

Research Article

Gender Difference in Risky Sexual Behavior and Its Determinants Among Ethiopian Youth: Evidence from the 2016 Edhs

Tibeb Tafess¹, Tefera Tezera Negera^{2, *}

¹Center for Population Studies, Addis Ababa University, Addis Ababa, Ethiopia

²Department of Public Health, Rift Valley University, Addis Ababa, Ethiopia

Abstract

Risky sexual behavior is defined as multiple sexual partners in a lifetime plus sex without a condom. Gender and risky sexual behavior have an intriguing relationship. This study conducted aims to identify the gender difference and determinants of risky sexual behavior among youth. With a sample of 7490, males and females aged 15-29 drawn from the 2016 Ethiopian Demographic and Health Survey (EDHS). The study was conducted based on socio-demography characteristics, youth individual characteristics, and Knowledge of HIV/AIDS data obtained from the Ethiopian demographic health survey (EDHS) 2016 by extracting male and female data. Univariate was used to display the data using tables compared between males and females. The binary logistic regression model was developed to identify the predictors of risky sexual behavior. Study shows 964 (37%) of males and 739 (15%) of females were engaged in risky sexual behavior. About 22.7% (1703) of the youth were risky at the national level. Bivariate analysis shows that males are 3.38 times more likely to engage in risky sexual practices compared to females ($p \leq 0.001$) respectively. In comparison to rural, the likelihood of risky sexual practices among males and females were significantly increase by 48.1% and 41.5% living in urban areas correspondingly ($p < 0.01$). Females aged 20-24 and 25-29 are more likely to be risky compared to those aged 15-19 ($p < 0.001$). Significant gender differences in risky sexual behavior were observed with a higher risk in male respondents compared to females. The explanatory variables marital status, residence, region, and alcohol intake were a significant variation of males and females' risky sexual behaviors. Specific Strategies and approaches should develop to reduce risky sexual practices and improve reproductive health outcomes.

Keywords

Gender Difference, Risky Sexual Behaviors, Determinants, Youth, Ethiopia

1. Introduction

Risky Sexual Behaviors (RSBs) are defined as involving unprotected sexual practice, having multiple sexual partners, early sexual activity (under 18 years old), and other risky sexual activities that lead to sexually transmitted diseases,

infertility, and Cervical cancer. RSBs have a negative outcome on reproductive health conditions [1].

Reproductive health care access including prevention and treatment of sexually transmitted diseases concerned in the

*Corresponding author: Tefera_tezera@yahoo.com (Tefera Tezera Negera)

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Cairo International Conference on Population and Development (ICPD) in 1994 [2].

HIV remains a significant global public health concern, claiming 40.1 million lives and causing 650,000 deaths, 1.5 million contracted the virus in 2021. Africa accounts for two-thirds (25.6) million of the 38.4 million people with HIV, with adolescents aged 15-24 accounting for 25% of infections in 2020 [3].

Risky sexual behaviors are more common among youth because unprotected sexual behavior commonly happens among youth [4].

The youth bulge and aging are two demographic factors that could have an impact on long-term economic growth and sustainable development. Adolescents and youth, aged 10 to 29, are a high portion of the population in Ethiopia. Therefore, to get the most out of the demographic dividend, it is essential to invest in adolescent and youth education, economic opportunities, and health, including family planning and sexual and reproductive health [5].

Gender difference appears to be significant in risky sexual behaviors. Worldwide approximately two-thirds of adolescent girls were reported as new HIV infections compared to one-third of young boys [6] while one in every four new HIV infections occurred in sub-Saharan Africa, the region also houses more than 80% of HIV-infected adolescents [7]. Substance use and abuse (drugs, tobacco, and alcohol), risky sexual behavior (unprotected sex and multiple sexual partners), reckless driving, and suicide are common risky behaviors. Risky behaviors have negative outcomes [8]. Adolescents who engaged in one risky sexual practice are more likely to engage in another risky sexual practice [9].

Moreover, gender difference is observed in adolescents' sexual and reproductive health risky and protective factors, which has implications for intervention delivery [10]. Unlike this, there are no gender differences in self-protection knowledge or attitudes, there were significant differences in perceptions of the parent-adolescent relationship, attitudes toward sexual acts, and perceptions of community norms about sexual behavior, all of which have intervention implications [11].

Biological differences, especially testosterone, impact sex drive and sexual orientation [12]. Sexual orientation is primarily determined by biological factors [13]. As stated in the works of [14] that female sexual desire is influenced by social factors, resulting in complex and symbolic desires. Gender differences require to necessitate personality participation in sex, elevating it from tension release to sustaining relationship feature, others study The cultural presumption that women have instinctively low sexual desire may hurt women's sexual satisfaction. As a result of the cultural presumption that women have naturally low sexual desire, women's sexual satisfaction may decline [15]. Social constructionists argue sexuality is a changing domain with cultural context, influencing case studies on sexual popula-

tions and communities, highlighting social organization and identity formations based on race, ethnicity, gender, and class.

