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Demographic Barriers to Knowledge of HIV and Sex: An Analysis on Ugandan Adolescents Aged 13-14

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By

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B.S. Biology
Santa Clara University
2025

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An abstract of
A thesis submitted to the Faculty of the
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Abstract

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By Allen Kingsley

Past research has shown considerable gaps in knowledge of Uganda's adolescent population regarding the subjects of HIV and safe sexual practices. Efforts must be undertaken to examine potential reasons as to why certain groups of children may be more or less informed on HIV and sexual health compared to others. This study's objective was to identify the associations of awareness of HIV and knowledge of sex with demographic characteristics in Ugandan adolescent children. Data from the Adolescent Questionnaire of the UPHIA 2016-2017 survey were analyzed. The study sample included 696 adolescents after identifying questionnaire respondents and excluding all respondents with missing data on awareness of HIV and knowledge of what sex was. The exposures consisted of the following demographic characteristics: age, sex, enrollment in school, urban or rural area of residence, geographic region of residence, and wealth quintile. The outcomes were knowledge of what HIV was and knowledge of what sex was. Logistic regression analyses were conducted between each outcome and each demographic characteristic. Bivariate regression models were used to estimate crude odds ratios and 95% confidence intervals, and multivariate regression models that adjusted for other demographics were used to estimate adjusted odds ratios and 95% confidence intervals. The findings show that children who were from the West Nile region were less likely to have heard of HIV at a statistically significant level, and that children from the West Nile and Mid-North regions were less likely to know what sex was at a statistically significant level. The results indicate that there were notable knowledge gaps in the sample at large, indicating that intervention efforts may be needed across the nation, and that there were significant associations between the outcomes and the aforementioned regions, which could have implications for the designs of future studies and interventions, as well as areas to target with such interventions. Improving educational efforts to teach children and adolescents about HIV and sexual health, as well as implementing a survey instrument to monitor adolescent sexual health and behaviors, could contribute to the success of HIV prevention initiatives among adolescents and ultimately reduce HIV transmission.

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Introduction

Since 2010, there have been marked strides in Uganda in the country's fight against HIV and AIDS, particularly among children. According to data from the Uganda AIDS Commission, the estimated number of new HIV infections in Ugandan children aged 0-14 in 2023 was 4,700 new cases, a drastic decrease from the 28,000 new cases in this population during 2010 (Uganda AIDS Commission). Similarly, in Ugandan adolescents aged 10-19, the estimated number of new HIV infections fell from 15,000 in 2010 to 6,600 in 2023 (Uganda AIDS Commission). There have also been notable reductions in the numbers of people in both age groups living with HIV – the number of children aged 0-14 living with HIV fell from 140,000 in 2010 to 72,000 in 2023, and the number of adolescents aged 10-19 living with HIV fell from 100,000 in 2010 to 85,000 in 2023 (Uganda AIDS Commission). This is a strong sign of progress in Uganda's HIV response.

However, there is a dearth of knowledge regarding HIV and safe sexual practices within Uganda's population, particularly in children and adolescents. This is reason for concern, because this lack of knowledge can result in unprotected behaviors and can limit health choices that could prevent the transmission of HIV. There is a correlation between HIV seropositivity and HIV risk behaviors; one example of such a correlation is among adolescent girls in Nairobi, Kenya. Girls are more likely to be living with HIV if they report younger age at sexual debut, having more sexual partners in the last 12 months, report having transactional sex, or report not knowing their partner's HIV status (Rositch et al., 2012). All of these behaviors associated with HIV infection might have been mitigated with health education. Thus, potential knowledge gaps in Ugandan adolescents around sexual risks and risk reduction practices have worrying implications. A study by Kemigisha et al. found that of 1096 adolescents, 95% knew about HIV,

but only 47% knew of a way HIV could be contracted. In the same study, only 56% of adolescents knew of modern contraceptive methods such as condoms and birth control pills (Kemigisha et al., 2018). Similarly, González et al. found that of the 1,647 respondents aged 15-19, only 46.2% felt like they were at risk of an STI (González et al., 2019). This is a reason for concern, presenting noticeable knowledge gaps regarding how someone can contract HIV or methods to avoid pregnancy during sex. For adolescents, this lack of knowledge makes them far more vulnerable to acquiring HIV or STIs and to having unwanted pregnancies. Surveys among girls have documented gaps in knowledge of sex and STI prevention. Matovu et al. found that of the nearly two thirds of 8,236 young girls and adolescent women who had had sex had begun having sex before the age of 18. Of the girls, 866 (24.2%) had multiple sexual partners, and only 728 (20.4%) reported always using condoms with their most recent sexual partner (Matovu et al., 2021).

