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Sexual and Reproductive Health Among Ugandan Youth: 2003-04 to 2012

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A B S T R A C T

Purpose: Suboptimal sexual and reproductive health (SRH) increases morbidity, mortality, and gender inequity and slows development. In Uganda, youths represent 20% of the population, and the burden of sexually transmitted infections (STIs), including human immunodeficiency virus (HIV), is substantial.
Methods: We analyzed survey data collected using the lot quality assurance sampling (LQAS) technique from two time periods, 2003–2004 and 2012. We assessed knowledge, behaviors, and access to SRH services of youths aged 15–24 years. Using logistic regression, we examined factors associated with these indicators.
Results: All indicators have improved between the early and later time period. Youths knowing where to get HIV tests increased from <40% to 80% (both sexes); the number of youths reporting ever having an HIV test increased from 8% to 48% (males) and 10% to 64% (females). Knowledge of other STIs improved but remains low; only half of respondents know signs and symptoms of STIs, and less than half know what action to take when infected. In the late period, 85% of female youths, compared with 93% of males reported knowing where to obtain condoms. The proportion of youths reporting sexual debut before age 15 years decreased, less so for males than that for females. Increased age and level of education are associated with positive change for most indicators.
Conclusions: Over the last decade, progress has been made toward improving the SRH of young people in Uganda. Further efforts are required to ensure universal access and sufficient health education to facilitate the continued improvement of safe sexual behaviors among youth aged 15–24 years.

IMPLICATIONS AND CONTRIBUTION

Among Ugandan youth aged 15–24 years, sexual and reproductive health knowledge, behaviors, and access to services improved between 2003–2004 and 2012. To continue this trend, sexual and reproductive health programs should ensure comprehensive health education and access. Special attention should be paid to the young and to those with low levels of education.

Poor sexual and reproductive health (SRH) results in increased morbidity and mortality, gender inequity, financial strain, and slowing of national development and progress [1–3]. Globally, the behaviors of adolescents have changed having a beneficial impact on their health and well-being; for example, early marriage and childbearing have decreased, and the use of condoms and modern contraceptives has increased [4]. However, in many nations, including those in Sub-Saharan Africa, significant numbers of young men and women continue to engage in high-risk sexual activities and relationships without benefit of appropriate sexual health services [4,5].

Many factors contribute young people's high risks. Emotional immaturity and lack of negotiation skills and bargaining power place youths (especially girls) in vulnerable positions [6].

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Biological immaturity leaves young women more susceptible to sexually transmitted infections (STIs), and should a young girl become pregnant, her immature reproductive system may lead to problems that are less common among older women [4]. A global review of adolescent health service use reported numerous barriers to adolescents seeking health services that reduce availability, accessibility, acceptability, or equity [5].

Despite some global improvements in adolescent SRH, two specific threats facing today's youth are acquisition of human immunodeficiency virus and acquired immune deficiency syndrome (HIV/AIDS) and/or other STIs [4,5]. In Sub-Saharan Africa, HIV/AIDS remains a major killer among young adults [5,7]. In Uganda, an [1] estimated 200,000+ young people aged 15–24 years are currently living with HIV/AIDS [2,8], and >1 million new STIs are acquired daily [1]. Although accurate data on STI prevalence are difficult to obtain, a study among university students in Kampala found that 18% of participants reported having at least one STI at the time of the study; a 2011 survey found that 33% of sexually active females and 16% of sexually active males aged 15–24 years reported having had STI-like symptoms in the 12 months preceding the survey [1,2,9].

Adolescents and young people are particularly vulnerable to SRH threats and often have limited access to services [3]. In Uganda, youths represent almost 20% of the total population; therefore, attempts to achieve optimal SRH on a national scale must address the knowledge, behaviors, and access to SRH services of this group [2]. For more than a decade, the SRH of young people has been on Uganda's national agenda with various policies and guidelines created to guide the process, including the 2001 National Policy for Guidelines and Service Standards for Reproductive Health Services, the National Youth Policy, which included a situational analysis of issues impacting youth within the country, [10,11] and in 2004, the Ministry of Health's National Adolescent Health Policy [12]. During this time, various partners and agencies have aided in driving the youth SRH agenda in Uganda by implementing these policy guidelines, promoting international SRH goals, facilitating the work of advocacy networks, and providing funding for various youth-friendly programs and interventions [13,14].