The internalization of gender-based scripts may offer the perspective through which women develop their desire for sex, according to a study on sexual script theory by [16]. According to other studies, women restrict their sexual desire and give less importance to their sexual gratification to live up to social norms [17].

Ethiopia has implemented reproductive health strategies to reduce the burden of STIs and HIV/AIDS among youth, but the burden remains heavy. Hepatitis B Surface Antigen (HBsAg) is estimated at 9.4% among the general population aged 15 and above, with regional variations and a slightly higher prevalence in rural areas [18]. Poor planning, gaps in specific policy actions, and gender differences at the national level contribute to the problem. Limited studies on gender differences in sexual behavior and cultural backgrounds make it difficult to summarize the risky sexual behaviors of youths across the country [19].

Studies conducted on risky sexual behavior among university, college, and pre-college students have a limitation due to gender differences, sociocultural characteristics, economic characteristics, and beliefs. Addressing these issues is crucial for achieving reproductive health and reducing the burden of sexually transmitted diseases and HIV/AIDS among youth. However, if the burden of sexually transmitted diseases and HIV/AIDS inclined among the youth, the country deprived the future productive citizens and it might be lost the demographic dividend opportunity. This study intended to contribute to giving a clue to achieve youth reproductive health. Moreover, it will give information about youth sexual behaviors that are important for planning, Monitoring, and implementing reproductive health with specific strategies and give a better insight. In addition, the results will be obtained from this study could be used as a baseline for researchers who are interested to study further on this topic. The purpose of this study is to compare the gender difference in risky sexual behavior and to investigate the influencing factors among Ethiopian youth.

2. Method

This study was based on 7490 male and females of age (15–29 years) living in households taken as samples for the 2016 Ethiopian Demographic and Household Survey. EDHS was a nationally representative sample survey by random sample technique that is taken from two city administrations and nine regions using a multistage sampling procedure. The 2016 EDHS conducted from January 2016 to June 2016, sample was stratified into urban and rural areas, with 21 sampling strata. In each stratum, samples of enumeration areas were chosen independently in two stages [20]. Efforts were made to predict the sexual behaviour of Ethiopian males and females by looking at their condom use and the

number of sexual partners they have had in their lifetime. The response (Outcome) variable of this study was risky sexual behavior including the existence of multiple sexual partners plus not condom use during sexual intercourse in the preceding 12th MONTHS EDHS. Risky -If multiple sexual partners in a lifetime plus no condom use during sexual practice and Not risky -If condom used during sexual practice or single sexual partners in a lifetime. Independent variables were selected based on the literature and their availability in our data. Descriptive statistics were used analysis frequency distribution using a frequency distribution table. Bivariate and multivariate statistical methods were used to predict the relationship between gender and risky sexual activity. Binary logistic regression was used for analyzing determinants of risky sexual behaviors and to investigate how the explanatory factor affects the dependent factors. The predictor variable responses (categorical data) were coded as 1 and 0, Risky =0 when the youth had multiple sexual partners plus not condom use during sexual intercourse, and not risky=1 when the youth had multiple sexual partners plus condom use or single sexual partners use/no condom use during sexual intercourse. Correlation-independent variables were done. Multicollinearity was checked with tolerance and variance inflation. To compare categorical variables between the male and female likelihood of risky sexual behaviors were used. Variables

that were significant at the 5% significance level ($P < 0.05$), were retained and reported along with their crud odd ratio (COR) in bivariate and adjusted odds ratio (AOR) in multivariate analysis corresponding to 95% confidence interval (CI) and P-value. And showed Goodness of fit of the model measures how well the model describes the response variable. Hosmer -Lemeshow test was a test for assessing model fit for explanatory variables [21] hence, the Hosmer Lemeshow was 56.7% explained the model.

3. Results

As we have shown in Table 1. Below among the youth aged between 15-29 samples (7490) that were included in this study, 4915 (65.6%) were females and 2575 (34.4%) of males. There were more female respondents compared to male respondents because more male youth never had sex during the survey when asked age of at first sex, and males who had one-year sexual experiences are fewer than females during the survey. In addition, the male-female ratio of the sample was less in EDHS 2016. A total of 2575 males and 4915 females who had sexual intercourse in the 12 months preceding the 2016 EDHS survey in Ethiopia were included in this study.

Table 1. Sex of the respondents.

