

## Demographic Factors Predicting Knowledge of Hiv/Aids among Undergraduates in A University in Nigeria

Samuel E. Oladipo<sup>1</sup>, Malomo Bolajoko I.<sup>2</sup>, Ishmael Kalule-Sabiti<sup>1</sup>

(1. Population Training and Research Unit, Faculty of Human and Social Sciences, North-West University (Mafikeng Campus), South Africa; 2. Department of Psychology, Faculty of Social Sciences, University of Lagos, Nigeria)

**Abstract:** Young people have been globally identified as most vulnerable to risky behaviors including HIV/AIDS hence the high prevalence rate of HIV/AIDS infection among them. Researchers have however linked knowledge to behavioral change; therefore this present study investigated demographic variables as predictors of knowledge of HIV/AIDS among tertiary institution students in Nigeria. A total of 572 respondents were purposively sampled for the purpose of this study (316 female and 276 male). Of the total sample, 189 were from the Polytechnic, 197 from college of education and 186 from University. These were conveniently sampled from these institutions for the purpose of the study. Validated scales were used and results showed a significant positive relationship between gender and Institution of learning ( $r = .146^{**}$ ); knowledge of HIV/AIDS ( $r = .113^{**}$ ). There is also a significant positive relationship between respondents' religion and institution of learning ( $r = .159^{**}$ ). There was no significant gender difference in the knowledge of HIV/AIDS. ( $M = 29.81$ ;  $30.46$ ,  $t = -2.71$ ,  $p > .05$ ). But there was a significant difference in knowledge of HIV/AIDS based on respondents' institution of learning [ $F(2, 1) = 14.06$ ,  $p = 0.000$ ]. Post hoc test showed mean score for students in the college of education ( $M = 31.02$ ,  $SD = 2.45$ ) was significantly different from students from university ( $M = 29.72$ ,  $SD = 2.67$ ) and polytechnic ( $M = 29.73$ ,  $SD = 3.19$ ). Thus students in colleges of education are significantly more knowledgeable in HIV/AIDS compared to their counterparts. It was concluded that the need for more awareness creation on the knowledge of HIV/AIDS on university and polytechnic campuses cannot be overemphasized.

**Key words:** college, university, knowledge, HIV/AIDS, sex workers, undergraduates, tertiary institutions

### 1. Introduction

Globally, and for many decades now, the HIV/AIDS pandemic has attracted more attention than any other single issue (UNAIDS, 2012) and this may be because it has possibly wrecked more havoc across the globe than any known sickness or disease. The UNAIDS (2012) reports that, globally, 34.0 million (31.4 million–35.9 million) people were living with HIV at the end of 2011; an estimated 0.8% of adults aged 15–49 years worldwide are living with HIV (the possibilities are that the figures may have increased two years after). Though there are variances from country-to-country regarding the incidences of HIV/AIDS infection, the fact remains that

---

Samuel E. Oladipo, Ph.D., Associate Professor, Department of Counselling Psychology, Faculty of Education, Tai Solarin University of Education; research areas/interests: gender studies, adolescents risky behaviours, HIV/AIDS. E-mail: [kingola2001@yahoo.com](mailto:kingola2001@yahoo.com).

Sub-Saharan Africa remains most severely affected, with nearly 1 in every 20 adults (4.9%) living with HIV and accounting for 69% of the people living with HIV worldwide (UNAIDS 2012).

The UNAIDS (2012) report further indicated that the regional prevalence of HIV infection is nearly 25 times higher in sub-Saharan Africa than other regions of the world. In other words, Africa disproportionately bears the burden of the HIV/AIDS pandemic. Two-thirds of all people infected with HIV live in sub-Saharan Africa, although this region contains little more than 12 percent of the world's population (DeCock, Mbori-Ngacha & Marum, 2002). In the entire African region, Nigeria ranks second (coming after South Africa) on the list of countries with the highest prevalence of HIV/AIDS with an estimated population of 3.6 million people living with HIV/AIDS (AIDS in Africa, 2012).

