Texila International Journal of Public Health
ISSN: 2520-3134
DOI: 10.21522/TIJPH.2013.13.02.Art038

Prevalence of Risky Sexual Behavior and its Associated Factors Among Adolescent Girls and Young Women in Moroto District, Karamoja Region Uganda

Alimah Komuhangi[1,2*], Abdulkharim Muhumuza[3], William Kasozi[4]
[1]*Texila American University (TAU), Guyana, South America*
[2]*Institute of Public Health and Management, Clarke International University (CIU), Kampala, Uganda*
[3]*Department of partnerships and Communication, Afya na Haki Institute (Ahaki), Gayaza, Nakwero-Uganda*
[4]*Infectious Diseases Institute (IDI) - College of Health Sciences, Makerere University, Kampala City*

Abstract

Risky sexual behavior is a major public health concern, increasing the risk of sexually transmitted infections and unintended pregnancies. This study assessed the prevalence of risky sexual behavior and its associated factors among adolescent girls and young women aged 15–24 years in Moroto District, Uganda. An analytical cross-section design was employed, enrolling 389 respondents. Risky sexual behavior was defined as engaging in any of the following in the past three months: 1) multiple sexual partners, 2) condomless sex, 3) sexual intercourse with a commercial sex worker, or 4) sexual intercourse under the influence of alcohol or substance abuse. Data were collected using a researcher-administered questionnaire, summarized descriptively, and analyzed using the chi-square test. Poisson regression was used to identify independent associations, reported as adjusted prevalence ratios (APRs) with 95% confidence intervals (CIs). The prevalence of risky sexual behavior was 56.6%. A higher likelihood of risky sexual behavior was observed among respondents aged below 18 years (APR: 1.83; 95% CI: 1.34–2.50), those with secondary education (APR: 1.19; 95% CI: 1.03–1.39), and those with a history of sexually transmitted infections (APR: 1.60; 95% CI: 1.07–2.28). Conversely, being married or cohabiting was associated with a lower likelihood of risky sexual behavior (APR: 0.54; 95% CI: 0.43–0.67). The findings highlight age, marital status, education level, and sexually transmitted infection history as significant factors associated with risky sexual behavior, underscoring the need for targeted, context-specific interventions and comprehensive sexuality education to address risky sexual behaviors.

Keywords*: Adolescent, Behavior, Girls, Risky, Sexual and Women.*

Introduction

Sexual activity is a natural and healthy part of life, intended to be enjoyable and pleasurable. However, certain sexual behaviors carry significant risks. Risky sexual behavior (RSB) includes having multiple sexual partners, engaging in condomless sex, transactional sex, and sex under the influence of substances such as alcohol or drugs [1-3]. Such behaviors increase the likelihood of contracting sexually transmitted infections (STIs) and experiencing unintended pregnancies. Additionally, engaging in anal sex has been associated with higher health risks [4]. Substance abuse impairs judgment, leading to non-consensual or coerced sexual activities,

Received: 03.01.2025 ***Accepted: 27.01.2025*** ***Published on: 30.06.2025***
****Corresponding Author: akomuhangi@ciu.ac.ug***

which can cause physical and emotional trauma [5].

Globally, adolescent girls and young women (AGYW) are particularly vulnerable to the negative outcomes of risky sexual behavior, including STIs, unwanted pregnancies, complications during childbirth, and unsafe abortions [6]. Factors such as age, peer influence, substance use, and psychological traits like sensation-seeking and impulsivity further contribute to risky sexual practices [7].

In sub-Saharan Africa, AGYW face heightened risks due to socio-economic challenges, gender inequality, and limited access to sexual and reproductive health (SRH) services. Cultural norms and lack of comprehensive sexual education contribute to higher rates of STIs, HIV/AIDS, and teenage pregnancies. These challenges are reflected in Uganda, where the adolescent pregnancy rate stands at 24% [8]. Limited access to modern contraceptives and SRH services further exacerbates these outcomes, leading to a Maternal Mortality Ratio (MMR) of 189 deaths per 100,000 live births [9].

In Karamoja, the adolescent pregnancy rate mirrors the national average at 24%, with one in four girls experiencing early motherhood [8]. The region also leads in high-risk births, including births occurring too early (6.4%), too late (9.8%), and having too many children (18.5%). Additionally, modern contraceptive use remains critically low at 6.5% due to cultural restrictions on SRH services. Consequently, Karamoja's MMR of 588 deaths per 100,000 live births surpasses the national average.

