

Individual factors associated with utilization of HIV self-testing services among adolescent girls and young women between 15-24 years in Iganga District, a cross-sectional study.

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Abstract

Introduction:

The uptake of HIV testing services is sub-optimal among adolescent girls and young women. The study was conducted to determine individual factors associated with the utilization of HIV self-testing services among adolescent girls and young women between 15 and 24 years in Iganga District.

Methods:

The study used a cross-sectional design among 384 participants, and questionnaires were administered to collect data. Logistic regression analysis was used to determine the factors associated with HIV self-testing, and the odds ratio was used as a measure of association. The study obtained relevant ethical clearance.

Results:

The response rate of the study was 100%, and 16.7% of the respondents had ever tested for HIV using HIVST services. The study found that 64.1% of the respondents were aged 20-24 years, 48.2% had primary education, 51.6% were never married, and 28.6% were housewives. HIV self-testing was significantly associated with secondary education (AOR: 4.267, 95% CI: 1.310-13.898, P=0.016), having ever heard about HIVST (AOR: 3.406, 95% CI: 1.497-7.749, P=0.003), knowing how to use the HIVST (AOR: 3.161, 95% CI: 1.463-6.827, P=0.003), discrimination in the community because of HIV status (AOR: 5.595, 95% CI: 1.595-20.379, P=0.009), ever been diagnosed with STIs (AOR: 0.266, 95% CI: 0.107-0.663, P=0.004) and having two sexual partners (AOR: 4.415, 95% CI: 1.303-14.962, P=0.017).

Conclusion:

The study demonstrates levels of utilization of HIV self-testing among adolescent girls and young women in association with several factors that include education level, knowledge of HIVST, stigmatization, history of STIs, number of sexual partners, and accessibility of the services.

Recommendation:

The study therefore recommends enhancement of educational and awareness programs on HIV self-testing (HIVST), and these awareness campaigns should emphasize the importance of knowing how to use HIVST kits and their availability, as well as individuals knowledgeable about HIVST.

Keywords: Utilization, HIV, Self-testing, Adolescents, young women, Uganda.

Submitted: March 07, 2025 **Accepted:** March 20, 2025 **Published:** June 30, 2025

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INTRODUCTION

Human Immunodeficiency Virus (HIV) remains a global threat, with an estimated 38.4 million people living with HIV worldwide, 54% being women and girls (adolescent girls and young women between 15-24 years), and 15% of people living with HIV not aware of their HIV status. (1)

Global estimates for weekly incident infections occurring among women in this age group stand at 4900, accounting for 63% of all new HIV infections in 2021 (2,3) There is a substantial risk of acquiring HIV that persists among adolescent girls and young women (AGYW) from sub-Saharan Africa (SSA), aged 15-24 (4) In Sub-Saharan

Africa, approximately 85.7% of new infections occur among adolescents aged 15-19 years, and young women aged 15-24 years are twice as likely to be living with HIV as their male counterparts. (4,5) The vulnerability of adolescents to HIV infection is due to their risky sexual behaviors, inexperience, and invincible tendencies (6,7).

Numerous efforts to achieve the global 95–95–95 target by 2030 underline increased uptake of HIV testing as one of the entry points to the HIV cascade (8). The WHO noted that 40% of all people with HIV (over 14 million) are unaware of their status, many of them people at higher risk of HIV infection who face difficulties in accessing existing testing services irrespective of the availability of a wider provision of HIV testing services, therefore leading to less successful access to ART. (9) In Africa, the World Health Organization (WHO) has recognized the potential of HIVST to address the testing gap on the African continent. (10). HIV self-testing particularly benefits adolescent girls and young women between 15-24 years who are at increased risk of HIV infection and have additional barriers to access to traditional health services (11–13)