The above report thus calls for a drastic and urgent action to tackle this hydra-headed monster of HIV/AIDS in a country that is usually referred to as the giant of Africa; with a population of about 150 million people. Expressing the concern for quick action, Ezedinachi, Ross, Merremiku, Essien, Edem, Ekure and Ita (2002) have said that, HIV/AIDS prevalence is high and widely distributed in Nigeria, hence the need for urgent actions to curb it. Unfortunately, the most vulnerable groups to HIV/AIDS infection have been identified as youths/adolescents within the age range of 15–29 years (Eisenberg, 2001; Abbey, Parkhill, Buck & Saenz, 2007; Oladipo, 2012). These are basically adolescents who are in their prime years (mostly college/university students), who have also been identified as people who engage in high risky behaviours such as reckless driving (Spear, 2000), risky sexual behaviour of unprotected sex and multiple sexual partners (Abbey et al., 2007; Eisenberg, 2001; Baldwin & Baldwin, 2000; and Gullette & Lyons, 2006), binge drinking, crime and violence (Berns, Moore & Capra 2009; Steinberg, 2005). In other words, apart from the fact that the lives of these youths are jeopardized by their risky behaviours, the economic, social and political life of the countries in which they operate are also jeopardized.

Although many populations in Nigeria are at risk of HIV infection, college/university students are particularly more vulnerable to the disease (Pluhar, Fongillo, Stycos & Dempster-McClain, 2003). They are depicted as being more vulnerable because of their exploratory and experimentation tendencies. They experiment with alcohol, drugs and unprotected sex (Oladipo, 2012), poor economic conditions have exerted pressure on others to go into commercial sex work thereby pre-disposing them to the disease (Eke-Huber, 2000).

## **2. The Problem**

From the foregoing, certain problems stand out: the young people (college/university) students who are future leaders are vulnerable to high risky behaviours and particularly sexual risk behaviour which can easily predispose them to contracting HIV and thereby cause serious impediments and increase mortality rate. This will invariably negatively impact the economic, social and political life of the nation because those who are supposed to take over the baton of leadership, economic enterprise might have been lost to the scourge of HIV/AIDS.

It is noteworthy that despite different awareness programs by different organizations on HIV/AIDS, several youths are still engaged in risky sexual behaviours. The question therefore is: are they knowledgeable about HIV/AIDS or not? The assumption is that, the knowledge of HIV/AIDS, should inform a better sexual behaviour.

In the light of the above, since young people have been identified as most vulnerable to HIV infection, it is pertinent to investigate and document, how much they know about HIV/AIDS and also to identify the demographic factors that may be associated with their knowledge or ignorance about HIV/AIDS. Fako, Kangara

& Forchheh (2010) have reinstated that documentation of the factors that can predict young people's knowledge about HIV/AIDS should be useful to policy makers, organizations, parents and groups with the wherewithal to make a difference in the fight against HIV infection. Knowledge about HIV/AIDS is among the most important tools for fighting the epidemic (Kiragu, 2001) especially among young people who have been identified as a key group for HIV related prevention activities. Until people are knowledgeable about HIV/AIDS and its devastating consequences, all efforts to curb its rapid spread will be in vain (Aggleton, 1996).

Again, college/university students represent future business, educational and government leaders of any country; the potential to multiply the impact of an effective intervention in them is high because they will graduate and move into all regions of the country where it is believed that they will make positive impact by multiplying the effect of the intervention they have received.

The purpose of this present study is therefore to examine the demographic factors that will predict the knowledge of HIV/AIDS among students in Tertiary institutions in Nigeria (tertiary institutions here refer to Colleges of education, Polytechnics and Universities). The study also aims to investigate the level of HIV/AIDS knowledge among the students. These aims are targeted at providing the information that will assist school managements and policy makers in making informed policies and decision regarding HIV/AIDS among tertiary institution students.

