Prevalence of sexual intercourse among school-going adolescents in Coast Province, Kenya

E. RUDATSIKIRA[1], A.E.O. OGWELL[2], S. SIZIYA[3*] and A.S. MUULA[4]
[1]*Departments of Epidemiology and Biostatistics and Global Health, School of Public Health, Loma Linda University, Loma Linda, California, United States*
[2]*Department of International Health Relations, Ministry of Health, Kenya*
[3]*Department of Community Medicine, School of Medicine, University of Zambia, Lusaka, Zambia*
[4]*Department of Community Health, College of Medicine, University of Malawi, Blantyre, Malawi*

Abstract: A study was carried out to estimate the prevalence and associated factors of sexual intercourse among school adolescents in Coast Province, Kenya. Data were obtained through the Kenya Global School-Based Health Survey. Overall the prevalence of sexual intercourse within the last 12 months was 14.9% (22.2% in males and 5.0% in females). Among males, the protective factors against having sex were being of age <15 years (OR=0.60, 95%CI 0.58, 0.62) and ever been drunk (OR=0.63, 95%CI 0.59, 0.67). The risk factors for having sex among males were ever smoked (OR=2.05, 95%CI 1.92, 2.19), having close friends (OR=1.68, 95%CI 1.56, 1.81), currently drinking alcohol (OR=1.13, 95%CI 1.06, 1.20), ever used drugs (OR=2.36, 95%CI 2.24, 2.49) and parental supervision (OR=1.30, 95%CI 1.25, 1.34). Meanwhile among female respondents, parental supervision was protective (OR=0.88, 95%CI 0.81, 0.94) and the only risk factor was ever used drugs (OR=2.85, 95%CI 2.57, 3.15). It is suggested that public health interventions aimed to promote adolescent sexual health should be designed with the appreciation of the factors associated with sexual activity in due consideration.

Keyword: adolescent health, sexual intercourse, HIV/AIDS, Kenya

Introduction

Human immunodeficiency virus (HIV) infection and acquired immunodeficiency syndrome (AIDS) are a major public health problem in East Africa. In 2003, 8.7% of men and 4.6% of women of age 15-49 years in Kenya were HIV positive. The HIV prevalence in the Coast Province was 6.6% for females and 4.8% for males (Marum *et al.* 2004). In sub-Saharan Africa adolescent females are especially at risk of acquiring HIV through heterosexual intercourse. For example, in Kenya, 3.0% of females aged 15-19 years and only 0.4% of males of the same age group were HIV positive in 2003 (Marum *et al.* 2004). Early sexual debut, limited knowledge and poor appreciation of sexual health have been reported as among major predisposing factors in HIV transmission among adolescent in East Africa. Bongaarts (2007) observed a positive correlation between early sexual debut and HIV infection in Kenya. Mushi *et al.* (2007) have reported on limited knowledge and poor appreciation of sexual health among students in Mtwara, Tanzania. Todd *et al.* (2004) reported that among students in Mwanza, Tanzania 0.9% had *Chlamydia trachomatis*, 0.1% had *Neisseria gonorrhoea* infection and 0.8% of females were found positive in a urine pregnancy test.

Much of the HIV transmission I n Africa is through heterosexual intercourse. There are some emerging data that iatrogenic factors could be contributing a much larger role in HIV transmission than has been recognised (Biraro *et al.*, 2007; Whitworth *et al.*, 2007). Behavioural or lifestyle factors that are associated with HIV transmission among adults in Kenya have been described (Johnson & Way, 2006; Hargreaves, 2007). Little attention however, has been directed towards understanding factors that may be associated with HIV transmission among school-going adolescents. Also when reported, data are from only a limited area that extrapolation to a wider region of the country is difficult to make. In this paper, therefore we report on the prevalence of sexual intercourse in the last 12 months and associated factors among school-going adolescents in Coast Province of Kenya.

Materials and Methods

Source of data

Our study involved secondary analysis of existing data available from the Kenya Global School-Based Health Survey (GSHS) conducted in 2003. The GSHS developed by WHO in collaboration with UNICEF, UNESCO, and UNAIDS with technical assistance from Centers for Disease Control and Prevention in Atlanta, USA aims to provide data on health and other social behaviours among students.The GSHS uses a two-stage probability sampling technique. In the first stage, primary sampling units are schools which are selected with a probability proportional to their enrolment size. In the second step of sampling a systematic sample of classes in the selected schools are obtained. All students in the selected classes were eligible to participate. Study participants were drawn

*Correspondence: Seter Siziya; E-mail: ssizi@yahoo.com

from standards 7 and 8 and forms 1 and 2. A self-completed questionnaire was used. The sample was selected to be representative of the Coast Province of Kenya within a national sample.