Of further concern, a lack of knowledge of HIV and sexual health, in addition to the stigma adolescents living with HIV face, may increase the risk of transmitting HIV to others. Ankunda et al. focused on 338 youth aged 15-24 with HIV, and found that, of the 126 in heterosexual relationships, only 39 (31%) disclosed their HIV status to their sex partner, and of 69 sexually active respondents, 57% did not use condoms regularly and 30% had more than one sexual partner in the last six months (Ankunda et al., 2016). Similarly, Mugabi et al. found that, among 267 youths living with HIV and aged 15-24, 215 (81%) were not health literate regarding sexual and reproductive health. The implications of these knowledge gaps in young people living with HIV are dire – they may not be aware of their potential to pass HIV to other people by forgoing protection during sex or not disclosing their HIV status. This could result in multiple HIV transmissions if they have multiple sexual partners. Furthermore, adolescents living with

HIV may not be aware of anti-retroviral therapies (ART) that can reduce their risk of transmission and developing AIDS. Thus, adolescents living with HIV are crucial audiences for education about HIV and safe sexual practices; such education has the potential to improve the health of the children themselves, and to reduce risks for HIV transmission to others.

Because of the risks posed by children not having adequate knowledge of HIV and sexual health, understanding the reasons why children might lack such knowledge will help development of future efforts to educate people living with HIV, improve the health of those living with HIV, and mitigate onward transmission of HIV. Understanding the associations of demographic characteristics with these differences in knowledge and identifying groups that are most prone to low awareness of HIV and knowledge of sex will inform future interventions oriented around HIV and sexual health education. Such analyses and interventions may be centered around examining and supporting groups of children who would benefit from additional knowledge of HIV and sexual health, and around identifying and addressing information needs that vary between groups to allow more targeted education on HIV and safer sexual practices. This thesis will examine the associations between demographic characteristics and knowledge of HIV and sexual risks among Ugandan adolescents using data from the Uganda Population-Based HIV Impact Assessment (UPHIA) 2016-2017 Adolescent Interview.

Methods

Study Population

The 2016-2017 Uganda Population-based HIV Impact Assessment (UPHIA) is a nationally representative, cross-sectional, household-based survey that assesses HIV prevalence and the effectiveness of the HIV response. The survey employed a two-stage stratified sampling design based on the 2014 Uganda Census, selecting 520 Enumeration Areas (EAs) stratified by

district and urban/rural status. Within each EA, households were randomly selected, and a household questionnaire was administered to the head of household to determine eligibility and roster all members.

Adolescents aged 13-14 were eligible to complete an individual Adolescent Questionnaire if they had slept in the household the previous night and agreed to participate, with parental or guardian consent obtained beforehand. Approximately 33.8% of households were randomly selected for data collection among children aged 5-14, out of a subset of 59% of all surveyed households that were flagged for child data collection; about 20% of all surveyed households were thus selected for data collection among children aged 5-14. For this study, participants were included if they answered the Adolescent Questionnaire, did not have an individual weight of 0 for weighting purposes, and did not have missing data on whether they had heard of HIV or knew what sex was (Figure 1).