Adolescent Girls and Young Women in the region face severe challenges, including a lack of access to education and SRH information. Approximately 68% of the young population in Karamoja have never attended school and are unemployed. This lack of education correlates with increased vulnerability to RSB, contributing to poor reproductive health outcomes. Alarmingly, 40% of girls in Karamoja have reported engaging in sexual intercourse with men at least 10 years older, highlighting significant power imbalances and potential exploitation [10].

In Moroto District, the adolescent pregnancy rate is particularly concerning, with figures reaching 16% [11]. Despite these alarming statistics, the prevalence and specific factors associated with risky sexual behavior in Moroto remain unknown. Identifying these factors is crucial for developing targeted interventions to improve the SRH outcomes of AGYW in this context.

Methods

This study employed an analytical cross sectional study design among 389 AGYW. The study population consisted of Adolescent Girls and Young Women (AGYW) aged 15-24 years who lived in the selected areas for at least six months. We excluded visitors who intended to stay for less than six months, as well as those with known mental disorders that may impede their understanding

This study utilized a multi-stage sampling technique to select participants. First, Moroto Municipality was purposefully selected as the study site. Then six villages within the municipality were randomly selected using simple random sampling. Next, the Local Council (LC) records at the village level were used to obtain a sampling frame of households. A sampling interval (K) was calculated using the formula: $K = N/n$, where N is the total number of households in the sampling frame and n is the desired sample size.

Systematic random sampling was then applied to select households from the sampling frame. If a selected household had an Adolescent Girl or Young Woman (AGYW) aged 15-24, she would be recruited into the study. If the household had no AGYW, the next Kth household on the list would be selected until the desired sample size was achieved.

Risky sexual behavior was categorized as yes or no, measured using:

1. Multiple sexual partners measured using data on the number of sexual partners in the last three (3) months, categorized as < 2 or > 2.
2. Condomless sex in the past three (3) months determined using data on whether the participant had used a condom at all sexual encounters (for those who are not married), categorized as yes or no.
3. Sexual intercourse with a commercial sex worker in the past three (3) months (yes or no), using data on whether the participant had reported having had sex with a commercial sex worker.
4. Sexual intercourse under the influence of alcohol or substance abuse in the past three (3) months (yes or no), using data on the history of sex under the influence of alcohol or substance abuse.

According to Adrawa et al. [1], participants who provide an affirmative response to any one of the four behaviors were considered to have engaged in risky sexual behavior, and those that do not provide an affirmative response to any of the four behaviors were considered not to have engaged in risky sexual behavior.

Independent variables were the participant's age, marital status, religion, educational level, employment status, and school status. Other variables to measure included parental variables such as whether both parents are alive, stay or live together, and employment status. Additionally, data on SRH indicators were collected. Data were collected by administering a questionnaire with characteristics of participants, Sexual and Reproductive Health (SRH) indicators, and risky sexual behavior in July–August 2024. We adopted items from standardized tools from WHO and MoH Uganda, specifically: The WHO's Sexual and Reproductive Health (SRH) Core Questionnaire [12], The MoH Uganda's Adolescent Sexual and Reproductive Health (ASRH) Survey Tool [13]. These tools have been validated and used in similar settings, ensuring consistency and comparability of our findings.

Data were entered into Epi-data for quality assurance and subsequently exported to Stata version 15 for analysis at the individual level. Descriptive statistics were used to summarize the data. Categorical variables, such as demographic characteristics and sexual behavior, were summarized using frequencies and percentages. Comparisons between groups were performed using the chi-square test for categorical variables to identify significant differences in the prevalence of risky sexual behavior. To determine factors independently associated with risky sexual behavior, a multivariable Poisson regression model with robust variance estimation was used. This approach was selected to estimate prevalence ratios directly, as the outcome variable (risky sexual behavior) was binary and common in the population. Variables with a p-value ≤ 0.2 in bivariate analysis were included in the multivariable model. Adjusted prevalence ratios (APRs) and their 95% confidence intervals (CIs) were reported to quantify the strength and direction of the associations while controlling for potential confounder.

The study received ethical approval from Clarke International University Research Ethics Committee (CLARKE-2024-1113) and the Uganda National Council for Science and Technology (HS4697ES). Informed consent was obtained from participants, with assent from minors and consent from their caregivers for those aged 15 to 17 years.

