ORIGINAL ARTICLE

Sexual Behaviour and Predictors of Condom Use Among Students of a Nigerian Tertiary Institution

*** Sabitu K** *MBBS FWACP MIAD MIPHA,* **** Iliyasu Z** *MBBS MPH FWACP*
*** Baba, S. E.** *MBBS MPH*

**Department of Community Medicine, Ahmadu Bello University Zaria, Nigeria **Department of Community Medicine, Aminu Kano Teaching Hospital, Kano, Nigeria & Department of Community Medicine Bayero University Kano*

Abstract

***Background**: Increasing sexual networking among university students exposes them to the risk of sexually transmitted infections (STIs) including HIV/AIDS. Despite this, the level of condom use and sexual abstinence is low.*

***Objective:** The objective of the study was to describe sexual behavior and identify predictors of condom use among students in a Nigerian university.*

***Methods**: A cross sectional survey was conducted using self-administered questionnaires among 404 students of the Federal university of Technology, Minna in northern Nigeria.*

***Findings**: A total of 328(81.2%) questionnaires were completed and returned. There were 230 male and 98 female respondents giving a sex ratio of 1:2.3. The respondent's ages ranged from 16 to 38 years with an overall mean of 23.53.51 years. A significantly higher proportion of males 184 (80.0%) reported being sexually experienced compared to 64 (65.0%) females (x^2=8.05 P<0.05). The mean age of first sexual experience was also significantly higher among male students [18.92.1 years] compared to female students [16.41.7 years] (t =11.36, P <0.01). Similarly, a significantly higher proportion (56.2%) of sexually active males had multiple partners compared to females (38.1%) (x^2 =11.9, P =0.001). In addition, the mean number of lifetime sexual partners was significantly higher (5.3) for males compared to females (2.6) [t=12.0, P<0.001]. Condom was consistently used by 38.3% (n=95) of sexually active students in both genders. A higher proportion (44.6%) (n=82) of male students reported regular use of condoms compared to (20.3%) (n=13) of (partners of) sexually active female students (x^2=11.8 P=0.001). Significant predictors of regular condom use include (male) gender, (higher) level of study and (single) marital status.*

***Conclusion:** Most students were sexually active and many practiced unsafe sex. This indicates the need for youth friendly reproductive health programmes targeting these students.*

***Key words:** Sexual behaviour, condom use, predictors, AIDS, University Students, Nigeria*

Paper accepted for publication 13th August 2007.

INTRODUCTION

Universities are meant for intellectual and character development for people deemed to have attained some maturity. Students are given the freedom to express themselves and make independent decisions away from parental control. This uncurtailed freedom has obvious social, medical and economic implications for the students in particular and society at large.[1] One of these challenges includes unprotected sexual activities with consequent high incidence of Sexually Transmitted Infections (STIs) including HIV/AIDS.

The World Health Organization estimates that about half of all people infected with HIV and STIs are under the age of 25 years, and in less developed countries, up to 60% of all new infections are among 15 to 24 year olds.[2] Studies[3,4] suggest that while youths are generally well informed, in depth knowledge tends to be patchy, misconceptions are widespread and sources of information are largely informal.

The correct and consistent use of condom is an important component in the prevention of STIs, including HIV infection, and is, in fact, the most reliable method, other than sexual abstinence.[5] Although knowledge of condoms is relatively high and increasing in many African countries including Nigeria, a large gap remains between knowing them and using them. Studies[3,6] indicate that the commonest hindrance to condom use was the desire for natural sex, belief that the partner is trusted and safe. In addition, some complain that condoms cause discomfort. A combination of high and increasing level of sexual networking among young people along with their low level of condom use exposes them to the risks of acquiring an STI, including HIV infection. Condom use is low in Nigeria even among those practicing high-risk behaviours.[3,7] These factors could explain the high age specific HIV prevalence rate among 20-24 year olds in Nigeria-the age group that are found in the universities.[8]

*Correspondence to **Dr. K. Sabitu** E-mail: kssabitu@yahoo.com*

Although several reports are available on sexual behaviour of students in Nigerian tertiary institutions,[9,10] the present study was necessitated by the need to obtain specific information for undergraduates at the Federal University of Technology Minna located in north central Nigeria. An improved understanding of the levels, pattern and nature of sexual behaviour of undergraduates, their risk perception and use of condoms would no doubt guide institutional authorities in designing appropriate and relevant HIV/AIDS messages and interventions that are acceptable to this population thereby leading to behaviour change towards adopting abstinence or safer sex.

