Tropical Medicine and International Health doi:10.1111/tmi.13329

VOLUME 25 NO PP 81–88 JANUARY 2020

Sexual behaviours among adolescents in a rural setting in eastern Uganda: a cross-sectional study

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Abstract

OBJECTIVE Globally as adolescents transition into adulthood, some engage in risky sexual behaviours. Such risky behaviours expose adolescents to unintended pregnancy and sexually transmitted infections (STIs), including HIV infection. Our objective was to examine sexual practices of adolescents (aged 10–19 years) in eastern Uganda and identify factors associated with having ever had sexual intercourse.

METHODS Face-to-face interviews were conducted using a standardised questionnaire among randomly selected adolescents residing within the Iganga-Mayuge Health and Demographic Surveillance Site in eastern Uganda. Crude and adjusted prevalence rate ratios (PRR) were estimated using the Modified Poisson regression model to identify factors associated with adolescents having ever had sex.

RESULTS Of the 598 adolescents studied, 108 (18.1%) reported ever having had sexual intercourse, of whom 20 (18.5%) had ever gotten pregnant. Adolescents who reported to be out of school, 76 (12.7%), were more likely to have ever had sexual intercourse (PRR = 1.82, CI = 1.09–3.01). Females were less likely to ever have had sexual intercourse (PRR 0.69 (0.51–0.93) than males. History of ever having had sexual intercourse was associated with adolescents sexting (PRR = 1.54, CI: 1.14–2.08), watching sexually explicit films (PRR = 2.29 Cl: 1.60 - 3.29) and experiencing verbal jokes about sexual intentions (PRR = 1.76, Cl: 1.27 - 2.44).

CONCLUSIONS A majority of participants reported not being sexually active; however, interventions should be required for both sexually active and not sexually active adolescents. Programmes targeted at adolescents in this and similar communities should include comprehensive sex education, and contraceptive distribution among adolescents. In particular, urgent interventions are needed to guide adolescents as they use social media.

keywords adolescents, sexual practices, sexting, sub-Saharan Africa, Uganda

Sustainable Development Goals (SDGs): SDG 3 (good health and well-being), SDG 5 (gender equity), SDG 10 (reduced inequalities), SDG 17 (partnerships for the goals)

INTRODUCTION

As adolescents transition into adulthood, they face challenges that include engaging in risky sexual behaviours. During this transition, some adolescents tend to engage in early sex, have unprotected sexual intercourse and have multiple sexual relationships, all of which expose them to unintended pregnancy and sexually transmitted infections (STIs), including HIV infection [1,2]. More than half of teenage pregnancies (mostly among adolescents aged 15–19 years) in the developing regions are unwanted and end in unsafe abortions [3], often compromising their health and future aspirations.

Adolescent health challenges related to risky sexual behaviours are more pronounced in low-income countries, including Uganda. In these settings, more than 38 million women aged 15–19 years are sexually active and at an elevated risk of pregnancy [3]. Despite this risk, only 15 million use a modern contraceptive method, leaving over 23 million with an unmet need for modern contraception [3]. The risk of maternal deaths associated with pregnancy is approximately 30% higher among 15–19-year-olds than among 20–24-year-olds [4].

Recent estimates indicate that about two-thirds of 19-year-old adolescents in Africa have already engaged in sexual intercourse [3]. Participating in sexual activity,

irrespective of marital status, can lead to negative reproductive health outcomes among adolescents [5]. Initiation of sexual intercourse at an early age is associated with an array of risks: a higher number of lifetime sexual partners, increased risk of human papilloma virus infection (predisposition to cancer of the cervix), teenage pregnancies and death due to abortion and complications during labour. Early sex has also been attributed to higher rates of school dropout in many parts of Tanzania with detrimental social and economic consequences [6–9].

Teenage pregnancy is common in low-income countries and driven by various factors. In East Africa, about 10% of women aged 18–23 years reported giving birth by age 16 [7]. According to the recent Uganda Demographic Health Survey (UDHS) report, Uganda has a high proportion (25%) of adolescents giving birth before the age of 20 [8]. In Uganda, adolescent pregnancy is socially acceptable provided adolescents are married. Because unsafe sexual activity prior to marriage is common, pregnancy drives adolescents to marriage [9], accompanied by social, economic and cultural reasons [10]. Despite the high prevalence of adolescent pregnancy in Uganda, the existing national framework to guide sex education in schools is silent on provision of contraceptives to adolescents [11].