Results

Characteristics of the Respondents

The majority of participants 66.6% (256/389) were aged 18 years or older, for age at first sexual intercourse, the highest proportion 60.0% (127/283) reported engaging in sexual activity at 16 years or older. In terms of age at marriage, the majority 83.0% (137/165) got married at 18 years or older. Similarly, for age at first childbirth, the highest

proportion 68.6% (118/172) reported having their first child at 18 years or older. The majority of participants identified as Christian (91.3%, 355/389), while 51.9% (202/389) were single. Most participants (75.1%, 292/389) were not currently attending school. In terms of education, half (50.1%, 195/389) had completed primary education. A significant majority (81%, 315/389) were unemployed. Among those who were employed (19%, 74/389), the largest proportion (39.2%, 29/74) worked as vendors or hawkers as indicated in table 1.

Table 1. Characteristics of Respondents

Characteristic	**Frequency (percentage) N= 389**
Age	
Below 18years	131 (33.7%)
18+ year	258 (66.3%)
Age at first Sexual Intercourse	**N=283**
Below 16 years	156 (40.0%)
16 + years	127 (60.0%)
Age at marriage	**N=165**
Below 18years	28 (17.0%)
18+ year	137 (83.0%)
Age at your first child	**N=172**
Below 18years	54 (31.4%)
18+ year	118 (68.6%)
Religion	
Christian	355 (91.3%)
Moslem	34 (8.7%)
Marital status	
Separated/Divorced/Widowed	19 (4.9%)
Married/Cohabiting	168 (43.2%)
Single	202 (51.9%)
Currently in school	
No	292 (75.1%)
Yes	97 (24.9%)
Highest level of education	
None	39 (10.0%)
Primary	195 (50.1%)
Secondary	130 (33.4%)
Tertiary/University	25 (6.4%)
Employment status	
Employed	74 (19.0%)
Not employed	315 (81.0%)
Nature of employment	N =74
Maintenance/support	16 (21.6%)
Shop keeper	7 (9.5%)
Vendor/hawker	29 (39.2%)
Others (specify)	22 (29.7%)

Risky Sexual Behavior among Adolescent Girls and Young Women

Risky sexual behavior was categorized as yes or no, measured using:

1. Multiple sexual partners measured using data on the number of sexual partners in the last three (3) months, categorized as < 2 or ≥ 2.
2. Condom less sex in the past three (3) months determined using data on whether the participant had used a condom at all sexual encounters, categorized as yes or no.
3. Sexual intercourse with a commercial sexual sex worker in the past three (3) months (yes or no), using data on whether the participant had reported having had sex with a commercial sex worker.
4. Sexual intercourse under influence of alcohol or substance abuse in the past three (3) months (yes or no) using data on history of sex under influence of alcohol or substance abuse based.

According to [1], participants who provide an affirmative response to any one of the four behaviors were considered to have engaged in risky sexual behavior, and those that do not provide an affirmative response to any of the four behaviors were considered not to have engaged in risky sexual behavior.

As shown in Table 2, 33.2% (129/389) of respondents reported having multiple sexual partners. In the past three months, 48.8% (190/389) engaged in condomless sex, 1% (4/389) had sex with a commercial sex worker, and 11.8% (46/389) admitted to having had sex under the influence of alcohol.

Table 2. Risky Sexual Behavior among Adolescent Girls and Young Women

Variables	**Frequency (percentage) N= 389**
Have multiple sexual partners	
No	260 (66.8%)
Yes	129 (33.2%)
Had condomless sex in the last 3 months	
No	199 (51.2%)
Yes	190 (48.8%)
Had sex with a commercial sex worker last 3 months	
No	385 (99.0%)
Yes	4 (1.0%)
Had sex under the influence of substance use	
No	343 (88.2%)
Yes	46 (11.8%)

Source: Primary Data

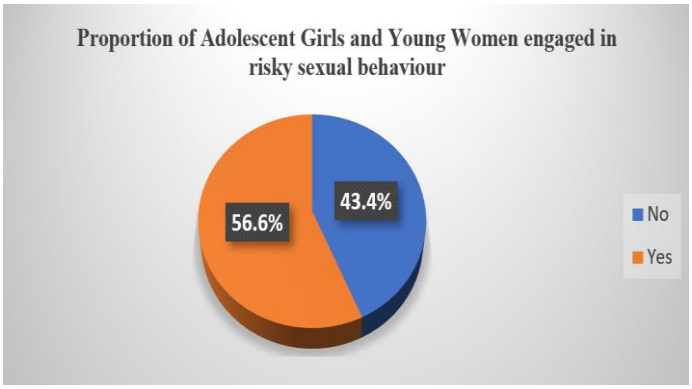

Figure1. Prevalence of Risky Sexual Behavior

Overall Prevalence of Risky Sexual Behavior

Figure 1 shows that more than half 56.6% (220/389) of the adolescent girls and young women were engaged in risky sexual behavior.