	Frequency	Percent	Valid Percent	Cumulative Percent
Male	2575	34.4	34.4	34.4
Female	4915	65.6	65.6	100
Total	7490	100	100	

Source: EDHS 2016 data

The distributions of respondents across regions nearly similar proportions (see Table 2 below).

Table 2. Region of the respondent's.

	Frequency	Percent	Valid Percent	Cumulative Percent
Oromia	974	13	13	13
Amhara	819	10.9	10.9	23.9
SNNPR	758	10.1	10.1	34.1
Afar	736	9.8	9.8	43.9
Tigray	710	9.5	9.5	53.4
Benishangul	663	8.9	8.9	62.2
Addis Ababa	653	8.7	8.7	70.9

	Frequency	Percent	Valid Percent	Cumulative Percent
Somalia	628	8.4	8.4	79.3
Gambela	588	7.9	7.9	87.2
Dire Dewa	499	6.7	6.7	93.8
Harari	462	6.2	6.2	100
Total	7490	100	100	

Source: EDHS 2016 data

3.1. Distribution of Respondents by RSB in Ethiopian Youth by Sex

There was a significant difference between males and females in the percentage of risky sexual behavior. As showed [Table 3](#) below about 37.4% (964) males and 15.0%(739) females had risky sexual behavior. Among the total Ethiopian youth, about 22.7%(1703) of males and females were risky.

Although the results show disproportionately higher females who had lived in urban areas (21.0%) risky than those who lived in rural areas (12.6%), and the corresponding percentages for males risk were 39.3% and 33.6% for those who had lived in urban and rural areas, respectively. There is a significant gender disparity in risky sexual behavior in distribution by respondents' places of residence.

Regarding the age of respondents result show that only 8.8% percent of female respondent aged 15-19 were engaged in risky sexual practice, whereas 14.9% and 17.3% were risky among females aged 20-24 and 25-29 years old respectively. There was a nearly similar percentage of risk among males across all aged group, males were more risky sexual practices compared to females across all stages of youth in percentage ([Table 3](#) columns II and I).

Overall, there was a higher percentage of risky sexual behavior among male youth in comparison to female youth across all regions of the country. The study shows males more than 30% riskier reported in the five regions compared to only one region for females. Afar (53.2%), Gmabela

(51.8%), Benshangule (46.2%), Amhara (43.6%), and Oromia (43.5%) were more riskier males reported, yet only Amhara (33.4%) of females were engaged to risky sexual practice. The lowest percentage of risky sexual behavior is among females in Somalia (5.6%) and among males in Harari (19.10%). The highest percentage of risky sexual behavior reported in the Amhara (36.9%) and Gambela (34.9%) regions, while the Somalia region had the lowest percentage (10.8%) across both sexes.

Even though there were differences in the proportion of males and females with risky sexual behavior, the level of risky sexual behaviors was nearly the same across the educational levels of females and males ([Table 3](#) columns I, and II).

The result shows that one out of five (24.3%) female orthodox followers were riskier than females whose religious Muslim (9.60%), protestant (9.40%), and other religious affiliation (5.10%). The risky sexual practice was nearly similar among males across religious affiliations. However, males had a higher percentage of risky sexual practices than females across all religious affiliations ([Table 3](#) column I, and II). About 13.30% and 18.70% females were engaged in risky sexual behavior among those not working and working status respectively.

Concerning marital status, more than one-four (27.9%) of divorced/separate/widowed marital status of female respondents had risky status compared to 13.7% of married females. Whereas among married and never-married females, nearly the same. Moreover, the risky distribution among males (25.1%, 43.6%, and 41.7%) across never married, married, and other marital statuses respectively.

Table 3. Distribution of respondent's by RSB Ethiopian youth (15-29) by SEX.

Variable	N		Risky sexual behavior (RSB)		
	Male	Female	Male	Female	Both sexes
			I	II	III
Age group					
15-19	236	763	66 (28.00%)	67 (8.80%)	133 (13.3%)

