

This article was downloaded by: [Johns Hopkins University]

On: 17 March 2014, At: 08:55

Publisher: Routledge

Informa Ltd Registered in England and Wales Registered Number: 1072954 Registered office: Mortimer House, 37-41 Mortimer Street, London W1T 3JH, UK



AIDS Care: Psychological and Socio-medical Aspects of AIDS/HIV

Publication details, including instructions for authors and subscription information:

<http://www.tandfonline.com/loi/caic20>

Perceptions of health care services and HIV-related health-seeking behavior among Uganda adolescents

Karen Hampanda^a, Michele Ybarra^b & Sheana Bull^a

^a Department of Health and Behavioral Sciences, University of Colorado Denver, Denver, CO, USA

^b Center for Innovative Public Health Research (CiPHR), San Clemente, CA, USA

Published online: 13 Mar 2014.

To cite this article: Karen Hampanda, Michele Ybarra & Sheana Bull (2014): Perceptions of health care services and HIV-related health-seeking behavior among Uganda adolescents, *AIDS Care: Psychological and Socio-medical Aspects of AIDS/HIV*, DOI: [10.1080/09540121.2014.894612](https://doi.org/10.1080/09540121.2014.894612)

To link to this article: <http://dx.doi.org/10.1080/09540121.2014.894612>

PLEASE SCROLL DOWN FOR ARTICLE

Taylor & Francis makes every effort to ensure the accuracy of all the information (the "Content") contained in the publications on our platform. However, Taylor & Francis, our agents, and our licensors make no representations or warranties whatsoever as to the accuracy, completeness, or suitability for any purpose of the Content. Any opinions and views expressed in this publication are the opinions and views of the authors, and are not the views of or endorsed by Taylor & Francis. The accuracy of the Content should not be relied upon and should be independently verified with primary sources of information. Taylor and Francis shall not be liable for any losses, actions, claims, proceedings, demands, costs, expenses, damages, and other liabilities whatsoever or howsoever caused arising directly or indirectly in connection with, in relation to or arising out of the use of the Content.

This article may be used for research, teaching, and private study purposes. Any substantial or systematic reproduction, redistribution, reselling, loan, sub-licensing, systematic supply, or distribution in any form to anyone is expressly forbidden. Terms & Conditions of access and use can be found at <http://www.tandfonline.com/page/terms-and-conditions>

Perceptions of health care services and HIV-related health-seeking behavior among Uganda adolescents

Karen Hampanda^{a*}, Michele Ybarra^b and Sheana Bull^a

^aDepartment of Health and Behavioral Sciences, University of Colorado Denver, Denver, CO, USA; ^bCenter for Innovative Public Health Research (CiPHR), San Clemente, CA, USA

(Received 26 June 2013; accepted 11 February 2014)

Youth represent almost half of all new HIV infections globally. Although condom use is an effective method of HIV prevention among sexually active youth in sub-Saharan Africa (SSA), they face substantial barriers in obtaining condoms in environments where adults hold attitudes condemning premarital sex. More research is needed to better understand the multitude of factors that affect SSA youths' behaviors regarding safe sex practices, including factors that may influence their ability to obtain condoms, and decisions to be tested for HIV. In this study of Uganda youth ($n = 1503$) from five secondary schools, logistic regression models highlight factors that influence perceptions regarding respect and confidentiality at health centers, condom acquisition, and HIV testing. Family support appears to be an especially important factor that affects youth perceptions about how they will be treated when seeking condoms and HIV testing. Condom acquisition and HIV-testing behaviors are also associated with peer influence, self-esteem, and demographic characteristics, such as age.

Keywords: HIV/AIDS; HIV prevention; adolescent health; Uganda

Introduction

Young people aged 15–24 years contribute to almost half of all new HIV infections globally (WHO & UNAIDS, 2011). Approximately, 80% of HIV-positive youth reside in sub-Saharan Africa (SSA; UNAIDS, 2012). In Uganda, an estimated 5% of females and 2% of males aged 15–24 years are HIV positive (MOH & ICF, 2012). Heterosexual intercourse is the primary mode of HIV transmission in Uganda (WHO & UNAIDS, 2011). Consistent condom use and awareness of HIV status are therefore critical in decreasing HIV among Ugandan youth.

Certainly, in order to use condoms, one must have access to them through health clinics or commercial shops. Access can be especially challenging for youth in SSA because of notions about when sexual debut is socially acceptable. Health workers in SSA report believing that condoms will encourage adolescents to have sex and therefore refuse to distribute condoms to adolescents (Kiapi-Iwa & Hart, 2004). Youth participants in the study also reported being told to “wait until they were older” by health workers when seeking condoms. Research throughout SSA has identified characteristics that can either facilitate or hinder condom use among youth, including communication with family members and sexual partners (Denison, McCauley, Dunnett-Dagg, Lungu, & Sweat, 2009; Hendriksen, Pettifor, Lee, Coates, & Rees, 2007); perceptions of confidentiality at

health centers (Angotti et al., 2009); lack of youth-friendly services (DiClemente & Crosby, 2009; MacPhail, Pettifor, Coates, & Rees, 2008); and HIV-risk perception (Denison et al., 2009).