### **3. Review of Related Studies**

Although being knowledgeable about the consequences of risky sexual behavior may not be enough to bring about an expected behavioral change among the youth (Hartel, 2005; Erulkar, Bekshinska & Cebekhulu, 2001), yet knowledge is an integral part of such an expected change. It is however more expedient to say that both knowledge and the ability of the individual that possess the knowledge to draw upon the knowledge he has in making informed and judicious decision is essential (Gordon, 1996). In other words, it is needful to investigate the level of knowledge that undergraduates possess about HIV/AIDS in order to be able to make inferences regarding what could have influenced their sexual behavior. Although there is paucity of indigenous studies that have examined influence of demographic factors on the knowledge of HIV/AIDS among undergraduates, the relevant available literature have been reviewed in this section.

In spite of their high-risk behaviors and vulnerability to HIV infection, research reports have asserted that there are gaps in young peoples' knowledge about HIV transmission and treatment availability (Ahmed, Hassali & Aziz, 2009). In a study conducted by Fako et al. (2011) to investigate the predictors of knowledge about HIV/AIDS among adolescent students in Botswana, they reported that most respondents (63.1%) displayed adequate knowledge about HIV/AIDS. They examined some demographic variables that may possibly predict knowledge of HIV/AIDS among their respondents and reported that "type of job that mothers did" was the most important single factor that distinguished between students who had "adequate knowledge" from those who did not. Other factors identified by these authors, as possible predictors of knowledge about HIV/AIDS, were, type of family of socialization, level of education, extent of common residence among parents, level of conflict in the family of socialization, extent of disagreement with mother and extent to which sexual issues were discussed with members of the family.

In another study conducted in South Africa by Moodley & Phillips (2011) to determine the HIV/AIDS-related knowledge among students of Further Education and Training College in Cape Town, the

authors reported that the odds that a person with higher HIV/AIDS knowledge will use a condom were 1.047 times greater than someone with less HIV/AIDS knowledge, thereby suggesting that adequate/high HIV/AIDS knowledge can influence sexual risk behavior. They also found significant gender difference in knowledge of HIV/AIDS among the study sample.

Further still, a study conducted in China, using 1081 students from eight colleges in China, by Li X et al. (2004) to assess the overall level of AIDS knowledge, and to explore regional, gender and grade differences in AIDS knowledge; the data indicated an inconsistent level of AIDS knowledge among students, with a significant gender and grade difference. More than one-third of the students perceived themselves as having limited knowledge of AIDS. While the students could identify transmission modes, they were less knowledgeable about symptoms, activities that did not transmit the virus, treatment and preventive measures. The majority of the students reported having discussed AIDS issues with their peers and friends, but few of them had done so with their parents or teachers. AIDS knowledge varied among students by site of residence, with the highest knowledge among students from the urban areas and the lowest among those from rural areas.

A cross-sectional study was conducted by Ntata, Murula, Siziya & Kayambazinthu (2008) among 314 first-year university students in Malawi to determine distributions of HIV/AIDS-related knowledge, and sexual behaviors. The report of the study as presented showed that generally, levels of HIV/AIDS-related knowledge were similar between sexes. Overall, 68.9% of students of both sexes felt that they knew enough about HIV/AIDS. Altogether, 83.3% of students reported that they knew where to access HIV testing on campus, but only 19.0% reported that they knew their HIV status. Some 60.3% of students who had never been tested intended to have an HIV test. A history of having ever been tested was not associated with sex. Most (68.4%) students felt that they were not at risk of acquiring HIV infection. Overall, 66.8% of students knew where to get a condom on campus, and 38.7% stated that they knew exactly how to use it. About half (52.6%) of the students used a condom at last vaginal sexual intercourse. In other words, respondents displayed knowledge of HIV/AIDS.