The objectives of this study were two fold; the first was to describe sexual behavior and condom use among students in Federal University of Technology, Minna, Nigeria; and secondly, to identify predictors of condom use among these students. This could inform the design of targeted reproductive health intervention programs for this important group.

METHOD

Established in 1986, the Federal University of Technology, Minna is located in Niger state, north central Nigeria. The university has a total of five schools (equivalent to faculties), a postgraduate school and a center for remedial studies. There are 25 academic departments. The university has an undergraduate student population of 14,281 composed of 11,219 males and 3,062 females. Most of the students are drawn from Niger, Kwara, Kogi, Kaduna and Plateau states. Others come from the Federal capital territory and southwestern Nigeria.

A cross sectional descriptive study design was used for the survey. A sample size of 404 undergraduate students was obtained using the hypothesis testing method[11] and based on the following assumptions; 95% confidence level, an expected level of condom use of 30% from a previous study[9] and a 5% margin of error. The calculated minimum sample was inflated by 10% to account for anticipated subject non-response. A multistage sampling technique was used. In the first stage, four schools were selected by a one-time ballot. In the second stage, one department was selected from each of the four faculties. Finally, self-completed questionnaires were administered to 101 consenting students from the various levels in the four selected departments.

A structured interview questionnaire with mostly closed ended questions was used. It was pretested among students in a department that was not sampled for the study. Necessary changes were made to the questionnaire after the pre-test. The survey was conducted during a regular semester session after permission has been obtained from the university authority, institutional ethical clearance and students' consent. Respondents were instructed not to write their names on the questionnaire to ensure anonymity and confidentiality. The questionnaire collected information on the socio-demographic characteristics of the respondents including place of residence and use of alcohol. It also inquired about sexual behaviour, history of STIs, condom use and reasons for non-use.

DATA ANALYSIS

The data was analyzed using the EPI-Info® 6.0 statistical software package (CDC Atlanta, Georgia, USA)[12]. Quantitative variables were summarized using measures of central tendency and variability. Categorical variables were presented as frequencies and percentages. Bivariate analysis involved the use of the Chi-square test for testing the significance of associations and calculation of unadjusted odds ratio (OR). Furthermore, Logistic regression analyses were conducted to obtain adjusted OR with (95%CI) for significant predictors of condom use. The level of significance was set at $P < 0.05$.

RESULTS

A total of 328 respondents completed and returned the questionnaires out of 404 that were distributed giving a response rate of 81.2%. There were 230 male and 98 female respondents giving a sex ratio of 1:2.3. The respondent's ages ranged from 16 to 38 years with an overall mean of 23.53.51 years. The age of male respondents ranged from 17 to 38 with a mean age of 25.93.73 years. Similarly, the age range of female respondents ranged from 16 to 29 years with a mean age of 21.53.17 years. Fourteen (14.3%) female respondents were married, majority 82 (83.7%) were single and the rest 2 (2.0%) were divorced. Only 5 (2.2%) male respondents were married. The majority 222 (96.5%) were single and the remaining 3 (1.3%) were either divorced or widowers. The number of respondents at various levels of study is shown in Table I.

Table I: Socio demographic characteristics of respondents (n=328)

Characteristics	Frequency No. (%)
Sex	
Male	230 (70.1)
Female	98 (29.9)
Total	328 (100.0)
Age	
15-19	25 (7.6)
20-24	198 (60.4)
25-29	90 (27.5)
□30	15 (4.5)
Total	328 (100.0)
Marital status	
Single	304 (92.7)
Married	19 (5.8)
Separated/widowed	5 (1.5)
Total	328 (100.0)
Level	
100	53 (16.2)
200	79 (24.1)
300	107 (32.6)
400	45 (13.7)
500	44 (13.4)
Total	328 (100.0)
Residence	
On campus	83 (25.3)
Off campus	245 (74.7)
Total	328 (100.0)
Religion	
Islam	139 (42.4)
Christianity	189 (57.6)
Total	328 (100.0)