Despite improvement in trends, Uganda remains among the sub-Saharan African countries in the “high burden” category in respect to HIV prevalence (14) Over half (54–60%) of AGYW living with HIV were unaware of their HIV status, with only 74% of female students in six Ugandan universities aware of their HIV status(15) Literature reveals HIVST uptake ranging from 5.6%-29% across various regions in the world. Although data are scarce on HIVST uptake by adolescent girls and young women in Uganda (16,17), it is unlikely to achieve the Joint United Nations Program on HIV/AIDS goal of 95% of all people with HIV knowing their HIV status by 2025(18). Though HIV self-testing has served as a promising alternative to conventional testing options, offering privacy, convenience, and autonomy to individuals in accessing HIV testing services, adolescent girls and young women between 15-24 years face various barriers to accessing HIV testing, including infrastructural limitations, geographical distances to healthcare facilities, socio-cultural factors, and fear of stigma (19,20)

The level of utilization and associated factors of HIV self-testing among adolescent girls and young women aged between 15-24 years in Iganga district have not been studied. The study was conducted to determine individual factors associated with the utilization of HIV self-testing services among adolescent girls and young women between 15-24 years in Iganga District.

METHODOLOGY

Study area

The study was conducted in Iganga District, located in the Eastern Region of Uganda, during May-June 2024. Iganga

District is predominantly rural, with limited access to healthcare facilities and other resources. The district has a high prevalence of HIV at 3.2%, but with limited testing of adolescent girls and young women between 15-24 years, making it an ideal setting to explore HIVST uptake among adolescent girls and young women between 15-24 years.

Inclusion criteria

All adolescent girls and young women aged between 15-24 years living in Iganga District who had visited a public health facility and consented to the study were considered eligible.

Exclusion criteria

All adolescent girls and young women between 15-24 years who were seriously sick or had known mental illness were excluded from the study.

Study design

The study employed a cross-sectional study design. A quantitative data collection method was applied. The design was chosen as it measures the outcome and the exposures of the study at the same point in time.

Sample size Calculation

A statistical formula for cross-sectional studies as outlined by Kirkwood and Sterne was applied to determine the sample size. (21). A 95% confidence interval, 0.05% margin of error, and 50% conventional rate for proportion using HIVST gave a sample size of 384 respondents.

Sampling procedures

The study utilized both non-probability and probability sampling procedures. Purposive sampling was used to select the public health facilities.

Data Collection techniques

The data were collected using researcher-administered structured questionnaires that answered all the research questions, making it a suitable tool for the study.

Study variables and their measurements

HIVST utilization was measured by self-reported HIV self-testing. The adolescent girls and young women between 15-24 years who reported having done HIV self-testing were coded ‘Yes ’; otherwise was coded “No”. This was a proportion in which the numerator was respondents who had reported having used HIV self-test and the denominator was the sample size. The individual factors including socio-demographic characteristics like Age (Recorded in complete years and later categorized as 15-19 years and 20-24 years), Religion (captured as catholic, Anglican, Muslim, Born-

again), level of education (was recorded as none, primary, secondary, tertiary), marital status (Never married, Married, Separated, Widowed or Divorced), the other individuals factors included; fear of being stigmatized (was recorded as yes or no), knowledge on HIVST (which was recorded as yes or no), income level (was recorded as low, middle, or high), history of STIs (was recorded as yes or no), perceived benefits and barriers to HIV self-testing and social support for HIV self-testing.

Quality Control Issues

In order to adhere to the principle of validity and reliability, pre-testing of the questionnaire was carried out among 10 adolescent girls and young women between 15-24 years in one health center of the neighboring district of Namutumba, which shares similar challenges to HIVST. The data were collected by the researcher, who was assisted by two research assistants. To minimize errors during the data collection process, the research assistants were recruited and trained on how to administer the questionnaire. In this study, the content validity of the questionnaire was tested, as it could show the readiness of the questionnaire for data collection. Since the CVI was found to be 0.87, which was within the range of 0.7 to 0.9 (Cronbach, 1990), the tool was deemed valid, and at that point, it was used during the training of the research assistants.

Data analysis

All the responses from the data collection tools were compiled, and data were entered into a secure electronic database and analyzed using statistical software STATA version 16.

Univariate analysis: Frequency tables, bar charts, and a pie chart were generated to assess the statistical distribution of the study population. The uptake of HIVST was determined by dividing the number of those who made use of HIVST services by the total number of respondents who accessed, and this was presented in a pie chart.