Sexual behaviours are influenced by a multitude of factors according to the socio-ecological model [12]. Sociocultural factors such as taboos and poor parent–child communication, parental influences, peer norms [13–17], economic factors [18,19], lack of information on sexual and reproductive health [20], and technological advances including social media [21] are emerging predictors of adolescent sexual behaviour.

Not much is known about the prevalence of sexual behaviours and their drivers among adolescents in rural settings in Uganda. Understanding these behaviours and associated factors can enable policymakers and programme implementers to develop feasible adolescent health programmes [2]. As part of the Africa Research, Implementation Science, and Education (ARISE) Network, we conducted a study among adolescents in Uganda to estimate the prevalence of and factors associated with among singles.

In Uganda, a study conducted in 2012 showed that 12.9% of males and 11.4% of females were sexually active between the ages of 15–19 years [22]. Adolescents are advised to postpone sexual activity either until marriage or adulthood but with no clear guidance on how to refrain from sex [23,24]. Since the correlates of ever having sex among unmarried adolescents are not well documented to inform programming, there was need to investigate this further in this exploratory study.

METHODS

Design and study population

A cross-sectional study design was used to collect data at the Iganga-Mayuge Health and Demographic Surveillance Site (IMHDSS) [25]. IMHDSS is located in two rural districts of Iganga and Mayuge in eastern Uganda, approximately 120 km east of Kampala. Approximately 80 000 residents in 65 villages comprise the surveillance site, of whom 20% reside in townships. Follow-up visits were conducted through regular household surveys, and a longitudinal database of the individuals and social units was maintained. The population under surveillance included approximately 25 000 adolescents; however, data on adolescent sexual behaviour were not collected through the HDSS.

Six hundred adolescents aged 10–19 years residing in the IMHDSS were randomly selected for the present study. Though not nationally or regionally representative, the selected individuals are likely to be representative of adolescents in both districts. At the time of the survey, eligible adolescents had resided in the households for at least one year and consented (legal guardians consented for children under 18) to participate in the survey.

Measurements

A structured questionnaire was used to collect data on socio-economic and demographic characteristics including age, sex, living arrangements, education status and engagement in income-generating activities. Most of the questions included in the questionnaire were derived from the Global School-Based Health Survey. Adolescents were asked if they had ever had sexual intercourse. Sexual intercourse was defined as having ever had vaginal, anal or oral sex. Data were collected on other sexual practices including the number of sexual partners; use of a condom and/or other method to prevent pregnancy during the most recent sexual encounter; girls conceiving or boys impregnating a girl, and the history of sexually transmitted infections.

The questionnaire also collected data on additional factors such as the level of physical activity, physical attacks and bullying, and substance use. In addition, adolescents were questioned on the use of social media to receive or send sexually suggestive messages known as sexting. They were also asked whether they ever watched sexually explicit films or images, and whether anyone had ever made verbal jokes about wanting to have sex with them.

Sample size and sampling procedure

The sample size consisted of 600 adolescents randomly selected from the IMHDSS database and separated into

two subgroups: 80% from rural areas and 20% from townships. This sample provided sufficient power to identify any factors associated with having ever had sex among the adolescents, assuming a 95% confidence interval and 80% power to detect differences between adolescents who have ever had sex, since the prevalence of the factor of interest is at least 10%. The IMHSS field staff visited the adolescent households and identified the participants from a generated list. In case the listed adolescent could not be contacted, traced or declined to participate in the study, replacement was made with another adolescent from the nearest household.

Quality control

Research assistants were trained on research protocols and study tools prior to conducting the interviews to understand the data collected, alongside additional training to ensure that survey questions were well understood by both data collectors and respondents. Moreover, the questionnaire was pretested when translated into Lusoga, a local dialect, to ensure quality of translation. On average, the interviews took 45 min to one hour to complete.

Analysis

Socio-demographic characteristics and sexual behaviours were summarised using frequencies, proportions, or means as appropriate. To identify factors associated with ever having had sexual intercourse, prevalence rate ratios (PRRs) were used because of the high prevalence of the dependent variable 'ever had sex'. 'Ever had sex' was selected for assessing sexual behaviour because abstinence from sex was considered the only 100% effective way of preventing STIs and pregnancy among adolescents [26]. We excluded three emancipated adolescent girls who were staying on their own. Though they never mentioned that they were married, we believed that they were in relationships. The crude and adjusted PRRs were estimated using the Modified Poisson regression model, with robust standard errors. The backward stepwise model selection procedure was used in which variables that were not significantly associated with the outcome at 5% level of significance were dropped from the model one at a time. Included in the final multivariable model were the variables independently associated with having ever had sex at a 0.05 significance level. The following independent variables were investigated for possible association with having ever had sex: age, sex, currently being in school, sexting, exposure to sexually explicit films/images and having experienced sexual jokes. Crude and adjusted PRRs as well as corresponding 95% confidence intervals (CIs) were reported.