Exposures and Outcomes

The primary exposures examined in this study were age, gender, region, urban or rural residence, household wealth quintile, and current school enrollment. Age and gender were reported by the head of household in the household questionnaire. Region and urban/rural designation were assigned based on the geographic location of the household's Enumeration Area (EA), which also served as the primary sampling unit. Current school enrollment status was collected via self-report in the Adolescent Questionnaire. Household wealth quintile was derived using principal components analysis (PCA) of household asset data, including indicators such as roofing material, access to electricity, and ownership of durable goods, as reported in the household questionnaire. The outcomes were adolescent knowledge of HIV and knowledge of

sex, both based on self-reported answers to the questions “Have you heard of HIV?” and “Do you know what sex is?” respectively in the Adolescent Questionnaire.

Statistical Analysis

Responses were weighted with the Jackknife method, using Enumeration Areas (EAs) as the primary sampling unit and incorporating individual final and replicate weights in the survey object. Bivariate logistic regressions were used to estimate the odds ratios and 95% confidence intervals to estimate associations between HIV knowledge and individual demographic variables, and, in separate models, the association between knowledge of sex and the individual demographic variables. Multivariate logistic regression was then used to estimate the odds ratios and 95% confidence intervals to estimate the associations between HIV knowledge and the individual demographic variables while adjusting for the other demographic variables, and association between knowledge of sex and the individual demographic variables while adjusting for the other demographic variables. All other variables were included in each multivariable model to account for potential confounding and to identify the independent association between each primary exposure and the outcomes. All analyses were performed using RStudio using the “survey” package. All statistical tests performed were two sided, and p-values that were less than 0.05 were considered statistically significant.

Results

Descriptive Statistics

Of the 767 adolescents eligible to complete the interview, 696 children completed the interview and provided responses to the primary outcome variables (90.7%; Figure 1). Characteristics of the sample population, namely age, sex, region of residence, current school enrollment, wealth quintile, and urban or rural residence are presented in Table 1. Most children

have heard of HIV (79%) and knew what sex was (71%). About half of the children were male, and about half of the children were 13 years old and the other half were 14 years old. Most children (92%) were currently enrolled in school. Regarding area of residence, most children lived in rural areas (76%). For regions of residence, 12% lived in the Central 1 region, 11% in Central 2, 3% in Kampala, 12% in East Central, 13% in the Mid-East, 6% in the North East, 8% in the West Nile, 10% in the Mid-North, 13% in the Mid-West, and 12% in the South-West region. Regarding household wealth, one in five children were in the lowest wealth quintile, 1 in four were in the second and middle quintile, one in five in the fourth quintile, and 1 in 8 in the highest quintile. Overall, there are not very large differences in categories for each demographic characteristic, save for most of the children being enrolled in primary school and living in rural areas.

Other points of data were also collected on certain questions and depicted in Table 1, but were not analyzed in multivariable models due to missing data related to non-response or skip patterns. Most children knew what a condom was (70%), but only 57% of those children knew where to get one. Of children who knew what HIV was, less than a third knew if they had participated in an HIV prevention program before (31%), only a quarter had been tested for HIV before (25%), and only about a quarter had discussed HIV with their parents before (26%).

Logistic Regression Analysis of Knowledge of HIV

In Table 2, the crude and adjusted odds ratios and 95% confidence intervals for the association between knowledge of HIV and the individual demographic characteristics were estimated via bivariate and multivariate logistic regression. The results indicate that the odds of children having heard of HIV were not significantly different to the odds of the respective reference groups based on sex, age, wealth quintile, school enrollment, and rural or urban setting

at a statistically significant level. However, the results indicate that children who were from the West Nile region had significantly lower odds of knowing about HIV level compared to the Mid-East reference group.

Logistic Regression Analysis of Knowledge of Sex

The crude and adjusted odds ratios and 95% confidence intervals for the association between knowledge of sex and the individual demographic characteristics were estimated via bivariate and multivariate logistic regression (Table 3). The odds of children knowing what sex was were not significantly different than from reference groups based on sex, age, school enrollment, rural or urban setting, and wealth quintile. However, children from the West Nile and Mid-North regions had significantly lower odds of knowing about sex compared to the Mid-East reference group.