Bivariate analysis: As a standard for two variables under measure, cross tabulations were made between the uptake of HIVST and each of the respondents' independent variables. As a result of this comparison, the probability values (P) determined the significance of the variables at a 95% confidence level. All probability values $p < 0.05$ were considered significant and therefore considered as influencing factors for uptake of HIVST. Crude odds ratios measured the association between utilization and the independent variables.

Multivariate analysis: All the significant factors assessed to influence HIV-Self Testing ($p < 0.05$) were then further assessed in relation to the uptake of HIVST to ascertain the nature of association using a regression equation, and the factor with a p-value of 0.05 and below was considered significant and with the highest influence on the uptake of HIVST.

Ethical Issues

This study was conducted with due approval of the University (IUIU Institutional Review Board or Research Ethics Committee), after which the researcher obtained an introductory letter to take to the field (**UCUREC-2024-918-2**) from 15th July – 20th August, 2024. Permission from the different health facilities was obtained before the collection of data. Other ethical issues considered in this study include the fact that participation in the survey was voluntary, in accordance with the Helsinki Declaration.

RESULTS

Bio-data of the respondents

The respondents were 384 adolescent girls and young women between 15 and 24 years, yielding a response rate of 100%. Table 1 shows that 64.1% of the respondents were aged 20-24 years, 48.2% had primary education, and 51.6% were never married; 29.9% were students, 28.6% of the respondents were housewives, and 60.2% of the respondents were from low-income households.

Table 1: Bio-data of respondents (n=384)

Variables	Frequency(n)	Percentage (%)
Respondents age		
15-19years	138	35.9
20-24 years	246	64.1
Respondent's educational status		
Primary	185	48.2
Secondary	139	36.2
Tertiary	60	15.6
Marital status		
Never married	198	51.6
Married	162	42.2
Separated	24	6.3
Occupation		

Variables	Frequency(n)	Percentage (%)
Businesswoman	47	12.2
Casual workers	38	9.9
Housewife	110	28.6
Peasant	74	19.3
Student	115	29.9
Average household income		
High	17	4.4
Middle	136	35.4
Low	231	60.2

Level of uptake of HIV self-testing services among adolescent girls and young women

On the level of uptake of HIV self-testing services, 16.7% of the respondents have ever tested for HIV using HIVST services, as shown in Fig 1.

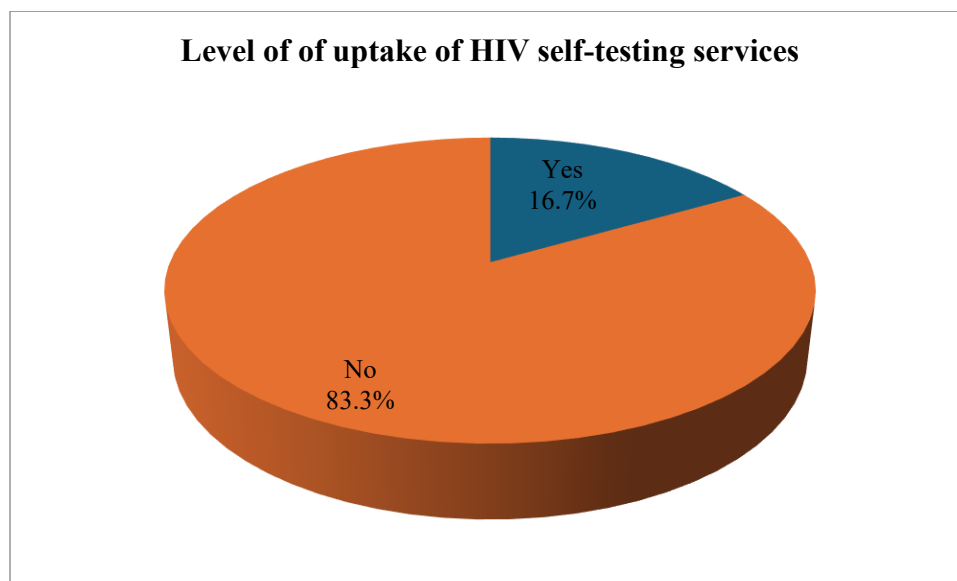


Figure 1: showing the level of utilization of HIV self-Testing services

Individual factors associated with HIV self-testing among adolescent girls and young women between 15-24 years