We look at changes over time in knowledge, access to SRH services, and sexual behaviors of youth in Uganda from 2003–04 to 2012 using logistic regression to examine factors associated with these indicators. Our research investigates whether indicators relating to these three areas (knowledge, access, and behaviors) follow the same trends among Ugandan youths as have been seen in other Sub-Saharan Africa nations and globally. By measuring improvement and/or decline in the aforementioned indicators, we hope to identify where resources should be concentrated to improve health outcomes among this vulnerable group.

Methods

The data for these analyses were collected in 2003–2004 and 2012 as multiple cross-sectional district level community surveys using lot quality assurance sampling (LQAS) methodology. LQAS is an established analysis technique [15] originally developed as a classification method for industrial quality control during the 1920s. It was adapted to health sciences in the mid-1980s [16,17] to classify program administration areas (PPAs) according to a performance target. LQAS was introduced in Uganda in 2003 with the support of The World Bank to the Uganda AIDS Commission to monitor HIV-related indicators at the district and subdistrict level. In 2009, The United States Agency for International Development (USAID) provided funding to support the roll out of LQAS as a national health sector monitoring system.

As analyzed here, these surveys may be described as a stratified sample. The strata are Ugandan districts divided into PPAs, which are normally counties or parishes. PPAs are defined by district health officers. Within PPA, villages were selected using probability proportional to size sampling, and respondents were chosen using segmentation sampling [18].

For this study, the sample has been restricted to those districts surveyed in 2003–2004 that were completely covered by samples in 2012. The samples for the two time periods are thus comparable. There were 16 districts in the early period and 31 districts in the later period; in terms of the later period, these are 16, 13, and 2 districts in the Eastern, Western, and Central regions, respectively. These data are representative of these districts and are not statistically representative of the country as a whole. Although data were collected on other age groups, this study analyzes data collected among youth aged 15–24 years.

By design, individuals within a PPA are sampled with equal probability. However, when aggregated to district or higher levels, individuals enter the sample with unequal probabilities dependent on the size of the PPA administrative areas. We analyze this cross-time set as a simple random sample because the Ugandan government increased the number of districts from 56 in 2003 to 112 in 2012 and the populations of PPAs needed to calculate weights are not available due to the resulting frequent changes in PPA definitions. Stratification may reduce standard errors, whereas clustering would raise them. In this sample, there is minimal clustering, so the bias in this analysis is most likely small and of unknown direction.

From year to year questionnaires evolved to capture the progression of understanding of the HIV/AIDS epidemic, reflect the changing circumstances in Uganda, and implement lessons learned regarding administration of the questionnaires. Despite these changes, core concepts and questions remain consistent (Table S1). The data management team reconciled differences between questionnaires to ensure that data collected in earlier years remain comparable to data from the later period. We are certain of this consistency because the principal investigator either directed or trained the organizations responsible for the data collection during 2003–2014 [19]. The same training techniques and materials [20] were used consistently. In addition, the donors and the governments of Uganda were increasingly interested in tracking the trends of key indicators during this 11-year period and demanded comparable information.

To measure SRH knowledge, we use indicators that assess "awareness of the benefits of HIV testing, knowledge of the signs and symptoms of STIs, and knowledge of actions to take in the event of suspected or confirmed STI infection." The questions assessing knowledge are questions coded by the interviewers (Table S1). Awareness of the benefit of HIV testing is indicated by naming one or more benefits. The list of potential benefits was expanded from four to eight between 2003–2004 and 2012 (Table S1). The indicator for signs and symptoms of STIs and knowledge of actions to take with infection are mentioning two or more symptoms or actions. To assess SRH services, we look at indicators that measure "youths knowing where to get tested for HIV and youths able to identify the nearest place to obtain a condom." We use early sexual debut (first sexual encounter at the age of <15 years) and ever having had an HIV test to determine SRH behaviors. All the indicators are expressed as percentages.

