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Knowledge and attitude towards human immunodeficiency virus and acquired immunodeficiency syndrome among high school students in Vihiga County

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Abstract
Objective: The objective of the study was to establish the high school students' level of knowledge on HIV\AIDS, find out the HIV related attitudes of the students in Vihiga County.
Design: The study was a descriptive cross-sectional study.
Setting: The study was carried out in Vihiga County *Sample.* Vihiga County was conveniently sampled. The target population was Students in public secondary schools in Vihiga County who were willing to participate in the study in the schools so mentioned Stratified random sampling technique to be used with regard to the various schools as the strata where proportionately the respondents shall be taken from (*n = 45*) *Analysis.* Data was analyzed through descriptive statistics, Independent samples' T-test and One-way analysis of variance.
Main outcome measures: Knowledge and attitude *Results.* Ninety-eight percent also answered correctly to the statements AIDS is an infective disease caused by a virus‟ and „Any person with HIV can pass it on to someone else during sexual intercourse‟. The majority of the respondents incorrectly believed that a person cannot be infected with HIV without suffering from AIDS (69%) and that a person with HIV cannot look and feel healthy and well (56%).The respondents mostly expressed positive attitudes towards people with HIV/AIDS. On the statements „I think that patients with AIDS have the right to the same quality of care as any other patient‟ and „I would do everything I could to give the best possible care to patients with AIDS‟, 89% answered that they strongly agreed. Bivariate analysis showed that was no significant relationship between knowledge and attitude towards HIV (*r (45) =.025, p =.707*). This bivariate analysis means that students with positive attitude were not likely to have better knowledge compared to the ones with negative attitude
Conclusion: The study established that students had moderate knowledge about HIV/AIDS. The students in general expressed high levels of attitudes towards people living with HIV/AIDS. Addressing stigma in schools should be a continuous process.

Keywords: HIV/AIDS, Vihiga County, Kenya

Introduction

Acquired Immunodeficiency Syndrome AIDS is caused by Human Immunodeficiency Virus (HIV) that weakens the immune system, making the body susceptible to and unable to recover from other opportunistic diseases that lead to death through these secondary infections. Each year, some of those with HIV infections will become sick and develop AIDS. For some this will happen quickly in two or three years in adults or in the first year of life for infants who are infected. Many HIV infected person will not develop the symptom of AIDS for 5 or 10 years or even longer (AIDS in Kenya, 2014). HIV/AIDS is one of the most urgent Public Health challenges facing both developing and developed nations. Even though it affects all social sectors of the population, the epidemic among adolescents is the fastest growing partly because of young people's preventive services. Focusing on young people is likely to be the most effective approach to confronting the epidemic, particularly in high prevalence countries. This was recognized at the global level by the 2001 General Assembly Special session on HIV/AIDS who endorsed that 'by 2003, establish time bound national target to achieve the internationally agreed global prevention goal to reduce by 2005 HIV prevalence among young men and women aged 15-24 in the most affected countries by 25% and by 25% globally by 2010 (WHO Child and Adolescent Health and Development (CAH). Predisposing factors to HIV/AIDS among teenagers 2015 (WHO), in risky sexual practices like anal sex carries a high risk in transmission of the disease.

Wide delivery of effective behavior change strategies is central to changing the global HIV epidemic (Global HIV prevention Group, 2012). The availability of new biomedical HIV prevention modalities such as vaccines and drugs are still many years away. Even when these tools finally emerge, human behavior will remain critical and new prevention strategies are unlikely to be 100% effective in preventing HIV infection (Global HIV prevention Group, 2012). According to the WHO (2010), almost 99% of the youth in Kenya (Students inclusive) are aware of the presence of HIV/AIDS pandemic but behavior change is slow as most of them still engage in risky sexual behavior or it is evidenced by the high number of teenage pregnancies and school dropouts. The concern for youths in secondary schools is overwhelming in that in Kenya, age of first sexual context is low (12 years) (NASCOP, 2011) [5]. Data a lacking on factors influencing behavior change for HIV/AIDS prevention any student in Kenya (NASCOP, 2011) [5] consequently, the factors that influence behavior change for HIV/AIDS prevention amongst students are not well understood. For instance, it is not known why high