Several studies have shown that health related knowledge has power to change people's attitudes and health care behaviours in different health contexts (Al-Ansari et al., 2003; Freeman et al., 1993; Kinirons & Stewart, 1998). Widespread evidence shows that knowledge about HIV/AIDS/STIs and reproductive health are key strategies for empowering young people to delay the onset of sexual activity and to make their sexual behaviours safer (Jackson, 2002). Knowledge of pregnancy risks and knowledge about HIV/AIDS has been associated with consistent use of condoms and a reduction in the number of sexual partners among Zambian adolescents (Magnani et al., 2000). In Nigeria, students who received 6 weekly health education sessions and a demonstration on the correct use of condoms showed an increase in condom use, a reduction in the mean number of sexual partners and increased tolerance for people with HIV and AIDS (Fawole et al., 1999). Knowledge about HIV transmission among urban and rural students from Delhi University reduced high risk behaviours and practices (Kumar et al., 1996).

For the purpose of this study, three hypotheses were tested:

- (1) There will be a significant positive relationship among demographic variables and knowledge of HIV/AIDS
- (2) Women will be significantly more knowledgeable than men on HIV/AIDS
- (3) Institution of learning will be a significant predictor of level of knowledge of HIV/AIDS among respondents.

## 4. Methods

### 4.1 Design

The cross sectional survey research design was adopted for the study. Data was collected without any deliberate attempt to manipulate any of the variables of interest in the study.

### 4.2 Population of Study

The study population consisted of students of higher institutions, i.e., Polytechnic, College of Education, and University.

### 4.3 Sample

A total of 572 respondents were purposively sampled for this study (316 female and 276 male). Of the total sample, 189 were from the Polytechnic, 197 from college of education and 186 from University. These were conveniently sampled from these institutions for the purpose of the study.

### 4.4 Research Instrument

Validated instrument was used for data collection. The instrument was divided into two sections “A” and “B”. Section “A” tapped for participants’ demographic data such as age, sex, religion, ethnic background, including the respondent institution. Section “B” was the knowledge of HIV/AIDS scale developed by Olaiya (1990) which has been found to be culturally relevant in measuring knowledge of HIV/AIDS among youths. Author reported Alpha reliability co-efficient of 0.57, while an Alpha reliability co-efficient of 0.69 was established for this study. Mean score and scores below the mean are interpreted as not being knowledgeable about HIV/AIDS, while scores above the mean are interpreted as being knowledgeable about HIV/AIDS.

### 4.5 Procedure

The data collection was done within three months. The researcher was able to link up with colleagues in each of the institutions where samples were drawn and with their assistance, the research instrument was administered on consenting students who were conveniently sampled. The questionnaires were retrieved from the contact persons, after they had been responded to. On the whole, a total of 572 questionnaires were found adequate for data analysis.

### 4.6 Results

The stated hypotheses were tested with the appropriate test statistics and the result of analysis is presented in this section. The first hypothesis was analyzed using the Pearson moment correlation analysis. The result is presented in Table 1.

**Table 1 Showing the Relationship among the Variables of Interest in the Study**

	Age	Gender	Religion	Institution
Gender	-			
Religion	-	-		
Institution	.-	.146**	.159**	
Knowledge of HIV/AIDs	-	.113**	.-	.190**
**. Correlation is significant at the 0.01 level (2-tailed).				

Table 1 shows that there is a significant positive relationship between gender and Institution of learning ( $r = .146^{**}$ ); knowledge of HIV/AIDS ( $r = .113^{**}$ ). There is also a significant positive relationship between respondents' religion and institution of learning ( $r = .159^{**}$ ). Also, institution of learning correlated significantly positively with knowledge of HIV/AIDS ( $r = .190^{**}$ ). With this result, hypothesis 1 is accepted.

The second hypothesis was analyzed using a t-test for independent samples and the result is presented in Table 2.

