

## HIV testing and risk perceptions: a qualitative analysis of secondary school students in Kampala, Uganda

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### Abstract

The purpose of this paper is to explore the perceptions of self-reported HIV testing and risk behavior among sexually active adolescents and youth in secondary schools in Kampala Uganda. This was a cross-sectional survey conducted between June and October 2010 among secondary school students in Kampala, Uganda. Forty eight (48) students across the 54 schools were purposively selected for the qualitative sub-study based on their responses to particular questions. We thematically analyzed 28 interviews for our qualitative study using Nvivo software. Drug and alcohol use coupled with peers pressure impaired students' perceptions towards HIV risk and therefore increased their susceptibility to HIV risk behaviors. Of the 28 scripts analyzed, 82% (23/28) had ever had sexual partners, 79% (22/28) were currently sexually active, and 57% (16/28) had ever been tested for HIV. In conclusion, most adolescents interviewed did not perceive HIV testing to be important to HIV prevention and reported low perception of susceptibility to HIV infection. Development of an adolescent HIV prevention model is important in improving uptake of HIV services.

### Introduction

HIV risk perception affects decision to accept an HIV test among youths in Sub-Saharan Africa. Recent studies have shown increase in new HIV infections among youths between 15-24 years in Sub-Saharan Africa,<sup>1</sup> studies elsewhere indicate that HIV

test and treatment may reduce sexual risk of HIV transmission and incidence among youths.<sup>2</sup> There more female than male youth infected with HIV and generally low comprehensive accurate knowledge about HIV, condom use, HIV testing and anti-retroviral treatment in sub-Saharan Africa.<sup>3</sup>

Low uptake of HIV testing in the general population may be associated with a perception of low risk of HIV infection,<sup>4</sup> and perceived inability to live with HIV, as well as social and economic costs of seeking HIV testing.<sup>3</sup> Reportedly, as few as 40% of persons living with HIV in sub-Saharan Africa may be aware of their HIV status.<sup>3</sup> Studies in sub-Saharan Africa, have shown that HIV risk is high and HIV testing is low among youths.<sup>5</sup> This study attempts to explore perceptions that may influence HIV risk and HIV testing uptake among youths in Sub-Saharan Africa.

HIV prevalence in this group in Uganda rose from 2.9% in 2004-05 to 3.7% in 2011.<sup>6</sup> The United Nations (UN) defines youth as persons between ages of 15 and 24 years.<sup>7</sup> Female youth are at a higher risk of HIV infection than males and exposure to HIV prevention programs reduce risk of HIV infections among youths.<sup>8</sup> In Uganda the median age of first penetrative sex experience is estimated to be 17 years. Pre-marital penetrative sex is contrary to the Ugandan cultural norm and therefore discouraged.<sup>9</sup> Many youth may consider sexual encounters to be *accidents* or *unplanned* and men engage more in risky behavior than women when drunk.<sup>10,11</sup>

Early sexual debut means early initiation of HIV risk behavior and this exposes youths to HIV infections.<sup>12</sup> Female youth may have been forced into sex in their first sexual debut and this may influence other sexual risks among the youth.<sup>13,14</sup> Youth health is at times neglected in global public health because this age group is perceived to be healthy.<sup>15</sup> This makes the youth and especially women more vulnerable to communicable diseases such as HIV infection in sub-Saharan Africa.<sup>12</sup>

HIV testing among youths 15-24 years is increasing in Uganda, up to 63% in 2011 from about 54% in 2004/05 and females are more likely to have an HIV test and receive results in comparison to males.<sup>3,6</sup> However, there are still undiagnosed HIV infection among youths,<sup>15</sup> due to lack of youth friendly health services that influence uptake of HIV testing.<sup>13</sup> Many youths may also choose not to access HIV testing services because of fear and embarrassment.<sup>16</sup>

In recent years, HIV testing and subsequent adoption of safer sex behaviors such as persistent use of condoms have been important factors in HIV prevention.