Table II: Sexual behaviour of university students (n=328)

	Ever had sex	Mean age at sexual debut	Mean number of lifetime sexual partners	Had sex in the preceding 6 months
Males	184(80.0)	18.9	5.3□2.1	134(62.3)
Females	64(65.0)	16.4	2.6□1.3	45(48.4)
Overall	248(75.6)	18.3	3.7□1.8	179 (58.1)

Percentages are shown in parenthesis

Sexual behavior

Of all respondents, 184 (80.0%) of males and 64 (65.0%) of females reported having ever had sexual intercourse. (Table II). A significantly higher proportion of male students were sexually exposed compared to female students (x^2=8.05 P=0.005). Similarly, the mean age of first sexual experience was significantly higher among male students [18.92.1 years] compared to female students [16.41.7 years] (t =11.36, P <0.01). Of those who had initiated sexual activity, a higher proportion 134 (62.3%) of males students were sexually active within the preceding 6 months compared to 45 (48.4%) of females. However, this difference was not statistically significant (x^2=0.15, P=0.69). A significantly higher proportion of students who lived off campus 65.2% (n=150) were sexually active compared to 37.2% (n=29) of those living on campus (x^2=18.8, P<0.001).

The sexual partners of respondents included close friends, wives, husbands and casual partners including commercial sex workers. A significantly higher proportion (56.2%) of sexually active males had multiple partners compared to females (38.1%) (x^2 =11.9, P =0.001). Similarly, the mean number of lifetime sexual partners was significantly higher (5.3) for males compared to females (2.6) [t=12.0, P<0.001]. The reasons for involvement in pre-marital sex included friendship, love and curiosity (47.4%), in exchange for economic support and gifts (22.6%), for academic survival (11.3%) and the need "to belong" to social cycles on campus (18.7%). Sexual encounters were said to be consensual. Up to. 17.4% of respondents reported engaging in sexual activities while under the influence of alcohol.

CONDOM USE

Table III shows that condom was consistently used by 38.3% (n=95) of sexually active students in both genders. A higher proportion (44.6%) (n=82) of male students reported regular use of condoms compared to (20.3%) (n=13) of (partners of) sexually active female students (x^2=11.8 P=0.001). The proportion of those who regularly used condom increased from 11.3% (n=6) in 100 level students to 68.2% (n=30) in 500 level (*P* value for trend analysis <0.001). Expectedly, a significantly lower proportion of married students 29.2% (n=7) used condoms regularly compared with their single colleagues 58.6% (n=85) (x^2=7.2 P=0.01). Although a higher proportion 27.5% (n=11) of students who lived on campus used condoms regularly compared to 22.3% (n=31) of those who lived off campus, this difference was not statistically significant. Similarly, religious faith and ethnicity were not significantly associated with condom use

Table III: Condom use by sexually active university students or their partners (n=248)

Regularity of condom use	Frequency		
	Male	Females	Total
	No. (%)	No. (%)	
Always	82 (44.6)	13 (20.3)	95 (38.3)
Most times	57 (31.0)	11 (29.7)	68 (27.4)
Occasionally	18 (9.8)	2 (3.1)	20 (8.1)
Rarely	13 (7.1)	16 (9.4)	29 (11.7)
Never	14 (7.6)	22 (34.4)	36 (14.5)
Total	184 (74.2)	64 (25.8)	248 (100.0)

Table IV: Predictors of c ondom use among Nigerian university students

Predictor	Crude OR	Adjusted OR (95%CI)	P value
Sex			
Female*	1.0	1.0	-
Male	3.2	2.4 (1.54-6.57)	0.03
Marital status			
Married*	1.0	1.0	-
Single	3.4	2.7 (1.24-5.81)	0.01
Level			
100*	1.0	1.0	-
200	1.4	1.2 (1.1-3.42)	0.03
300	2.6	2.3 (2.2-4.78)	0.01
400	3.2	2.6 (1.8-6.31)	0.02
500	6.8	3.8 (1.9-6.83)	0.04

*Referent category

PREDICTORS OF CONDOM USE

Overall, 38.3% (n=95) of sexually active students reported the consistent use of condoms. Bivariate analysis of condom use and socio-demographic variables showed significant independent associations between regular condom use and gender, level of study and marital status. Table IV shows that these factors remained significant predictors of regular condom use among study participants after adjusting for confounding using a logistic regression model.