Characteristics Associated with Risky Sexual Behavior

A significant association was found between age and risky sexual behavior (p= <0.001), among participants below 18 years, the majority 74.6%, (97/130) did not engage in risky sexual behavior. There was a significant association between age at first sexual intercourse and risky sexual behavior (p=0.005), among those who initiated sexual activity below 16 years, 83.3% (130/156) engaged in risky sexual behavior.

No significant association was observed between age at marriage and risky sexual behavior (p=0.410), though among participants married below 18 years, 75.0% (21/28) engaged in risky sexual behavior. There was no association between age at first childbirth and risky sexual behavior (p=0.069) though among participants who had their first child below 18 years, 88.9% (48/54) engaged in risky sexual behavior. Although religion was not statistically significant (p = 0.172), a higher proportion of Muslim AGYW (67.6%) engaged in risky sexual behavior compared to Christians (55. 5%).

Marital status was significantly associated with risky sexual behavior (p < 0.001), as was employment status (p = 0.017). However, nature of employment was not significant (p = 0.137). AGYW not in school were significantly more likely to engage in risky sexual behavior (64.7%) compared to those currently in school (32.0%) (p < 0.001). Lastly, education level was significantly associated with risky sexual behavior (p < 0.001) as shown in Table 3.

Table 3. Characteristics of AGYW Associated Risky Sexual Behavior

Variables	**Risky Sexual Behavior**		**P-value**
	No (N=169)	**Yes (N=220)**	
Age			<0.001*
Below 18years	97 (74.6%)	33 (25.4%)	
18+ year	72 (27.8%)	187 (72.2%)	
Age at first Sexual Intercourse	n=65	N=218	0.005*
Below 16 years	26 (16.7%)	130 (83.3%)	
16 + years	39 (30.7%)	88 (69.3%)	
Age at marriage	**N=32**	**N=133**	0.410
Below 18years	7 (25.0%)	21 (75.0%)	
18+ year	25 (18.2%)	112 (81.7%)	

Age at your first child			
Below 18years	6 (11.1%)	48 (88.9%)	0.069
18+ year	27 (22.9%)	91 (77.1%)	
Religion			0.172
Christian	158 (44.5%)	197 (55.5%)	
Moslem	11 (32.4%)	23 (67.6%)	
Marital status			<0.001*
Separated/Divorced/Widowed	3 (15.8%)	16 (84.2%)	
Married/Cohabiting	32 (19.0%)	136 (81.0%)	
Single	134 (66.3%)	68 (33.7%)	
Employment status			0.017*
Employed	23 (31.1%)	51 (68.9%)	
Not employed	146 (46.3%)	169 (53.7%)	
Nature of employment			0.137
Maintenance/support	4 (25.0%)	12 (75.0%)	
Shop keeper	1 (14.3%)	6 (85.7%)	
Vendor/hawker	7 (24.1%)	22 (75.9%)	
Others (specify)	11 (50.0%)	11 (50.0%)	
Currently in school			<0.001*
No	103 (35.3%)	189 (64.7%)	
Yes	66 (68.0%)	31 (32.0%)	
Highest level of education			<0.001*
None	27 (69.2%)	12 (30.8%)	
Primary	92 (47.2%)	103 (52.8%)	
Secondary	39 (30.0%)	91 (70.0%)	
Tertiary/University	1 1(44.0%)	14 (56.0%)	

**Denotes significance at 95% confidence Interval*

Bivariate Analysis of Factors Associated with Risky Sexual Behavior

There was no statistically significant association between parental status and engagement in risky sexual behavior ($p = 0.214$) though most AGYW who had both parents deceased engaged in risky sexual behavior (68.6%) compared to those who did not (31.4%). Those with only their father alive engaged in risky sexual behavior at a rate of 60.9% ($p < 0.001$) AGYW living with their spouse had the highest proportion engaging in risky sexual behavior (83.1%) ($p = 0.231$).