Data analysis

Data analysis was performed using SPSS version 11.5 software. Our main outcome variable was self-reported history of sexual intercourse within the past 12 months. Explanatory variables included: age, gender, current cigarette smoking, alcohol use, having ever been drunk, illicit drug use, self assessment of parental supervision and having friends.

A weighting factor was used in the analysis to reflect the likelihood of sampling each student and to reduce bias by compensating for differing patterns of non response. The weight used for estimation is given by the following formula:

W = W1 * W2 * f1 * f2 *f3 *f4,

Where:

W1= the inverse of the probability of selecting the school

W2= the inverse of the probability of selecting the classroom within the school

f1= a school-level non response adjustment factor calculated by school size category (small, medium, large)

f2= a class-level non response adjustment factor calculated for each school

f3= a student-level non response adjustment factor calculated by class

f4 =a post stratification adjustment factor calculated by grade.

A backward logistic regression analysis using only complete case analysis to estimate the association between relevant predictor variables and sexual intercourse in the last 12 months was conducted. Odds ratios (OR) are reported for selected predictor variables while considering sexual intercourse in the last 12 months as a dependent variable.

Results

One hundred and thirty-six (55.7%) males and 106 (44.3%) females participated in the study. Ten (10.3%) of the participants reported to have ever smoked cigarettes, 6.0% were current smokers while 9.1% reported being current users of alcohol. Overall 14.9% of the participants had sexual intercourse in the last 12 months, 22.2% and 5.0% among males and females, respectively (Table 1).

Table 1: Socio-demographic characteristics of study participants (Males=136; Females= 106)

Factor	Total n* (%)**	Males n*(%)**	Females n*(%)**
Age (years)			
<15	105 (45.0)	49 (39.2)	56 (52.8)
≥ 15	134 (54.3)	85 (60.8)	49 (47.2)
Ever smoked			
Yes	23 (10.3)	18 (14.7)	5 (5.0)
No	204 (89.7)	109 (85.3)	93 (95.0)
Having close friends			
Yes	225 (95.5)	124 (94.3)	99 (97.1)
No	11 (4.5)	8 (5.7)	3 (2.9)
Current smoking			
Yes	14 (6.0)	6 (4.9)	8 (7.6)
No	229 (94.0)	129 (95.1)	97 (92.4)
Currently drinking alcohol			
Yes	20 (9.1)	15 (12.3)	5 (5.2)
No	203 (90.9)	110 (87.7)	91 (94.8)
Ever been drunk			
Yes	25 (10.7)	18 (14.1)	6 (5.8)
No	213 (89.3)	115 (85.9)	96 (94.2)
Ever used drugs			
Yes	19 (8.4)	11 (8.8)	8 (8.0)
No	219 (91.6)	123 (91.2)	94 (92.0)
Parental supervision			
Never/sometimes	104 (48.8)	60 (49.4)	41 (46.1)
Most of time/always	109 (51.2)	61 (50.6)	48 (53.9)
Had sex in the past 12 months			
Yes	34 (14.9)	28 (22.2)	5 (5.0)
No	192 (85.1)	98 (77.8)	93 (95.0)

Key: n* = un-weighted frequencies; (%)**= weighted percent

In bivariate analyses to assess the associations between sexual intercourse in the past 12 months and selected predictor variables, being males, having used illicit drugs, having close friends, alcohol use, cigarette smoking and being ≥15 years were positively associated with the outcome. Having parental supervision was negatively associated with having had sex in the last 12 months. Among female respondents, only ever smoked, ever used drugs and lack of parental supervision were positively associated with the outcome (Table 2).

A multivariate logistic regression was also conducted to assess independent predictors for sexual intercourse (Table 3). Age and ever been drunk were found to be protective against having engaged in sexual intercourse. Male adolescents of age <15 years were 40% (OR=0.60, 95%CI 0.58, 0.62) less likely to have engaged in sexual intercourse compared to those who were older. Male adolescents who had ever been drunk were 37% (OR=0.63, 95%CI 0.59, 0.67) less likely to have engaged in sexual intercourse compared to those who had never been drunk.