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Interventions targeting youths have reported limited condom use increase.<sup>17</sup> Protected sex among the youth is determined by the age of the partner.<sup>18</sup> In 2002, testing uptake

among female youths in Ugandan aged 15-19 years and 20-24 years were estimated to be 41% and 77%, but lower among men 21% and 46%.<sup>6</sup>

Condom use in Uganda is still generally low among youths with about 42% reported use for 15-19 year old and 45% for 20-24 year old.<sup>6</sup> On average about 37% of youths use condoms at their first sexual encounter.<sup>12</sup> In a study in Uganda, only 27% of women and 47% men between 15-19 years used condoms at their last sexual encounter.<sup>12</sup>

In addition, depending on the age of partners, youths may not be using condoms correctly and consistently, even with exposure to condom demonstration campaigns.<sup>1</sup> Generally, condoms are more frequently used in urban than rural areas.<sup>12</sup>

Alcohol abuse increase risky HIV behavior among men than women and risky behavior for women is associated with their partners' drinking.<sup>10,11</sup> Similarly, married female youths have higher rates of HIV infection than the sexually active unmarried.<sup>19</sup> Other studies have found a relationship between low education and HIV risk.<sup>20</sup>

Most youths view themselves at no or small risk of HIV infection and more exposure to sex was associated with higher perception of risk especially among females.<sup>21</sup> Knowledge and attitude related to HIV risk may be easier to change than behavior change among the youth.<sup>22</sup>

The Health Belief Model (HBM) may be important in explaining youths' perceptions towards HIV testing and HIV risk behavior and their variations in adherence to health seeking behavior (Figure 1). One example of such behavior is the variance in adherence to medication. The layering of self-efficacy onto HBM enriches the possibilities of its use for behavior change.<sup>23-26</sup>

HBM attempts to determine health seeking behavior of people through a service delivery perspective. Perception of susceptibility to acquisition of a disease, severity of that ailment, the benefits of preventing or treating the disease and understanding barriers which may prevent adoption of a behavior and cues that may aid in adoption of the behavior are all major components of HBM.

In Uganda, little is known about youths' motivations or perceptions towards HIV testing and risk. This paper focuses on perceptions of HIV testing and self-reported risk behavior among sexually active youths using qualitative survey data gathered from secondary school students in Kampala Uganda; the data comes from a sub-study of a cross-sectional survey given as part of the Crane bio-behavioral survey among KPs.

## Purpose of research

The study explored in-depth understanding of perceptions on HIV testing and HIV-related risk from secondary school students in Kampala, Uganda who had self-reported HIV-positive status, a history of transactional or commercial sex, trans-generational sex (sex partner 10+ years older), sex with teachers, homosexual orientation or activity, drug use, a history of pregnancy or abortion, or sexual abuse outside school.

## Materials and Methods

### Theoretical model

HBM was developed in an attempt to understand factors that affect individual acceptance of disease prevention or screening tests for early detection of asymptomatic disease.<sup>23</sup> HBM is important in determining the best model of behavior change towards a desired behavior.

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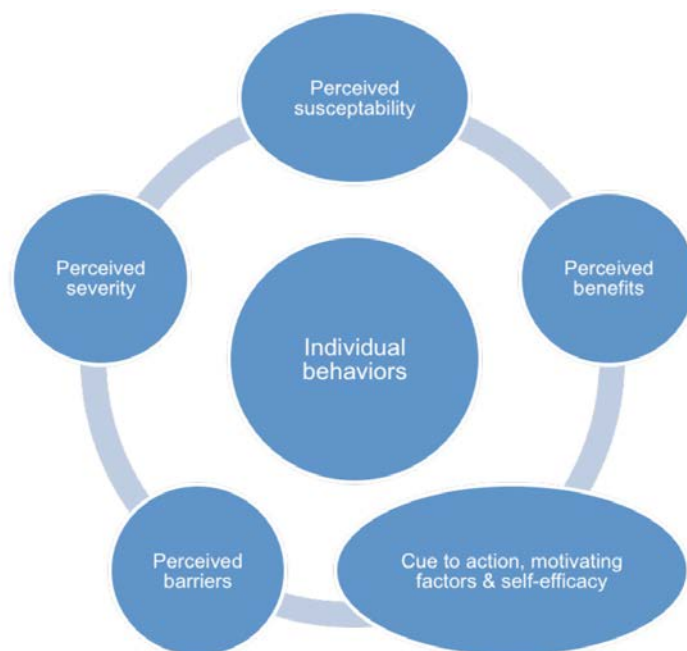
The model attempts to justify individual behavior towards health or disease based on perception of susceptibility, the effect or severity, benefit of adopting, and on barriers and cues which can promote adoption of the behaviour.<sup>25</sup> Other constructs that enrich interpretation of this model are motivating factors and self-efficacy; these factors may affect adoption or non-adoption of behavior. These constructs work alone or together to influence an individual's behavior. In this manuscript, we used HBM to analyze emerging themes and interpret perceptions of HIV testing and risky behavior among youths who self-reported sexual activity.