Table 1
Percent coverage and confidence intervals of indicators of knowledge, access to care, and health behavior: Uganda, selected districts, 2003–2004 and 2012

	Males		Females	
	Early	Late	Early	Late
Know benefit of HIV test	78.7 (75.8–81.3)	89.7 (87.8–91.4)	71.5 (68.1–74.6)	90.4 (88.8–91.9)
Know STI symptoms	22.4 (19.5–25.4)	51.0 (48.3–53.7)	22.2 (19.3–25.5)	46.6 (44.1–49.1)
Know STI action	31.9 (28.9–35.2)	35.6 (33.2–38.0)	27.5 (24.4–31.0)	37.4 (35.1–39.8)
Know HIV test place	37.6 (34.4–40.9)	84.9 (83.0–86.6)	34.9 (31.6–38.5)	85.1 (83.3–86.8)
Know place to get condom	95.1 (93.4–96.3)	93.0 (91.6–94.2)	82.8 (79.9–85.4)	85.4 (83.6–87.0)
Sex at a young age	15.3 (13.0–17.9)	11.7 (10.2–13.4)	9.7 (7.7–12.0)	8.5 (7.2–9.9)
Ever tested for HIV	8.3 (6.6–10.4)	48.0 (45.5–50.6)	9.7 (7.8–12.1)	64.3 (61.9–66.5)

HIV = human immunodeficiency virus; STI = sexually transmitted infection.

We first look at changes in the indicators between the early and late periods (Table 1). We test the significance of differences with logistic regression models (Table S2) and report differences exceeding a .05 level of significance. We then look at subgroup differences by estimating multivariate logistic regression models (Tables S3 and S4). We estimate separate models for males and females (Table S3) after testing for sex differences (Table S4) and present the results as odds ratios (ORs) (Tables 2–4). The analysis is done with R version 3.1.0 [21].

This study uses secondary data sources, and we have obtained permission of the Uganda Ministry of Local Government to carry out these analyses.

Results

There is improvement in all but one indicator between the early and the late periods (Table 1). The percent of respondents reporting early sexual debut decreased, and all other indicators increased for both sexes, except the percentage of males who know where to obtain a condom, which decreased. The indicator measuring the percent of youths having ever had an HIV test is notable, as we find a more than five-fold increase between the early and late periods from 8% to 48% for males and 10% to 64% for females. The percent of youths knowing the signs and symptoms of STIs and the percent of those knowing where to get an HIV test more than doubled between the early and the late periods: "knowing two or more symptoms of STI" increased from 22% for both males and females to 51% for males and 47% for females, and "knowing where to get tested for HIV" more than doubled from <40% to >80% for both males and females.

The improvements shown by the indicators in Table 1 are statistically significant ($p < .05$) for 11 of the 14 period comparisons (Table S2). The three period comparisons that are not significant ($p > .05$) are as follows: for males, the increase in knowing what actions to take with an STI (32% in the early period to 36% in the late period) and the decrease in knowing where to obtain a condom (95% in the early period to 93% in the late period); and for females, the decline in the proportion reporting sexual debut before age 15 years (9.7% in the early period and 8.5% in the late period).

There were few significant differences between males and females (Table 1 and Table S2), although the increase in knowing the benefits of HIV testing is greater for females (72%–90%) than that for males (79%–90%) and in the early period, both males and females are equally unlikely to have ever been tested for HIV (9%), but in the late period, females are more likely to have been tested (64% females vs. 48% males). More males than females report knowing where to obtain condoms (males: 95% early period, 93% late period; females: 83% in early period and 85% late period).

We present ORs in Tables 2–4 for different subgroups of youth. These ORs are estimated with multivariate logistic models (Table S3). Significant odds ($p < .05$) are in bold. Adjusting for the subgroup categories does not change the results for change between the periods previously described for Table 1, except that the decrease in males knowing where to obtain a condom (Table 3) is significant, whereas the change for females is not.

Knowledge of the benefits of HIV testing, signs and symptoms of STIs, and actions to take in the event of STI infection increases with age and education (Table 2). For males and females, the youngest respondents are less likely than 20-year-old respondents to know the benefits of HIV testing, STI symptoms, and actions to take with an STI, and the oldest respondents are more likely than reference respondents to report greater knowledge on all these indicators. Compared to those with

Table 2
Odds ratios for knowledge indicators relative to an unmarried 20 year old with primary education in 2003–2004 for knowledge indicators: Uganda, selected districts, 2003–2004 and 2012