Ethics and consent

Ethical approval was sought from the Institutional Review Committee at Makerere University School of Public Health (the Higher Degrees Research and Ethics Committee) and from the Uganda National Council for Science and Technology (SS 3996). Informed consent was obtained from all the legal guardians before adolescents <18 years assented. Informed consent was obtained from adolescents over 18 years and emancipated minors [27].

Results

Adolescent characteristics

Two adolescents declined to complete the interviews, with no suitable replacement identified; thus, a total of 598 were enrolled. Of these, 312 (52%) were male, and overall 522 (87.3%) had attained some level of formal education as shown in Table 1. The overall mean age of the participants interviewed was 14.2 years (± 2.6); females were 14.4 (±2.6) and males were 14.1(±2.6). The majority, 87.6% (524/598), reported that both of their parents were alive and over 70.4% (421/598) of respondents lived with both parents. No adolescent reported staying with a spouse or sexual partner. 81.3% (486/598) were not engaged in any form of income-generating activity.

We observed that 18.1% (108/598) of adolescents had ever been involved in sexual intercourse. 49.1% of the sexually active adolescents had more than one sexual partner. Twenty had a history of pregnancy, including 14 girls conceiving and six boys impregnating. 70.0% (14/20) had live births and 10.0% (2/20) had abortions. Repeat adolescent pregnancy was reported by one boy and one girl. 85.0% (17/20) of the respondents mentioned that they did not want to become pregnant or make someone pregnant. Other sexual behaviours are presented in Table 2.

62.4% (171/274) of those aged 15–19 years had never engaged in sexual intercourse. Females were 31% less likely to have ever had sex (adjusted PRR = 0.69 CI: 0.51–0.93) than males. Overall, being out of school increased the risk of ever engaging in sexual intercourse by 82.0% (adjusted PRR = 1.82, CI: 1.09–3.01). Having sent or received a sexually explicit text message increased the risk of engaging in sexual intercourse by 54%, while adolescents who had watched sexually

Table 1 Socio-economic and demographic characteristics of the adolescents

Characteristics	Category	*N* (%)
Sex	Male	312 (52.2)
	Female	286 (47.8)
Age	10–14	320 (53.5)
	15–19	277 (46.3)
	Not stated	1(0.2)
Education status	Still in Primary	368 (61.5)
	Still in Secondary	154 (25.8)
	Not in school	76 (12.7)
Life status of biological parents	Both alive	527 (88.1)
	Single parent alive	63 (10.5)
	Both not alive	8 (1.3)
Living arrangements	Both parents	422 (70.6)
	Single parents	117 (19.6)
	Guardian	56 (9.3)
	By self	3 (0.5)
Engagement in labour activities in the last year*	No	490 (81.9)
	Yes	108 (18.1)

*Data missing for 4 participants.

Table 2 Sexual practices among sexually active adolescents

Variable	-*n*-*N* = 108	Summary measure (%)
Number of sexual partners		
One partner	55	50.9
More than one partner	53	49.1
Condom use at last sexual encounter		
Yes	63	58.4
No	44	40.7
Not stated	1	0.9
Used another FP method		
Yes	7	6.5
No	98	90.7
Not stated	3	2.8
Pregnancy history		
No	88	81.5
Yes, one time	18	16.7
Yes, more than once	2	1.9
Wanted the last pregnancy (*n* = 20)		
I wanted it	3	15.0
I did not want it	17	85.0
Outcome of last pregnancy (*n* = 20)		
Currently pregnant	2	10.0
Abortion	2	10.0
Miscarriage	2	10.0
Live birth	14	70.0
Self-report of ever had an STI		
No	103	95.4
Yes	5	5.7

Average age (SD) at sexual debut: = 15.23 years (1.93); (for girls 15.6 years (1.6)) and boys 14.9 years (2.3).

explicit films/images were 2.29 times more likely to engage in sexual intercourse. Victims of verbal sex-related jokes had almost twice the risk of having had sexual intercourse as those who had not (adjusted PRR = 1.76, CI: 1.27–2.44). Details of associated factors are shown in Table 3.