### Study design

This study was a cross-sectional qualitative in-depth sub-study of secondary school students in Kampala, Uganda that was part of a larger quantitative survey – the Crane Survey. The aim of this qualitative sub-study was to better understand and describe issues surrounding HIV and HIV-related risk, including practices, perceptions, stigma, and violence of 48 purposively selected secondary school students in Kampala Uganda.

The Crane survey in Uganda is a bio-behavioral survey which aims at establishing a standing survey capacity, capable of surveying diverse groups with varying methods serially or in parallel.

Quantitative data were collected mainly



**Figure 1. The Health Belief Model: a conceptual explanation for students' perceptions on susceptibility, severity, benefits, barriers and cue to action on HIV test and risk behavior.**

through computer-assisted interviews; qualitative data were collected through individual semi-structured interviews.

### Setting

The study was conducted from 54 secondary schools in Kampala Uganda between June and October 2010.

### Participant selection and data collection

The larger Crane Survey collected data from students at 54 randomly selected secondary schools, and in each of these schools, one class per level was randomly selected. In total 3434 students who returned signed parental consent forms and had assented were interviewed. Secondary students were selected from form 1 to form 6. Within each class level, up to 31 students were offered the opportunity to participate using interval sampling. Parental consent was sent to parents prior to the interviews and verbal informed assent/consent was read to students before a computer assisted self-completed interview (CASI).

Following the completion of the CASI, 48 students across the 54 schools were purposively selected for the qualitative sub-study based on their responses to particular questions, including self-reported HIV positive status, engagement in transactional or commercial sex, engagement in trans-generational sex (sex partner 10+ years older), having reported sex with teachers, having reported homosexual orientation or activity, having reported drug use, having had a pregnancy or abortion, or having reported sexual abuse outside school. Survey methods for the larger study are available and described detail in the Crane Survey report.<sup>27</sup>

Eligibility criteria for participation in study activities included being 15+ years old, having enrolled in class S3, S4, S5 or S6 and students' ability to read and understand English (interview language). Additionally, eligibility to participation in sub-study was based on a student's who responded *yes* to the questions examined, the variables of interest and consenting and assenting to participate in the larger study.

Qualitative study activities took place after completion of the CASI, where students from the larger study were flagged using the CASI responses to participate and were taken in a separate room with only the respondent and the interviewer present. All students in the study were informed on possibility of participating in the sub-study. The interviewers (study staff) had experience, were youth friendly and had training in qualitative research methods.

The interviewers explained the purpose

of the study and how confidentiality would be maintained before obtaining consent. The qualitative semi-structured interview guide explored the students' background, social networks, health-seeking behaviors, alcohol and drug use, perceptions of risk, HIV testing, condom use, abortion, sexual history, same sex experiences, stigma and violence and CASI experiences. For this paper the questions of interest were, about the first/last time of sex with someone, drug and alcohol use and its influence on risk behavior, HIV testing, HIV risk perceptions and Health seeking behavior. Qualitative data were collected over a period of 5 months (June to October 2010). Interview length typically varied between 45 and 90 minutes.

### Data management and analysis

Qualitative interviews were conducted in English and local languages specific to the respondents. The interviews were recorded on audio tapes in the respondents' preferred language and transcribed in English verbatim. Transcripts were then imported into Nvivo software (version 8.0, QSR International Pty. Ltd, Victoria, Australia). Out of the 48 interviews, only 28 had sufficiently clear audio quality and enough data to be analyzed. This was due to unforeseen technical challenges before and during transcription.

Theme development, validation and code use were utilized as the primary analytic strategies with focus on descriptive thematic coding.<sup>28</sup> Themes were later summarized across all respondents.

Interviewers and investigators read the transcripts and developed provisional coding of emerging themes and sub-themes to eventually form a code book. Coding utilized a grounded theory approach from which concepts were derived.<sup>28</sup>

The team used theoretical literature and emphasized emerging conceptual insights from data in relation to already existing codes. Script analysis was conducted across all interview data. A list of themes and sub-themes was finalized and their results are presented in this manuscript. No real names were used when presenting students' quotes in this manuscript.

