



## HIV/AIDS Related Knowledge, Attitude And Sexual Behavoirs Of Students Of A Tertiary Institution In Ghana

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### Abstract

*Young adults worldwide are particularly affected by the HIV/AIDS menace because they are the most sexually active and adventurous members of the population. Due to the morbidity, complications and mortality associated with HIV/AIDS, governments and non-governmental organisations (NGOs) worldwide have put in place pragmatic and gold standard interventions to curb the menace. This study sought to assess the knowledge, attitude and sexual behaviour of students of a tertiary institution in Ghana in relation to HIV/AIDS. Through a stratified-sampling technique, 492 students were assessed by self-administered questionnaires in March 2012. Sixty-seven percent (67%) of respondents identified "television" as their most important source of information about HIV/AIDS. There were a lot of identified misconceptions about HIV/AIDS modes of transmission including mosquito bites (31%) and public toilets (33%). Forty one percent (41%) thought that HIV positive people should not be admitted into mainstream schools while 30% would not sit close to an HIV positive student. Majority of respondents wanted to know more about HIV/AIDS. In this study knowledge level was associated with students' attitudes towards the disease. Although knowledge level seemed quite high, misconceptions about modes of disease transmission and intolerant attitudes towards HIV/AIDS infected people were common. We recommend that strategies for HIV/AIDS prevention be emphasized more in tertiary institutions.*

**Keywords:** morbidity; mortality; complications; stratified-sampling technique; misconceptions.

### INTRODUCTION

AIDS and HIV now clearly represent one of the most dramatic challenges to the public health system worldwide particularly in many developing countries (Fairchild and Bayer, 2002). The Human Immunodeficiency virus (HIV) was first identified by the medical community and documented by the Center for Disease Control (CDC) in 1981 (Galbraith et al., 2011) as the cause of widespread epidemic of severe immunosuppression called Acquired Immunodeficiency Syndrome (AIDS) (Gottlieb, 2000). Since its discovery to the year 2012, AIDS has caused about 36 million deaths worldwide (Bao et al., 2012) and has therefore been considered a global pandemic (Choutet & Besnier, 1994). The HIV/AIDS pandemic has had a huge burden on the society, the economy and has been flagged with several misconceptions especially in the religious sects (Johnson, 1989).

### Epidemiology of HIV/AIDS

According to the 2012 United Nations Program on HIV/AIDS (UNAIDS) report, globally there were more

than 700,000 fewer new HIV infections in 2011 than in 2001 and that Africa has cut AIDS related deaths by one third in the past six years (Bao et al., 2012).

Notwithstanding these achievements however, statistics has shown that for five patients affected by AIDS, one is in his/her 20s (Hogan et al., 2012).

Sub-Saharan Africa is by far the most affected region with the highest HIV prevalence rates occurring in the eastern and southern parts of the continent (Hogan et al., 2012).

### Origin of HIV/AIDS

Two closely related viruses namely HIV-1 and HIV-2 have been identified as causing AIDS in man (Mansson et al., 2007; Mansson et al., 2009). HIV-1 is predominant in Europe, Asia, Central, South and East Africa (Burrell et al., 2010; Caron et al., 2012). HIV-2 is the principal agent of AIDS in West Africa and to a limited extent in Angola and Mozambique and appears to be less infectious than HIV-1 (Neequaye et al., 1997).

All retroviruses contain an enzyme called reverse

transcriptase which converts viral Ribonucleic acid (RNA) into latent viral Deoxyribonucleic acid (DNA) which becomes integrated into the host cell DNA (Saravanan et al., 2011).

HIV which causes AIDS and other disorders may be transmitted from an infected to an uninfected person through blood, semen, breast milk, saliva and vaginal fluid (Choutet and Besnier, 1994; Smith, 2002). There are several case reports which indicate the likely transmission of HIV through oral sex (Berrey and Shea, 1997; Gottlieb, 2000; Hawkins, 2001), intravenous drug use (Ruan et al., 2004), mother-to-child transmission (Santmyire, 2001)(Padua et al., 2009) blood transfusion (Lackritz, 1998; Raufu, 2000) needle-stick injury (Feldt et al., 2004) and wound exudates (Gershon et al., 1990). HIV is however not transmitted by casual contact with infected persons or by mosquito bite.