At bivariate analysis, uptake of HIVST service was 0.577 less likely among respondents who were aged 20-24 years (UOR: 0.577, 95% CI: 0.335-0.994, P=0.047) than those aged 15-19 years and was statistically significant. Similarly, respondents who were middle-income class were less likely to utilize HIV self-testing (UOR: 0.295, 95% CI: 0.102-0.853, P=0.024) than those who were in the higher income class, with statistical significance. HIVST was 3.536 times more likely to be utilized among respondents who had secondary education (UOR: 3.536, 95% CI: 1.719-7.273, P=0.001) than those with primary education, and the association was statistically significant. Respondents who were never married were 3.471 times more likely to utilize

HIVST (UOR: 3.471, 95% CI: 1.129-9.337, P=0.014) than those who were married; and respondents who were peasants were 2.897 times more likely to utilize HIVST (UOR: 2.897, 95% CI: 1.027-5.261, P=0.043) than those who were businesspersons and the associations were statistically significant.

Individuals who had ever heard about HIV self-testing were 2.253 times more likely to utilize HIVST than those who had never heard about it (UOR: 2.253, 95% CI: 1.267-4.373, P=0.007). Respondents who knew how to use the HIVST kits were 2.328 times more likely to utilize HIVST than those who didn't know (UOR: 2.328, 95% CI: 1.341-4.041, P=0.003). Respondents who strongly agreed about being

discriminated against in the community because of HIV status were 3.462 times more likely to uptake HIVST than those who strongly disagreed (UOR: 3.462, 95% CI: 1.108-10.818, P=0.033). Respondents who had ever been diagnosed with STIs were 0.356 times less likely to uptake HIVST services than those who had never been diagnosed with STIs (UOR: 0.356, 95% CI: 0.206-0.617, P<0.001). Similarly, respondents who had a history of STIs in the last

12 months were 0.566 times less likely to uptake HIVST services than those who never had a history of STIs in the last 12 months (UOR: 0.566, 95% CI: 0.327-0.978, P=0.042). Respondents who had had two sexual partners were 3.649 times more likely to uptake HIVST services than those who had no sexual partners (UOR: 3.649, 95% CI: 1.361-9.783, P=0.010).

Table 2: Individual factors associated with HIV self-testing among adolescent girls and young women

Variables	HIVST Yes (%)	No (%)	UOR (95% CI)	p-value
Respondents age				
15-19years	30(21.7)	108(78.3)	1.0	
20-24 years	34(13.8)	212(86.2)	0.577(0.335-0.994)	0.047*
Respondent's educational status				
Primary	20(10.8)	165(89.2)	1.0	
Secondary	26(18.7)	113(81.2)	3.536(1.719-7.273)	0.001*
Tertiary	18(30.0)	42(70.0)	1.863(0.927-3.742)	0.081
Marital status				
Married	21(10.6)	177(89.4)	1.0	
Never married	36(22.2)	126(77.8)	3.471(1.290-9.337)	0.014*
Separated	7(29.2)	17(70.8)	1.441(0.555-3.745)	0.453
Occupation				
Businesswoman	8(17.0)	39(83.0)	1.0	
Casual workers	8(21.1)	30(78.9)	1.569(0.656-3.752)	0.310
Housewife	11(10.0)	99(90.0)	1.207(0.496-2.935)	0.678
Peasant	9(12.2)	65(87.8)	2.897(1.362-6.160)	0.006*
Student	28(24.3)	87(75.7)	2.324(1.027-5.261)	0.043*
Average household income				
High	6(35.3)	11(64.7)	1.0	
Middle	26(19.1)	110(80.9)	0.295(0.102-0.853)	0.024*
Low	32(13.9)	199(86.1)	0.680(0.386-1.200)	0.183
Ever heard about HIV self-testing				
No	15(10.1)	134(89.9)	1.0	0.007*
Yes	49(20.9)	186(79.1)	2.253(1.267-4.373)	
Source of information on HIVST				
Family member	10(33.3)	20(66.7)	1.0	
Friend	13(22.4)	45(77.6)	0.595(0.216-1.640)	0.315
Health facility	6(16.2)	31(83.8)	1.029(0.413-2.565)	0.951
Radio, TV	9(16.2)	54(85.7)	1.536(0.510-4.630)	0.446
VHT	11(22.9)	37(77.1)	1.784(0.673-4.730)	0.245
Knowledge on how to use the HIVST				
No	35(12.9)	236(87.1)	1.0	
Yes	29(25.7)	84(74.2)	2.328(1.341-4.041)	0.003*
Belief about being discriminated against in the community because of HIV status				
Strongly Disagree	20(17.2)	96(82.8)	1.0	
Disagree	15(14.4)	89(85.6)	2.215(0.752-6.528)	0.149
Neither Agree nor Disagree	11(25.6)	32(74.4)	2.738(0.901-8.320)	0.076
Agree	12(11.8)	90(88.2)	1.343(0.410-4.393)	0.626
Strongly Agree	6(31.6)	13(68.4)	3.462(1.108-10.818)	0.033*