The analysis was sensitive to narrative approaches that explored the way participants constructed their experiences on themes of interest. The analysis team assessed the agreement and any areas of difference were reviewed by the coders together with other evaluation team members to validate data interpretations. Interpretation of students' narratives was done using HBM.<sup>25</sup>

### Ethical considerations

Study participants gave verbal informed assent or consent for study participation. Letters were sent to parents in advance of the survey informing them that their child might be offered study participation on HIV risk behavior if they matched the inclusion criteria and were given the opportunity to refuse for their child to participate and only the students who returned parental consent were interviewed. Interviews were conducted considering participants' privacy and each participant was requested to choose a location apart from the secluded classroom that they prefer to take their interviews. The protocol was approved by the review board of the Uganda Virus Research Institute and the Uganda National Council for Science and Technology. The protocol was also reviewed and approved by CDC in Atlanta.

### Results

The results here represent students who were enrolled in secondary schools in Kampala Uganda and whose responses to the Crane Survey were *flagged* according to their responding *yes* to particular questions of interest to the study including: self-reported HIV-positive status, a history of transactional or commercial sex, trans-generational sex (sex partner 10+ years older), sex with teachers, homosexual orientation or activity, drug use, a history of pregnancy or abortion, or sexual abuse outside school. On the quantitative analysis of the respondents, 75% (21/28) were between ages 15-19 years and 75% (20/28) were male. Of the total respondents, 57% (15/28) were in lower secondary school (O Level). With regard to HIV testing and risk behaviors, 82% (23/28) had ever had a sexual partner where a sexual partner here meant a relationship other than virginal sex, 79% (22/28) had ever had penetrative sex, 57% (16/28) had ever been tested for HIV, 21% (6/28) were virgins and 21% (6/28) had used condoms at last sexual encounter (Table 1). In students' sharing their experiences during the qualitative study, students may have had poor perception of HIV test and risk behavior. The emerging themes in this qualitative study were fear of pregnancy rather than HIV, sexual partnerships as a social norm, Sexual partnerships disclosure and youth jargon, HIV risk and peer influence and HIV test and risky behavior (Supplementary Table S1).

### Fear for pregnancy rather than HIV

Female high school students' fears seem to be greater with regard to getting pregnant

than acquiring HIV. Most respondents therefore approached decision-making surrounding sex with pregnancy-related thoughts. They perceived the acquisition of HIV as having a less severe of impact than pregnancy. However, severity of the fear of pregnancy may indirectly protect the students from HIV infection through use of condoms as narrated by one student: *I used a condom because I feared that the first time I sleep with her, I might make her pregnant and that makes it bad if you have not introduced her to the family.* (Male form 5).

At the same time, the *fear* of pregnancy may stop some students from having an early sexual debut, thus maintaining their virginity even while being in a relationship. Pregnancy can therefore be a motivating factor for HIV prevention among the youth, through postponement of sexual debut: *No, I did not have sex with her; I was scared of her getting pregnant* (Male form 5).

### Sexual partnership as a social norm

Students perceived sexual partnerships to be with someone they considered to be *more than a friend*, this indicated surpassing the level of a common friendship to where each partner understood their relationship to be emotive and based on a close bond that may build trust and therefore perceive a mutually beneficial relationship. One student three years in high school expressed the idea in this way: *To me what I understand about a girlfriend is that she is more than a friend. Ok, she is so close. She can come at home even when my father is around* (Male form 3).

Some students perceived high school sexual partnerships as a *normal* phenomenon, recognized as such by peers, as stated by a female student who had spent 5 years in high school: *No, they were ok with my relationship with my boyfriend and they too have boyfriends. They thought it is normal and usual* (Female form 5).

Sex outside school may occur as well at the end of school terms or while being back home, likely with partners substantially older than themselves and this influences perception on susceptibility to HIV infection. These risky behaviors may also be a barrier to HIV prevention in this group, as reported by some of the students: *They wait until the day they leave school or when they are back at home for holidays to have sex. It happens that at the end of the term they just go outside, get their partners most of them are out of the school for example motorcycle taxis and engage in sex* (Male form 6).

The fact that some parents discuss sexual relationships with their children, influences them into such relationships and enables them perceive parental advice as

correct and therefore they adopt the behavior. As shared by one male student: *I had sex with my girlfriend because I had a condom. My parents told me that if you meet a girlfriend or your lover and you fall in love you have to use a condom, so I had to use a condom* (Male form 3).

### Sexual partnerships disclosure and youth jargon

Sexual partnerships among this group are a taboo in Ugandan society as cultural norms view sex as a preserve of marriage. Hence students may relate with the opposite sex *in secrecy* and limit disclosure about it to people they trust such as siblings or friends who live in similar circumstances. This lack of disclosure may be perceived as a barrier to HIV prevention among the youth as narrated by various students: *Because he is closer to me than any other person... I feel comfortable because I want them to know the truth because if the girl leaves me so they can know everything* (Male form 6).

