

AA initiated the study, developed the proposal and analyzed the data for the study. HD reviewed the study protocol including the content, methodology, and data analysis and edited this paper several times to its final form.

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