Table 2: Bivariate logistic regression analysis of factors associated with sexual intercourse in the past 12 months among adolescents in Kenya

Factor	Total OR (95%ci)	Males OR (95%CI)	Females OR (95%CI)
Age (years)			
<15	0.51 (0.49, 0.52)	0.62 (0.60, 0.63)	-
≥ 15	1	1	
Sex			
Male	2.33 (2.27, 2.40)	-	-
Female	1		
Ever smoked			
Yes	2.04 (1.98, 2.10)	1.57 (1.52, 1.62)	3.34 (3.09, 3.60)
No	1	1	1
Current smoking			
Yes	1.12 (1.08, 1.17)	1.60 (1.52, 1.68)	-
No	1	1	
Having close friends			
Yes	0.80 (0.76, 0.84)	0.87 (0.83, 0.92)	-
No	1	1	
Currently drinking alcohol			
Yes	1.85 (1.79, 1.91)	1.72 (1.66, 178)	-
No	1	1	
Ever been drunk			
Yes	1.73 (1.68, 1.78)	1.63 (1.58, 1.68)	-
No		1	
Ever used drugs			
Yes	2.15 (2.08, 2.21)	2.48 (2.39, 2.57)	1.85 (1.73, 1.98)
No	1	1	1
Parental supervision			
Never/sometimes	1.27 (1.24, 1.30)	1.25 (1.22, 1.28)	1.09 (1.03, 1.16)
Most of time/always	1	1	1

Table 3: Multivariate analyses of factors associated with sexual intercourse in the last 12 months among adolescents in Kenya

Factor	Total OR (95%CI)	Males OR (95%CI)	Females OR (95%CI)
Age (years)			
<15	0.47 (0.46, 0.49)	0.60 (0.58, 0.62)	-
≥ 15	1	1	
Sex			
Male	1.89 (1.83, 1.96)		-
Female	1		
Ever smoked			
Yes	2.47 (2.33, 2.62)	2.05 (1.92, 2.19)	-
No	1	1	
Having close friends			
Yes	1.89 (1.75, 2.04)	1.68 (1.56, 1.81)	-
No	1	1	
Currently drinking alcohol			
Yes	-	1.13 (1.06, 1.20)	-
No	-	1	
Ever been drunk			
Yes	0.54 (0.51,0.57)	0.63 (0.59, 0.67)	-
No	1	1	
Ever used drugs			
Yes	2.36 (2.26, 2.47)	2.36 (2.24, 2.49)	2.85 (2.57, 3.15)
No	1	1	1
Parental supervision			
Never/sometimes	1.21 (1.1.7, 1.25)	1.30 (1.25, 1.34)	0.88 (0.81, 0.94)
Most of time/always	1	1	1

Key: - suggests there were not enough observations for the model to converge

Ever smoked, having close friends, currently drinking alcohol, ever used drugs and parental supervision were the risk factors for having engaged in sexual intercourse among males. Males adolescents who had ever smoked were 2.05 (95%CI 1.92, 2.19) times more likely to have engaged in sexual intercourse compared to those who had never smoked. Having close friends was associated with 68% (OR=1.68, 95%CI 1.56, 1.81) risk for having engaged in sexual intercourse. Male adolescents who acknowledged to take alcohol were 13% (OR=1.13, 95%CI 1.06, 1.20) more likely to have engaged in sexual intercourse than those who did not drink alcohol. Male adolescents who had ever used drugs were 2.36 (95%CI 2.24, 2.49) times more likely to have engaged in sexual intercourse than those who had never used drugs. Lack of parental supervision was associated with 30% (OR=1.30, 95%CI 1.25, 1.34) risk for having engaged in sexual intercourse.

Among female adolescents, those who had ever used drugs were 2.85 (95%CI 2.57, 3.15) times more likely to have engaged in sexual intercourse compared to those who had never used drugs. Lack of parental supervision was protective against having engaged in sexual intercourse. Female adolescents who sometimes or never had parental supervision were 12% (OR=0.88, 95%CI 0.81, 0.94) less likely to have engaged in sexual intercourse compared to those who always or most of the time had parental supervision.

Discussion

Our study showed that adolescents who engaged in sexual intercourse in the past 12 months were also more likely to have used illicit drugs, drunken alcohol and smoked cigarettes. Recently,Ohene*et al.* (2005) described the "clustering" of unhealthy or risk behaviours among Caribbean youth. Kabede *et al.* (2005) reported that use of alcohol and psychostimulant drugs among youth in Ethiopia was associated with unsafe sexual practices. This finding has also been corroborated by Lee *at al.* (2006) in Malaysia and Palen *et al.* (2006) in South Africa.

Klavs *et al.* (2006) have reported that lack of parental supervision was associated with sexual risk taking behaviours among adolescents in Slovenia. In this study, the odds of sexual intercourse among adolescents who reported having minimal or no sex was 1.21 times that for adolescents who reported being supervised by parents most of the times. The role of parents in promoting adolescent sexual health cannot therefore be overemphasised. Moreover, the odds of having sex were 1.89 among adolescent having more close friends compared to those who reported none. This could be due to several reasons. It is plausible to consider that some of the close friends of adolescents were also sex partners. An adolescent with close friends may therefore find it easier to recruit a sex partner

from the friendship pool. Secondly peer influence could affect an individual's likelihood of engaging in sex. It has been reported recently that having a friend who was sexually active and perception that sexual activity would earn an individual respect from friends influenced some adolescent to engage in sexual intercourse (Sieving *et al.*, 2006).