Access to HIV testing for youth poses similar challenges. Although research has shown a high level of acceptability of voluntary counseling and testing (VCT) among youth in SSA (Angotti et al., 2009; van Rooyen et al., 2012), health workers may refuse to provide HIV testing to young persons. Even if youth access an HIV-test, there are no consistent protections of their privacy rights (Binagwaho et al., 2012). Little is known about how youths' perceptions of respect and confidentiality at health centers will impact their likelihood of seeking condoms or HIV testing.

In this article, we examine characteristics related to youth's perceptions of how they would be treated at a health center and their ability to obtain condoms and an HIV-test. We hypothesize that youth perceptions are influenced by social support, self-esteem, and sexual activity. Similarly, obtaining condoms and HIV testing are likely to vary by exposure to sexual education, social support, peer influence, and self-esteem. Understanding the barriers that prevent youth in SSA from accessing condoms and HIV testing is critical to informing effective health service delivery programs for this high-risk population.

*Corresponding author. Email: karen.hampanda@ucdenver.edu

Methods

Survey data were collected between September–October 2008 and March–April 2009 as part of an internet-based HIV prevention program in Mbarara, Uganda. Institutional Review Board (IRB) approval was granted by Mbarara University IRB as well as Chesapeake IRB in USA. Headmasters provided permission and all students provided written assent. The survey was conducted in English and was self-administered via paper and pencil.

Participants

Participants were recruited from five purposefully selected secondary schools. Three schools were not parochial, one Catholic, and one Muslim. One school was all girls, two were all boys, and two were mixed-sex. Students were in classes Secondary 1 (S1) through Secondary 3 (S3). The survey was conducted twice: at the end of the school year (September–October) and at the beginning of the next school year (March–April). Students were randomly selected and invited to participate from the five schools' current class lists ($n = 1738$).

Measures

Youths' perceptions of health care services were measured by whether the student believed that a health center would treat him/her with respect and if the student believed that a health center would keep information confidential. Our main outcome measures for HIV-related health care-seeking behaviors were if the student had taken an HIV-test and if he/she had attempted to get condoms from a clinic/shop in the past 12 months.

Independent measures included: age, sex, school section (day or boarding), parent's education, and whether the student had engaged in heterosexual vaginal intercourse. Social support indicators were measured using the Multidimensional Perceived Social Support Scale (Zimet, Dahlem, Zimet, & Farley, 1988). Two sets of five-point Likert questions were asked to each student regarding the level of social support among family and from a "special person." The sum of students' responses to the social support items was two scores of 0–16.

Self-esteem was measured with the Rosenberg Self-Esteem Scale (Rosenberg, 1979). Because the items demonstrated low inter-correlation, specific items were included in the models rather than including the sum of the scale. Two items from the Misovich IMB survey were used to measure advice from friends and a significant other regarding condoms (Misovich, 1998). Perceptions of HIV risk were measured using an item from both the Uganda Demographic Health Survey (UBOS, 2007) and the Misovich IMB survey (Misovich, 1998). Orientation toward the future was measured using Bryan's seven-item scale (Bryan, Kagee, & Broaddus,

2006). Several items were also created specifically for the survey.

Data cleaning and statistical methods

All surveys were double entered by research staff to ensure accuracy. Data were imputed, including missing and nonresponsive answers. A two-stage process was used: each participant was required to have responded to at least 50% of all of the questions asked. Then, variables were imputed scale by scale among those who met the first criterion. To be included, respondents were required to have answered at least 80% of the questions in the scale in question. This multi-step imputation process resulted in different sample sizes for different models. Those that were estimated for the entire sample ranged from 1097 to 1503 youths. Those that estimated condom acquisition were constrained to adolescents who reported having had sex, which resulted in a sample size of 298 youths.

Differences in youth characteristics were examined first using chi-square and *t* tests. Logistic regression was used to quantify the odds of reporting the dependent variables of interest. Four models were run for the following outcomes: whether the student believed a health center would treat him/her with respect, whether the student believed a health center would keep information confidential, whether the student had ever been tested for HIV, and if the student had gone to obtain condoms from a clinic/shop in the past 12 months. All models included demographic characteristics and those based on a priori hypotheses.

A parsimonious model that included the least number of variables necessary to best explain the odds of experience with the outcome was sought. The independent variables in the multivariate models differed somewhat because significant associations were not homogenous at the bivariate level. Independent variables that were significantly associated ($p < 0.05$) with the outcome of interest in the bivariate model were included in a saturated model. A final parsimonious model was identified for each outcome of interest via backward stepwise deletion.

Results

Sample characteristics

Sample characteristics for all respondents, as well as stratified by biological sex and sexual experience, are shown in Table 1. The mean age of the sample was 14.9 years ($SD = 1.6$). The majority of the sample were boarding students (86%) and male (62%). Less than 20% of the sample had parents with less than a primary education. The means for family support and support from a special person were 13.5 ($SD = 3.2$) and 11.4

Table 1. Participant characteristics.