DISCUSSION

The rates of sexual exposure among university students who participated in this study (80% and 65% among males and females respectively) are lower than those reported from Enugu[13] (85% for males and 69% for females) but are higher than figures obtained in Lagos[13] (55% for males and 41% for females), Zaria[13] (69% for males and 64% for females) and Kano (54% for males and 51% for females). [10] In addition, the reported figures for sexually active undergraduates have ranged from 63% in Ilorin[14] to 85.2% in Ibadan.[15] Elsewhere on the African continent, rates of sexual exposure among undergraduates have been reported as 45% males, 16% females in Butare, Rwanda.[16] In the USA, majority of young people (75% of males and 60% of females; Alan Guttmacher Institute, 1994) have had sex even by the time they graduate from high school.[17] Our findings are indicative of increased sexual networking among undergraduates in Nigerian universities. Cultural differences in the student populations of these institutions and increased exposure to the Internet, pornographic films, poverty and decreased parental control may have contributed to the increase in sexual relationships among university students. The social norms prohibiting sexual activities among adolescents seemed to be less effective than previously. These norms are less influential because of modernization processes such as changes in adherence to religious tenets, use of the Internet and the economy.

This study also found a striking gender difference in rates of sexual experience. Male students (80%) were more likely to be sexually exposed compared to their female counterparts (65%). This is comparable with reports from other universities[14,16] and could be due the adventurous nature of males and the effect of peer pressure. The overall mean age of sexual debut among respondents was 18.3 years and this age was significantly higher among male students (18.9 years) compared to females (16.4 years). Other workers found lower median age of sexual exposure in Port Harcourt [17] and Ibadan.[18] These differences could be due to cultural variation and gradual lost of parental control because of modernization.

The effect of the significant disparity in proportion of sexually active students by place of residence (off campus 65.2%, on campus 37.2%) can only be appreciated if one considers that the majority of students reside off campus. Although some of this disparity could be explained by the preference of married students to reside off campus, this has implications in the design and implementation of effective STI and HIV control programmes. The ability of such services to focus equally on students regardless of place of residence is therefore very important.

This study found that male students reported a higher mean lifetime number of sexual partners compared to their female counterparts. This finding is comparable with the figures reported from Zaria -males 3.4;females 2.4.[9] Our results clearly indicate that there have been changes in the sexual behaviors and awareness of university students, with both male and female having sex earlier, and having more casual/commercial and multiple partnerships. If this trend continues, it may expand the subpopulation of students who have multiple partners in a year, expanding the sexual network among

them. The reasons for involvement in pre-marital sex as elicited in this study included friendship, love and curiosity, economic support and gifts, academic survival and peer pressure. These reasons are similar to those mentioned by undergraduates in Zaria, Enugu and Lagos.[13] However, they differ from those reported by Chinese students 19. In addition, 17.4% of respondents reported the use of alcohol. Evidence suggest that not only does the likelihood that an individual has ever drunk alcohol predict the likelihood he or she has ever had sex, but level of alcohol involvement also predicts level of sexual involvement. Equally strong evidence suggests that drinking in a potentially sexual situation (e.g., on a date) is associated with an increased probability of intercourse on that occasion and that drinking prior to intercourse is associated with risky partner choice as well as with decreased risk discussion on that occasion.[20]