### Mode of development of HIV and AIDS

During the early period after primary infection, there is widespread dissemination of virus and a sharp decrease in the number of Cluster of differentiation 4 (CD4)T helper cells in peripheral blood (Rowland-Jones, 2003). Patients may develop an acute illness characterized by mononucleosis-like signs and symptoms including fatigue, diarrhea, fever and swollen lymph nodes (Rappaport, 2003).

Latent virus infection may last for at least 10 years after initial viral acquisition. During this latent period, the patient is infective and HIV can be detected in various body fluids (Gallo and Garzino-Demo, 2001).

### Signs and Symptoms of HIV and AIDS

Weight loss, tuberculosis and weakness (asthenia) are the most common signs and symptoms in patients with HIV infection in Africa (Laure et al., 1987; Strecker et al., 1994). Other signs and symptoms include swollen lymph nodes, recurrent herpes simplex infections, and oral yeast infections (candidiasis) in the absence of antimicrobial therapy or an immunosuppressive illness, neurological abnormalities and cough (Olopoenia et al., 1992; Strecker et al., 1993; Strecker et al., 1994).

Most HIV-positive individuals first become aware of their status when diagnosed with life-threatening opportunistic infections (OIs) or cancers without having experienced preceding chronic symptoms. The best predictors of the onset of serious OIs which define AIDS are the decreased total number of CD4 count and the level of HIV RNA in plasma (viral load) (Kekitiinwa et al., 2008).

CD4 count is therefore one of the most important predictive factors for progression of HIV infection and forms the basis for international recommendations for antiretroviral treatment and prophylaxis of HIV (Nakanjako et al., 2008). Normal CD4 counts are about

750  $\pm$  250 cells/  $\mu$ L, but levels are usually reduced by about 40 to 50% in early HIV infection (Wood and Lawn, 2009). Vulnerability to OIs increase when CD4 counts are < 200 cells/  $\mu$ L.

### Diagnosis of HIV and AIDS

Generally, antibody detection to HIV is sensitive, specific, inexpensive and widely available (Lu et al., 1994). Rapid (10 min) serum tests, home collections systems and HIV antibody tests in oral secretions and urine are useful in some situations but they require confirmation by standard serum testing (Desai et al., 1991; Granade et al., 2004). Detection of HIV RNA in the serum provides a sensitive and specific diagnosis of HIV infection in patients in the very early stages of infection when antibodies may not be yet detectable.

Enzyme linked immunosorbent assay (ELISA) among other tests is most widely used for the detection of antibodies to HIV proteins and is recommended because of its sensitivity and specificity (Torane and Shastri, 2008).

### Sexual behaviors and HIV/AIDS transmission

In Sub-Saharan Africa, different cultural, social and behavioral aspects determine the regional characteristics of HIV/AIDS (Burrell et al., 2010). The ability of individuals to be aware of, initiate, and sustain safer sexual behaviors may largely depend upon societal sexual norms and practices, and not just self-perceived susceptibility to HIV infection (Nahom et al., 2001; Burrell et al., 2010). Sexual practices such as fellatio and cunnilingus appear to be but are not absolutely safe (Bay-Cheng and Fava, 2010). The greatest risk of HIV/AIDS transmission is through genital intercourse especially anal-receptive intercourse. Use of condoms or vaginal barriers decreases but does not eliminate the risk of disease acquisition.

### HIV/AIDS Preventive measures

The 2002 UNICEF report strongly suggested that appropriate education regarding HIV transmission and safe sexual practices in young people can prevent HIV infection and stop the AIDS epidemic (UNICEF, 2002). Educational interventions to rectify misconceptions provide correct information on HIV/AIDS transmission and development of safe sexual practices should be put into practice (Gurtler, 2007; Nagamatsu et al., 2011).

Fakolade et al (2009) showed that education through the mass media can change health-related beliefs and behavior, especially when supplemented with interpersonal communication (Fakolade et al., 2009). Since an effective therapy or vaccine for HIV may be a long way off, it is imperative that we maintain a focus on

disease prevention (Goldrick, 2003). HIV prevention is usually complicated by social, economic and political constraints in many developing countries; however there is evidence that prevention works (Drummond, 1989; Johnson, 1989).