Youth characteristics	Biological sex (<i>n</i> = 1503)		Sexual experience (<i>n</i> = 1503)		Total % (<i>N</i>)
	Female % (<i>N</i>)	Male % (<i>N</i>)	Sexually active % (<i>N</i>)	Never had sex % (<i>N</i>)	
Demographics					
Biological sex					
Male	N/A	N/A	31 (288)	69 (645)	62 (933)
Female	N/A	N/A	18 (102)	82 (468)	38 (570)
	<i>M</i> (<i>SD</i>)	<i>M</i> (<i>SD</i>)	<i>M</i> (<i>SD</i>)	<i>M</i> (<i>SD</i>)	<i>M</i> (<i>SD</i>)
Age	14.9 (1.54)	15.0 (1.54)	15.4 (1.50)	14.7 (1.52)	14.9 (1.55)
Section					
Day	50 (108)	50 (933)	29 (62)	71 (153)	14 (215)
Boarding	36 (462)	64 (826)	25 (328)	75 (960)	86 (1288)
Parent education					
Mother's education: less than primary school	35 (100)	65 (182)	29 (83)	71 (199)	19 (282)
Father's education: less than primary school	37 (65)	63 (111)	28 (50)	72 (126)	12 (176)
	<i>M</i> (<i>SD</i>)	<i>M</i> (<i>SD</i>)	<i>M</i> (<i>SD</i>)	<i>M</i> (<i>SD</i>)	<i>M</i> (<i>SD</i>)
Social Support Scales^a					
Family support	13.4 (3.2)	13.5 (3.2)	12.8 (3.5)	13.7 (3.1)	13.5 (3.2)
Special person support	11.5 (4.5)	11.4 (4.8)	11.8 (4.5)	11.3 (4.7)	11.4 (4.7)
Experiences with HIV and condoms					
Sexually active	26 (102)	74 (288)	N/A	N/A	26% (390)
My parent/guardian has talked to me about HIV	39 (397)	62 (653)	25 (260)	75 (790)	71 (1050)
Someone has encouraged me to take an HIV test	37 (284)	63 (476)	30 (225)	70 (535)	51 (760)
I have had a class on HIV prevention	38 (480)	62 (794)	25 (324)	75 (950)	86 (1274)
Above average self-assessed HIV risk	42 (49)	58 (67)	42 (49)	58 (67)	8 (116)
Above average self-assessed friend's HIV risk	35 (68)	65 (126)	36 (69)	64 (125)	15 (194)
Friends would advise me to get condoms	23 (28)	77 (94)	100 (122)	0 (0)	38 (122)
My girl/boyfriend would advise me to get condoms	28 (36)	72 (92)	100 (128)	0 (0)	40 (128)
Ever taken an HIV test	35 (108)	64 (199)	35 (106)	65 (201)	20 (307)
In the past 12 months, I have gone to a clinic/shop to get condoms	21 (21)	79 (81)	N/A	N/A	29 (102)
Perceptions of health care services					
I believe a health center would treat me with respect	36 (384)	63 (670)	24 (250)	76 (804)	79 (1054)
I believe a health center would keep my information confidential	37 (272)	64 (471)	24 (176)	76 (567)	59 (743)
Self-esteem^b					
It is likely I will have a bright future	38 (550)	62 (902)	26 (376)	74 (1076)	97 (1452)
	<i>M</i> (<i>SD</i>)	<i>M</i> (<i>SD</i>)	<i>M</i> (<i>SD</i>)	<i>M</i> (<i>SD</i>)	<i>M</i> (<i>SD</i>)
On the whole, I am satisfied with myself	3.3 (1.3)	3.2 (1.4)	3.0 (1.4)	3.2 (1.3)	3.2 (1.3)
I feel I have a number of good qualities	3.3 (1.2)	3.3 (1.2)	3.2 (1.3)	3.3 (1.1)	3.3 (1.2)
I am able to do things as well as other people	3.4 (1.1)	3.3 (1.2)	3.3 (1.2)	3.4 (1.2)	3.4 (1.2)
I feel I do not have much to be proud of ^c	1.7 (1.7)	1.6 (1.7)	1.6 (1.6)	1.7 (1.7)	1.7 (1.7)
I feel I am of at least equal worth to others	2.7 (1.5)	2.6 (1.5)	2.5 (1.6)	2.7 (1.5)	2.6 (1.5)
I wish I had more respect for myself ^c	0.5 (1.1)	0.4 (1.0)	0.4 (1.0)	0.5 (1.1)	0.5 (1.1)
Total	38 (570)	62 (933)	26 (390)	74 (1113)	100 (1503)

Note: Due to imputation procedures, the following variables have a sample size other than *n* = 1503: Social support special person (*n* = 1408); Social support family (*n* = 1408); My parent/guardian has talked to me about HIV (*n* = 1475); I have had a class on HIV prevention (*n* = 1478); Above average self-assessed HIV risk (*n* = 1387); Above average self-assessed friend's HIV risk (*n* = 1306); Friends would advise me to get condoms (*n* = 322); In the past 12 months, I have gone to a clinic/shop to get condoms (*n* = 358); I believe a health center would treat me with respect (*n* = 1340); I believe a health center would keep my information confidential (*n* = 1261); On the whole, I am satisfied with myself (*n* = 1464); I feel I have a number of good qualities (*n* = 1464); I am able to do things as well as other people (*n* = 1480); I feel I am of at least equal worth to others (*n* = 1446); I feel I do not have much to be proud of (*n* = 1472); I wish I had more respect for myself (*n* = 1474).