Discussion

Risky sexual behaviours observed in this study included having more than one sexual partner before age 18 and not using condoms during the most recent sexual encounter. The factors associated with having ever had sex included ages 15–19 years, being male, not in school, being involved in sexting, watching sexually explicit films and verbalising jokes about wanting to have sex. Unwanted pregnancies and abortions were some of the reported consequences.

Several factors were associated with adolescent engagement in sexual intercourse. Among the demographic factors, age and gender emerged as significant factors in influencing adolescent involvement in sexual activity. 38.0% of 15–19-year-olds reported having been involved in sexual intercourse *vs.* the national rate of 29% [28]. However, fewer adolescents reported having ever had sexual intercourse before age 15 than those aged 15–19 years. This finding is similar to observations from the national survey where the proportion of young people who reported having sexual intercourse below the age of 15 years was very low compared with that of those who had sexual intercourse at 16–18 years [28]. Other studies have reported even higher prevalences of sexual intercourse among adolescents, attributed to poverty and social norms [18,29]. These studies included adolescents who had dropped out of school and failed to join a secondary level of education as well as married adolescents. However, in this study, no adolescent reported to be staying with a spouse, albeit three participants reportedly staying on their own.

Females were less likely to have ever engaged in sexual intercourse than males, and they are prone to more consequences of early sexual intercourse before marriage, including higher HIV prevalence. For instance, data from the Rakai Community Cohort Study, a population-based household survey conducted among youths aged 15–24 years between 2013 and 2014, showed that female respondents (25.9%) had a higher HIV prevalence than males (12%) [30]. Such findings could motivate the prevailing youth programmes to focus more on girls. Nevertheless, there is need to target both female and male adolescents when designing programmes.

Table 3 Factors associated with having ever had sexual intercourse among adolescents

Variable	*N* (%)	Ever had sex *n* (%)	Crude PRR (95% CI)	Adjusted PRR (95% CI)
Gender				
Male	312	58 (18.6)	1	1
Female	286	50 (17.5)	0.94 (0.67–1.32)	0.69 (0.51–0.93)*
Age				
10–14	321	5 (1.6)	1	1
15–19	277	103 (37.2)	23.87 (9.86–57.77)	9.6 (3.47–26.72)*
Education level				
Primary	368	20 (5.4)	1	1
Secondary	154	39 (25.3)	4.66 (2.81–7.73)	1.22 (0.75–1.99)
Not in school	76	49 (64.5)	11.86 (7.50–18.76)	1.82 (1.09–3.01)*
Biological parents				
Both alive	527	83 (15.8)	1	1
Single parent alive	63	21 (33.3)	2.12 (1.42–3.16)	1.13 (0.84–1.52)
Both not alive	8	4 (50.0)	3.17 (1.54–6.54)	0.92 (0.41–2.09)
Living arrangements*				
With both parents	422	63 (14.9)	1	1
With single parents	117	29 (24.8)	1.66 (1.12–2.45)	1.12 (0.84–1.49)
With guardian	56	16 (28.6)	1.91 (1.19–3.07)	1.39 (0.92–2.09)
Engagement in labour activities in the last year				
No	490	58 (12.0)	1	1
Yes	108	49 (45.4)	3.77 (2.75–5.17)	1.14 (0.81–1.60)
Physical attack				
No	532	84 (15.8)	1	1
Yes	66	24 (36.4)	2.30 (1.58–3.35)	1.37 (0.98–1.94)
Ever been bullied				
No	457	73 (15.9)	1	1
Yes	141	35 (24.8)	1.55 (1.09–2.22)	1.13 (0.42–1.52)
Substance use				
No	550	80 (14.6)	1	1
Yes	48	28 (58.3)	4.01 (2.93–5.49)	1.24 (0.93–1.65)
Ever sent or received a sext				
No	545	69 (12.7)	1	1
Yes	53	39 (73.6)	5.80 (4.42–7.64)	1.54 (1.14–2.08)*
Ever watched sexually explicit film				
No	519	50 (9.6)	1	1
Yes	79	58 (73.4)	7.62(5.67–10.24)	2.29 (1.60–3.29)*
Wanting to have sex verbal jokes				
No	444	43 (9.7)	1	1
Yes	154	65 (42.2)	4.36 (3.10–6.12)	1.76 (1.27–2.44)*

*Three excluded girls who were staying on their own.