	Males			Females		
	Know benefit of HIV test	Know STI symptoms	Know STI action	Know benefit of HIV test	Know STI symptoms	Know STI action
Late period (2012)	**2.42 (1.86–3.15)**	**3.82 (3.09–4.72)**	1.17 (.97–1.41)	**3.57 (2.78–4.59)**	**2.99 (2.42–3.71)**	**1.50 (1.23–1.83)**
Age 15 years	**.52 (.39–.69)**	**.51 (.42–.69)**	**.75 (.62–.90)**	**.55 (.41–.72)**	**.68 (.56–.83)**	**.71 (.59–.87)**
Age 24 years	**1.69 (1.35–2.12)**	**1.71 (1.45–2.00)**	**1.26 (1.09–1.47)**	**1.62 (1.29–2.03)**	**1.36 (1.16–1.60)**	**1.31 (1.12–1.53)**
No education	.66 (.34–1.29)	1.00 (.54–1.83)	.94 (.53–1.64)	.62 (.36–1.04)	.70 (.39–1.27)	.64 (.36–1.13)
Secondary education	**2.21 (1.60–3.06)**	**2.23 (1.81–2.75)**	**1.55 (1.28–1.87)**	**1.89 (1.38–2.60)**	**1.98 (1.61–2.42)**	**1.49 (1.22–1.81)**
Tertiary education	**5.56 (1.72–18.0)**	**1.59 (1.04–2.43)**	**1.89 (1.28–2.78)**	1.80 (.87–3.72)	**2.70 (1.79–4.05)**	1.46 (.99–2.14)
Single with partner	1.18 (.80–1.73)	1.15 (.89–1.50)	**1.28 (1.01–1.63)**	1.20 (.79–1.84)	.85 (.64–1.13)	1.09 (.83–1.43)
Ever married	.96 (.65–1.40)	1.16 (.89–1.52)	1.24 (.97–1.58)	.84 (.62–1.15)	1.12 (.88–1.41)	.86 (.68–1.08)

Significant odds ($p < .05$) are in bold.
HIV = human immunodeficiency virus; STI = sexually transmitted infection.

Table 3
Odds ratios for access indicators relative to an unmarried 20 year old with primary education in 2003–2004: Uganda, selected districts, 2003–2004 and 2012

	Males		Females	
	Know place to get HIV test	Know place to get condom	Know place to get HIV test	Know place to get condom
Late period (2012)	**10.46 (8.48–12.90)**	**.67 (.46–.98)**	**11.28 (9.07–14.02)**	1.10 (.86–1.41)
Age 15 years	**.58 (.47–.72)**	**.35 (.24–.53)**	**.46 (.36–.58)**	**.50 (.38–.66)**
Age 24 years	**1.54 (1.29–1.83)**	**2.30 (1.67–3.15)**	**1.86 (1.54–2.26)**	**1.73 (1.40–2.15)**
No education	1.47 (.81–2.69)	.68 (.23–1.98)	.67 (.40–1.15)	.61 (.35–1.06)
Secondary education	**1.92 (1.52–2.43)**	**2.53 (1.57–4.06)**	**1.81 (1.41–2.32)**	**2.17 (1.60–2.92)**
Tertiary education	**1.76 (1.03–2.98)**	.85 (.37–1.96)	**2.39 (1.33–4.31)**	**2.14 (1.05–4.37)**
Single with partner	1.30 (.97–1.74)	**4.65 (2.02–10.74)**	1.38 (.98–1.95)	**1.73 (1.13–2.64)**
Ever married	1.07 (.80–1.44)	1.59 (.88–2.86)	1.18 (.90–1.55)	1.13 (.84–1.53)

Significant odds ($p < .05$) are in bold.
HIV = human immunodeficiency virus.

primary education, respondents with secondary or tertiary education are more likely to respond knowledgeably with OR from 1.46 (confidence interval [CI], .99–2.14; *ns*) for females with tertiary education to 5.56 (CI, 1.72–18.0; $p < .01$) for males with tertiary education. For females with tertiary education, the difference is only significant for knowing the signs and symptoms of STIs. There is no consistent relationship between marital status and knowledge indicators.

The access indicators "know a place to get an HIV test" and "know a place to get a condom" improve with age and education (Table 3). For both males and females, the ORs comparing younger respondents to 20 year olds are all less than one, and ORs for older respondents are all greater than one. Those with more than primary education are more likely to know where to get an HIV test with OR between 1.76 (CI, 1.03–2.98; $p < .05$) for males with tertiary education and 2.39 (CI, 1.33–4.31; $p < .01$) for females with tertiary education and more likely to know where to get a condom with OR between 2.14 (CI, 1.05–4.37; $p < .05$) for females with tertiary education and 2.53 (CI, 1.57–4.06; $p < .001$) for males with secondary education. In addition, those who are single with a partner are more likely to report knowing where to get a condom. Over time, the percentage of youths identifying health facilities as the nearest location to obtain a condom has increased from 26% to 47%. This increase offsets a decline in the percentage reporting that the nearest condom access point is a private shop (from 57% in the early period to 35% in the late period).