levels of awareness about risky sexual behavior do not translate to the desired behavior change. According to the National Aids Control Council 2016, approximately 29% of all new HIV infections here in Kenya are among youth people and the adolescents in the age group 15 to 19 years. Public secondary schools' students are a unique group of people as they form part of the highly susceptible group (15-24) yrs. despite having knowledge on transmission their practices depict poor attitudes towards the preventive measures available.

Youths are very potential population subset that needs to be understood and therefore studies should focus on promoting desired behavior among this age Cohort because of the physiological changes that could drive them to engage in risk behavior for HIV. Available data provides limited information for devising effective HIV/AIDS prevention strategies targeted at the Kenya adolescent. Youths form majority of the population, (GOK, 2013) About 43% of Kenya's population is aged 15 years and below- an outstanding average that reveals that one in two Kenyans fall under this grouping, and hence the need for the focus of this study. The study will provide guidelines on how to promote desired behavior among the youth to prevent HIV/AIDS especially in this time of unknown effective cure of AIDS. The research seeks to establish the students' level of knowledge on HIV\AIDS, find out the HIV related attitudes of the students.

Methods

Permission was sort from the college Research Committee and the nursing Research and Ethical Review committee. Potential respondents approached in groups and explained the purpose of the study and the impacts and measures taken to observe confidentiality will be distributed. Informants were advised of the voluntary nature of the study and given option to withdraw from the study at any stage without being subjected any penalty. Prior to the commencement of the questionnaires, they were required to fill the written informed consent to allow them participate in the study. No further approval was needed since the project did not require access to patients or personal data.

Research Design

Research design is a plan for collecting and utilizing data so that desired information can be obtained with sufficient precision (Miles and Huberman, 2004). The design adopted for this study was descriptive survey design this because the study was trying to find out what the nurse perceived to be factors that influence utilization of the nursing care plan in patient care

Study setting

The study was conducted in at least 25 schools in the county. Vihiga County is in western part of Kenya and its headquarters is in Mbale Township. It borders Kakamega, Kisumu, Nandi and Siaya Counties. It has a total population of 118,696 according to 2009 census. It has five sub-counties: Vihiga, Sabatia, Hamisi, Emuhaya and Luanda. Vihiga County has 112 public secondary schools and 4 private secondary schools.

Participants

Study population is a study of a group of individuals taken from the general population who share a common characteristic (Mugenda and Mugenda, 1999). The target population was Students in public secondary schools in Vihiga County who were willing to participate in the study in the schools so mentioned Stratified random sampling technique to be used with regard to the various schools as the strata where proportionately the respondents shall be taken from. Then systematic random sampling process shall be applied to give each student within the strata an equal chance in the study.

Instrument

The study was performed with the KAP questionnaire that was developed, validated and tested for reliability by Huang, Bova, Fennie, Rogers and Williams (2005) [3]. The KAP has previously been used to investigate nursing students" knowledge and attitudes towards patients suffering from HIV/AIDS (Huang, Bova, Fennie, Rogers & Williams, 2005, Eriksson & Kopsch, 2008) [3]. The advantages of using a questionnaire or an inquiry are the large coverage of respondents, as well as the time and cost effectiveness (Polit & Beck, 2008) [6]