Variable	N		Risky sexual behavior (RSB)		
	Male	Female	Male	Female	Both sexes
			I	II	III
20-24	839	1898	282 (33.60%)	283 (14.90%)	565 (20.6%)
25-29	1500	2254	616 (41.10%)	389 (17.30%)	1005 (26.8%)
Place of residence					
Urban	844	1422	284 (33.60%)	299 (21.00%)	583 (25.7%)
Rural	1731	3493	680 (39.30%)	440 (12.60%)	1120 (21.4%)
Region of residence					
Oromia	340	634	148 (43.50%)	53 (8.40%)	201 (20.6%)
Amhara	280	539	122 (43.60%)	180 (33.40%)	302 (36.9%)
SNNPR	233	525	67 (28.80%)	38 (7.20%)	105 (13.9%)
Afar	220	516	117 (53.20%)	49 (9.50%)	166 (22.6%)
Tigray	206	504	74 (35.90%)	93 (18.50%)	167 (23.5%)
Benishangul	266	397	123 (46.20%)	54 (13.60%)	177 (26.7%)
Addis Ababa	284	369	74 (26.10%)	103 (27.90%)	177 (27.1%)
Somalia	162	466	42 (25.90%)	26 (5.60%)	68 (10.8%)
Gambela	249	339	129 (51.80%)	76 (22.40%)	205 (34.9%)
Dire Dewa	178	321	38 (21.30%)	40 (12.50%)	78 (15.6%)
Harari	157	305	30 (19.10%)	27 (8.90%)	57 (12.3%)
Religious affiliation					
Muslim	1017	2192	375 (36.90%)	211 (9.60%)	586 (18.3%)
Orthodox	1081	1844	373 (34.50%)	449 (24.30%)	822 (28.1%)
Protestant	438	800	198 (45.20%)	75 (9.40%)	273 (22.1%)
Others	39	79	18 (46.20%)	4 (5.10%)	22 (18.6%)
Marital status					
Never married	841	254	211 (25.10%)	52 (20.50%)	263 (24.0%)
Married	1602	4321	698 (43.60%)	592 (13.70%)	1290 (21.8%)
Others (divorce/separate/window	132	340	55 (41.70%)	95 (27.90%)	150 (31.8%)
Wealth status					
Poor	995	2152	420 (42.20%)	254 (11.80%)	674 (21.4%)
Middle	298	629	108 (36.20%)	99 (15.70%)	207 (22.3%)
Rich	1282	2134	436 (34.00%)	386 (18.10%)	822 (24.1%)
Working status					
Not working	307	3356	109 (35.50%)	448 (13.30%)	557 (15.2%)
Working	2268	1559	855 (37.70%)	291 (18.70%)	1146 (29.9%)
Educational level					
No education	486	2062	202 (41.60%)	300 (14.50%)	502 (19.7%)
Primary	1053	1830	396 (37.60%)	267 (14.60%)	663 (23.0%)

Variable	N		Risky sexual behavior (RSB)		
	Male	Female	Male	Female	Both sexes
			I	II	III
Secondary	522	627	191 (36.60%)	102 (16.30%)	293 (25.5%)
Higher	514	396	175 (34.00%)	70 (17.70%)	245 (26.9%)
TOTAL	2575	4915	964 (37.40%)	739 (15.00%)	1703 (22.7%)

Source: EDHS 2016 data

As shown the Table 4. Of the total study subjects, about 36.5% and 38.5% of males risk out of non-drunk alcohol and drunk alcohol respectively. One in five (26.3%) female respondents reported risk across ever-drink alcohol while 10.0%) of females were at risk from non-ever-drink alcohol. In both sexes, about 31.3% of youth risk from ever-drink alcohol while 17.6% of youth risk from non-ever-drink alcohol.

In males, ever-chewing Chat and never chewing chat had similarly experienced risky sexual behavior. About 14.3% and 21.8% of females had risky sexual behaviors among never chat chewing and ever-chat-chewing females respectively. Roughly, 36.7%, 48.0%, and 28 (36.4%) risky males

among men who did not smoke smoked occasionally, and smoked every day accordingly. About 15.00%, 27.30%, and 16.70% were risky among females who do not smoke tobacco, every day, and some days smoke correspondingly. About 22.0%, 31.7%, and 46.8%) were risky among the youth who did not smoke every day and somedays.

Males belonging to different wealth status, working status, knowledge of HIV/AIDS/STIs and access to mass media had nearly similarly the vulnerability of risky sexual practice, Whereas, females with different knowledge of HIV/AIDS, and hearing about STIs had a significant difference in counter parts of the percentage of risky sexual behavior (Table 4 columns I and II).

Table 4. Distribution of respondent's individual characteristics by Risky sexual behaviors in Ethiopian youth (15-29) by Gender.

Variables	N		Risky sexual behavior/RSB		
	Male	Female	Male	Female	Both sexes
			I	II	III
Chat chewing					
No	1619	4419	608 (37.60%)	631 (14.30%)	1239 (20.5%)
Yes	956	496	356 (37.20%)	108 (21.80%)	464 (32.0%)
Ever drink alcohol					
NO	1376	3390	502 (36.50%)	338 (10.00%)	840 (17.6%)
YES	1199	1525	462 (38.50%)	401 (26.30%)	863 (31.7%)
Smokes tobacco					
Do not smoking	2323	4880	852 (36.70%)	732 (15.00%)	1584 (22.0%)
Every day	77	24	84 (48.00%)	3 (27.30%)	32 (31.7%)
Some days	175	11	28 (36.40%)	4 (16.70%)	87 (46.8%)
knowledge of HIV/AIDS					
Adequate	1771	2024	655 (37.00%)	372 (18.40%)	1027 (27.1%)
Inadequate	746	2492	288 (38.60%)	334 (13.40%)	622 (19.2%)