For males, there is a decrease in the proportion reporting early sexual debut (Table 4; OR, .77; CI, .60–1.00; $p < .05$). Early sexual debut is associated with marital status and education. Compared with single young adults, males (OR, 1.90; CI, 1.39–2.60; $p < .001$) and females (OR, 2.71; CI, 1.76–4.18; $p < .001$) who are single with partner are more likely to report early sexual debut, as are ever-married females (OR, 2.45; CI, 1.67–3.61; $p < .001$). Compared to those with primary education, males with no education (OR, 2.25; CI, 1.21–4.17; $p < .05$) and females (OR, 2.01; CI, 1.07–3.78; $p < .05$) are more likely to report early sexual debut. There is also a relationship between age at the time of the survey and sexual debut; the youngest respondents are more likely than the oldest to report having had sex at a young age. Age, education, and marital status all have significant relationships with the indicator "ever had an HIV test." Older respondents, those who have secondary or tertiary education, are single with a partner, or ever married were more likely to ever have been tested for HIV than reference respondents. The largest ORs compare males with tertiary education to males with primary education (OR, 3.21; CI, 2.05–5.03; $p < .001$) and ever-married females to single females (OR, 3.34; CI, 2.54–4.38; $p < .001$).

Discussion

Our findings show that knowledge of STIs increased from 2003–2004 to 2012. Despite this increase, STI knowledge remains low, with only half of youths able to correctly identify signs and symptoms. This is consistent with other studies which found that youths often have inaccurate or inadequate knowledge relating to SRH [22–24]. A related indicator "knowing what action to take in the event of STI" is low and improved minimally over the decade between data collection periods. This lack of knowledge leaves youths vulnerable to the effects of untreated STIs including increased risk of HIV/AIDS infection and certain cancers, infertility and higher risk of neonatal morbidity and mortality on pregnancy [25,26]. In addition, reinforcing health

Table 4
Odds ratios for behavior indicators relative to an unmarried 20 year old with primary education in 2003–2004 for behavior indicators: Uganda, selected districts, 2003–2004 and 2012

	Males		Females	
	Sex at a young age	Ever tested for HIV	Sex at a young age	Ever tested for HIV
Late period (2012)	**.78 (.60–1.00)**	**11.21 (8.53–14.76)**	.97 (.71–1.32)	**24.06 (17.88–32.37)**
Age 15 years	**1.30 (1.00–1.69)**	**.53 (.43–.65)**	**2.00 (1.43–2.79)**	**.34 (.27–.43)**
Age 24 years	**.81 (.66–1.00)**	**1.67 (1.42–1.97)**	**.58 (.44–.75)**	**2.35 (1.95–2.84)**
No education	**2.25 (1.21–4.17)**	.66 (.32–1.36)	**2.01 (1.07–3.78)**	**.48 (.24–.95)**
Secondary education	1.03 (.78–1.35)	**1.81 (1.45–2.25)**	.77 (.54–1.10)	**1.59 (1.25–2.01)**
Tertiary education	.77 (.40–1.48)	**3.21 (2.05–5.03)**	.46 (.16–1.29)	**1.89 (1.16–3.07)**
Single with partner	**1.90 (1.39–2.60)**	**1.68 (1.28–2.19)**	**2.71 (1.76–4.18)**	**2.26 (1.64–3.11)**
Ever married	1.33 (.94–1.89)	**1.68 (1.28–2.20)**	**2.45 (1.67–3.61)**	**3.34 (2.54–4.38)**

Significant odds ($p < .05$) are in bold.
HIV = human immunodeficiency virus.

workers' knowledge of STI would result in better serving of youth who seek care and advice for prevention of STIs thus improve both indicators relating to knowledge of signs/symptoms and treatment seeking behavior.

In 2003–2004, approximately three quarters of young people could name a benefit of HIV testing; this increased to 90% in 2012. This finding is consistent with other studies that found knowledge regarding HIV/AIDS is improving in Uganda [22]. Others have suggested that increased knowledge of the benefits of testing may encourage voluntary counseling and testing and promote more realistic self-risk assessments among young people [27,28].