Katsidzira et al (2011) estimated that several hundred thousand potential cases of HIV/AIDS infections have not occurred due to prevention efforts in Southern Africa (Katsidzira and Hakim, 2011). Current preventive interventions include voluntary HIV testing and counseling, preventive programs for people at risk of acquiring HIV (referred to as primary prevention), preventive programs for people living with HIV (also called secondary prevention), partner notification, antiretroviral therapy for people infected with HIV, substance abuse treatment and access to condoms (Baeten, 2008; Gomez, 2008; Janssen et al., 2001). Transmission through blood transfusion is currently reduced drastically by screening blood donors for HIV antibody (Lackritz, 1998). Disposable or properly sterilized needles and syringes are used during venipuncture and blood transfusions (Feldt et al., 2004)

### Management of HIV/AIDS

The management of patients with HIV/AIDS represents one of the most complex issues that health care workers have to deal with. In addition to complicated diagnostic and therapeutic problems, clinicians, relatives and friends have to offer psychological and social support. There is ample evidence to show that recent advances in surveillance and treatment of HIV have improved survival rates for those infected with the virus (Fairchild and Bayer, 2002). Research advances have identified strategies that have nearly eliminated mother-to-child transmission of HIV infection in many parts of the developed world and reduced the incidence of HIV infection in some developing-world settings (Luo, 2000; Santmyire, 2001; Read, 2010). Antiretroviral therapy aims to reduce plasma viral load (virions plus viral RNA), and keep it low for as long as possible, and to prolong life expectancy (Barrington et al, 2011).

Beginning with the use of zidovudine monotherapy in 1987, five classes of antiretroviral drugs have been developed (Iurin, 2007). Combinations of these agents safely and reliably suppress HIV replication in the body below detectable limits in most HIV-infected persons receiving this therapy (El-Khatib et al., 2011).

Limitations of ARTs include the fact that successful treatment of HIV infection requires daily dosing regimen of drugs for the remainder of the patient's life (Chan and Ray, 2007). In this regard, HIV infection becomes more like a chronic disease, where long-term follow-up fosters patient adherence. AIDS patients do not require special facilities or quarantine except patients with concomitant tuberculosis who may be highly contagious (El-Khatib et al., 2011).

Another challenge in effective HIV/AIDS management

is the possibility of drug resistance and drug-drug interactions. Patients have to be monitored carefully for toxicity and drug-drug interactions (Barrington et al, 2011).

### Role of Governmental and Non-governmental Organizations

The government of Ghana since the outbreak of the HIV/AIDS epidemic in Ghana, has evolved specific and innovative strategies to lighten the disease burden and reach high risk groups such as the youth, uniform personnel (police, immigration and the military), commercial sex workers, mobile populations such as long distance truck drivers and itinerant traders (Anarfi et al. 1997). It is on this premise that the Ghana AIDS Commission and the Tripartite committee were established. Some strategies adopted by the Government of Ghana include increasing condom usage rate  $\geq 90\%$  among high-risk groups and more HIV positive mothers receiving Prevention of Mother-To-Child Transmission (PMTCT) services (Agyei-Mensah, 2001).

Several organized groups such as churches and schools as well as Non-Governmental Organizations (NGOs) have taken up the challenge to help the government of Ghana to eradicate the HIV/AIDS menace. A typical example is the United States President's Emergency Plan for AIDS Relief (PEPFAR), initiated in 2003 by former President George W. Bush; the multilateral Global Fund to Fight AIDS, Tuberculosis and Malaria. Other NGOs such as the Bill and Melinda Gates Foundation, the Clinton Foundation, and Médecins Sans Frontières, among others, have transformed the fate of countless HIV/AIDS-infected persons in the developing world, particularly Africa, by providing treatment and care for those who are infected and prevention services for those at risk of infection (Dolinsky, 2008; Kamwi et al., 2006; Kerr, 2006).