Variables	HIVST Yes (%)	No (%)	UOR (95% CI)	p-value
Ever discussed HIV with mother or female guardian				
No	21(14.4)	125(85.6)	1.0	0.348
Yes	43(18.1)	195(81.9)	1.313(0.744-2.316)	
Ever been diagnosed with STIs				
No	37(26.1)	105(73.9)	1.0	
Yes	27(11.2)	215(88.8)	0.356(0.206-0.617)	<0.001*
History of STIs in the last 12 months				
No	39(20.9)	150(79.4)	1.0	
Yes	25(12.8)	170(87.2)	0.566(0.327-0.978)	0.042*
Number of sexual partners				
None	9(45.0)	11(55.0)	1.0	
One	43(13.8)	269(86.2)	0.713(0.198-2.571)	0.605
Two	5(15.2)	28(84.8)	3.649(1.361-9.783)	0.010*
More than two	7(36.8)	12(63.2)	3.267(0.862-12.377)	0.082

UOR: Unadjusted Odds Ratio

Multivariate analysis of individual factors with the utilization of HIV self-testing services among adolescent girls and young women between 15-24 years

Table 3 presents the adjusted estimates of the variables that were significant at the bivariate level. Thus, upon adjusting for potential confounders, HIV self-testing was 4.267 times (AOR: 4.267, 95% CI: 1.310-13.898, P=0.016) more common among secondary educated individuals than individuals with primary education. In addition, HIVST was 3.406 times more likely to be utilized among individuals who had ever heard about HIVST than those who had never heard about HIVST (AOR: 3.406, 95% CI: 1.497-7.749, P=0.003) and had statistical significance.

Utilization of HIV self-testing was 3.161 times more likely among individuals who knew how to use the HIVST than individuals who did not know how to use HIVST (AOR:

3.161, 95% CI: 1.463-6.827, P=0.003), and the association was statistically significant. In addition, HIVST was 5.595 times more likely to be utilized among individuals who believed that there is discrimination in the community because of HIV status (AOR: 5.595, 95% CI: 1.595-20.379, P=0.009) than those who did not believe that there is discrimination in the community because of HIV status, and the association was statistically significant.

Conversely, the HIVST was 0.266 less likely to be utilized among individuals who had ever been diagnosed with STIs than those who had never been (AOR: 0.266, 95% CI: 0.107-0.663, P=0.004), and the association was statistically significant. The utilization of HIVST was 4.4 times higher among individuals who had two sexual partners than individuals who had no sexual partners (AOR: 4.415, 95% CI: 1.303-14.962, P=0.017), and the association was statistically significant.

Table 3: Multivariate analysis of variables associated with utilization of HIV self-testing services among adolescent girls and young women between 15-24 years

Variables	UOR (95% CI)	p-value	AOR (95% CI)	p-value
Respondents age				
15-19years	1.0	0.047*	1.0	
20-24 years	0.577(0.335-0.994)		0.461(0.206-1.035)	0.060
Respondent's educational status				
Primary	1.0		1.0	
Secondary	3.536(1.719-7.273)	0.001*	4.267(1.310-13.898)	0.016*
Tertiary	1.863(0.927-3.742)	0.081	1.802(0.669-4.848)	0.244
Marital status				
Married	1.0	0.014*	1.0	
Never married	3.471(1.290-9.337)	0.453	1.358(0.353-5.227)	0.656
Separated	1.441(0.555-3.745)		1.877(0.515-6.834)	0.340
Occupation				