In the present study, only 38% of sexually active students used condom consistently. Males were more likely to use condoms (44.6%) compared to female students and their partners (20.3%). These figures are higher than those obtained from the 2003 Nigerian Demographic and Health Survey in which among men aged 15-19 and 20-24 years, the proportion reporting ever use of condoms was 9.8% and 30%, while among women in the same age groups the proportion was 6.5% and 14.8% respectively.[21] This difference could be attributed to educational differences between students and the general populace. The increasing trend in condom use with level of study could be due to the corresponding increased exposure to information and campus life. Only about a third of the students reported consistent condom use. This concurs with the figures reported among undergraduates in Zaria[9] and Kano.[10] The disparity in condom use by gender is not surprising because of differences in negotiating skills and power. Condoms are highly effective in preventing the spread of STIs/HIV and unintended pregnancies [22-24]. When used correctly and consistently, male condoms can provide as much as a 94% reduction in the risk of HIV transmission.[25] However, the widespread knowledge of the protection that condoms provide does not determine use. Some studies in Nigeria [21,26] show that despite this knowledge, use is relatively low among the general population and among sexually active adolescents.

Significant independent predictors of condom use included (male) gender, level of study and marital status. Similar associations were reported in Tanzania [27] and the U.S.A.[28] Other researchers found being male, not having regular partner, having had sex with a casual partner, being able to read English, having at least secondary education, and using electricity for lighting as independent predictors of condom use among STI patients in Uganda.[29] These associations could be explained by the influence of education on knowledge, perception and attitude towards health education. Furthermore, youths are more adventurous and are more likely to accept changes brought about by modernization.

This study had several limitations. First, its cross-sectional design was limited in evaluating cause-and-effect associations. Second, the results obtained in this study should not be generalized to all Nigerian university students, since our sample was limited to university students within one university and cultural characteristics are greatly diverse among Nigerian states. Finally, the possible bias introduced by under-reporting should be noted, since some participants could give socially acceptable responses in questions related to sexual behaviors. A proportion of non-respondents may have considered questions about sexual behaviors to be too sensitive particularly among single female students.

Our results suggest increased sexual activity among the respondents; sexual behaviors are poorly protected and risky, potentially driven by poverty, heavy exposures to various pornographic media, Internet and campus life. Earlier sex initiation, multiple partnerships and inconsistent condom use facilitate the spread of STIs and HIV among university students. There is an urgent need to provide information and youth friendly reproductive health services to university students through peer education programs and youth clubs. Further surveys and surveillance on sexual behavior, its social and cultural determinants, and consequences should be carried out among Nigerian undergraduates to develop targeted and effective prevention to protect them from adverse reproductive outcomes and STIs including HIV infection.

References

1. Dare O.O., Ilesanmi A.O (eds). Status of Adolescents and Young adults in Nigeria. Centre for Heaalth Sciences Training, Research and Development (CHESTRAD). 1997 Ibadan, Nigeria
2. UNAIDS/WHO. Report on the Global HIV/AIDS Epidemic. 1997 Geneva Switzerland