#### Problem statement

The mortality, morbidity and complications associated with HIV/AIDS remain as somber remainders of the devastation caused by the HIV/AIDS epidemic. Due to the fact that, HIV/AIDS affects mostly the youth who are the most sexually active and adventurous members of the population, it is imperative that HIV/AIDS education be targeted towards the youth hence the need for this study.

### Importance of the Study

This study seeks to identify students' knowledge (possible causes, modes of transmission, control of the replication of the causative agent, preventive strategies) in relation to HIV/AIDS; their perception of HIV/AIDS; as well as their attitudes toward PLWHAs.

### MATERIALS AND METHODS

Kumasi Polytechnic has a student population of about

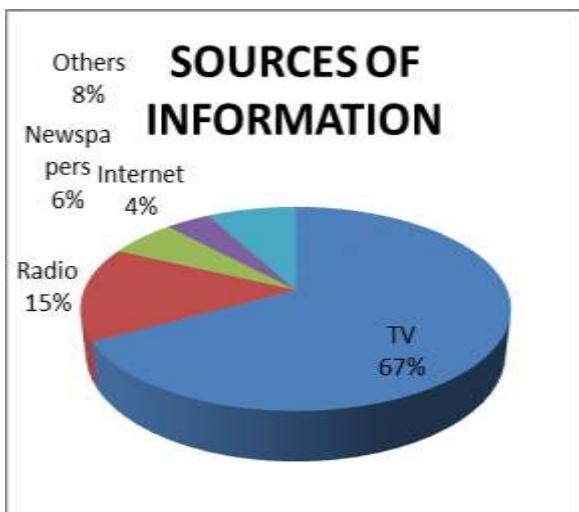


Figure 1: Respondents sources of HIV/AIDS information

9,000 with about 18 departments. Stratified sampling technique was employed in the selection of 500 students based on year groups by departments.

Each year group thus had 166 students selected on the average ( $3000/18$ ). 166 multiplied by 3 (year one through to year three) giving 498 which when rounded to the closest whole figure gives 500.

Anonymous questionnaires in English language were self-administered to 500 students at the Kumasi Polytechnic in the Ashanti region of Ghana. Due to the self-report nature of this type of study, the integrity of respondents responses may be questioned hence the use of anonymous questionnaires to encourage accurate and honest self-disclosure on HIV/AIDS. A total of 492 completed questionnaires were returned representing a response rate of 98.4%. Questionnaires were developed to sample students' knowledge of HIV/AIDS, their current sexual practices, attitude towards people living with HIV/AIDS (PLWHAs) and sources of information on HIV/AIDS. Questionnaires contained multiple choice and yes/no type of questions on respondent's demographic information, disease knowledge including modes of transmission, measures to reduce spread of HIV infection and identification of high risk groups. The questionnaires also contained questions which evaluated students' sexual risk-taking behaviors, their awareness of risk to themselves and condom usage. Various responses given by students were recorded and data analyzed using Microsoft Excel 2010.

## RESULTS

Fifty nine percent (59%) of respondents were males whiles forty one percent (41%) were females. Respondents were also categorized according to age groups. Sixty five percent (65%) of respondents were between the ages of 15-25, Twenty three percent (23%)

were between the ages of 26-35, nine percent (9%) were between the ages of 36-45 and four percent (4%) were above 45 years.

Eighty percent (80%) of respondents were single whiles twenty percent (20%) were married.

Ninety two percent (92%) of respondents expressed a desire to know more about HIV/AIDS.

"Television and radio" were the main sources of HIV/AIDS related information. Sixty seven percent (67%) of respondents stated the "television" whiles fifteen percent (15%) cited the "radio" as their main source of HIV/AIDS related information. Six percent (6%) cited "newspapers"; four percent (4%) cited the "internet" whiles eight percent (8%) cited others. For the purposes of data analysis, "magazines", "books", "friends" and "family" were called others (Figure. 1).

In response to the question "in which of the following ways can HIV/AIDS be transmitted?" different responses were given. In general, respondents had a fair idea of the different routes of transmission of the disease. Ninety five percent (95%) of respondents said sexual contact could transmit the disease, ninety percent (90%) said blood transfusion, ninety one percent (91%) said sharing of needles, sixty six percent (66%) said tattoos whiles eighty five percent (85%) said mother-to-child transmission can transmit the disease causing virus.