Exposure to sexting, sexual films and jokes were significantly and positively associated with adolescent engagement in sexual intercourse. Similar findings have been reported in other studies [31–35], indicating exposure to sexually explicit movies and lyrics as a risk factor for sexual intercourse. Previous authors have argued that exposure to sex-rated films encourages adolescents to be sexually active, take risks or put into practice what they see in movies/images.

Previous studies have also indicated verbal jokes about sex as a form of sexual harassment among adolescents and often resulted in having sexual intercourse at an early age [36,37]. Verbal jokes about sex are a common bad practice among adolescents, and females are commonly victimised. Consequently, the community often fails to recognise these events as serious offences that affect sexual behaviour of females. To regulate the engagement of such behaviour and discourage such verbal insults, it is important that institutions concerned with adolescents enforce policies for the protection of victims.

Although an anti-pornography law [38] was enacted in Uganda in 2014, its implementation was only realised in

2018 to enforce early detection and prohibition of pornography. Before, adolescents were at liberty to interpret what they watch and listen to as accepted sexual behaviour, without consideration of the potential negative consequences. There is need to manage social media and provide the appropriate health education to children, parents and caretakers to prevent risky sexual behaviours among adolescents. The good news is that health education interventions using text messages for mobile cell phone delivery showed promising results in HIV-prevention programmes among adolescents [39]. Such interventions can yield positive results.

In our study, more than half of respondents with a history of sexual intercourse reported having engaged in unprotected sex during the most recent sexual encounter, and a similar proportion reported having more than one sexual partner. However, the limited use of contraceptive methods may partly explain the reported outcomes including unwanted pregnancy and procuring abortions. These findings are similar to reports among school students in south-western Uganda where having multiple partners was highly valued as a sign of sophistication and using condoms was not considered important [40]. Unplanned pregnancies have negative effects on maternal and postpartum behaviour, birth outcomes, and infant and child health [41]. Such negative effects include increased anxiety among mothers during and after pregnancies [42].

In the IMHDSS region, the existing family environment, characterised by weak family structures and parental control, might explain the practice of having multiple partners before the age of 18 among some adolescents. The age group under study constitutes young individuals in a life stage between the initiation of sexual activity and marriage, a time of sexual experimentation that involves risky behaviours. Several studies have reported that poor family structures promote poor adolescent sexual behaviours [43–45].

In this study, we captured data among young adolescents aged 10–14 years who are missed in routine adolescent surveys due to ethical limitations involving consent of legal guardian and assent of participants. While not nationally or regionally generalisable, the information captured in this study can be used to design interventions for adolescents aged 10–19 years in communities that are geographically and demographically to those we surveyed.

However, our findings have limitations. While the outcome measure is a good choice because it informs us of the areas to address while implementing adolescent programmes, future research would benefit and be complementary by including more nuanced details about risky sexual behaviours. Such detail may include types of sex, such as multiple concurrent or sequential partners, unprotected sex, involuntary sex, intergenerational sex and sex under influence of drugs and alcohol. All responses were self-reported and were not validated biological markers. Therefore, adolescents could have given responses that are socially desired. However, our data collectors were well trained and respondents reassured of the confidentiality of their responses; therefore, we believe that the responses were reasonably accurate. Although the questionnaire was not validated prior to use, most questions were drawn from the Global School-Based Health Survey, which has been extensively validated in many similar settings. Given the sensitive nature of the questions, future studies should use audio-computer-assisted self-interviewing [46] and take biomarkers for validation of responses. Further research should be conducted to using qualitative methods to elicit deeper understanding of sexual experiences by adolescents.

Conclusion

The majority of adolescents in a rural setting of Uganda reported not being engaged in sexual activities. For those who are engaged, programmes should include comprehensive reproductive health education and distribution of contraceptives [47]. A comprehensive approach should also design interventions to address sexual health risks via the use of social media and sexually suggestive messages. The Ugandan anti-pornography law needs to be evaluated to assess its contribution towards protecting adolescents.

Acknowledgements

We are grateful to the staff and management of the Iganga-Mayuge Health and Demographic Surveillance Site for allowing the research team access to the respondents and providing the research assistants. We particularly thank the research assistants for their diligence in collecting the data. Finally, we thank our respondents, both adolescents and guardians, who participated in the study. Funding for the ARISE Adolescent Health Study was provided by the Department of Global Health and Population at Harvard T.H. Chan School of Public Health.

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