Variables	N		Risky sexual behavior/RSB		
	Male	Female	Male	Female	Both sexes
			I	II	III
Lack of knowledge (Not ever heard of AIDS)	58	399	21 (36.20%)	33 (8.30%)	54 (11.8%)
Ever heard of (STIs)					
NO	49	383	18 (36.70%)	32 (8.40%)	50 (11.6%)
YES	2526	4532	946 (37.50%)	707 (15.60%)	1653 (23.4%)
Access to media (TV, R, M) at least once a week					
Access non all media	1363	3439	542 (39.8%)	459 (13.3%)	1001 (20.8%)
Access one or two media	1043	1396	359 (34.4%)	264 (18.9%)	623 (25.5%)
Access all Media	169	80	63 (37.3%)	16 (20.0%)	79 (31.7%)
Total	2575	4915	964 (37.40%)	739 (15.00%)	1703 (22.7%)

Source: EDHS 2016 data

3.2. Bivariate Analysis Results

Table 5 shows the results of crude odd ratio estimating the factors associated with males, females, and both sexes in risky sexual practice. Among male youths aged 15-29 years who had multiple sexual partners in their lifetime and sex without a condom in the past 12th months preceding in the Ethiopian demographic and health survey.

Bivariate analysis shows that the major socio-demographic factors significantly associated with increased relative risk of males and females engaging in risky sexual practices were regions, residence, marital status, age, education, wealth status, and religious affiliation. Furthermore, working status was a significant risk factor for females who were engaged in risky sexual practices.

The bivariate result reveals that male youth were 3.38 times more likely to engage in risky sexual practices compared to female youth. There was a significant association between gender and risky sexual practices (COR=3.381, $P \leq 0.001$) (Table 5. column III).

Age of respondent's males were whose age 25-29 had more risky sexual practices than males aged 15-19 (COR=1.795, $P \leq 0.001$), whereas females were whose age 20-24 and 25-29 engaged in more risky sexual practices compared to females aged 15-19 (COR=1.82, $P \leq 0.001$ and COR=2.16, $P \leq 0.001$).

Concerning geographical area/ regions shows the study that males who lived in Afar and Gamble were engaged in higher risky sexual practices compared to males who lived in Oromia. In contrast, males who lived in Addis Ababa, SNNPR, Somalia, DireDewa, and Harari were lower risky sexual practices compared to males who lived in Oromia. In

females, females who lived in Amhara, Addis Ababa, and Gambela were more likely to engage in risky sexual practices compared to Oromia (COR=5.49, 4.24, and 3.17 with $p \leq 0.001$) respectively. Furthermore, females who lived in Tigray, Benishangul, and Dire Dewa riskier than female lived in Oromia (Table 5. Columns I and II).

In comparison to rural, the likelihood of risky sexual practices among males was significantly lower by 21.6% living in urban area ($p < 0.01$). Differently, females who had lived in urban areas were 1.84 more likely to risky sexual practices compared to those who lived in rural areas ($p \leq 0.001$).

The bivariate results indicated that having risky sexual practices reduced by 27.4% among males who had an educational level higher compared to those with no education males ($p \leq 0.05$). However; females' unadjusted odds ratios for risky sexual practice were not significant by educational level.

In wealth status, males who had rich wealth status were 0.706 times, less likely to engage in risky sexual practice compared to males who had poor wealth status ($p \leq 0.001$). Whereas females who had rich and medium were 1.65 and 1.39 more likely, to engage in risky sexual practice compared to females who had poor wealth status respectively, ($p \leq 0.01$ and $p \leq 0.001$) (Table 5. Coulum 1 and 2). Compared with those with Islamic religious affiliation, protestant religious followers males were 1.41 times more key to risky (p -value ≤ 0.01), and females were orthodox followers 3.02 times more likely to risk ($p \leq 0.001$).

Considering working status, Females with no working status were 1.49 times more likely to be risky than their counterparts ($P \leq 0.001$) in the bivariate model. The socio-demographic of the respondents included in this study is significantly associated with risky sexual practices among Ethi-

opian youth (15-29) (show [Table 5](#). Column III).

Table 5. Bivariate analyses of the socio demographic of youth (15-29) by risky sexual behaviors by Sex.