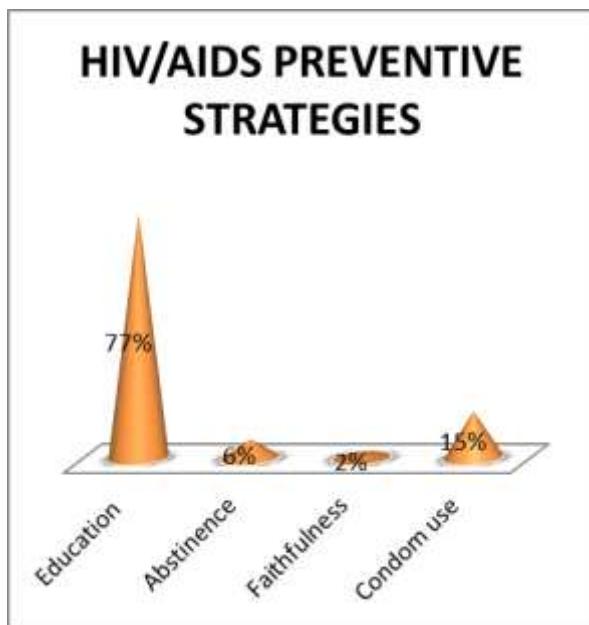
Eighty eight percent (88%) of respondents said the existence of HIV/AIDS did not affect their sexual behaviour in any way. Thirty three percent (33%) said they engage in oral or anal sex irrespective of the HIV/AIDS menace.

Sixty three percent (63%) of respondents did not know that there was drug treatment to control the replication of the HIV virus whiles thirty seven percent (37%) knew of drug treatments. Out those who knew about drug treatment, only twelve percent (12%) could mention the name of either a generic or brand name drug for the treatment of the disease.

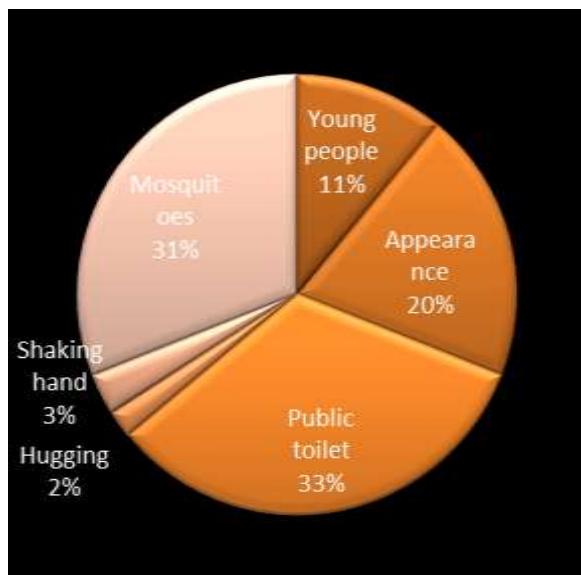
In response to a question about the best way of fighting the HIV/AIDS epidemic in terms of preventive strategies, seventy seven percent (77%) of respondents believed that education is the best approach respondents. While fifteen percent (15%) said condom use was the most effective preventive strategy (Figure. 2).

Forty seven percent (47%) of respondents answered "yes" when asked whether they had already tested for HIV whiles fifty two percent (52%) said they had not tested yet.

Many misconceptions were identified relating to HIV/AIDS, with eleven percent (11%) of respondents believing that young people can never be affected by HIV/AIDS, twenty percent (20%) believing that HIV-positive people can be recognized by their appearance. Thirty three percent (33%) of respondents thought that HIV/AIDS can be transmitted by sharing toilet with infected individuals whiles thirty one percent (31%) of respondents thought mosquitoes can transmit the disease (Figure. 3).

