Correlates of condom use among adolescent school boys in Nairobi, Kenya

Marcel Yotebieng, Carolyn Tucker Halpern, Ellen M.H. Mitchell, Adaora A. Adimora

Background

According to UNAIDS estimates, today some 37.8 million people worldwide live with HIV/AIDS. With less than 10 percent of the world population, sub-Saharan Africa is the home of two-thirds of people living with HIV worldwide. Here, more than elsewhere, young people between the ages of 15 and 24 are the most threatened, accounting for 62% of people living with HIV/AIDS [1]. Kenya, with a prevalence of 9.3% [2], is among the most infected countries in the world. Today in Kenya, the HIV epidemic is at the beginning of its third stage, which involves the spread to and among youth. It is estimated that, at the present time, youth under age 20 account for 40% of new infections among males and 60% of new infections among females [3]. According to a recent report by the Kenyan National AIDS and STDs Control Programme (NASCOP) [4], heterosexual contact is the primary mode of HIV transmission in Kenya. Sexual risk factors include having multiple, concurrent sex partners and being infected with other sexually transmitted diseases (STDs). However, consistent use of condoms, irrespective of other risky sexual behavior, has been demonstrated to be an effective means of preventing the acquisition and transmission of HIV and other STDs [5,6,7].

The vulnerability of Kenyan youth to HIV infection necessitates the development of interventions that reduce sexual risk behaviors. To develop such interventions, knowledge of factors that lead to sexual risk taking is indispensable. Scattered studies from sub-Saharan Africa have analyzed factors associated with condom use. A variety of perceived barriers have been reported to be associated with low levels of condom use, but factors that promote condom use have been identified as well. Perception of personal risk to HIV, believing that condom use can protect against HIV and STDs and a sense of self-efficacy about condom use have been reported to be associated with high level of condom use [8,9,10,11,12]. Furthermore, sociodemographic factors including greater education and single marital status, as well as facets of sexual behavior such as later sexual debut and having only one sex partner have also been associated with increased condom use [13,14, 15].

Associations between risk and protective factors and condom use likely vary by age, gender, community, and other characteristics. However, most studies to date have grouped individuals into relatively large age intervals (e.g., 15-24 year olds) without examining potential developmental differences. In addition, boys and girls are often not considered separately. Thus the possibility of heterogeneity in how and why adolescents use condoms in often not taken into account.

In this study we focus on urban adolescent male students who are age 20 or younger. We examine the relationship between four perceptual factors (HIV perceived prevalence, perceived susceptibility to HIV, perceived condom effectiveness in preventing HIV, and perceived barriers to condom use) and condom use among sexually experienced male students in Nairobi, Kenya. We expect that students who perceive that HIV is a serious problem in Nairobi, who perceives

themselves to be vulnerable to HIV, and who believe condoms are effective in preventing HIV will be more likely to report condom use. In contrast, we expect that the perception of barriers to condom access and use will be associated with a lower likelihood of condom use.

Methods

Analyses are based on data from the Nairobi, Kenya site of the TeenWeb study. TeenWeb is a school-based project that seeks to better understand the social, educational and sexual health needs of urban secondary school students, and to test the utility of the World Wide Web as a teaching and research modality [16].

Study Design

In Nairobi, TeenWeb recruited over 1500 students in five public secondary schools in Nairobi. Three schools were designated as "Web" schools and two as "Control" schools. To select schools, we constructed a comprehensive public school sampling frame with the goal of randomly selecting from among a strata of schools that included substantial proportions of low-income students, and a mix of male and females. In Nairobi, this essentially means using day schools instead of boarding schools. Because of the non-random distribution of Internet access in Nairobi and the need to install high speed Internet leased lines in 3 schools, the sampling frame was reduced to 13 out of 19 neighborhoods, most of which tended to be higher income.[1] Thus school selection was not strictly random.