Variables	UOR (95% CI)	p-value	AOR (95% CI)	p-value
Businesswoman	1.0		1.0	
Casual workers	1.569(0.656-3.752)	0.310	1.042(0.292-3.710)	0.950
Housewife	1.207(0.496-2.935)	0.678	1.038(0.346-3.115)	0.947
Peasant	2.897(1.362-6.160)	0.006*	1.223(0.340-4.402)	0.758
Student	2.324(1.027-5.261)	0.043*	0.716(0.236-2.178)	0.556
Average household income				
High	1.0		1.0	
Middle	0.295(0.102-0.853)	0.024*	0.330(0.089-1.226)	0.098
Low	0.680(0.386-1.200)	0.183	0.869(0.434-1.740)	0.691
Ever heard about HIV self-testing				
No	1.0		1.0	
Yes	2.253(1.267-4.373)	0.007*	3.406(1.497-7.749)	0.003*
Knowledge on how to use the HIVST				
No	1.0		1.0	
Yes	2.328(1.341-4.041)	0.003*	3.161(1.463-6.827)	0.003*
Belief about being discriminated against in the community because of HIV status				
No	1.0		1.0	
Yes	3.462(1.108-10.818)	0.033*	5.595(1.595-20.379)	0.009*
Ever been diagnosed with STIs				
Yes	1.0		1.0	
No	0.356(0.206-0.617)	<0.001*	0.266(0.107-0.663)	0.004*
History of STIs in the last 12 months				
No	1.0		1.0	
Yes	0.566(0.327-0.978)	0.042*	1.705(0.700-4.151)	0.240
Number of sexual partners				
None	1.0		1.0	
One	0.713(0.198-2.571)	0.605	0.721(0.163-3.187)	0.666
Two	3.649(1.361-9.783)	0.010*	4.415(1.303-14.962)	0.017*
More than two	3.267(0.862-12.377)	0.082	3.500(0.744-16.473)	0.113

UOR: Unadjusted Odds Ratio, AOR: Adjusted Odds Ratio

DISCUSSION

In this study, the prevalence of HIVST among adolescent girls and young women was 16.7%, which could be attributed to heightened awareness and education about HIV and the importance of regular testing, driven by public health campaigns and community outreach programs. This is in line with a study in Kenya that found a prevalence of 21.4% for HIVST among young women, which was attributed to widespread educational campaigns that highlighted the convenience and confidentiality of self-testing (22). Similarly, in South Africa, another study reported a 19.8% prevalence of HIVST among young women, which was linked to comprehensive community-based programs that emphasized the importance of HIV

testing and provided easy access to self-testing kits (23). Furthermore, a study in Zambia highlighted that the prevalence of HIVST among young women was 18.2%, with community outreach efforts, including peer education and the distribution of free or subsidized HIVST kits, playing a key role in this increase (Chanda et al., 2017). Contrastingly, a study conducted in rural Malawi found a lower prevalence of HIVST among young women at 10.5%, which was attributed to limited access to HIVST kits and insufficient educational outreach (24). A lower prevalence was reported in Uganda, with an HIVST prevalence of 15.3% among young women (11). The variation in the prevalence of HIV self-testing (HIVST) among young women across different studies can be attributed to several

factors, including the intensity and scope of educational campaigns, community engagement efforts, and accessibility to self-testing kits. This implies that public health campaigns and community outreach programs play a crucial role in increasing awareness and acceptance of HIVST among young women. This underscores the need for continued investment in educational campaigns that emphasize the benefits of regular HIV testing and the convenience and confidentiality offered by self-testing kits. The study found that HIV self-testing was more common among secondary-educated individuals than among individuals with primary education. Adolescent girls and young women between 15-24 years with higher levels of education may have better access to healthcare facilities, internet resources, and social networks where information about HIV self-testing is available. This is supported by Asimwe et al. (2017) (25), who demonstrated that adolescent girls and young women between 15-24 years with higher education levels were more likely to be aware of HIV self-testing and its availability. Similarly, other studies indicated that education was also found to be significantly associated with HIVST utilization. Thus, respondents with higher education or secondary school education were more likely to use HIVST services than those with primary or no education. (26) Lastly, uptake of oral-based HIV self-testing revealed that predictors of uptake of HIV self-testing, high among those with post-primary education (27). The study emphasized the role of education in improving the understanding of HIVST and reducing the stigma associated with HIV testing, thereby facilitating higher uptake rates.