^ascale: 0–16 sum based on a series of four questions; ^bscale: 0 (strongly agree) to 4 (strongly disagree); ^creverse coded.

($SD = 4.7$), respectively (scale ranged from 0 to 16). Ninety-five percent of the sample believed they had a bright future, but this varied by biological sex and whether one had engaged in vaginal intercourse. Self-esteem measures ranged from 0.5 to 3.3 (five-point Likert scale; see Table 1).

Twenty-six percent of students reported ever having engaged in vaginal intercourse. The majority of students reported that their parent/guardian had talked to them about HIV (71%), someone had encouraged them to get tested for HIV (51%), and that they had had a class on HIV prevention (86%). Only 8% of students reported that they had an above average self-assessed HIV risk, but 15% reported that their friend had an above average HIV risk. Thirty-eight percent of students reported that their friends would advise them to get condoms and 40% reported that their boyfriend/girlfriend would advise them to get condoms. Perceptions of health care services and health-seeking behaviors are discussed further in-depth below.

Perceptions of treatment

Overall, 21% of students reported they did *not* believe a health center would treat him/her with respect. At the bivariate level, believing a health center would treat one with respect was associated with: younger age ($p < 0.01$); believing one will have a bright future ($p < 0.01$); higher family support ($p < 0.001$); not having had sex ($p < 0.001$); lower self-assessed HIV risk ($p < 0.05$); and lower self-assessed friends' HIV risk ($p < 0.01$). In addition, believing a health center would treat one with respect was associated with several self-esteem measures; being satisfied with oneself ($p < 0.01$); feeling he/she has good qualities ($p < 0.05$); believing he/she does things well ($p < 0.01$); having a positive attitude toward oneself ($p < 0.05$); and *not* wishing he/she had more respect for oneself ($p < 0.05$; data not shown).

Overall, 41% of students did *not* believe a health center would keep his/her information confidential. Believing that a health center would keep information confidential was associated at the bivariate level with: being in the boarding section ($p < 0.05$); higher family support ($p < 0.001$); higher special person support ($p < 0.01$); lower self-assessed HIV risk ($p < 0.01$); being satisfied with oneself ($p < 0.05$); and feeling he/she has a number of good qualities ($p < 0.05$; data not shown).

After backward stepwise deletion, several variables remained significantly associated ($p < 0.05$) with believing that a health center would treat one with respect and that a health center would keep information confidential (Table 2). For example, with each incremental increase in age, the odds of believing a health center would treat one with respect decreased by 14% (adjusted odds ratio

[aOR] = 0.86, $p < 0.01$). With each incremental increase in family support, the likelihood of believing a health care center would treat one with respect increased by 8% (aOR = 1.08, $p < 0.001$). Youth who believed they had a bright future were more likely to believe that a health center would treat him/her with respect (aOR = 1.19, $p < 0.05$). Lastly, youth who felt they had a number of good qualities were also more likely to believe that a health center would treat him/her with respect (aOR = 1.16, $p < 0.05$).

Believing a health care center would keep information confidential increased with each incremental increase in family support by 10% (aOR = 1.10, $p < 0.001$). In addition, students enrolled in the day section were more likely (aOR = 1.46, $p < 0.05$) than students in the boarding section to believe a health center would keep information confidential.

HIV testing

Overall, 20% of the sample reported ever taking an HIV test. Of the students that reported having had sex, 27% had taken an HIV test. At the bivariate level, older students were more likely to have taken an HIV test ($p < 0.001$). Students who reported having had sex were also more likely at the bivariate level to have taken an HIV test ($p < 0.001$). Students that reported someone had talked to them about HIV testing were more likely to have taken an HIV test as well ($p < 0.001$; data not shown).

The multivariate model for having taken an HIV test (see Table 3) indicated that older students were more likely to have taken an HIV test (aOR = 1.13, $p < 0.01$) and if someone had talked to them about testing (aOR = 8.69, $p < 0.000$). Lastly, students that reported having had sex were more likely to have taken an HIV test (aOR = 1.37, $p < 0.05$).

Obtaining condoms

Twenty-nine percent of students who have had vaginal sex reported having gone to a clinic/shop to get condoms in the past 12 months. At the bivariate level, older students were more likely to have gone to get condoms ($p < 0.001$). Students that reported a boyfriend/girlfriend would encourage them to get condoms were more likely to have gone to get condoms ($p < 0.001$). Students that reported friends would encourage them to get condoms were also more likely to have gone to get condoms ($p < 0.001$). Lastly, at the bivariate level, being satisfied with oneself and feeling as though he/she is of equal worth to others were associated with going to get condoms ($p < 0.05$ and $p < 0.01$, respectively; data not shown).