Jargon may be used at times to conceal relationships or sexual activity from parents, guardians or teachers, using terms such as *Chaffing day* or *Chilling*. Use of such jargon may be perceived a barrier to access of HIV prevention services because of inadequate knowledge in the community about youth specific communication skills as expressed by this student: *At our school we used to call it chaffing day but those are just secrets of the students, teachers don't know that so chilling means okay like on Thursday there is going to be a public holiday when you come here the boys say that they are chilling but in each class you are going to find a boy and a girl that is a boy romancing a girl* (Male form 3).

### HIV risk and peer influence

Students' behaviors may be influenced by peers and facilitated by alcohol to

engage in unprotected transactional sex in settings which provide proximity to potential HIV exposure, such as bars, increasing their susceptibility to HIV risk behaviors: *We met her at the bar. That's it. We were influenced by the group we were moving with and maybe because we had drunk a bit... We were many, even those in A level, and it's them who suggested we buy a prostitute. I wasn't alone, even those in form one and form two, it was a group... I used a condom but later took it off* (Male form 3).

Uncertainty about severity of HIV risk related to unprotected sex emerged in interviews. There was a common perception that unprotected sex may not necessarily expose youths to HIV. Peer influence or misinterpretation of public health messages may affect students' behavior: *I don't know, but they say that you may have sex with someone and don't get HIV, though you haven't used a condom* (Male form 3).

Susceptibility to peer pressure and (male) students' desire for recognition or admiration for having a girlfriend may translate into a quest for fame by having sex. Occasionally, such norms may tempt students to pretend to or even have sex to be culturally correct and therefore affect their perceived susceptibility to HIV infection: *You know these days some students tend to show off for recognition but I think the problem will occur if you show off that someone is your girlfriend when in actual sense she is not* (Male form 5).

### HIV test and risky behavior

Parental/guardian reprisal was perceived as a barrier to HIV testing among students. Despite engaging in risk behaviors, some students reported not to have been tested for HIV for fear of reprisal by parents or guardians. To some students, HIV testing was perceived as a serious decision that needed parental consent. Otherwise, HIV test without parents'

**Table 1. Demographic and HIV test and risk characteristics of Secondary School students in the qualitative sub-study, Kampala, Uganda, 2010 (n=28).**

Characteristic	All participants, N (%)	Male, N (%)	Female, N (%)
Gender		20 (71)	8 (29)
Age			
15-19	21 (75)	13 (62)	8 (38)
20-24	7 (25)	7 (100)	7 (100)
Education level			
A level education	11 (39)	9 (82)	3 (18)
O Level education	16 (57)	9 (56)	7 (44)
HIV test and risk characteristics			
Have a sexual partner	23 (82)	15 (65)	8 (35)
Ever had sex	22 (79)	16 (73)	6 (27)
Ever had HIV test	16 (57)	10 (63)	6 (37)
Virgins	6 (21)	4 (67)	2 (33)
Used condom at last sexual encounter	6 (21)	4 (67)	2 (33)

approval may be perceived by teenagers as disobedience: *And I fear my parents to know that I went in such a thing (HIV testing) without informing them* (Female form 5). Some students have a firm view on their HIV status which seemingly does not warrant HIV testing. However, this perception can be a barrier to HIV testing for students in a sexual relationship: *I do not think I am at risk of HIV infection because I have one sexual partner* (Male form 4).

Youth-friendly and confidential testing opportunities, especially in the light of past high risk events, such as rape were important for the students. The provision of such services is perceived as benefit for the uptake of HIV testing, as expressed by one student: *It was a Thursday I remember, some people from rock point (A program for behavioral change among youth) came here and said it is voluntary and the results are confidential, no one is told. So because I have ever been raped and I had ever had sex I went for HIV test* (Female form 3).

Risky sexual behaviors such as unprotected sex, inconsistent condom use and multiple concurrent partnerships prompt students to seek an HIV test and sometimes resulting in repeated HIV testing: *I went for HIV test because I thought that many times I had sex without condom* (Male form 3). *Yah I did HIV test with my current boyfriend. I think the second time we never used a condom that is why I decided to go for a test. I went for HIV test after three months and that was the fourth test. I had tested thrice before I met him* (Female form 4).

Some youths felt HIV testing was an entry point to receive treatment (*get drugs*) in addition to the convenience of testing at school: *The first time they found us here at school so I went to test to know whether am positive or negative so that I can get drugs* (Female form 3).