In this study, the utilization of HIVST was more likely among individuals who had ever heard about HIVST than those who had never heard about HIVST. This is probably because awareness plays a crucial role in health behavior. Individuals who have heard about HIVST are likely to be informed about its existence and how it works, making them more inclined to use it. This is consistent with Indravudh and others in Malawi who found that community-based campaigns that increased awareness about HIVST significantly boosted its uptake. (28) Similarly, research by Terefe and others in a health survey in Sub-Saharan Africa demonstrated that awareness and knowledge about HIVST were key predictors of its utilization. (29) Individuals who were informed about the availability and benefits of HIVST were more likely to use the kits, demonstrating the importance of targeted information dissemination. This implies that ensuring that accurate information about HIVST is widely disseminated can significantly enhance its uptake and contribute to better HIV prevention and control efforts.

In the present study, utilization of HIV self-testing was more likely among individuals who knew how to use the HIVST than individuals who did not know how to use HIVST. This is probably because knowledge about the correct procedures

for self-testing, such as how to collect and handle samples, interpret results, and understand follow-up steps, reduces uncertainty and fear. This is supported by a study by Ndungu and others who revealed that confidence in using HIVST was associated with increased uptake, as individuals who felt capable of performing the test were more likely to use it. (30)

In addition, HIVST was 5.6 times more likely among individuals who strongly agreed that discrimination in the community because of HIV status. This is probably because HIVST offers individuals greater control over their testing process, which can be particularly appealing to those who feel vulnerable due to perceived discrimination. This is supported by a study that HIV self-testing allows individuals to avoid the potential embarrassment or negative treatment that may occur in healthcare settings, as highlighted by Choko and others (31). Furthermore, the avoidance of traditional healthcare settings due to stigma is a well-documented issue. Hensen and others found that fear of stigma in healthcare environments often deters individuals from seeking testing, making HIVST an attractive alternative. (28)

Conversely, the study found that the prevalence of HIVST was less common among individuals who had ever been diagnosed with STIs than those who had never been. This is probably because Individuals who have been diagnosed with sexually transmitted infections (STIs) may be more apprehensive about HIV self-testing due to fear of receiving a positive result. The experience of having an STI could lead to heightened anxiety about potential additional diagnoses, such as HIV. This is in line with a study by Choko and others, who found that fear of positive results is a common barrier to HIVST uptake. Kalibala and others demonstrated that individuals with previous STI diagnoses often continue to use formal healthcare services, which could explain their lower uptake of HIVST. (32) Finally, preferences for traditional testing methods due to perceived accuracy and support may also explain the lower prevalence of HIVST among individuals with a history of STIs. Those who have previously undergone STI testing might prefer the familiarity and perceived reliability of clinical testing methods. Lippman and others noted that preferences for traditional testing methods can influence the adoption of self-testing options. This implies that HIVST should be incorporated into routine STI management programs. (23) Healthcare providers should discuss the option of HIVST with individuals who have been diagnosed with STIs, highlighting how it complements regular testing and care.

Lastly, the study found that the utilization of HIVST was 4.4 times more likely among individuals who had two sexual partners than individuals who had no sexual partners. This is probably because individuals with two sexual partners might perceive themselves at higher risk for HIV compared to those with no sexual partners. This perceived risk can

drive individuals to seek out more frequent and private testing options, such as HIV self-testing (HIVST). This is similar to Choko and others who found that perceived risk significantly influences the decision to engage in HIV self-testing, supporting this finding. Finally, previous testing experience can influence the likelihood of using HIVST.(31) Those who have used various testing methods before may be more comfortable with and open to trying self-testing kits. Pant-Pai and others found that familiarity with testing methods positively impacts the acceptance of HIVST. (33) This implies that public health initiatives should focus on individuals with multiple sexual partners to emphasize the importance of regular testing and the benefits of HIVST.