Eighty-nine percent of youths report knowing the nearest place to obtain condoms; however, when results are disaggregated by sex, 85% of young women and 93% of young men report knowing a nearest condom access point [6,23,29–31]. It is possible that sexually active young women do not acknowledge knowing where to obtain condoms for fear of stigmatization. It is equally possible that lack of control and empowerment means young women have less knowledge and less opportunity to access services, including the knowledge of where to obtain condoms. With substantial risk of forced and coercive sex [23,30,32], young women may not have the opportunity to prepare in advance for sexual encounters. This includes becoming knowledgeable about where to obtain condoms. Addressing this lack of knowledge is important as others have linked condom use and continued healthy sexual decision-making [26,33].

The percent of youths identifying a health center or hospital as the nearest place to obtain a condom increased. The implication is that mainstream health services are becoming more accessible condom access points for youths. Although this may be a positive sign about access to health services for youths, it is widely acknowledged that there is still much to be done to make SRH services youth-friendly and universally accessible [22,24,25,34–36].

We found that most youths know the benefits of HIV testing and where to get tested, but a smaller proportion has ever taken an HIV test. This could be the result of low self-risk assessments (youths who determine they are not at risk of HIV and decline to go for testing) [37]. Our results indicate only about 10% of young people have sex before age 15 years. Before sexual debut, young people may know the benefits of HIV testing and where to take a test but may decide not to take a test if their risk is low. An alternative explanation could be inaccessibility of HIV testing services. Although services exist and young people are aware of them, access may be prohibited by cost, distance, stigma, or other perceived or real impediments [35,36]. Our research assessed if youths are aware of where to get tested for HIV, further research will be necessary to evaluate other factors that impede or prevent youths from accessing SRH services.

We report a five-fold increase in youths who have ever been tested for HIV that is consistent with results from the 2011 Uganda AIDS Indicator Survey, which reported a dramatic increase in HIV testing (among adults aged 15+ years) between 2004 and 2011. In 2012, 64% of women and 48% of men aged 15–24 years reported having ever had an HIV test, which is comparable to the 2011 results reported by the Ministry of Health for the same age group (74% of young women and 43% of young men) [9]. The difference in proportion between men and women could be the result of improved HIV screening during antenatal care, especially considering the high likelihood of pregnancy among young Ugandan women. The shift from an *opt-in* to an *opt-out* system for HIV testing of pregnant women means that pregnant women of all ages are exposed to HIV testing. This exposure could have eroded barriers that depressed both men's and women's acceptance of testing. Marital status (which may be used as a proxy measure of those actively attempting to bear children) is associated with ever having had an HIV test [8,9,38]. Another factor may be substantial changes in Uganda HIV/AIDS programming during 2003–2014; Antiretroviral therapy became much more accessible during this era which could have increased people's willingness to be tested [39].

We found a small decline in youth reporting early sexual debut, which is consistent with findings from other studies [9,22,33,38]. During analysis, we found that younger respondents in 2003–2004 reported higher rates of early sexual debut than was reported during the later data collection period by older respondents. This is somewhat contradictory as respondents in the "older" cohort during the late survey period were the age of the "younger" cohort in the early survey period. Based on the available information, we are unable to ascertain the cause of this variation. This could be a result of recall error, sampling error, or older respondents choosing to give a more socially acceptable response (delayed sexual debut) after years of exposure to health messages.

In conclusion, SRH indicators improved markedly among youth in Uganda during the decade 2003–2012. Although knowledge, behavior, and access indicators have improved, key areas still require attention. We recommend that SRH programs strive to provide youth-friendly, accessible services with a special focus on the very young and on those with little or no formal education. Respondent age and level of education are associated with an increase in knowledge and access indicators including knowing the signs and symptoms of STIs, knowing what action to take in the event of STIs, knowing where to get tested for HIV, and knowing the nearest place to obtain condoms. We suggest beginning SRH teaching early in adolescence, so youths are long exposed to health messages before becoming sexually active. For optimal SRH outcomes, it is important to enable youths to obtain an education and to focus SRH health teaching on those who are out of school. Being married or with a regular partner or having little formal education is associated with early sexual debut. Discouraging early unions and ensuring access to education are recommended to continue the downward trend of sexual debut before age 15 years. We suggest further study regarding factors which inhibit youths' access to services and research into the impact of gender inequity on the SRH of Ugandan youths, including forced and coercive sex practices and early marriage.

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Supplementary data

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