There was no statistically significant association between parent/caretaker employment and risky sexual behavior though AGYW whose caretakers were farmers had a higher rate of risky sexual behavior (65.8%). There was a significant association between having had sexual intercourse and risky sexual behavior, among those who had ever had sexual intercourse, 76.0% engaged in risky sexual behavior ($p < 0.001$). Parenthood was significantly associated with risky sexual behavior, Majority of AGYW (78.3%) who had biological children engaged in risky sexual behavior ($p < 0.001$). Pregnancy planning was significantly associated with risky sexual behavior, those with planned pregnancies had a higher rate (92.1%) of RSB ($p=0.020$).

No significant association was found between the unavailability of modern contraceptives and risky sexual behavior,

among AGYW who reported wanting modern contraceptives that were unavailable, 65.2% engaged in risky sexual behavior (p = 0.208). Knowledge of contraceptives was not significantly associated with risky sexual behavior (p = 0.062). Most AGYW (73.2%) who did not use condoms were more likely to engage in risky sexual behavior (p = 0.004). A significant association was found between having been diagnosed with an STI and risky sexual behavior, 61.9% of AGYW who had been diagnosed with an STI engaged in risky sexual behavior, compared to only 26.3% of those who had not (p < 0.001) as indicated in Table 4.

Table 4. Bivariate Analysis of Factors associated with Risky Sexual Behavior

Variables	**Risky Sexual Behavior**		**P-value**
	No (N=169)	**Yes (N=220)**	
What is the status of the parents			0.214
Both Father and mother dead	16 (31.4%)	35 (68.6%)	
Both father and mother are alive	106 (47.1%)	119 (52.9%)	
Only father alive	9 (39.1%)	14 (60.9%)	
Only mother alive	38 (42.2%)	52 (57.8%)	
Who do you live with			<0.001*
Both parents	26 (59.1%)	18 (40.9%)	
Either of parent	40 (46.5%)	46 (53.5%)	
Spouse	22 (16.9%)	108 (83.1%)	
Relative/Friends/Employer	81 (62.8%)	48 (37.2%)	
Parent/caretaker employment			0.231
Not employed	3 (50.0%)	3 (50.0%)	
Service provider	43 (43.9%)	55 (56.1%)	
Vendors & shopkeepers	62 (42.5%)	84 (57.5%)	
Farmer	26 (34.2%)	50 (65.8%)	
Public service/Formal employment	32 (54.2%)	27 (45.8%)	
Have biological children			<0.001*
No	130 (62.2%)	79 (37.8%)	
Yes	39 (21.7%)	141 (78.3%)	
Recent pregnancy planned			0.020*
Not planned	36 (25.4%)	106 (74.6%)	
Planned	3 (7.9%)	35 (92.1%)	
Ever wanted modern contraceptives and not available			0.208
No	152 (44.6%)	189 (55.4%)	
Yes	16 (34.8%)	30 (65.2%)	
Know any contraceptives			0.062
No	106 (68.4%)	49(31.6%)	
Yes	63(26.9%)	171 (73.1%)	
Ever been diagnosed with an STI			<0.001*
No	42 (73.7%)	15 (26.3%)	
Yes	126 (38.1%)	205 (61.9%)	

**Denotes significance at 95% confidence interval*

Multivariate Analysis

According to table 5, age was associated with risky sexual behavior, individuals younger than 18 years were 3.91 times more likely to engage in risky sexual behavior compared to those aged 18 years and older, with an unadjusted prevalence ratio (PR) of 3.91 (95% CI: 3.69–4.15, $p < 0.001$). After adjusting for other factors, the association remained significant, with an adjusted PR of 1.831 (95% CI: 1.340–2.503, $p < 0.001$).

Marital status was significantly associated with risky sexual behavior. Married or cohabiting individuals were significantly less likely to engage in risky sexual behavior compared to single individuals, with an unadjusted PR of 0.50 (95% CI: 0.40–0.62, $p < 0.001$) and an adjusted PR of 0.537 (95% CI: 0.43–0.67, $p < 0.001$). Conversely, individuals who were separated, divorced, or widowed showed no significant difference compared to single individuals (adjusted PR: 0.96, 95% CI: 0.64–1.52, $p = 0.943$).

In the unadjusted analysis, unemployed individuals were significantly more likely to engage in risky sexual behavior compared to their employed counterparts, with an unadjusted prevalence ratio (PR) of 1.3 (95% CI: 1.12–1.52, $p < 0.001$). However, after adjusting for other factors, this association was no longer significant, with an adjusted PR of 1.03 (95% CI: 0.83–1.27, $p = 0.804$).