Variables	Risky Sexual Behaviors (RSBs)		
	Male	Female	Both sexes
	I	II	III
Sex			
Male	---	---	3.381 *** (0.057)
Female	---	---	REF
Age group			
15-19	Ref	Ref	ref
20-24	1.304 (0.162)	1.82*** (0.143)	1.694*** (0.104)
25-29	1.795*** (0.154)	2.167*** (0.14)	2.38*** (0.1)
Place of residence			
Urban	.784** (.088)	1.847*** (0.083)	0.788*** (0.059)
Rural	Ref	Ref	ref
Marital status			
Never married	Ref	Ref	ref
Married	2.31*** (.094)	0.617** (0.162)	0.881 (0.077)
Others	2.133** (.194)	1.506* (0.197)	1.474*** (0.122)
Region			
Oromia	Ref	Ref	ref
Amhara	1.002 (0.163)	5.496*** (0.17)	2.246*** (0.107)
SNNPR	0.524*** (0.181)	0.855 (0.221)	0.618*** (0.132)
Afar	1.474* (0.174)	1.15 (0.208)	1.12 (0.119)
Tigray	0.727 (0.182)	2.481*** (0.184)	1.183 (0.119)
Benishangul	1.116 (0.165)	1.726** (0.205)	1.401** (0.118)
Addis Ababa	0.457*** (0.174)	4.245*** (0.185)	1.43** (0.118)
Somalia	0.454*** (0.21)	0.648 (0.248)	0.467*** (0.151)
Gambela	1.395* (0.167)	3.168*** (0.194)	2.058*** (0.117)
Dire Dewa	0.352*** (0.213)	1.56* (0.222)	0.713* (0.147)
Harari	0.306*** (0.231)	1.065 (0.247)	0.541*** (0.162)
Working status			
Working	1.099 (0.127)	1.49*** (0.082)	2.384*** (0.058)
Not working	Ref	Ref	ref
Educational level			
No education	Ref	Ref	ref
Primary education	0.847 (0.112)	1.003 (0.091)	1.217** (0.067)

Variables	Risky Sexual Behaviors (RSBs)		
	Male	Female	Both sexes
	I	II	III
Secondary education	0.811 (0.129)	1.141 (0.125)	1.395*** (0.084)
higher education	0.726* (0.131)	1.261 (0.146)	1.502*** (0.09)
Wealth status			
Poor	Ref	Ref	ref
Medium	0.778 (0.137)	1.396** (0.128)	1.055 (0.09)
Rich	0.706*** (0.087)	1.65*** (0.087)	1.163* (0.059)
Religious affiliation			
Muslim	Ref	Ref	ref
Orthodox	0.902 (0.091)	3.022*** (0.09)	1.75*** (0.061)
Protestant	1.412** (0.116)	0.971 (0.141)	1.266** (0.082)
Others	1.467 (0.328)	0.501 (0.518)	1.026 (0.241)

Source: EDHS 2016 data

Table 6. Bivariate analyses individual characteristic of respondents in risky sexual behaviors among Ethiopian youth (15-29) by Sex.

Variables	Risky Sexual Practice		
	Male	Female	Both sexes
Knowledge of HIV/AIDS			
Adequate	1.034 (0.278)	2.497*** (0.191)	2.769*** (0.149)
Inadequate	1.108 (0.283)	1.717** (0.191)	1.774*** (0.152)
lack knowledge	Ref	ref	Ref
Ever heard of (STIs)			
NO	Ref	ref	ref
YES	1.031 (0.299)	2.027*** (0.189)	2.337*** (0.153)
Have you ever chewed Chat?			
NO	ref	ref	ref
YES	0.98 (0.084)	1.67*** (0.117)	1.81*** (0.065)
Drink Alcohol			
NO	Ref	ref	ref
YES	1.09 (0.082)	3.22*** (0.082)	2.61*** (0.056)
Smoking tobacco			
Do not smoke	ref	ref	ref
Somedays	0.987** (0.241)	1.1 (0.548)	1.645* (0.216)
Every day	1.59** (0.157)	2.23 (0.678)	3.117*** (0.15)
Access media at least once a week (TV, R, N)			

Variables	Risky Sexual Practice		
	Male	Female	Both sexes
Access none of all media	Ref	ref	ref
Access One or two of three	0.795** (0.086)	1.514*** (0.085)	1.303*** (0.058)
Access all three media	0.9 (0.168)	1.623 (0.284)	1.765*** (0.141)

TV, Television,=R=radio, N=Newspaper/magazine

Source: EDHS 2016 data

Bivariate Analyses on An Individual Characteristic of Risky Sexual Behaviors among Ethiopian youth (15-29) by Sex

Bivariate results show that Media access, knowledge of HIV/AIDS, hearing about sexually transmitted, chewing chat, and alcohol drinking were significant associations between females' risky sexual practices. Smoking tobacco and media access was significant association with male risky sexual practices. Overall, all individual characteristics included in this study were significant associations between youth and risky sexual practices.