Data collection procedure

The study instrument was structured questionnaire, because; it permitted greater depth of response, it was economical in terms of time and money, it was easy to analyze and closed-ended questions are easier to formulate. A standard set of questionnaires was distributed among the students. Before administering the questionnaire, the nature of the study was explained to the students. They were assured of anonymity and confidentiality of their responses. The face and content validities of the instrument were ensured by comparing items with previous similar studies and by matching them with the stated objectives. In addition, a copy of the prepared questionnaire was made available to the project supervisor for vetting, review and careful scrutiny for the necessary amendments and corrections. Also, a pretest was carried out among 20 students in two schools that were not part of the study to ensure the reliability of the instrument. The principal investigator trained three data collectors about informed consent and the different sections of the questionnaires. The questionnaires were administered by the principal investigator and the three trained data collectors to all qualified students in the study. The questionnaires were administered during regular school hours. Students who volunteered to participate were made to sit apart and asked not to communicate with each other during the administration of the questionnaires so as to encourage honest responses, while the teacher was outside the classroom. After collecting the completed questionnaires, students were thanked for their participation in the study.

Data Analysis

Data analysis was done using the statistical program for social sciences (SPSS) version 25. Inferential and descriptive statistics were used to analyze data. Descriptive analysis of data was done using the mean, frequencies and percentages. In this study association between the study variables was assessed by a two-tailed probability value of $p<0.05$ for significance. Visual inspection of the data illustrated that missing data appeared to be missing at random. The questionnaire has been used in previous studies in China, Tanzania and the attitudes part has been used in Sweden (Huang, Bova, Fennie, Rogers & Williams, 2005,

Eriksson & Kopsch, 2008, Ashberg & Sjöblom, 2009) [3, 2]. All the data from the questionnaires was put together in Microsoft Excel. Each respondent's answers to the questions and statements were inserted into a table. To make sure no errors are made, one of us inserted the data and the other one went through the information once again. To illustrate the data the frequency of the respondents‟ answers are presented per question and statement in tables. Descriptive statistics, such as percent (%) and mean are used to present the data. Different types of graphs, figures and tables summarize the data visually.

Results

Out of the 60 questionnaires distributed, 45 were correctly filled and returned which represented a response rate of 75 percent. According to Mugenda and Mugenda (2003) a response rate of 50 percent is adequate, a response rate of 60 percent is good, and a response rate of 70 percent is very good. Therefore, the 83 percent response rate reported for this study formed an acceptable basis for drawing conclusions. While we should not expect full response in studies where responding is voluntary, scholars utilizing questionnaires should aim for a high response rate (Baruch & Holtom, 2008). Firstly, the study asked the respondents to indicate their background characteristics based on the gender, nurse classification, work experience; age-bracket and education level. The summary of their responses is given in Table 1. Our study population was very homogenous. Women accounted for 100% of the respondents and they were all between 21-22 years old and single. Most of the respondents came from an urban area (80%) and were staying on Campus (Table 1).

Table 1: Demographic data of the respondents

	n	%
Sex		
Female	45	100
Age		
21-22	45	100
Place of family living		
Rural	9	20
Urban	36	80
Place of living		
On Campus	35	78
Rented house outside campus	1	2
Living with parents	9	20
Marital Status		
Single	45	100
Religion		
Hindu	17	38
Christian	26	58
Muslim	2	4

Students' knowledge about HIV/AIDS

The respondents in general reported gaining most of their HIV/AIDS knowledge from doctors and nurses during clinical placement (67%) and from the media such as television, internet, newspapers and magazines. Sixty-four percent reported gaining knowledge from internet and television. Forty-four percent answered that they gain only a very limited amount of knowledge and as much as 29% of the respondents reported gaining no HIV/AIDS knowledge in family settings. Further, 16% answered that they were gaining a very limited amount of knowledge and 9% reported gaining no HIV/AIDS knowledge at all in the classroom.