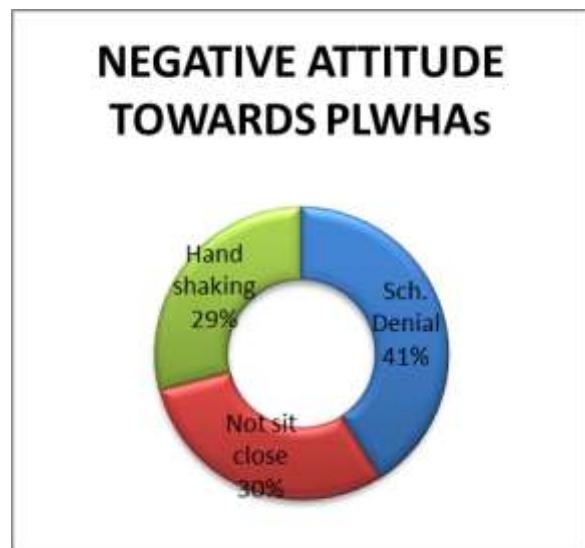


**Figure 2:** Respondents choices of HIV/AIDS preventive strategies



**Figure 3:** Identified HIV/AIDS misconceptions among respondents

Negative attitudes toward HIV-infected individuals were found to be common. Forty one percent (41%) of respondents thought that an HIV infected person should not be allowed to enter main stream educational institutions. Boys and girls were found to be the same for this attitude (49% vs. 48% respectively). Thirty percent (30%) of respondents stated that they would not sit in the same classroom with an HIV positive student. There was



**Figure 4:** Respondents Negative Attitude towards PLWHAs

no significant difference between boys and girls (35% vs. 38%). Twenty nine percent (29%) of respondents indicated that they would not shake hands with an HIV-infected person if they knew about his or her status (Figure. 4). There were significant differences in relation to boys and girls [52% of boys vs. 30% of girls]. Attitude was significantly correlated with knowledge. Generally, students with less knowledge scores had more negative attitude towards HIV-infected persons.

As a supplemental question, respondents were asked to express their feeling towards an HIV positive person. Seventy percent (70%) of respondents said they would be compassionate towards an infected person, eleven percent (11%) said they would be indifferent while nineteen percent (19%) said they would be bitter towards an HIV positive person (Figure. 5). These feelings were different for boys and girls. Girls were more compassionate towards HIV/ AIDS patients than boys (63% of girls vs. 37% of boys). This finding is not surprising as boys/men naturally hide their emotions or feelings and may appear less compassionate than girls/women. Eighty three percent (83%) of respondents thought PLWHAs should be given the necessary support.

## DISCUSSION

Students attending a tertiary institution have excellent access to public health education regarding HIV and AIDS transmission, and so may be a barometer of the effectiveness of public health education campaigns.

Various reports concerning the rapid spread of HIV/AIDS worldwide particularly in Sub-Saharan Africa have increased the level of anxiety over the spread of the disease especially among adolescents. This may therefore explain why about 92% of respondents

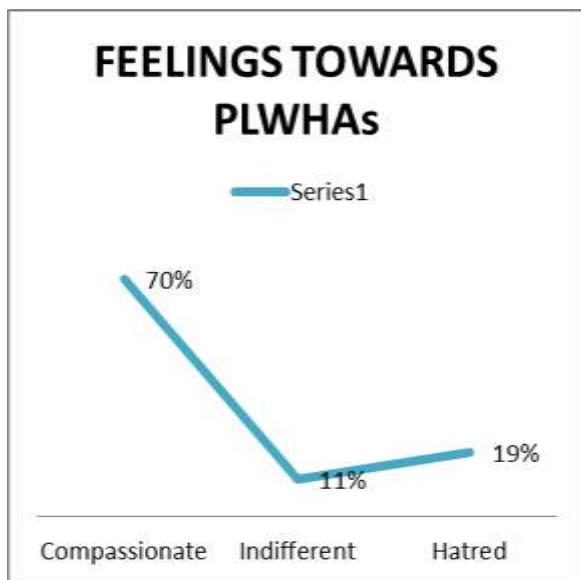


Figure 5: Respondents feelings towards PLWHAs

expressed a desire to obtain more information about HIV/AIDS. This finding is similar to that of American and European investigators a decade ago, when the AIDS epidemic was emerging (Strecker et al., 1993; Longini, 1994).