**Table 2 Summary of Independent T-test Showing the Difference between Male and Female**

**Students on Knowledge of HIV/AIDS**

	Gender	N	M	S.D	df	T	P	
Knowledge of HIV/AIDS	Male	254	29.81	2.860	570	-2.71	P > .05	
	Female	318	30.46	2.803				

The summary of the result as presented in Table 2 shows that there is no significant difference between male and female students in their knowledge of HIV/AIDS ( $M = 29.81$ ;  $30.46$ ,  $t = -2.71$ ,  $p > .05$ ). Therefore, there is no gender difference in knowledge of HIV/AIDS among students of tertiary institutions in Nigeria and hypothesis 2 is thus rejected.

In testing the third hypothesis, a one-way between subjects ANOVA was conducted to compare the influence of institution of learning on knowledge of HIV/AIDS among students of tertiary institutions in Nigeria and results showed a significant difference in knowledge of HIV/AIDS based on respondents' institution of learning at the  $p < .001$  level of significance [ $F(2, 1) = 14.06$ ,  $p = 0.000$ ]. Post hoc comparisons using the Turkey HSD test indicated that the mean score for students in the college of education ( $M = 31.02$ ,  $SD = 2.45$ ) was significantly different from those of students from university ( $M = 29.72$ ,  $SD = 2.67$ ) and polytechnic ( $M = 29.73$ ,  $SD = 3.19$ ). The result thus shows that students in colleges of education are significantly more knowledgeable in HIV/AIDS compared to their counterparts in the universities and polytechnics; therefore, the hypothesis three is accepted.

## 5. Discussion

This study investigated the demographic factors that predict knowledge of HIV/AIDS among samples that were drawn from University, Polytechnic and College of education. Three hypotheses were tested in the study, two of which were accepted and one rejected on the basis of statistical insignificance.

The first hypothesis stated that there will be a significant positive relationship among demographic variables and knowledge of HIV/AIDS and it was confirmed. As there was significant positive relationship between gender and Institution of learning, which implies that one's gender may affect the institution one applies to go. This result seems to have corroborated the unfounded beliefs and assertions of some people that; colleges of education are meant for women and polytechnics are for men, while the university could be for both. Many people see teaching as a woman's job, hence they believe that since colleges of education are for training teachers, it is meant for women alone. On the other hand, Polytechnics are perceived to be for men majorly because it is believed that the courses there are more practical courses that demand for strength and vigor which most ladies may not possess. The university seems to be the only one that is perceived as being able to accommodate both male and females.

A significant positive relationship was also observed between gender and knowledge of HIV/AIDS, which implies that an individual characteristic of being male or female has something to do with such an individual's level of knowledge of HIV/AIDS. In the same vein, religion and institution of learning correlated significantly

positively with knowledge of HIV/AIDS. In other words one's religious affiliation can significantly influence one's knowledge of HIV/AIDS and in like manner, an individual's institution of learning can influence one's level of knowledge of HIV/AIDS.

In line with the assertion of Ahmed et al. (2009) there are gaps in young peoples' knowledge about HIV/AIDS, this study found significant difference in the level of knowledge of HIV/AIDS among tertiary institution students, with the students of colleges of education displaying more knowledge when compared to students from university and polytechnic. This could be as a result of the fact that college of education is basically an institution for training teachers, therefore, there are more stringent measures regarding morality, modeling and mentoring as well as other virtues that a teacher must possess as a life molder, students in the colleges of education, as teachers in training are therefore tutored to be able to enhance a peaceable and conducive society. The same scenario may not obtain in the other two institutions where there is more freedom and less supervision from teachers and instructors (particularly in the area of moral and behavior). Students in these other two institutions are not primarily prepared to become teachers and may not have been exposed to the kind of knowledge the teachers in training are being exposed to ad this may account for the observed difference in Knowledge of HIV/AIDS.

In contrast to the findings of Li X et al. (2004) that there is a gender difference in the level of knowledge of HIV/AIDS, this present study did not find significant gender difference in the level of knowledge of HIV/AIDS among undergraduates. A major possible cause of this variance may be cultural differences. The differences in level of technological advancement and sophisticated way of information dissemination between China where Li X et al. (2004) carried out their study and Nigeria, where the present study was conducted could also account for the differences in findings. It needs be mentioned that the present study corroborates the findings of Ntata et al. (2008) who reported that among university students in Malawi, levels of HIV/AIDS-related knowledge were similar between sexes. In other words there was no significant gender difference in knowledge of HIV/AIDS.