Discussion

Main Findings

There were few significant associations between the surveyed adolescents' demographic characteristics and knowledge of HIV and sex. Most (79%) of the surveyed adolescents knew what HIV was, and only 71% of the surveyed adolescents knew what sex was. Sex, age, enrollment in school, and wealth quintile were not significantly associated with the knowledge of either outcome. However, compared to the Mid-East reference group, living in the West Nile was negatively associated with knowledge of what HIV was, and living in the West Nile and Mid-North regions were negatively associated with knowledge of what sex was. Furthermore, the low HIV knowledge proportions of children with knowledge of prevention (e.g., knew where to get condoms), who had participated in HIV prevention programs before, who had been tested for

HIV, or who had discussed HIV with their parents before indicate opportunities for additional education in these areas.

Adolescents living in the West Nile region were significantly less likely to have heard of HIV after adjusting for the covariates during multivariate regression analysis. These results were unexpected, as no other demographic characteristic showed a statistically significant association with the outcome. However, over a fifth of the sample (21%) did not know what HIV was, which is a markedly higher proportion than the 5% of children that did not know in the study done by Kemigisha et al. Given that the overall sample knew less compared to Kemigisha et al.'s sample, this may imply that even less is known about other, more specific points of knowledge, such as ways HIV could be contracted as done in the same study (Kemigisha et al., 2018). Interventions to educate adolescents on HIV could be improved across the country. However, additional research must also be done to understand why West Nile adolescents know less about HIV, so that intervention efforts can be targeted and tailored toward this region. This could be accomplished via a study that compares potential reasons for these knowledge gaps, such as religion or attitudes, between West Nile adolescents and Mid-East adolescents to remain consistent with the results of this study.

Adolescents from the West Nile and Mid-North regions were significantly less likely to know what sex was after adjusting for other variables during multivariate regression analysis. No other demographic characteristic was significantly associated with the outcome. Although there are few significant associations with knowledge of what sex is, the results are still cause for concern: almost a third of the children (29%) did not know what sex is. Children who lack this knowledge may make riskier decisions regarding sex. This low knowledge might also be an explanation of Matovu et al.'s previous research, which showed that 12.9% of adolescent girls

and young women in his nation-wide sample had sexually debuted before age 15 (Matovu et al., 2021). Given these findings, intervention efforts to educate adolescents on sex could be improved across the country. For example this might include sexual education in school curriculums (Obeagu et al., 2024). At the same time, Achen et al. (2023) identified multiple obstacles to adopting child sexual education in schools, including perceived conflicts with local social norms, discomfort among teachers and families, and the challenges of disseminating information via technology. In this light, it is important that interventions regarding sex education are age-appropriate, culturally sensitive, and respectful of social boundaries in children, families, and teachers. Additional research could also be done to understand why West Nile and Mid-North region's adolescents know less about sex than their peers in other regions, and whether any adaptations to educational tools might be required as a result. As with HIV knowledge, this could be accomplished via a study that compares potential reasons for these knowledge gaps between West Nile & Mid-North adolescents and Mid-East adolescents to remain consistent with the results of this study.

Strengths and Limitations

Our study was a survey-weighted analysis on nationally-representative data from the UPHIA 2016-2017 survey, allowing us to use a representative sample of Ugandan adolescents for analysis and obtain generalizable estimates of associations between adolescent demographics and knowledge of HIV and sex. Of particular note is that despite our small final sample size, there was a high response rate among children who met our study's eligibility criteria - 91% of the 767 eligible children participated. This analysis was also rigorous, using a multivariable logistic regression analysis that accounted for possible confounding between primary exposures of interest and other available characteristics of children.