Education level was significantly associated with risky sexual behavior. Individuals with secondary education were more likely to exhibit risky behaviors compared to those with tertiary or university-level education, with an unadjusted PR of 1.19 (95% CI: 1.03–1.39, $p = 0.023$) and an adjusted PR of 1.180 (95% CI: 1.02–1.36, $p = 0.026$). However, primary education or no formal education was not significantly associated with risky sexual behavior, with adjusted PRs of 0.86 (95% CI: 0.61–1.21, $p = 0.391$) and 1.03 (95% CI: 0.08–1.80, $p = 0.889$), respectively.

A history of sexually transmitted infection (STI) diagnosis was inversely related to risky sexual behavior. Individuals who had never been diagnosed with an STI were significantly more likely to engage in risky sexual behavior compared to those who had, with an adjusted PR of 1.6 (95% CI: 1.07–2.28, $p = 0.002$).

Certain factors did not show significant associations with risky sexual behavior. Age at first sexual intercourse, whether below or above 16 years, was not significantly linked to risky behaviors (adjusted PR: 0.93, 95% CI: 0.71–1.22, $p = 0.606$). Similarly, current school enrollment (adjusted PR: 1.002, 95% CI: 0.53–1.91, $p = 0.996$) and whether a recent pregnancy was planned or not (adjusted PR: 0.97, 95% CI: 0.72–1.41, $p = 1.007$) did not demonstrate significant associations.

Table 5. Multivariate Analysis of Factors associated with Risky Sexual Behavior

Variables	**Risky Sexual Behavior**			**P-value**
	Un Adjusted Prevalence Ratio [95%CI]	**p-value**	**Adjusted Prevalence Ratio [95%CI]**	
Age				
<18 years	3.91 [3.69 - 4.15]	<0.001	1.831[1.340 - 2.503]	<0.001*
18 + years	Ref.		Ref.	
Age at first Sexual Intercourse				
Below 16 years	1.04 [0.86 - 4.15]	0.675	0.93 [0.71 -1.22]	0.606
16 + years	Ref.		Ref.	
Marital status				
Separated/Divorced/Widowed	1.043 [0.86-1.27]	0.360	0.96 [0.64 -1.52]	0.943

Married/Cohabiting	0.50 [0.40 - 0.62]	<0.001	0.537 [0.43 - 0.67]	<0.001*
Single	Ref.		Ref.	
Employment status				
Not Employed	1.3 [1.12 -1.52]	<0.001	1.03 [0.83 - 1.27]	0.804
Employed	Ref.		Ref.	
Currently in school				
No	1.03 [0.85 -1.25]	0.759	1.002 [0.53-1.91]	0.996
Yes	Ref.		Ref.	
Highest level of education				
None	1.01 [0.68 - 1.50]	0.962	1.03 [0.08-1.80]	0.889
Primary	0.89 [0.64 -1.23]	0.469	0.86 [0.61-1.21]	0.391
Secondary	1.19[1.03 - 1.39]	0.023	1.180 [1.02-1.36]	0.026*
Tertiary/University	Ref.		Ref.	
Recent pregnancy planned				
Not planned	1.01 [0.75 - 1.38]	0.928	0.97 [0.72-1.41]	1.007
Planned	Ref.		Ref.	
Ever been diagnosed with an STI				
No	1.7 [1.17-2.48]		1.6[1.07- 2.28]	0.002*
Yes	Ref.		Ref.	

**Denotes significance at 95% confidence interval*

Discussion

The study revealed a high prevalence of risky sexual behavior, with 56.6% of the AGYW engaging in such practices, highlighting a significant public health concern. This prevalence is higher compared to the findings from a study conducted among youth in Addis Ababa, Ethiopia, where the prevalence was 43.1% [14]. However, it is lower than the prevalence observed among high school youth in Pawe Woreda, Northwest Ethiopia, which was 82.2% [15]. These variations may be attributed to differences in study populations, geographic locations, and socio-cultural factors influencing sexual behaviors in these settings. This underscores the importance of context-specific interventions to address risky sexual behaviors effectively.

The association between age and risky sexual behavior, particularly among adolescent girls and young women younger than 18 years, aligns with findings in existing literature. Younger adolescents often lack the cognitive maturity to assess the consequences of their actions, making them more prone to impulsive behaviors, including risky sexual activities [16, 17]. Adolescents are disproportionately impacted by risky sexual behaviors, which increase their vulnerability to unintended pregnancies and sexually transmitted infections [18]. Furthermore, research highlights that young people often have limited knowledge about sexual health, including basic understanding of fertility and sexually transmitted infections [19]. These findings underscore the critical need for targeted interventions, such as comprehensive sexuality education tailored specifically to younger age groups, to address these risks effectively.