For Web schools, we contracted with local companies to install Internet lease lines, install computer hardware and software, configure a LAN, and train students and teachers on the basics of computer operation and Web navigation. Students in all schools first completed a self-administered paper module (Module #1) tapping sociodemographic information and baseline knowledge and attitudes related to condoms, HIV testing, emergency contraception, and Kenyan abortion law. Following completion of Module 1, students in Web schools began a series of five Web-based questionnaire modules that extended across two school years (April 2002 to September 2003). Students completed one Web-based module approximately every 6 to 8 weeks, and in return, had access to the Web for at least 30 minutes after completing each module. After completing a module, students had access to the project's web site, which supplied reproductive health information related to the questionnaire content just completed. Health content was refreshed periodically with changing questionnaire content. Students could choose to access this information and/or other web sites not related to TeenWeb. Dedicated rooms were used for web-based module completion and privacy screens were constructed around each computer. Responses to web-based questionnaires were encrypted and transmitted directly to a server at the Carolina Population Center at the University of North Carolina at Chapel Hill. After the first paper module, students in control schools completed a second (and final) paper module at the end of the study, at about the same time that Web-students were completing their final Web-based module. The final paper (Control) and Web modules repeated questions related to knowledge and attitudes about condoms, HIV testing, emergency contraception, and abortion legislation, in order to examine change over time in conjunction with Web access. The Kenya Ministry of Education and the University of North Carolina School of Public Health Institutional

[1] However, we were still able to recruit a large public school within the Kibera slum (Africa's largest slum).

Review Board for the Protection of Human Subjects (IRB) approved the study design and all protocols.

Respondents

Present analyses are limited to 214 males in Web schools (questions about students' own sexual behavior appeared in module #4, completed only by Web students) who reported they had had sexual intercourse at least once, and who had complete data for analysis variables. This represents 36% of males who completed module #4.

Measures

All the questions in the survey instruments used to measure the following variables included "don't know" and "refuse to answer" options, which were all recoded to missing in the analysis.

Dependent variables – Condom Use

Using a condom at first sex. This was derived from the question "The first (or only) time you had sex, did you use a condom?" The response options were "yes" (coded 1) or "no" (coded 0).

Using a condom at most recent sex.. This was derived from the question "Did you use a condom the most recent time you had sex?" with "yes" (coded 1) or "no" (coded 0) response options. This question was asked only of respondents who reported having sex more than once.

Using a condom most or all of the time. This measure was derived from the question "Thinking of all the times you have had sexual intercourse, about what proportion of the time have you used a condom?" The response options were: "none of the time, some of the time, half the time, most of the time, and all of the time." Those who chose "most of the time" or "all of the time" were coded as "1" in the analysis and other answers were coded "0."

Independent variables

Perceived susceptibility to HIV**.** This was measured with the question "Imagine that sometime soon you had sexual intercourse with someone just once, without using any protection. What is the chance that you would get the HIV virus?" Response choices were "I'm sure this would not happen," "this probably would not happen," "there is about a 50-50 chance this would happen," "this would probably happen," and "I'm sure this would happen." Respondents who thought their chances of getting the virus were greater than 50-50 were coded "1;" perceived chances of 50-50 or lower were coded "0."

Perceived prevalence of HIV. This variable was measured with the question "Is HIV/AIDS a problem in Nairobi?" The response options included "not a problem at all," "somewhat of a problem," "it is a problem," and "it is a very serious problem." Answers of "it is a problem" and "it is a very serious problem" were coded as "1" and the remaining answers as "0."

Perceived benefits of using condoms. This was constructed from two questions, each considered separately: "Condoms are useful to prevent pregnancy" and "Condoms are useful to prevent infections like HIV." Response options were strongly agree, agree, neither agree nor disagree, disagree, and strongly disagree. Agree and strongly agree were coded "1" and the others "0."

Perceived barriers to using condoms. These measures are based on degree of agreement with the following statements: "Condoms are too expensive to buy," "condoms often break," "talking about condom is embarrassing," and "using condoms is embarrassing." The response options were the same as for "Perceived benefits" and were coded in the same manner. Items are considered separately in analyses.

Socio-demographic variables

Socio-demographic variables included age, marital status, form (grade) in school, religion, and socioeconomic status. Age was self-reported by respondents in years. Marital status was coded "1" for single and "0" for married or cohabiting. Grade was grouped in two categories: "1" for forms 1 and 2 and "2" for forms 3 and 4. Socioeconomic status (SES) was measured by a simple count of the following 13 household assets: lantern or tin candle, electricity, running water, indoor bathroom, refrigerator, gas or electric stove, metal or wooden bed, sofa, bicycle, car (motor vehicle), motorcycle, new (current) newspapers, old newspapers, old newspapers, dictionary, radio, television, telephone (land line), cell (mobile) phone, stereo (record, CD, or tape player), computer, and access to internet. Respondents were grouped in three categories of similar size: low SES (0 – 5 assets count), middle SES (6 – 9 assets count), and High SES (10 to 13 assets).