In the light of the foregoing, it can be concluded that demographic variables of religion and institution of learning significantly influenced level of knowledge of HIV/AIDS among students. However, gender was not a significant factor. It is therefore needful for more aggressive awareness creation in tertiary institutions, particularly universities and polytechnics with the aim of improving the level of knowledge of students about HIV/AIDS and thereby reducing their risky sexual behaviors.

This study is not without its limitation, particularly in the sample size as well as the scope of the study that spanned only one of the states in Nigeria and which has invariably made generalization of finding difficult if not impossible.

## **References**

- Abbey A., Parkhill M. R., Buck P. O. and Saenz C. (2007). "Condom use with a casual partner: What distinguishes college students' condom use when intoxicated?", *Psychology of Addictive Behaviors*, Vol. 21, pp. 76–83.
- Aggleton P. (1996). "Global priorities for HIV/AIDS intervention research", *International Journal of STD & AIDS*, Vol. 7, Suppl. 2, pp. 13–16.
- Ahmed S. I., Hassali M. A. and Aziz N. A. (2009). "An assessment of the knowledge, attitudes, and risk perceptions of pharmacy students regarding HIV/AIDS", *American Journal of Pharmacy Education*, Vol. 73, No. 1, pp. 1–7.
- Al-Ansari J., Honkala E. and Sisko-Honkala S. (2003). "Oral health knowledge and behaviour among male health sciences college students in Kuwait", *BMC Oral Health*, Vol. 3, No. 1, p. 2.
- Baldwin J. I. and Baldwin J. D. (2000). "Heterosexual anal intercourse: an understudied, high-risk sexual behavior", *Archive of Sex Behaviour*, Vol. 29, pp. 357–373.