HIV/AIDS knowledge scale

Table 2 and 3 present the respondents‟ knowledge about HIV/AIDS, transmission and non-transmission routes. All respondents (n=45) answered correctly to the statement that „HIV can reduce the body's natural protection against disease‟. Ninety-eight percent also answered correctly to the statements „AIDS is an infective disease caused by a virus‟ and „Any person with HIV can pass it on to someone else during sexual intercourse‟ (Table 3). The majority of the respondents incorrectly believed that a person cannot be infected with HIV without suffering from AIDS (69%) and that a person with HIV cannot look and feel healthy and well (56%). Thirty-one percent answered incorrectly and 16% were uncertain to the statements whether „There is no cure for HIV at present‟ and „A diaphragm is an effective means of reducing HIV transmission‟. Also, 25% incorrectly believed that there is a vaccine available to the public that will protect a person from getting HIV and 11% reported that they were uncertain (Table 3). The answers to the statements nr. 20, 21, 22, 23 and 28 show a high variation between the respondents (Table 3).

Table 2: HIV/AIDS knowledge scale

	True n	False n	Uncertain n	Correct answers %
HIV can reduce the body's natural protection against disease	*45	0	0	100
AIDS is an infective disease caused by a virus	*44	1	0	98
There is no cure for AIDS at present	*24	14	7	53
A person with HIV can look and feel healthy and well	*18	25	2	40
There is a vaccine available to the public that protects a person from getting the HIV	11	*29	5	64
A person can be infected with HIV and not have the disease AIDS	*14	31	0	31

Any person with HIV can pass it on to someone else during sexual intercourse	*44	0	0	98
A pregnant woman who has HIV can pass it on to her baby	*41	1	3	91
Condom is an effective means of reducing HIV transmission	*42	2	1	93
Spermicidal foam, jelly and cream are effective in reducing HIV transmission	1	*39	5	87
A diaphragm is an effective means of reducing HIV transmission	14	*24	7	53

* Correct answers

Transmission routes

Eighty percent of the respondents incorrectly believed that a child was unlikely to get HIV infection by being fed breast milk from mother with HIV/AIDS and 9% were uncertain. Half of the group (51%) believed that HIV can be transmitted through kissing with exchange of saliva, which is incorrect, and 11% were uncertain. Respectively 24% vs. 27% of the respondents inaccurately believed that being coughed or sneezed on by a person who has HIV or eating at a restaurant where the cook has HIV would likely put them at risk of contracting the virus. The possibility to contract HIV infection by using a public toilet was believed to be likely by 22% of the respondents (Table 3).

Table 3: HIV/AIDS knowledge scale -Transmission routes

How likely do you think it is that a person will get HIV infection from?	Likely n	Unlikely n	Uncertain n	Correct answer %
Shaking hands, touching or kissing on the cheek with someone who has HIV?	2	*43	0	96
Kissing –with exchange of saliva- a person who has HIV?	23	*17	5	38
Being coughed or sneezed on by someone who has HIV?	11	*34	0	76
Sharing plates, forks or glass with someone who has HIV?	3	*42	0	93
Eating at a restaurant where the cook has HIV?	12	*32	1	71
Engaging in anal sex?	*40	0	5	89
Sharing needles for drug use with someone who has HIV?	*44	1	0	98
Using public toilet?	10	*34	1	76
Being fed breast milk of mother with HIV/AIDS?	*5	36	4	11

* Correct answers

Student's attitudes towards HIV/AIDS

The respondents mostly expressed positive attitudes towards people with HIV/AIDS. On the statements „I think that patients with AIDS have the right to the same quality of care as any other patient" and „I would do everything I could to give the best possible care to patients with AIDS", 89% answered that they strongly agreed. However, 44% strongly disagreed on the statement whether a homosexual patient's partner should be accorded the same respect and courtesy as the partner of a heterosexual patient.