Males who had access to media one or two of three media at least one time a week were 0.79 less likely than those who had access to media not at all at least one time a week. In contrast, females who had access to media one or two media of three and accessed all media at least one time a week were 1.3 and 1.7 times more likely to risky sexual behavior compared to those non-access of media respectively ($P \leq 0.001$).

Considering substance use, males who do not smoke tobacco were less likely to risk paralleled to males who smoke tobacco every day ($p \leq 0.01$). Females were chewing chat or alcohol drunk 1.67 and 3.22 times more likely to engage in risky sexual practice compared to their counterparts ($p \leq 0.001$) correspondingly.

Regarding HIV/AIDS knowledge, females who had adequate knowledge and inadequate knowledge about HIV/AIDS were more likely risky sexual practices compared to females who had a lack of knowledge about AIDS. HIV/AIDS knowledge was the insignificant association between male's risky sexual practices (Table 6. column I and II).

3.3. Multivariate Analysis

The study conducted determinants of risky sexual behavior practice we conducted multivariate analysis to determine the predictors of risky sexual behavior among youth by gender. We included the explanatory variable that was significant in bivariate analysis across males, Females, and both sexes separately. Hence, we entered variables on backward selection methods. The multivariate result shows that significant association between gender and risky sexual practice.

Males were 5.2 times more likely to practice risky sexual practices compared to females (AOR=5.2, $p=0.000$).

The explanatory variables marital status, residence, region, and alcohol intake were a significant variation of males and females risky sexual behaviors. The predicting variables of smoking tobacco had a significant relationship with males' risky sexual practices. Age category and chewing chat were significant for females' risky sexual practices. Overall, age, marital status, residence, region, alcohol consumption, and Chat chewing was significant to risky sexual behavior among Ethiopian youth.

The risky sexual practice by region significant compared with the Oromia region, males were in Afar and Gambella had 1.69 more likely to have risky sexual practices ($p \leq 0.01$). Nevertheless, the risk level of males significantly lower living in SNNP, Addis Ababa, Somalia, Harari, and Diredewa regions compared to the Oromia region (Table 7 COLUMN I). Among females, the likely hood of having risky sexual practices was significantly higher in Amhara and Gambella regions compared to the Oromia region (AOR=4.0 and 3.37, $p \leq 0.01$) accordingly. The risk level increased by 76.9%, 16.1%, and 87.8% among those living in Tigray, Addis Ababa, and Benishangul-Gumuz regions, correspondingly (Table 7 column II). Among Ethiopian youth, the odds of having a youth with risky sexual practice increased by 24.0%, 59.6%, 59.3%, 39.5%, 68.1%, and 45.7% if the youth in Amhara, Afar, Tigray, Benishagual, Addis Ababa and Gamebela compared to Oromia region respectively (Table 7 column I, II, III).

The likelihood of risky sexual practices was significantly increased by 48.1% among males living in urban ($p \leq 0.01$), similarly females who had lived in Urban were 41.5% more likely to have risky sexual practices ($P \leq 0.01$) compared to those living in rural areas.

Regarding the age category, the likelihood of females who were aged 20-24 and 25-29 was more likely to practice risky sexual practices compared to females whose age was 15-19 (OR=1.942, $p=0.000$ and OR=2.278, $P=0.000$ respectively). Youth aged 20-24 and 25-29 were higher risky sexual practice than youth aged 15-19 (Table 7 column III).

Concerning marital status, males with married and others marital were 2.76 and 2.03 times more likely to have risky

sexual practices than those with never married respectively ($p < 0.001$). Whereas females with other marital statuses (divorced/separated/windowed) were 1.98 times more likely to risky sexual practices compared to females those ever married ($p \leq 0.001$). Among Ethiopian youth, being married reduced by 47.2% risky sexual practices compared to never-married youth ($p \leq 0.001$) (Table 7. Column III).

Regarding ever-chat chewing the result shows that females who had ever chewed chat were more likely to practice never chewing chat to have risky sexual practice (AOR= 2.37, $p < 0.001$). But among males chat chewing is significant. Considering alcohol drunk, females with drunk alcohol were 1.69 times more likely to risky sexual practices compared to their counterpart's ($p \leq 0.001$). A male who smokes tobacco

every day higher risk than a nonsmoker males (AOR=1.76, $P < 0.001$). The level of risky sexual behavior among Ethiopian youth increased by 90.6% of youth who are drunk alcohol $p \text{ value} \leq 0.001$.