Conclusions.

The study found that the level of utilization of HIVST among adolescent girls and young women was 16.7%. This study reveals several key factors influencing the utilization of HIV self-testing (HIVST). Among the individual factors, individuals with secondary education are significantly more likely to use HIVST compared to those with primary education. Awareness also plays a crucial role, as those who have heard about HIVST are much more likely to utilize it than those who have not. Furthermore, individuals who know how to use the HIVST are more likely to engage in self-testing, highlighting the importance of proper education and instructional materials. The study also shows that individuals who perceive high levels of community discrimination due to HIV status are more inclined to use HIVST, suggesting that privacy concerns drive the adoption of self-testing. Conversely, the study finds that individuals with a history of STIs are less likely to use HIVST, which could indicate an overlap in health-seeking behaviors or stigma associated with STIs. Additionally, those with multiple sexual partners are more likely to utilize HIVST, suggesting that perceived risk influences testing behavior.

Limitations

- The cross-sectional design captures exposure and outcome simultaneously, limiting the ability to establish causal or temporal relationships between the identified factors and HIVST utilization.
- Self-reported data on HIVST use, sexual behaviour, and STI history are subject to recall bias and social desirability bias, given the sensitive nature of the topics.
- The facility-based sampling approach excluded AGYW who had not visited a public health facility, potentially underrepresenting the most marginalized or hardest-to-reach individuals.
- The study was conducted in a single district, which may limit generalizability to other settings with

different socio-demographic or health system characteristics.

Recommendation.

This study recommends the following;

- Scale up targeted HIVST education and awareness campaigns for AGYW, particularly those with lower educational attainment, using accessible community and school-based channels.
- Incorporate practical, hands-on demonstrations of HIVST kit use into outreach programmes, since knowledge of correct use was strongly associated with uptake.
- Address HIV-related stigma and discrimination directly, while also promoting HIVST as a private, autonomous alternative for those most concerned about disclosure.
- Integrate HIVST promotion into routine STI management and follow-up care pathways, given the lower uptake observed among AGYW with a history of STI diagnosis.

Acknowledgement

I acknowledge all who participated in this study. Research supervisors offered enormous support right from the conception of the research topic to the compilation of this script.

List of Abbreviations

AGYW: Adolescent Girls and Young Women
AOR: Adjusted Odds Ratio
ART: Antiretroviral Therapy
CI: Confidence Interval
HIV: Human Immunodeficiency Virus
HIVST: HIV Self-Testing
IUIU Islamic University in Uganda
SSA: Sub-Saharan Africa
STI: Sexually Transmitted Infection
UNAIDS: Joint United Nations Programme on HIV/AIDS
UOR: Unadjusted Odds Ratio
UPHIA: Uganda Population-based HIV Impact Assessment
WHO: World Health Organization

Source of Funding

This research received no specific grant from any funding agency in the public, commercial, or not-for-profit sectors.

Conflict of Interest

The authors declare that they have no competing interests.

Data Availability

The datasets generated and/or analyzed during the current study are available from the corresponding author on reasonable request.

Author Contributions

Authors' actual contributions:

- **Zikula Nangobi:** Conceptualization, data collection, formal analysis, and drafting of the original manuscript.
- **Abdulmujeeb Babatunde Aremu:** Supervision, methodology guidance, critical review and editing of the manuscript, and corresponding author.
- **Kharim Mwebaza Muluya:** Contribution to study design and/or review of the manuscript.
- **Swaibu Zziwa:** Contribution to study design and/or review of the manuscript.
- **Naziru Rashid:** Contribution to study design and/or review of the manuscript, supervision, review and editing of the manuscript.
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PUBLISHER DETAILS:

Student's Journal of Health Research (SJHR)

(ISSN 2709-9997) Online

(ISSN 3006-1059) Print

Category: Non-Governmental & Non-profit Organization

Email: studentsjournal2020@gmail.com

WhatsApp: +256 775 434 261

Location: Scholar's Summit Nakigalala, P. O. Box 701432, Entebbe Uganda, East Africa