There were also a number of limitations with our analysis. Although there were 31,175 rostered children through the UPHIA 2016-2017 Child Interview, only data from 696 respondents could be used for analysis. While adequate for making inferences, a larger sample size may have yielded more precise point estimates. A larger sample size could have been attained by analyzing children of other age groups, such as those aged 15-17, and by analyzing children from more of the rostered households than just the rough 20% which were selected for data collection. It is also important to consider sampling bias, missingness, and misclassification in the data due to the sensitive subject matter at hand. Certain groups of children might not have been allowed to participate due to the survey's subject matter, such as on religious or other cultural grounds, which could result in sampling bias. Children who were not allowed to participate might plausibly have lower levels of knowledge about the survey topics than children whose parents allowed their participation. Similarly, it is possible that some children may have given inaccurate responses or failed to respond to certain questions, either out of error, not understanding the content, or social desirability bias; this could lead to differential misclassification in our data. On the topic of missingness and misclassification, skip patterns in the Adolescent Questionnaire might have also contributed to missing or misclassified responses. For example, a child will not be asked about participation in HIV prevention programs if they responded that they have not heard of HIV, despite it being wholly possible they might have participated without knowing it was an HIV prevention program and even having pictures to visually identify programs. The resulting missingness prevented us from analyzing data on more specific and in-depth questions, like knowledge of condoms, participation in HIV prevention programs, or reasons for engaging in sex (i.e. coercion or violence).

Conclusion

According to our analyses, Ugandan adolescents demonstrated limited knowledge of HIV and sexual health, with significant differences in knowledge among some demographic groups. These knowledge gaps may make adolescents more vulnerable to HIV infection and other adverse sexual health outcomes. We found statistically significant differences in HIV and sex-related knowledge among adolescents in the Mid-North and West Nile regions, indicating that region-specific interventions are needed. Targeted efforts to educate adolescents in these areas could help address geographic disparities in knowledge. Further research is needed to better understand the reasons for these geographic disparities and possibly rectify them with future interventions.

At the national level, sustained investment in adolescent health education is essential. Expanding access to accurate and age-appropriate information can help ensure that more young people are equipped to protect themselves from HIV and other adverse sexual health outcomes, while also contributing to Uganda's broader HIV prevention goals. Although expanding sexual health education may prompt debate around cultural norms, it remains critical for equipping children with accurate, life-saving knowledge. Public health messaging on HIV and sex should therefore be adapted to be culturally sensitive, age-appropriate, and scientifically sound. In addition to education, our findings show that more comprehensive data collection tools on adolescent behaviors are needed. A greater quantity of more comprehensive answers on sexual health behaviors and knowledge across a broader age range of children would allow for far more accurate and actionable analyses similar to our own from future rounds of data collection. A dedicated, adolescent-focused survey based on these PHIA instruments would help accomplish

this. Such a survey would allow for knowledge gaps to be analyzed more accurately, inform evidence-based policymaking for government-level interventions, and provide constant and regular banks of data to conduct analyses on. Strengthening both sexual health education and data collection systems for adolescents will help Uganda more easily identify where gaps exist, tailor interventions more effectively, and track progress over time. These approaches will be essential to equipping the next generation with the knowledge and resources they need to stay healthy and protect themselves from HIV.