The mass media plays a vital role in the dissemination of important health related information such as HIV/AIDS related information. The Television (67%) and radio (15%) were respondents most common means of obtaining information about HIV/AIDS which is consistent with the findings of a similar study conducted by Brooks and Klosinski in 1999 (Brooks and Klosinski, 1999). Newspapers (6%) and the internet (4%) were cited as accurate sources of information about HIV/AIDS by some respondents. Others (8%) also cited "magazines", "books", "friends" and "family" as accurate sources of information. Considering the fact that tertiary level students have excellent reading skills, the print media such as newspapers, magazines and books were expected to be popular among this category of respondents. Unfortunately, the print media was not popular among respondents probably because respondents have a lot of course materials to read or the fact that inadequate HIV/AIDS information is provided in the print media.

Previous studies in Southeast Asia showed that the mass media did little to change existing cultural values and prejudice about the sexuality and the conditions of people living with HIV or AIDS (Wolffers, 1997). This study has however shown the imperative role played by the mass media in disseminating information about HIV/AIDS. The media should however be empowered to bring on board new programs and fortify existing ones to improve public knowledge and rectify misconceptions about HIV/AIDS.

Overall, there were a lot of identified misconceptions

about HIV/AIDS modes of transmission among respondents such as shaking hands, hugging and sharing public toilets with HIV-infected individuals, mosquito bites, etc. Previous investigators such as Akande et al studied misconceptions about HIV/AIDS modes of transmission among tertiary level students in three public universities in Lagos, Nigeria (Akande et al., 2011) and made observations consistent with the results of this study. Akande et al further established a relationship between HIV/AIDS misconceptions, discrimination and stigmatization. Future research can thus study this association among tertiary level students in Ghana.

Globally, there have been several recent advances in an attempt at finding a total cure for the eradication of HIV/AIDS by exploring various possible viral and hosts targets. Notable among these efforts are the discovery and approval by the Food and Drugs Administration (FDA) of Maraviroc [a C-C motif Receptor five (CCR5) antagonist], raltegravir (an integrase inhibitor) and etravirine/ rilpivirine which are both Non-Nucleoside Reverse Transcriptase Inhibitors (NNRTIs). It is therefore not surprising that in this study a considerable proportion of respondents thought that there was a total cure for HIV/AIDS.

The questions dealing with sexual behavior ought to be interpreted with care since the accuracy of answers is subject to respondents' willingness or not to report sexual behavior which is very private. Brown in 1988 observed that better knowledge on HIV/AIDS transmission does not necessarily lead to behavioural changes (Brown, 1988) which is consistent with the findings of this study as eighty eight percent (88%) of respondents said the existence of HIV/AIDS did not affect their sexual behaviour. Several documented reports have linked the likely transmission of HIV/AIDS and the practice of oral and anal sex (Gershon et al., 1990; Hawkins, 2001). The fact that a significant proportion of respondents (33%) said they practice oral or anal sex regardless of the HIV/AIDS epidemic calls for more emphases on non-sexual modes of HIV/AIDS transmission such as anal and oral sex in addition to well-known modes of transmission as heterosexual sex, blood transfusion and a de-emphasis on spiritual mythologies and folk conceptualizations. An assessment of people's sexual behaviour is important in understanding how people relate their sexual experiences to the risk of disease acquisition. Also, evaluating the association between sexual behavior and HIV/AIDS acquisition may facilitate the design of effective HIV/AIDS preventive measures necessary to check the spread of the disease.

## CONCLUSION

Students selected for the study were found to have some knowledge about HIV/AIDS although knowledge levels were quiet low in some students.

Some respondents were also found to have bad attitude towards PLWHAs. There were still some

identified misconceptions among some respondents.

Respondents's sexual behaviour was found not to have a direct association with their perception of HIV/AIDS acquisition.

## RECOMMENDATIONS

The general public as well as tertiary level students should be educated on all aspects of HIV/AIDS through a collaboration of various stakeholders such as the Ministry of Health, the Ministry of Education, the Ministry of Information, politicians, NGOs, religious groups and the media particularly the television and radio in order to emphasise behavioural change and reduce discrimination and stigmatization associated with HIV/AIDS.

In view of the findings of this study, there is considerable rationale to include HIV/AIDS education as an integral part of school curricula. There should therefore be a big push by the Ministry of Education to inculcate and increase the teaching of all aspects of the disease in school curricula from primary through to tertiary level.

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