Table 2. Parsimonious multivariate logistic regression model estimating the relative odds that Ugandan youth perceive a health care facility would treat them with respect and keep information confidential.

	Health center: treat me with respect (<i>n</i> = 1097)			Health center: keep my information confidential (<i>n</i> = 1133)		
	I believe a health center would treat me with respect % (<i>n</i>)	I do not believe a health center would treat me with respect % (<i>n</i>)	aOR (95% CI) <i>p</i> value	I believe a health center would keep my information confidential % (<i>n</i>)	I do not believe a health center would keep my information confidential % (<i>n</i>)	aOR (95% CI) <i>p</i> value
Demographics	<i>M</i> (<i>SD</i>)	<i>M</i> (<i>SD</i>)		<i>M</i> (<i>SD</i>)	<i>M</i> (<i>SD</i>)	
Age	14.80 (1.58)	15.20 (1.47)	0.86 (0.77–0.95) 0.004**	14.93 (1.64)	14.89 (1.47)	1.01 (0.93–1.10) 0.745
Biological sex						
Male	79 (670)	21 (179)	1.0 (RG)	59 (471)	41 (327)	1.0 (RG)
Female	78 (384)	22 (107)	0.77 (0.55–1.06) 0.110	59 (272)	41 (191)	1.01 (0.79–1.31) 0.903
Section						
Boarding	78 (901)	22 (251)	1.0 (RG)	58 (625)	42 (458)	1.0 (RG)
Day	81 (153)	19 (35)	1.45 (0.92–2.30) 0.111	66 (118)	34 (60)	1.46 (1.00–2.13) 0.047
Parent education						
Mother's education: primary school or higher	79 (868)	21 (227)	1.0 (RG)	59 (600)	42 (425)	1.0 (RG)
Mother's education: less than primary school	76 (186)	24 (59)	1.15 (0.68–1.84) 0.670	61 (143)	39 (93)	1.02 (0.68–1.52) 0.909
Father's education: primary school or higher	79 (940)	21 (247)	1.0 (RG)	59 (656)	41 (465)	1.0 (RG)
Father's education: less than primary school	75 (114)	25 (39)	0.77 (0.42–1.40) 0.388	62 (87)	38 (53)	0.99 (0.60–1.63) 0.979
Social support	<i>M</i> (<i>SD</i>)	<i>M</i> (<i>SD</i>)		<i>M</i> (<i>SD</i>)	<i>M</i> (<i>SD</i>)	
Family support	13.75 (2.98)	12.51 (3.71)	1.08 (1.04–1.13) 0.000**	13.84 (2.94)	12.90 (3.51)	1.10 (1.06–1.14) 0.000**
Special person support	11.67 (4.57)	11.38 (4.70)	***	11.85 (4.53)	11.03 (4.80)	***
Self-esteem	<i>M</i> (<i>SD</i>)	<i>M</i> (<i>SD</i>)		<i>M</i> (<i>SD</i>)	<i>M</i> (<i>SD</i>)	
It is likely I will have a bright future	3.44 (0.80)	3.28 (0.89)	1.19 (1.00–1.41) 0.050*	3.41 (0.81)	3.38 (0.85)	1.03 (0.88–1.20) 0.709
On the whole, I am satisfied with myself	3.26 (1.38)	3.02 (1.38)	***	3.23 (1.33)	3.23 (1.27)	N/A
I feel I have a number of good qualities	3.38 (1.09)	3.12 (1.28)	1.16 (1.02–1.31) 0.021*	3.38 (1.10)	3.18 (1.23)	***
I am able to do things as well as other people	3.43 (1.10)	3.26 (1.20)	***	3.40 (1.15)	3.33 (1.15)	N/A
I feel I do not have much to be proud of	1.66 (1.68)	1.67 (1.63)	***	1.70 (1.70)	1.63 (1.63)	N/A
I wish I had more respect for myself	0.39 (0.99)	0.60 (1.21)	***	0.39 (1.01)	0.50 (1.12)	N/A
Sexual activity						
Never had vaginal sex	81 (804)	19 (187)	1.0 (RG)	61 (567)	39 (363)	1.0 (RG)
Ever had vaginal sex	72 (250)	28 (286)	0.70 (0.34–2.13) 0.735	53 (176)	47 (155)	***

Note: **p* < 0.05; ***p* < 0.01; ***Omitted by stepwise deletion; N/A, not included in model because insignificant at the bivariate level; RG, reference group.

Table 3. Parsimonious multivariate logistic regression model estimating the relative odds that Ugandan youth have ever taken an HIV test and obtained condoms in the past 12 months.