Marital status emerged as a protective factor against risky sexual behavior, particularly among married or cohabiting adolescent girls and young women. This finding is consistent with research conducted in Malawi, which suggests that marital stability can reduce exposure to multiple sexual partners and encourage safer sexual practices [20]. In contrast, [21] found that, among Latinos in the United States, being married, remarried, or in a

stable partnership was associated with higher levels of risky sexual behaviors compared to those who had never been married. This discrepancy could be attributed to differing cultural perceptions of marriage, which may influence sexual behaviors across diverse populations. The implications of these findings highlight the need for context-specific interventions in sexual and reproductive health programs. In a setting like Karamoja region where marriage is viewed as a protective factor, such programs can emphasize the importance of stable relationships in reducing risky sexual behavior.

The significant association between secondary education and risky sexual behavior underscores a critical gap in protective knowledge and resources at this education level. The present study revealed that adolescent girls and young women (AGYW) with a secondary (high school) education were more likely to engage in risky sexual behaviors compared to their peers with a university education. This finding is consistent with the results of [22], who observed a significantly higher prevalence of risky sexual behavior among Ghanaian female youth with secondary education. This suggests that higher levels of education may be associated with greater access to sexual health resources and information, which in turn may reduce the likelihood of engaging in risky sexual behaviors. The findings imply that efforts to enhance sexual health education and resources at the secondary education level could be instrumental in addressing risky sexual behaviors among AGYW.

The inverse relationship observed between a history of STI diagnosis and risky sexual behavior suggests that AGYW with previous STI experiences may adopt more cautious sexual practices. This finding is consistent with research by [23], which indicated that while a significant proportion of individuals in Britain who reported risk behaviors and perceived themselves as at risk did not seek sexual health services or undergo chlamydia testing in the past year, perceived risk alone was insufficient to prompt healthcare utilization. These results highlight the potential for STI diagnoses to function as a "teachable moment," encouraging behavior change [24]. This underscores the critical need to integrate counseling and education into STI management programs, as these interventions may play a key role in reducing risky sexual behaviors and promoting safer sexual practices.

The attenuation of the association between unemployment and risky sexual behavior in unadjusted analyses underscores the complex interplay of socioeconomic factors influencing sexual behaviors. While unemployment initially correlated with increased risky behaviors, adjusting for other variables such as education and age reduced its direct significance. This highlights the importance of multidimensional approaches to addressing risky behaviors that consider employment alongside other structural determinants [25].

Conclusion

The study reveals a high prevalence of risky sexual behavior among AGYW in Moroto Municipality - Moroto District, emphasizing a significant public health concern that demands urgent and targeted interventions. Factors associated with RSB, including younger age, secondary education, and being unmarried, highlight the importance of context-specific strategies to address these vulnerabilities. Comprehensive sexuality education tailored to younger populations and enhanced sexual health resources at the secondary education level are critical for mitigating risks. Furthermore, the study underscores the potential of STI diagnoses as "teachable moments," advocating for the integration of counseling and education into STI management programs to encourage behavior change.

Acknowledgements

We thank Clarke International Research Ethics Committee (CIUREC) and the Uganda National Council for Science and Technology (UNCST) for ethical approval, the District Health Officer of Moroto District for granting us administrative clearance to conduct the study**.** Last but not least, we thank the Adolescent Girls and Young Women (AGYW) in Moroto District who consented to participate in this study.

Conflict of Interest

All authors declare no conflict of interest.

Contributions

AK: Study conception and design. WK: Acquisition of data. AK: Analysis and interpretation of data. AK, WK, and AM: Drafting of manuscript. AK, WK and AM: Critical revision. AK, WK and AM: Final approval of manuscript.

References

[1]. Adrawa, J., 2023, Risky sexual behaviors and their health implications. *Journal of Sexual Health,* 14(3), 234-245.

[2]. Reynolds, M., 2019, Factors influencing condom use among adolescents. *Global Health Review,* 12(2), 101-119.

[3]. Jones, P., 2015, Transactional sex among young adults: Trends and impacts. *Health and Society,* 9(4), 299-315.

[4]. Yadegarfard, M., 2020, Anal sex practices and associated health risks. *International Journal of Sexual Health,* 22(1), 75-88.