Tables & Figures

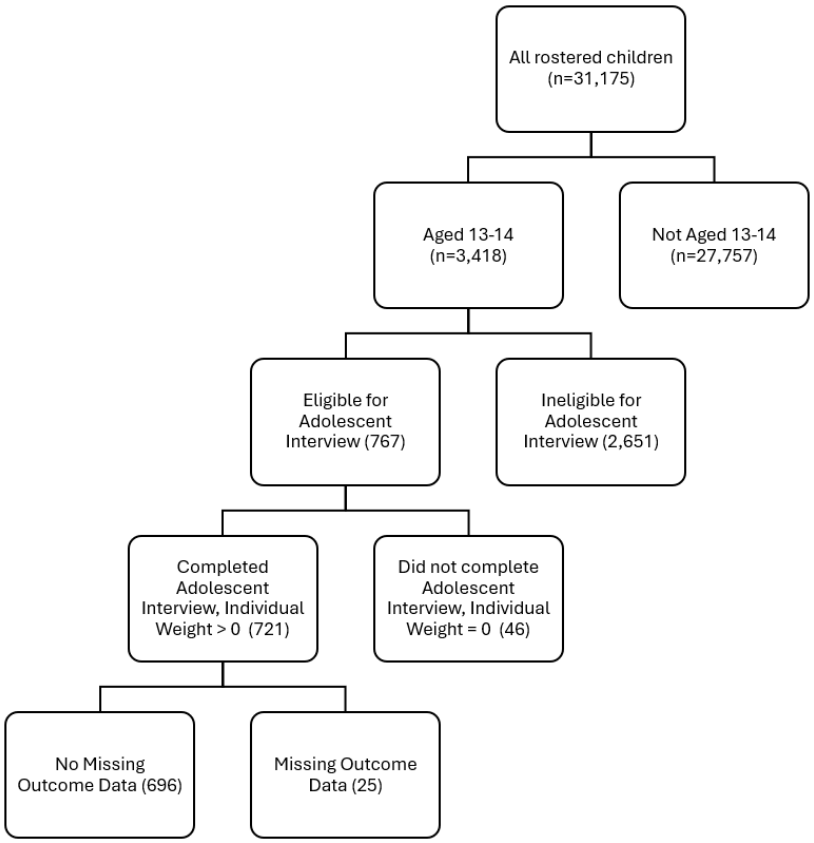

Figure 1. Flowchart depicting study eligibility in rostered children within the UPHIA 2016-2017 survey.

Table 1: Demographic Characteristics of Ugandan Children Eligible for Analysis from the UPHIA 2016-2017 Survey (n = 696)

Variable	n/N (weighted %)
Overall	696
Sex	
Male	324 (48%)
Female	372 (52%)
Age	
13	333 (51%)
14	363 (50%)
Residence	
Urban	164 (24%)
Rural	532 (76%)
Region	
Central 1	56 (12%)
Central 2	51 (11%)
Kampala	29 (3%)
East Central	84 (12%)
Mid-East	129 (13%)
North East	70 (6%)
West Nile	106 (8%)
Mid-North	57 (10%)
Mid-West	62 (13%)
South-West	52 (12%)
Education	
Currently enrolled in school	650 (92%)
Not currently enrolled in school	46 (8%)
Wealth Quintile	
Lowest quintile	173 (20%)
2nd Quintile	179 (26%)
Middle Quintile	146 (23%)
4th Quintile	120 (20%)
Highest Quintile	78 (12%)
Knows what a condom is	
Yes	486 (70%)
No	207 (30%)
Missing	3
Knows where to get condoms*	
Yes	270 (57%)
No	213 (42%)
Doesn't know what a condom is	3 (1%)
Missing	3
Knows what HIV is	
Yes	530 (79%)
No	166 (21%)
Missing	0
Participated in HIV prevention programs**	
Yes	160 (31%)
Doesn't know	351 (66%)
Refused to answer	19 (4%)
Missing	0
Has ever tested for HIV**	
Yes	134 (25%)
No	390 (74%)
Did not know	6 (1%)
Missing	0
Has ever discussed HIV with parents**	
Yes	149 (26%)
No	380 (74%)
Doesn't know	1 (0%)
Missing	0

* Among those who knew what a condom was.
** Among those who knew what HIV was.

Table 2: Crude and Adjusted Odds Ratios for Associations Between Demographic Characteristics and Knowledge of HIV Among Ugandan Adolescents Aged 13-14 (n = 696)