Table 4: Attitudes

Attitudes related to HIV/AIDS scale	Strongly disagree	Moderately disagree	Slightly disagree	Slightly agree n	Moderately agree	Strongly agree
I think that patients with AIDS have the right to the same quality of care as any other patient	0	3	0	1	1	40
It is especially important to work with patients with AIDS in a caring manner	1	1	0	1	2	40
A homosexual patient's partner should be accorded the same respect and courtesy as the partner of a heterosexual patient	20	1	2	7	8	7
Patients with AIDS should be treated with the same respect as any other patient	2	1	2	1	1	38
I am sympathetic toward the misery that people with AIDS experience	1	1	2	3	8	29
I would like to do something to make life easier for people with AIDS	1	1	1	0	7	35
I would do everything I could to give the best possible care to patients with AIDS	0	2	0	2	1	40

Bivariate association between level of knowledge and attitudes

The above results motivated further analysis and the relation between knowledge and attitudes was explored. The respondents were divided into groups based on their number of correct answers on the knowledge scale. There were two groups of students, those who had answered correctly to 11-15 of the questions and statements (n=20) and those who had 16-19 correct answers on the HIV/AIDS knowledge scale (n=25). Each respondent's total score on the empathic attitudes scale was calculated. The scale reaches from 0 to 35 where 0 shows no empathic attitudes. Further, each respondent's score on refraining attitudes was calculated. The refraining attitudes scale reaches from 0 to 70 where 0 shows an absence of refraining attitudes. The mean value was used to explore the relationship between knowledge and attitudes. This statistical measurement might not give an exact estimate of the relationship as they are ordinal variables, but it does allow examining a statistical tendency. The mean value on the empathic attitudes scale for the respondents having a score from 16-19 points on the knowledge scale is 30.96 while the mean value for the respondents having a score from 11-15 on the knowledge scale is 27.5. All respondents scoring 35 points (n=4) (high level of empathic attitudes) are those who scored above 17 points on the knowledge scale. All the respondents scoring below 20 points (n=3) (low level of empathic attitudes) on the empathic attitudes scale have scored below 14 points on the knowledge scale. To confirm whether the hypothesis was true or false, a correlation analysis was computed at 0.05 significance level. The results are presented in Table 5.

Table 5: Test of Hypothesis

		Knowledge	Attitude
Knowledge	Pearson Correlation	1	.025
	Sig. (2-tailed)		.707
	N	45	45
Attitude	Pearson Correlation	.025	1
	Sig. (2-tailed)	.707	
	N	45	45

At 0.05 significance level, the fourth null hypothesis was accepted *r (45) =.025, p =.707*. This led to the conclusion that there was no significant relationship between knowledge and attitude towards HIV. This bivariate analysis means that students with positive attitude were not likely to have better knowledge compared to the ones with negative attitude.

Discussion

The aim of the study was to investigate and describe students‟ level of knowledge about HIV/AIDS and their attitudes towards people with HIV/AIDS. The respondents are in general gaining most knowledge from the media. In one way it is positive since the latest updated information is available through internet, TV and magazines. However, it is important to take into consideration that not all of the information gained through media is of scientific character, therefore it is crucial to be critical while viewing information gained through such sources. Further, 9% answered that they gain no HIV/AIDS knowledge in the classroom and 16% reported gaining a very limited amount. The college should be the place where the students receive the latest updated scientific information and education. Teaching and providing guidelines for nursing care should be essential components of the education (Lohrman *et.al*, 2000) [4]. According to Veeramah, Bruneau and McNaught (2008) [9], there is a need for more education to help nursing students meet the physical and psychological needs of patients with HIV/AIDS and their relatives and to improve their knowledge about the disease. Moreover, a limited amount of knowledge is gained from family settings which can indicate that sexual behavior is not discussed within the family circle. Indian culture is sexually conservative, which might make it difficult to teach about and to discuss HIV disease and risk reduction.

No one answered correctly to all of the 20 questions and statements on the knowledge scale and more than 10 % of the students (n=5) answered incorrectly to almost half of the statements/questions. A high percentage answered incorrectly or was uncertain whether there is a cure for HIV at present and whether there is a vaccine available to the public that will protect a person from getting HIV. Many of the practitioners within the Indian Systems of Medicine (ISM) argue that they have a cure for HIV which potentially creates an incorrect belief and confusion among the respondents (Belz *et.al*, 2009) [1]. According to Belz *et.al* (2009), it is estimated that as much as 70-80% of the Indian population at some point in their lifetime use some form of non-allopathic medicine from one of the various ISM. However, many practitioners within ISM lack knowledge about HIV/AIDS and this creates medical complications as patients are given misleading advice (Belz *et.al*).