[5]. Norman, R., 2021, Substance abuse and its impact on sexual consent. *Journal of Social Health,* 18(2), 142-159.

[6]. Alsubaie, R., 2019, Adolescent girls and young women: Vulnerabilities in sexual health. *Journal of Public Health Studies,* 20(3), 215-226.

[7]. Santelli, J. S., 2020, Psychological traits and risky sexual behavior among youth. *Youth Health Journal,* 14(5), 377-389.

[8]. UBOS, 2016, Uganda demographic and health survey 2016. *Uganda Bureau of Statistics.*

[9]. UDHS, 2022, Uganda demographic and health survey 2022. *Uganda Ministry of Health.*

[10]. UNFPA, 2018, Sexual and reproductive health in Karamoja. United Nations Population Fund.

[11]. Moroto District Family Planning Plan, 2018, Adolescent reproductive health in Moroto District. *Moroto Health Office.*

[12]. Kpokiri, F., Wu, Y., et al., 2022, Sexual and reproductive health core questionnaire. *World Health Organization.*

[13]. Ndayishimiye, A., Uwase, B., et al., 2020, Adolescent sexual and reproductive health survey tool. *Ministry of Health, Uganda.*

[14]. Fetene, N., & Mekonnen, W., 2018, The prevalence of risky sexual behaviors among youth center reproductive health clinics users and non-users in Addis Ababa, Ethiopia: a comparative cross-sectional study. *PloS One,* 13(6), e0198657.

[15]. Agajie, M., Belachew, T., Tilahun, T., & Amentie, M., 2015, Risky sexual behavior and associated factors among high school youth in Pawe Woreda, Benishangul Gumuz Region. *Science Journal of Clinical Medicine,* 4(4), 67-75.

[16]. Khasakhala, A. A., & Mturi, A. J., 2008, Factors associated with risky sexual behaviour among out-of-school youth in Kenya. *Journal of Biosocial Science*, 40(5), 641-653.

[17]. Romer, D., 2010, Adolescent risk taking, impulsivity, and brain development: Implications for prevention. Developmental Psychobiology: *The Journal of the International Society for Developmental Psychobiology,* 52(3), 263-276.

[18]. Wilkins, N. J., Rasberry, C., Liddon, N., Szucs, L. E., Johns, M., Leonard, S., & Oglesby, H., 2022. Addressing HIV/sexually transmitted diseases and pregnancy prevention through schools: an approach for strengthening education, health services, and school environments that promote adolescent sexual health and well-being. *Journal of Adolescent Health,* 70(4), 540-549.

[19]. Slater, C., & Robinson, A. J., 2014, Sexual health in adolescents. *Clinics in Dermatology*, 32(2), 189-195.

[20]. Clark, S., Poulin, M., & Kohler, H. P., 2009, Marital aspirations, sexual behaviors, and HIV/AIDS in rural Malawi. *Journal of Marriage and Family*, 71(2), 396-416. https://doi.org/10.1111/j.1741-3737.2009.00607.x

[21]. Rojas, P., Huang, H., Li, T., Ravelo, G. J., Sanchez, M., Dawson, C., Brook, J., Kanamori, M., & De La Rosa, M., 2016, Sociocultural determinants of risky sexual behaviors among adult Latinas: A longitudinal study of a community-based sample. *International Journal of Environmental Research and Public Health*, 13(11), 1164. https://doi.org/10.3390/ijerph13111164

[22]. Jackson, F., & Haile, Z. T., 2023, Association between educational attainment and risky sexual behaviour among Ghanaian female youth. *African Health Sciences*, 23(1), 301-308. https://doi.org/10.4314/ahs.v23i1.32.

[23]. Clifton, S., Mercer, C. H., Sonnenberg, P., Tanton, C., Field, N., Gravningen, K., & Johnson, A. M., 2018. STI risk perception in the British population and how it relates to sexual behaviour and STI healthcare use: Findings from a cross-sectional survey (Natsal-3). *EClinical Medicine*, 2, 29-36.

[24]. Crosby, R. A., Charnigo, R. A., Weathers, C., Caliendo, A. M., & Shrier, L. A., 2012, Condom effectiveness against non-viral sexually transmitted infections: A prospective study using electronic daily diaries. *Sexually Transmitted Infections*, 88(7), 484-489. https://doi.org/10.1136/sextrans-2012-050618

[25]. Terzian, M., Andrews, K., & Anderson, K., 2011, Preventing multiple risky behaviors among adolescents: Seven strategies. *Association for State and Territorial Health Officials.*