Our study had some limitations. Only adolescents in school were sampled. To the extent that in-school adolescents differ from out of school adolescents, our findings may not be applicable to out of school adolescents. Also the questionnaire was self-completed by study participants. As some of the questions asked personally sensitive questions, it is possible that some participants may have intentionally misreported. We were unable to assess the association between some of the predictor variables and sexual intercourse among females due to small numbers of observations.

In conclusion, gender, use of alcohol and illicit drug, cigarette smoking and having close friends are likely to be factors associated with HIV transmission in Coast Province of Kenya. The design, implementation and evaluation of public health intervention aimed to promote adolescent sexual health should be cognisant of these associated factors.

Competing interests

The authors declare that they have no competing interests.

Acknowledgements

The University of Malawi, College of Medicine, provided support to ASM through the Junior Faculty Training programme. We are thankful to the study participants and research assistants. We also thank the Centres for Diseases Control and Prevention for providing public access to the data.

References

Biraro, S., Morison, L.A., Nakiyingi-Miiro, J., Whitworth, J.A. & Grosskurth, H. (2007) The role of vertical transmission and health care-related factors in HIV infection of children: a community study in rural Uganda. *Journal of Acquired Immunodeficiency Syndrome* **44**, 222-228.

Bongaarts, J. (2007) Late marriage and the HIV epidemic in sub Saharan Africa. *Population Studies (Cambridge)* **61,** 73-83.

Hargreaves, J.R. (2002) Socioeconomic status and risk of HIV infection in an urban population in Kenya. *Tropical Medicine and International Health* **7**, 793-802.

Johnson, K. & Way, A. (2006) Risk factors for HIV infection in a national adult population: evidence from 2003 Kenya Demographic and Health Survey. *Journal of Acquired Immunodeficiency Syndrome* **42**, 627-636.

Kabede, D., Alem, A., Mitike, G., Enguselassie, F., Berhane, F., Abebe, Y., Ayele, R., Lemma, W., Assefu, T. & Gebremichael, T. (2005) Khat and alcohol use and risky sex behaviour among in-school and out of school youth in Ethiopia. *BMC Public Health* **5**, 109.

Klavs, I., Rodrigues, L.C., Weiss, H.A. & Hayes, R. (2006) Factors associated with early sexual debut in Slovenia: results of a general population survey. *Sexually Transmitted Infection* **82**, 478-483.

Lee, L.K., Chen P.C., Lee K.K. & Kaur J. (2006) Premarital sexual intercourse among adolescents in Malaysia: a cross sectional Malaysian school survey. *Singapore Medical Journal* **47**, 476-481.

Marum, L., Muttunga, J.N., Munene, F.M. & Cheluget, B.K. (2004) HIV prevalence and associated factors. In Central Bureau of Statistics (CBS), Ministry of Health, Kenya & ORC Macro. *Kenya Demographic and Health Survey* 2003. Calverton, Maryland: CBS, MOH & ORC Macro.

Mushi, D.C., Mpembeni, R.M. & Jahn, A. (2007) Knowledge about safe motherhood and HIV/AIDS among school pupils in a rural area in Tanzania. *BMC Pregnancy and Childbirth* **7**, 5.

Ohene, S.A., Ireland, M. & Blum, R.W. (2005) The clustering of risk behaviours among Caribbean youth. *Maternal and Child Health Journal***9**, 91-100.

Palen, L.A., Smith, E.A., Flisher, A.J., Caldwell, L.L. & Mpofu, E. (2006) Substance use and sexual risk behaviour among South African eighth grade students. *Journal of Adolescent Health* **39**, 761-763.

Sieving, R.E, Eisenbrg, M.E., Petting, S. & Skay, C. (2006) Friends' influence on adolescents' first sexual intercourse. *Perspectives on Sexual and Reproductive Health* **30**, 13-19.

Todd, J., Changalucha, J., Ross, D.A., Mosha, F., Obasi, A.I., Plummer, M., Bahra, R., Grosskurth, H, Mabey, D.C. & Hayes, R. (2004) The sexual health of pupils in years 4 to 6 of primary schools in rural Tanzania. *Sexually Transmitted Infections* **80**, 35-42.

Whitworth, J.A., Biraro, S., Shafer, L.A., Morison, L.A., Quigley, M., White, R.G., Mayanja, B.N., Ruberantwari, A. & van der Paal, L. (2007) HIV incidence and recent injections among adults in rural south western Uganda. *AIDS* **21**, 1056-1058.