Characteristic	Heard of HIV	% (Weighted)	Has Not Heard of HIV	% (Weighted)	Crude OR (95% CI)	Adjusted OR (95% CI)
Overall	530	79	166	21	--	--
Sex						
Male	249	79	75	21	Reference	Reference
Female	281	79	91	22	0.95 (0.64, 1.42)	0.86 (0.56, 1.31)
Region						
Mid-East	96	77	33	23	Reference	Reference
Central 1	50	89	6	11	2.39 (0.83, 6.85)	1.97 (0.56, 6.95)
Central 2	41	81	10	20	1.23 (0.58, 2.58)	1.05 (0.52, 2.13)
Kampala	25	86	4	14	1.81 (0.40, 8.27)	1.58 (0.21, 12.02)
East Central	61	72	23	29	0.75 (0.37, 1.50)	0.64 (0.31, 1.30)
North East	55	80	15	20	1.16 (0.56, 2.40)	1.10 (0.50, 2.45)
West Nile	62	58	44	43	0.40 (0.23, 0.69)	0.37 (0.20, 0.67)
Mid-North	47	82	10	18	1.32 (0.63, 2.78)	1.39 (0.68, 2.84)
Mid-West	51	85	11	15	1.70 (0.68, 4.28)	1.75 (0.64, 4.79)
South-West	42	79	10	21	1.14 (0.42, 3.08)	0.94 (0.34, 2.60)
Education						
Currently enrolled in school	498	79	152	21	Reference	Reference
Not currently enrolled in school	32	74	14	26	0.76 (0.36, 1.58)	0.55 (0.24, 1.27)
Residence						
Urban	126	78	38	22	Reference	Reference
Rural	404	79	128	21	1.06 (0.67, 1.67)	1.48 (0.89, 2.45)
Age						
13	252	78	81	22	Reference	Reference
14	278	80	85	21	1.07 (0.73, 1.56)	1.14 (0.77, 1.68)
Wealth quintile						
Lowest quintile	123	74	50	26	Reference	Reference
2nd Quintile	129	74	50	26	1.89 (0.97, 3.65)	1.89 (0.72, 4.94)
Middle Quintile	115	82	31	19	0.97 (0.53, 1.78)	1.08 (0.49, 2.37)
4th Quintile	96	84	24	16	0.83 (0.49, 1.40)	0.76 (0.42, 1.35)
Highest Quintile	67	85	11	15	1.11 (0.71, 1.73)	1.14 (0.72, 1.81)

Table 3: Crude and Adjusted Odds Ratios for Associations Between Demographic Characteristics and Knowledge of Sex Among Ugandan Adolescents Aged 13-14, UPHIA 2016-2017 (n = 696)

Characteristic	Knows what sex is	% (Weighted)	Doesn't know what sex is	% (Weighted)	Crude OR (95% CI)	Adjusted OR (95% CI)
Overall	479	71	217	29	--	--
Sex						
Male	226	70	98	30	Reference	Reference
Female	253	72	119	28	1.08 (0.73, 1.58)	0.98 (0.65, 1.49)
Region						
Mid-East	97	77	32	23	Reference	Reference
Central 1	48	84	8	16	1.65 (0.73, 3.71)	1.44 (0.58, 3.54)
Central 2	35	67	16	34	0.60 (0.29, 1.25)	0.51 (0.24, 1.07)
Kampala	24	81	5	19	1.32 (0.43, 4.02)	0.67 (0.18, 2.47)
East Central	62	74	22	26	0.87 (0.46, 1.65)	0.79 (0.41, 1.51)
North East	47	67	23	33	0.63 (0.32, 1.22)	0.61 (0.29, 1.29)
West Nile	47	46	59	54	0.26 (0.16, 0.45)	0.25 (0.14, 0.46)
Mid-North	32	55	25	45	0.37 (0.21, 0.65)	0.40 (0.21, 0.76)
Mid-West	46	75	16	25	0.92 (0.37, 2.33)	1.01 (0.39, 2.62)
South-West	41	78	11	22	1.06 (0.52, 2.15)	1.01 (0.49, 2.07)
Education						
Currently enrolled in school	450	72	200	28	Reference	Reference
Not currently enrolled in school	29	66	17	35	0.75 (0.36, 1.58)	0.58 (0.25, 1.35)
Residence						
Urban	128	78	36	22	Reference	Reference
Rural	351	69	181	31	0.63 (0.38, 1.06)	0.87 (0.46, 1.63)
Age						
13	215	68	118	32	Reference	Reference
14	264	74	99	26	1.36 (0.94, 1.97)	1.43 (0.96, 2.12)
Wealth quintile					ordinal	
Lowest quintile	102	62	71	38	Reference	Reference
2nd Quintile	118	64	61	36	2.59 (1.50, 4.45)	1.77 (0.84, 3.76)
Middle Quintile	105	76	41	24	1.12 (0.67, 1.89)	1.37 (0.76, 2.46)
4th Quintile	89	76	31	24	1.01 (0.63, 1.63)	0.90 (0.54, 1.47)
Highest Quintile	65	85	13	15	1.32 (0.85, 2.04)	1.34 (0.85, 2.12)

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