	Have you ever been tested for HIV? (<i>n</i> = 1503)			In the past 12 months, have you gone to a clinic/shop to get condoms? (sexually active students only, <i>n</i> = 298)		
	I have been tested for HIV % (<i>n</i>)	I have never been tested for HIV % (<i>n</i>)	aOR (95% CI) <i>p</i> value	I have gone to get condoms in the past 12 months % (<i>n</i>)	I have not gone to get condoms in the past 12 months % (<i>n</i>)	aOR (95% CI) <i>p</i> value
Demographics	<i>M</i> (<i>SD</i>)	<i>M</i> (<i>SD</i>)		<i>M</i> (<i>SD</i>)	<i>M</i> (<i>SD</i>)	
Age	15.27 (1.65)	14.78 (1.51)	1.13 (1.03–1.24) 0.008**	16.05 (1.31)	13.27 (1.46)	1.47 (1.18–1.82) 0.001**
Biological sex						
Male	21 (199)	79 (734)	1.0 (RG)	31 (81)	69 (183)	1.0 (RG)
Female	19 (108)	81 (462)	0.94 (0.70–1.26) 0.685	22 (21)	78 (73)	0.86 (0.45–1.66) 0.662
Section						
Boarding	19 (247)	81 (1041)	1.0 (RG)	29 (88)	71 (212)	1.0 (RG)
Day	28 (60)	72 (155)	1.19 (0.82–1.71) 0.364	24 (14)	76 (44)	0.52 (0.24–1.13) 0.097
Parent education						
Mother's education: primary school or higher	20 (247)	80 (974)	1.0 (RG)	30 (86)	60 (197)	1.0 (RG)
Mother's education: less than primary school	21 (60)	79 (22)	1.06 (0.67–1.68) 0.796	21 (16)	79 (59)	0.62 (0.26–1.50) 0.289
Father's education: primary school or higher	20 (270)	80 (1057)	1.0 (RG)	30 (94)	70 (220)	1.0 (RG)
Father's education: less than primary school	21 (37)	79 (139)	0.86 (0.50–1.49) 0.598	18 (8)	82 (36)	0.77 (0.25–2.39) 0.649
Experiences with HIV						
Someone has talked to me about taking an HIV test	35 (266)	65 (494)	8.69 (6.11–12.34) 0.000**	N/A	N/A	N/A
No one has talked to me about taking an HIV test	5.5 (41)	94 (702)	1.0 (RG)	N/A	N/A	N/A
Friends would advise me to get condoms	N/A	N/A	N/A	49 (59)	51 (61)	2.20 (1.20–4.04) 0.011**
Friends would not advise me to get condoms	N/A	N/A	N/A	19 (37)	81 (156)	1.0 (RG)
My girl/boyfriend would advise me to get condoms	N/A	N/A	N/A	48 (61)	52 (65)	2.34 (1.28–4.29) 0.006**
My girl/boyfriend would not advise me to get condoms	N/A	N/A	N/A	19 (35)	81 (149)	1.0 (RG)
Self-esteem	<i>M</i> (<i>SD</i>)	<i>M</i> (<i>SD</i>)		<i>M</i> (<i>SD</i>)	<i>M</i> (<i>SD</i>)	
	3.39 (0.84)	3.41 (0.82)	0.98 (0.82–1.167) 0.819	3.39 (0.92)	3.38 (0.78)	1.01 (0.26–1.42) 0.937

Table 3. (Continued)

	Have you ever been tested for HIV? (<i>n</i> = 1503)			In the past 12 months, have you gone to a clinic/shop to get condoms? (sexually active students only, <i>n</i> = 298)		
	I have been tested for HIV % (<i>n</i>)	I have never been tested for HIV % (<i>n</i>)	aOR (95% CI) <i>p</i> value	I have gone to get condoms in the past 12 months % (<i>n</i>)	I have not gone to get condoms in the past 12 months % (<i>n</i>)	aOR (95% CI) <i>p</i> value
It is likely I will have a bright future						
I feel I am of at least the same equal worth as other	2.62 (1.55)	2.63 (1.51)	N/A	2.19 (1.63)	2.68 (1.50)	***
I feel I do not have much to be proud of	1.58 (1.69)	1.69 (1.67)	N/A	1.59 (1.71)	1.50 (1.60)	0.82 (0.69–0.98) 0.031*
Sexual activity						
Never had vaginal sex	18 (201)	82 (912)	1.0 (RG)	N/A	N/A	N/A
Ever had vaginal sex	27 (106)	73 (284)	1.37 (1.01–1.85) 0.040*	N/A	N/A	N/A

Note: **p* < 0.05; ***p* < 0.01; *** Omitted by stepwise deletion; N/A, not included in model because insignificant at the bivariate level; RG, reference group.

In the multivariate model for going to a clinic/shop to obtain condoms (Table 3), older students were more likely (aOR = 1.47, $p < 0.001$) to report having gone to get condoms. Both having a boyfriend/girlfriend that encouraged him/her to get condoms and having friends that encouraged him/her to get condoms increased the odds of going to get condoms (aOR = 2.20, $p < 0.05$; aOR = 2.34, $p < 0.01$, respectively). Lastly, students who reported they do not have much to be proud of were *less* likely to have gone to get condoms (aOR = 0.82, $p < 0.05$).