Other students feel an urge for repeated HIV testing without apparent risk perception or fear of testing itself, with one respondent likening repeated testing to addiction similar to football. This may indicate a possibility of high risky behavior among youths or lack of knowledge on HIV testing: *So whenever there is a test, I test because it is now like a football match of which I am addicted to* (Female form 6).

For others learning their sero-status was a turning point and a cue to behavior change, including initiating secondary abstinence: *After having an HIV test I feel like I will never play sex until I complete my education* (Female form 5). *Yah for me I have ever tested for HIV and I was ok that is why am keeping myself safe from sex and therefore HIV* (Male form 4).

## Discussion

In this qualitative sub-study, we found out that youths perceived HIV testing as not relevant for their age group and that they perceived themselves to be at a lower risk for HIV infection. To our knowledge this is the only study in Uganda that has conducted qualitative research and used HBM to explore secondary school students' attitude towards HIV testing and risk behavior.

We also found that student perceptions had great influence on individual behaviors than other external influences did. Most students did not understand the severity of the consequences of HIV infection, unprotected sex, and risk of alcohol use to their health. Our study also found low perception of susceptibility to HIV infection among those in high risk sexual relationships and barriers to HIV testing uptake in students who fear for parental reprisal to self-initiated HIV tests. There was also proof that youths disclosed their sexual relationships to people they trusted. On the other hand, to small portion of youths, having a sexual relationship was seen as a taboo.

We discovered that more than a third of the students who participated in the qualitative study had never taken an HIV test. There was also evidence that, students in this qualitative sub-study were sexually active and some of them may have had unprotected sex at their last sexual encounter. However, a small number reported to be virgins. Youth-friendly messages targeting youths involved in risky sexual behavior may improve uptake of HIV testing and receptiveness to messages in youth population. Our results are consistent with the literature that has identified youths' perceptions of HIV testing to influence their uptake of HIV counseling and testing (HCT) even when they are at risk of HIV infection or transmission.<sup>11</sup> Kampala secondary school students viewed sexual partnerships as a peer-sanctioned behavior even when they were naïve about the HIV status of their partners. We also found that youth perceptions on high risk sexual behavior through transactional sex was a result of peer pressure.<sup>12</sup>

We found out that, unlike in another study,<sup>12</sup> female students had fewer sexual partners and therefore had less exposure to HIV risk than males. This study also confirmed findings from another study that there is low uptake of HIV testing among sexually active students.<sup>6</sup>

In our findings, we reported low perception of HIV risk and the influence of school Cohort on adoption of a behavior, which is supported by in a similar study

among university students in Uganda.<sup>4</sup>

The study also found out that youths had a unique jargon that was meant to conceal their sexual relationships or activities.

## Limitations

Our study had some limitations. The study is not generalizable because the participants represent only youth people in urban schools which may not be a true representation of the wider population. We also only had 28 out of 48 interviews analyzed due to technical difficulties and data loss. Only the scripts with enough content to achieve the objective of the sub-study and the rigor in analysis were considered to minimize the limitation of few scripts. The study design did not provide an opportunity to determine whether the themes identified are inter-related or merely demonstrate variability in behavior.

The interviews were tape recorded face-to-face and we may not be able to rule out the effects of some perceived compromised confidentiality or personal norms issues. However this was minimized by using interviewers with age and gender that matched those respondents.

Although self-reported sexual behaviors provide insights on behavioral perceptions that may be important in HIV prevention interventions, social desirability especially among female respondents may affect information reliability.<sup>29</sup> However, despite these limitations the qualitative interviews enabled us to have an in-depth understanding of youths HCT and risk behavior perceptions through thematic analysis of their experiences. We also managed to explore youths' experiences that may have not been captured by the larger quantitative study.

## Conclusions

In conclusion, most youths interviewed did not perceive HIV testing to be important to HIV prevention and reported low perception of susceptibility to HIV infection. Students had sexual partnerships within and outside of school, concealed partnerships from people who are close to them, and had unprotected sex with sex workers, yet HIV testing uptake was low especially among males. While we can presume that many female youths who have been tested for HIV may have done so because of better health seeking behavior than their male counterparts as a result of exposure to mandatory pregnancy tests at the beginning of the school term.

Incentives for improving health seeking behavior particularly for males, and devel-

opment of youth friendly environments at health facilities may improve HIV testing uptake and reduce risky behavior among youths. Measures to increase uptake of HIV testing and condom use promotion may also serve to reduce HIV infections among students.

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