3. Harding A.K, Anadu E.C, Gray L.A, Champeau D.A. Nigerian University Students' Knowledge, Perceptions and Behaviours about HIV/AIDS: Are these students at risk? Journal of the Royal Society of Health 1999;119 (1): 23-31
4. Olayinka B.A and Osho A.A. Changes in Attitude Sexual behaviour and the risk of HIV/AIDS transmission in Southwest Nigeria. Esat African Medical Journal 1997;74(9):554-560
5. Fischl M.A, Dickson G.M, Scott G.B, Klim N, Flectcher M.A and Park W. Evaluation of Heterosexual Partner, Children and Household Contacts of Adults with AIDS. Journal of the America Medical Associations 1987;257(5)64:644.
6. Messersmith L, Kane T.T, Odebiyi A.I and Adewuyi A.A. Pattern of Sexual Behaviour and Condom use in Ile-Ife, Nigeria: Implications for AIDS/STD prevention and control. Health Transition Review 1994 ;4 (Suppl): 197-216
7. Araoye M.A and Adegoke A. AIDS related Knowledge, Attitude and Behaviour among selected Adolescents in Nigeria. Journal of Adolescence 1996; 19 (2): 179-181
8. Federal Ministry of Health/National Action Committee on AIDS. 2005 National HIV sero-prevalence sentinel survey. Technical Report. Ministry of Health and National Action Committee on AIDS, Abuja 2005:26-28.
9. Ejembi C L and Otu A. Sexual behaviour, contraceptive practice and reproductive health outcomes among Nigerian university students. Journal of Community Medicine and Primary health care 2004;16 (2):8-16
10. Kabir M, Iliyasu Z, Abubakar I.S and Kabir A.S. Sexual behaviour among students in tertiary institutions in Kano, northern Nigeria. Journal of Community Medicine and Primary health care 2004;16 (2):17-22
11. Lwanga S, Lemeshow S. Sample size determination in health studies: A practical manual, Geneva, World Health Organization 1991.
12. Dean A.G., Burton A.H and Dicker R.C. Epi Info Version 6. A word processing, database and statistics program for epidemiology on microcomputers, USD Incorporated, Stone Mountain, Georgia, 1999.
13. Omoregie G, Ankomah A, Fakolade R and Anyanti J. Sexual and reproductive health behaviour of students of tertiary institutions in Nigeria. Technical Report Research Department, Society for Family Health, Abuja, Nigeria. October 2004:11-14
14. Araoye M O and Fakeye O O. Sexuality and contraception among Nigerian adolescents and youths. African Journal of Reproductive Health 1998;2(2):142-150
15. Nicols D, Ladipo A O, Paxman J and Otolorin E O. Sexual behaviour, contraceptive practice and reproductive health among Nigerian adolescents. Studies in Family Planning 1986;17(2):100-106
16. Brown A, Jejeebhoy SJ, Shah I, Yount KM. Ssexual relations among young people in developing countries: evidence from WHO case studies. UNDP/UNFPA/WHO/World Bank Special Programme of research, Development and Training in Human Reproduction. Department of Reproductive Health research, Family and Community Health, WHO, Geneva 2001.
17. Niche K, Kineme EE. Prevalence of sexual behaviour and outcome among female secondary school students in Port Harcourt. African Journal of Reproductive Health 2001;5(2):63-7
18. Brieger WR and Oladepo O. Sexual attitudes and behaviour of male secondary school students in rural and urban areas of Oyo state, Nigeria. African Journal of reproductive Health 2000;4(2):21-4
19. Qiaoqin Ma, Masako Ono-Kihara, Liming Cong, Guozhang Xu, Saman Zamani, Shahrzad Mortazavi Ravari and Masahiro Kihara. Sexual behavior and awareness of Chinese university students in transition with implied risk of sexually transmitted diseases and HIV infection: A cross-sectional study. BMC Public Health 2006; 6:232
20. M. Lynne Cooper. Alcohol Use and Risky Sexual Behavior among College Students and Youth: Evaluating the Evidence. J. Stud. Alcohol 2002; Suppl. (14): 101-117
21. Nigerian Demographic and Health Surveys 2003: National Population Commission, Abuja/Nigeria and ORC Macro 2004: Nigerian Demographic and Health Survey 2003
22. Cates W. Jr. The NIH Condom report: the glass is 90% full. Family Planning Perspectives 2001; 33(5): 231-233
23. Gardner R. Blackburn RD. Upadhyay UD. 1999: Closing the condom gap. Baltimore: Johns Hopkins University School of Public Health, Population Information Program. Population Reports Series H. No 9.
24. Trussell J. Vaughan B. 1999: Contraceptive failure, method-related discontinuation and resumption of use: results from the 1995 National Survey of Family Growth. Family Planning Perspectives, 31(2): 64-93
25. Holmes KK. Levine R. Weaver M. 2004: Effectiveness of condoms in preventing sexually transmitted infections. Bulletin of the World Health Organization, 82; 454-461.
26. Onoh HE. Mbah AU. Chukwuka JC. Ikeme AC. 2004: HIVAIDS awareness and sexual practices among undergraduates in Enugu, Nigeria. Nigerian Postgraduate Medical Journal. 11 (2): 121-125
27. Lugoe W. L; Klepp K. I. Skutle A. Sexual debut and predictors of condom use among secondary school students in Arusha, Tanzania. AIDS care 1996;(8)4:443-452
28. Alroy C. Predictors of condom use among college students: Interpersonal, attitudinal and psychosocial characteristics. PhD thesis, Pace University 1998:160
29. Nuwaha F, Faxelid E, Hojerhojer B. Predictors of condom use among patients with sexually transmitted diseases in Uganda. Sec. transm. Dis. 1999, 26(9):491-495