Discussion

Family and peer support and self-esteem appear to be important components of health care perceptions and health-seeking behavior among Ugandan youth in this study. Family support was an especially influential factor for youths' perceptions of whether a health center would treat him/her with respect and whether he/she believed a health center would keep information confidential. Interestingly, family support was more important for these perceptions than support from a special person (i.e., boyfriend/girlfriend). Perhaps this suggests that youth who have had a health issue have shared it with their families, and in response, their families supported them through the experience. On the other hand, perhaps youth who have supportive families have a more positive outlook on relationships more generally and are primed to believe that adults and professionals will treat them well.

On the other hand, students' peers have a significant influence over health-seeking behaviors in relation to obtaining condoms. Older adolescents are especially vulnerable to peer influence as they begin to individuate from their parents (Gifford-Smith, Dodge, Dishion, & McCord, 2005; Padilla-Walker & Bean, 2009; Prinstein, Boergers, & Spirito, 2001; Tome, Matos, Simoes, Diniz, & Camacho, 2012). Our study provides further support that sexual behavior is influenced by whether or not friends and one's boyfriend/girlfriend would advise condoms. Students who had a boyfriend/girlfriend that would advise condoms were 2.3 times more likely to have gone to get condoms. Of almost equal influence, students whose friends would advise condoms were 2.2 times more likely to have gone to get condoms in the past 12 months.

Recommended interventions include utilizing the role of peers and maximizing the social influence that peers have to increase youth's comfort in seeking condoms. This could be accomplished through the Popular Opinion Leader (POL) model, an evidence-based approach developed in the USA and widely replicated globally (Kelly, 2004; Kelly et al., 1991). However, care must be taken to ensure that resources are

available to receive training in POL and ensure fidelity through on-going process monitoring. In addition, strategies that maximize social network analyses should also be employed to identify peers who are particularly influential within networks and who may be well positioned for POL training (Amirkhanian, Kelly, Kabakchieva, McAuliffe, & Vassileva, 2003; Barabási, 2002; Burt, 2000). The use of social network analysis to identify POL has not been tested empirically. The authors suggest this as an opportunity to increase precision in identification of the most effective POL among youth in SSA.

In this sample, older students were less likely to believe that a health center would treat him/her with respect. This may be because they have had negative experiences with health providers previously, whereas younger adolescents have not yet engaged with providers about sexual health matters. However, the younger the sexually active student, the less likely he/she was to have gone to get condoms. Younger sexually active students may be hesitant to obtain condoms because they may be reprimanded for having sex too young or denied condoms. Overall, it seems that many young sexually active students do not feel comfortable seeking condoms. Further expansion of youth-friendly clinics that treat all youth despite their age with respect and keep information confidential is warranted, especially in setting where there are strong cultural taboos around premarital or too early sexual debut.

Lastly, indicators of self-esteem were associated with perceptions of care and health-seeking behavior. Interventions aimed at increasing self-esteem among youth should be considered a long-term goal in SSA. This has the potential to increase youths' perceptions of health care and their self-efficacy to obtain condoms or an HIV test.

Limitations

The measures in the study are based on self-report and vulnerable to social desirability bias. Youth may have under-reported being sexually active and over-reported desirable behaviors. Even so, this would not invalidate our findings. Due to the cross-sectional nature of the study, causal mechanisms cannot be established, but hypotheses are inferred. Findings may not be generalizable to non-school attending adolescents in Uganda or to adolescents in other countries.

Conclusions

Family and peer support are positively associated with condom acquisition and HIV testing among secondary students in Mbarara, Uganda. A sense of future-orientation and having things to be proud of also predicts

seeking condoms and HIV testing. Efforts to bolster youths' family and peer support, as well self-esteem, are recommend in order to improve HIV prevention efforts among this high-risk group in SSA.