Sexual Timing and Experience

Later age at first sex was dichotomized. Participants who reported sexual debut at age 15 or older were coded "1" and others "0."

Lifetime number of sex partners was also considered in the analysis. Respondents were grouped in two categories: those who reported one partner were coded "1," and those with more than one partner were coded "0."

In analyses of condom use at most recent sex, condom use at first sex was included as a predictor. Those who reported having used a condom during their first sex were recoded "1" and those who did not were coded "0."

Analysis Strategy

Data analyses are not yet completed. Data will be analyzed using SPSS 11.5 for Windows [17]. Descriptive univariate analyses will be performed to describe and inspect the frequency distributions of all variables. Means and standard deviations will be computed for continuous variables. Bivariate analyses will be used to examine the associations between individual predictors and the outcome variables. For pairs of dichotomous variables, the Chi-

square statistic and its corresponding odds ratios (OR) and 95% confidence intervals (CI) will be used to assess the strength and the significance of the association. Multiple logistic regression analysis will be used to examine the independent contribution of measures of perceptions to each of the 3 outcome variables. Later age at first sex and number of sex partners will be included as indicators of other aspects of sexual history. Age, religion, marital status, and SES will be included as controls. Findings will be discussed in relation to previous studies, with attention to similarities and differences that may be attributable to methodological differences across studies.

References

1. UNAIDS. 2004 Report on the global AIDS epidemic: 4th global report. Geneva, Switzerland: UNAIDS, 2004.
2. Kenya Demographic Health Survey 2003: Preliminary report. Claverton, Maryland, USA: Marco international, 2004.
3. Toroitich-Ruto C. The determinants of teenage sexuality and their understanding of STDs/HIV/AIDS in Kenya. African population studies 1997;12(2) [Online]. Available at: http://bioline.utsc.utoronto.ca/archive/00000520/. Accessed August 29, 2004.
4. National AIDS and STDs Control Programme, Ministry of Health, National AIDS Control Council. AIDS in Kenya: Background, Projections, Impact, Interventions, Policy. 2001.
5. Davis KR, Weller SC. The effectiveness of condoms in reducing heterosexual transmission of HIV. Fam Plann Perspect 1999;31(6):272-9
6. Weller SC, Davis KR. Condoms effectiveness in reducing heterosexual transmission of HIV. The Cochrane Library, Issue 3, 2004. Chichester, UK.
7. Pinkerton SD, Abramson PR. Effectiveness of condoms in preventing HIV transmission. Soc Sci Med 1997;44(9):1303-12.
8. Meekers D, Klein M. Determinants of condom use among young people in Urban Cameroon. Stud Fam Plann 2002;33(4):335-346.
9. Adih WK, Alexander CS. Determinants of condom use to prevent HIV infection among youth in Ghana. J Adolesc Health 1999;24:63-72.
10. Akwara PA, Madise NJ and Hinde Andrew. Perception of risk of HIV/AIDS and sexual behaviour in Kenya. J biosoc Sci 2003;35:385-411.
11. Maswanya ES, Moji K, Horoguchi I et al. Knowledge, risk perception of AIDS and reported sexual behaviour among students in secondary schools and colleges in Tanzania. Health Educ Res 1999;14(2):185-196.
12. Taffa N, Klepp KI, Sundby J et al. Psychosocial determinants of sexual activity and condom use intention among youth in Addis Ababa, Ethiopia. Int J STD AIDS 2002;13:714-719.
13. Volk JE and Koopman C. Factors associated with Condom use in Kenya: a test of the Health belief model. AIDS Educ Prev 2001;13(6):495-508.
14. Lagarde E, Carael M, Glynn JR et al. Educational level is associated with condom use within non-spousal partnerships in four cities of sub-Saharan Africa. AIDS 2001;15:1399-1408.
15. Lugoe WL, Klepp KI and Skutle A. Sexual debut and predictors of condom use among secondary school students in Arusha, Tanzania. AIDS Care 1996;8(4):443-452.

16. Halpern CT and Mitchell E. TeenWeb Nairobi: Using the World Wide Web to survey and inform urban adolescents about health. Available at: http://www.cpc.unc.edu/projects/teenweb/.
17. SPSS 11.5 for window. SPSS Inc. Chicago, Illinois, US.