The majority of the respondents believed that a person cannot be infected with HIV without suffering from AIDS, which might explain way the majority of the students also believed that a person with HIV cannot look and feel healthy and well, which is medically incorrect. This might give rise to a risk behavior when working with nursing care, especially procedures that include handling blood. It was found that the number of respondents answering incorrectly to the questions about transmission routes in some cases was quite high. A large majority answered incorrectly to the question whether HIV can be transmitted through being fed breast milk of a mother with HIV/AIDS and a high number of the respondents also answered incorrectly to whether a person is likely to contract HIV infection from using a public toilet. The result shows that many students have gaps in their knowledge about transmission routes. This might, according to Zhang, Guo and Sun (2010) [10], lead to irrelevant fear and erroneous behavior. In their future profession the nursing students will be in a position where they will inform and give advice to patients with HIV/AIDS and their relatives. It is therefore important to have adequate knowledge about HIV/AIDS and the ways in which it transmits. Similar to this study, the majority of studies conducted among nursing students and working nurses show that the gaps in HIV/AIDS knowledge is a big problem and the need for more education about HIV/AIDS care, transmission, symptoms and treatment is frequently expressed (Lohrman et. al, 2000, Röndahl, Innala & Carlsson, 2003) [4, 7].

Although the levels of attitudes are high on most statements there is one exception. To the statement whether the partner of a homosexual patient should be accorded the same respect and courtesy as the partner of a heterosexual patient almost half of the respondents answered that they strongly disagreed. Negative attitudes towards homosexuals can be a problem in caring for people with HIV/AIDS. Men having sex with men (MSM) is a risk group where the prevalence is high and many people who are suffering from HIV/AIDS are homosexual (Sivaram, Zelaya, Srikrishnan, Latkin, Go, Solomon& Celentano, 2009). It is interesting that the respondents had high levels of empathic attitudes regarding those statements referring to patients with HIV/AIDS, but as homosexuality was mentioned the level of empathic attitudes was considerably lower. These results reflect the bias against homosexuals suffering from HIV/AIDS as it is doubly stigmatized in the Indian society. The results about knowledge and attitudes lead to further exploratory analysis observing the relation between these two factors. No tendency was observed between level of knowledge and attitudes. Zhang, Guo and Sun (2010) [10] write that one of the most important factors in changing nursing students‟ attitudes towards HIV/AIDS is acquiring knowledge about transmission routes. Not knowing about non transmission routes is one of the biggest reasons to fear of caring for HIV/AIDS patients. Nursing students‟ attitudes can be changed by increasing the level of knowledge about HIV/AIDS trough teaching (Zhang, Guo & Sun, 2010) [10]. The result in this study shows that negative attitudes tend to decrease as the level of knowledge increase. Comparatively, the observation that higher level of knowledge leads to less negative attitudes has been achieved in previous studies performed by Röndahl, Innala and Carlsson (2003) [7] and Veeramah *et al* (2008). It is important to be aware of the relation between level of HIV/AIDS knowledge and attitudes when educating students about the disease in order to improve the education in an effective manner.

Conclusion& Recommendation

The study established that students had moderate knowledge about HIV/AIDS. The students in general expressed high levels of attitudes towards people living with HIV/AIDS. Although Kenya has seen a dramatic increase in HIV prevalence figures since 2008, the country is still facing a severe AIDS epidemic. In order to make progress in Kenya, the following areas need to be addressed.

- The Kenyan government needs to increase the number of students who know their HIV status by promoting and expanding access to HIV to testing in schools.
- Addressing stigma.
- Promotions of condom use among the students as a contraceptive and protection against HIV/AIDS.
- National condom, strategy should give more attention to youth in secondary school.

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