References

- Amirkhanian, Y. A., Kelly, J. A., Kabakchieva, E., McAuliffe, T. L., & Vassileva, S. (2003). Evaluation of a social network HIV prevention intervention program for young men who have sex with men in Russia and Bulgaria. *AIDS Education and Prevention, 15*, 205–220. doi:10.1521/aeap.15.4.205.23832
- Angotti, N., Bula, A., Gaydosh, L., Kimchi, E. Z., Thornton, R. L., & Yeatman, S. E. (2009). Increasing the acceptability of HIV counseling and testing with three C's: Convenience, confidentiality and credibility. *Social Science and Medicine, 68*, 2263–2270. doi:10.1016/j.socscimed.2009.02.041
- Barabási, A.-L. S. (2002). *Linked: the new science of networks*. Cambridge, MA: Perseus.
- Binagwaho, A., Fuller, A., Kerry, V., Dougherty, S., Agbonyitor, M., Wagner, C., ... Farmer, P. (2012). Adolescents and the right to health: eliminating age-related barriers to HIV/AIDS services in Rwanda. *AIDS Care, 24*, 936–942. doi:10.1080/09540121.2011.648159
- Bryan A., Kagee A., & Broaddus, M. (2006). Condom use among South African adolescents: Developing and testing theoretical models of intentions and behavior. *AIDS and Behavior, 10*, 387–397. doi:10.1007/s10461-006-9087-5
- Burt, R. S. (2000). The network structure of social capital. In R. I. Sutton & B. M. Staw (Eds.), *Research in organizational behavior* (pp. 345–423). Greenwich: JAI.
- Denison, J. A., McCauley, A. P., Dunnett-Dagg, W. A., Lungu, N., & Sweat, M. D. (2009). HIV testing among adolescents in Ndola, Zambia: How individual, relational, and environmental factors relate to demand. *AIDS Education and Prevention, 21*, 314–324. doi:10.1521/aeap.2009.21.4.314
- DiClemente, R. J., & Crosby, R. A. (2009). Preventing HIV among adolescents in sub-Saharan Africa. *The Journal of Adolescent Health, 44*, 101–102. doi:10.1016/j.jadohealth.2008.12.001
- Gifford-Smith, M., Dodge, K. A., Dishion, T. J., & McCord, J. (2005). Peer influence in children and adolescents: Crossing the bridge from developmental to intervention science. *Journal of Abnormal Child Psychology, 33*, 255–265. doi:10.1007/s10802-005-3563-7
- Hendriksen, E. S., Pettifor, A., Lee, S. J., Coates, T. J., & Rees, H. V. (2007). Predictors of condom use among young adults in South Africa: The Reproductive Health and HIV Research Unit National Youth Survey. *American Journal of Public Health, 97*, 1241–1248. doi:10.2105/AJPH.2006.086009
- Kelly, J. A. (2004). Popular opinion leaders and HIV prevention peer education: Resolving discrepant findings, and implications for the development of effective community programmes. *AIDS Care, 16*, 139–150. doi:10.1080/09540120410001640986
- Kelly, J. A., St Lawrence, J. S., Diaz, Y. E., Stevenson, L. Y., Hauth, A. C., Brasfield, T. L., ... Andrew, M. E. (1991). HIV risk behavior reduction following intervention with key opinion leaders of population: An experimental analysis. *American Journal of Public Health, 81*, 168–171. doi:10.2105/AJPH.81.2.168
- Kiapi-Iwa, L., & Hart, G. J. (2004). The sexual and reproductive health of young people in Adjumani district, Uganda: Qualitative study of the role of formal, informal and traditional health providers. *AIDS Care, 16*, 339–347. doi:10.1080/09540120410001665349
- MacPhail, C. L., Pettifor, A., Coates, T., & Rees, H. (2008). "You must do the test to know your status": Attitudes to HIV voluntary counseling and testing for adolescents among South African youth and parents. *Health Education and Behavior, 35*(1), 87–104. doi:10.1177/1090198106286442
- Misovich, S. J. (1998). *The Teen Health Survey*. Retrieved from http://www.chip.uconn.edu/chipweb/documents/Research/M_IMBTeenHealthSurvey.pdf
- MOH, & ICF. (2012). *Uganda AIDS Indicator Survey (AIS), 2011*. Calverton, MA: Author.
- Padilla-Walker, L. M., & Bean, R. A. (2009). Negative and positive peer influence: Relations to positive and negative behaviors for African American, European American, and Hispanic adolescents. *Journal of Adolescence, 32*, 323–337. doi:10.1016/j.adolescence.2008.02.003
- Prinstein, M. J., Boergers, J., & Spirito, A. (2001). Adolescents' and their friends' health-risk behavior: Factors that alter or add to peer influence. *Journal of Pediatric Psychology, 26*, 287–298. doi:10.1093/jpepsy/26.5.287
- Rosenberg, M. (1979). *Conceiving the self*. New York, NY: Basic Books.
- Tome, G., Matos, M., Simoes, C., Diniz, J. A., & Camacho, I. (2012). How can peer group influence the behavior of adolescents: Explanatory model. *Global Journal of Health Science, 4*(2), 26–35. doi:10.5539/gjhs.v4n2p26
- UBOS. (2007). *Uganda Demographic and Health Survey 2006*. Calverton, MA: Author and Macro International.
- UNAIDS. (2012). *Fact sheet: Adolescents, young people and HIV*. Retrieved from http://www.unaids.org/en/media/unaids/contentassets/documents/factsheet/2012/20120417_FS_adolescentsyoungpeoplehiv_en.pdf
- van Rooyen, H., McGrath, N., Chirowodza, A., Joseph, P., Fiamma, A., Gray, G., ... Coates, T. (2012). Mobile VCT: reaching men and young people in urban and rural South African pilot studies (NIMH Project Accept, HPTN 043). *AIDS and Behavior, 17*, 2946–2953. doi:10.1007/s10461-012-0368-x
- WHO & UNAIDS. (2011). *Prevention, treatment, care and support for young people. Technical guidance note for round 11 global fund HIV proposals*. Retrieved from http://www.unfpa.org/webdav/site/global/shared/iattyp/docs/Technical_Guidance_HIV_Young_People_en.pdf
- Zimet, G. D., Dahlem, N. W., Zimet, S. G., & Farley, G. K. (1988). The multidimensional scale of perceived social support. *Journal of Personality Assessment, 52*, 30–41. doi:10.1207/s15327752jpa5201_2