- Berns G. S., Moore S. and Capra C. M. (2009). "Adolescent engagement in dangerous behaviors is associated with increased white matter maturity of frontal cortex", available online at: <http://www.plosone.org/article/info%3Adoi%2F10.1371%2Fjournal.pone.0006773>.
- De Cock K. M., Mbori-Ngacha D. and Marum E. (2002). "Shadow on the continent: public health and HIV/AIDS in Africa in the 21st century", *Lancet*, Vol. 36, No.23, pp. 67–72.
- Eisenberg E. M. (2001). "Building a mystery: Communication and the development of identity", *Journal of Communication*, Vol. 51, pp. 534–552.
- Eke-Huber E. A. (2000). "Empowering Nigerian female adolescents in safe sex practices: Health education strategies", *Nigerian Journal of Empirical Studies in Psychology and Education*, Vol. 1, No. 3, pp. 105–108.
- Erulkar Annabel S., Mags Beksinska and Queen Cebekhulu (2001). "An assessment of youth centres in South Africa", *Frontiers Final Report*, Washington, DC: Population Council.
- Ezedinachi E. N., Ross M. W., Meremiku M., Essien E. J., Edem C. B., Ekure E. and Ita O. (2002). "The impact of an intervention to change health workers' HIV/AIDS attitudes and knowledge in Nigeria: A controlled trial", *Public Health*, Vol. 116, No. 2, pp. 106–112.
- Fako T. T., Kangara L. W. and Ntonghanwah Forche (2010). "Predictors of knowledge about HIV/AIDS among young people: Lessons from Botswana", *Journal of AIDS and HIV Research*, Vol. 2, No. 6, pp. 116–130.
- Fawole I. O., Asuzu M. C., Oduntan S. O., and Brieger W. R. (1999). "A school-based AIDS education programme for secondary school students in Nigeria: A review of effectiveness", *Health Education Research*, Vol. 14, No. 5, pp. 675–683.
- Freeman R., Maizels J., Wyllie M. and Sheiham A. (1993). "The relationship between health related knowledge, attitudes and dental health behaviours in 14-16-year-old adolescents", *Community Dental Health*, Vol. 10, No. 4, pp. 397–404.
- Gordon C. M. and Carey M. P. (1996). "Alcohol's effects on requisites for sexual risk reduction in men: An initial experimental investigation", *Health Psychology*, Vol. 15, pp. 56–60.
- Gullette D. L. and Lyons M. A. (2005). "Sexual sensation seeking, compulsivity, and HIV risk behaviors in college students", *Journal of Community Health Nursing*, Vol. 22, pp. 47–60.
- Hartell C. G. (2005). "HIV/AIDS in South Africa: A review of sexual behaviour among adolescents", *Journal of Adolescence*, Vol. 40, No. 157, pp. 171–181.
- Jackson H. (2002). *AIDS Africa: Continent in Crisis*, Harare, Zimbabwe: SFAIDS.
- Kinirons M. J. and Stewart C. (1998). "Adolescents' knowledge of common foods and drinks and the importance of the pattern of consumption: A study undertaken in an area of high dental needs", *Community Dental Health*, Vol. 15, No. 3, pp. 175–178.
- Kiragu K. (2001). "Youth and HIV/AIDS: Can we avoid catastrophe?", *Population Reports*, Series L, No. 12, Baltimore, Maryland, Johns Hopkins Bloomberg School of Public Health, *Population Information Program*, Vol. 29, No. 3.
- Kumar A., Lal P., Ingle G. K. and Gulati N. (1996). "Does knowledge influence practices related to HIV transmission", *Indian Journal of Sexually Transmitted Diseases*, Vol. 17, No. 2, pp. 73–75.
- Li X., Lin C., Gao Z., Stanton B., Fang X., Yin Q. and Wu Y. (2004). "HIV/AIDS knowledge and the implications for health promotion programs among Chinese college students: Geographic, gender and age differences", *Health Promotion International*, Vol. 19, No. 3, pp. 345–356.
- Magnani R. J., Karim A. M., Weiss L. A., Bond K. C., Lemba M. and Morgan G. T. (2000). "Reproductive health risk and protective factors among youth in Lusaka, Zambia", United State Agency for International Development (USAID) under Cooperative Agreement No.CCP-A-00-96-90002-00.
- Moodley C. G. and Phillips J. S. (2011). "HIV/AIDS-related knowledge and behaviour of FET college students: Implications for sexual health promotion", *African Journal for Physical, Health Education, Recreation and Dance*, pp. 49–60.
- Ntata P. R., Muula A. S., Siziya S. and Kayambazinthu E. E. (2008). "Gender differences in university students' HIV/AIDS-related knowledge and sexual behaviours in Malawi: A pilot study", *Sahara Journal*, Vol. 5, No. 4, pp. 201–205.
- Oladipo S. E. (2012). "Demographic predictors of sexual risk susceptibility among undergraduates in two universities in Nigeria", *Global Journal of Human Social Sciences Linguistics and Educaiton*, Vol. 12, No. 11, pp. 19–24.
- Pluhar E. I., Fongillo E. A., Stycos J. M. and Dempster-McClain D. (2003). "Changes over time in college students' family planning knowledge, preference, and behavior and implications for contraceptive education and prevention of sexually transmitted infections", *College Student Journal*, Vol. 37, pp. 420–434.



- Spear L. P. (2000). "The adolescent brain and age-related behavioral manifestations", *Neuroscience Biology of Behaviour*, Vol. 24, pp. 417–463.
- Steinberg L. (2005). "Cognitive and affective development in adolescence", *Trends in Cognitive Sciences*, Vol. 9, pp. 69–74.
- UNAIDS (2012). "Progress reports submitted by countries", Geneva, available online at: [http:// www.unaids.org/cpr](http://www.unaids.org/cpr).