As shown in Table 7, the study has shown that among the independent variables, four variables such as region, residence, age alcohol drinking, chat chewing, and marital status had a significant relationship to risky sexual behaviors among youth at the national level (Table 7. column III). As the significance of the bivariant analysis result variables included in the multiple regression analysis separately in among male, female and both sexes, the following variable included in multivariant analysis.

Table 7. Multivariate analyses of RSB among Ethiopian youth (15-29) by sex.

Variables	Risky		
	Male	Female	Both sexes
Sex	I	II	III
Male	**	**	5.202*** (0.091)
Female			Ref
Age category			
15-19		ref	ref
20-24	Insignificant	1.942*** (0.15)	2.281*** (0.126)
25-29		2.278*** (0.148)	3.182*** (0.127)
Marital status			
Never married	Ref	Ref	ref
Married	2.756*** (.117)	1.091 (0.182)	0.528*** (0.119)
Others	2.035*** (.206)	1.983*** (0.212)	1.061 (0.162)
Smokes tobacco			
Don't smoke	ref		
Sometimes	1.125 (.259)	insignificant	insignificant
Every day	1.755 (.175)***		
Residence			
Urban	1.481** (.126)	1.415** (0.112)	2.222*** (0.09)
Rural	ref	Ref	ref
Region Oromia	ref	REF	ref
Amhara	.947 (.168)	4.082*** (0.187)	2.24*** (0.134)
SNNPR	.492*** (.187)	1.145 (0.237)	0.864 (0.152)
Afar	1.696 (.183)**	1.525 (0.221)	1.596*** (0.141)
Tigray	.775 (.188)	1.769** (0.205)	1.593 (0.147)**
Benishangul. G	1.173 (.171)	1.878** (0.213)	1.391 (0.143)*

Variables	Risky		
	Male	Female	Both sexes
Addis Ababa	.484*** (.208)	2.161*** (0.219)	1.681** (0.17)
Somalia	.313*** (.220)	0.882 (0.262)	0.607** (0.17)
Gambela	1.695** (.179)	3.772*** (0.218)	2.457*** (0.147)
Dird Dewa	.310*** (.229)	1.132 (0.238)	0.603** (0.179)
HARARI	.234*** (.239)	0.864 (0.258)	0.385*** (0.192)
Alcohol drunk			
NO		ref	ref
YES	Insignificant	1.699*** (0.133)	1.906*** (0.083)
Chewing Chat			
NO		ref	ref
YES	Insignificant	2.372*** (0.141)	2.03*** (0.093)
Constant	.275*** (.168)	0.028*** (0.273)	2.915*** (0.241)
-2 Log likelihood	3127.288	3701.447	5840.785

Exp (B) sig (SE). P<0.001-***, P<0.01-** AND P<0.05.*, Insignificant=during bivariate analys

Source: EDHS 2016 data

4. Discussion

This study's finding shows there was a significant difference in risky sexual behaviors across gender. Male youth had 5.2 times more risky sexual practices compared to female youth. The study identified various factors that influence the sexual behavior of male and female youths aged 15-29 in Ethiopia. Similarly, the result from a study conducted at Jimma University revealed that more proportion of male students who ever had sex compared to females [22].

Mainly social scientists have noted that biological variations alone cannot adequately explain risky sexual behavior [23]. Cultural factors, socialization, and biological processes all play a role in sexual desire in both men and women [24]. Sexual practice and sexual orientations are greatly determined by culture and socialization process, and culturally determined socialization process broadens the sex-role definitions and behavioral options of males while limiting those of females [25]. The cultural setting in Ethiopia might have a higher opinion of male sexual relations and different positions of responsibility than females. Moreover, In the Ethiopian socio-cultural context males are the more influential person and decision maker. It might be males had higher risky sexual practices than females in Ethiopia. The results of this study show that region, marital status, and residence predict the risky sexual practice among males and females in Ethiopia. This study found that there was risky sexual Variation across regions.

There is no overarching pattern of sexual activity hence; regional differences in sexual behavior are substantial. The variation is mainly explained by societal, cultural, and economic factors that influence sexual behavior [26]. Similarly, regional difference in sexual behavior is supported by a study conducted by [27] revealing that regional differences in behavior happen due to socio-cultural practices. Thus, Regions are represented by different biodiversity of the population belief, culture, and social-economics distribution in Ethiopia.

Our study reveals in comparison with females youth with age less than 19 years older were less likely to risky sexual behavior than females whose aged 20-24 and 25-29 years old. This finding is supported by the study conducted in Addis Ababa, Ethiopia [28, 29]. Restricting parental norms towards sex was protective against risky sexual behavior. In contrast, Igra & Irwin [30] theory revealed that adolescents aged 15-19 have risk taking behaviors as those behaviors, undertaken risky sexual practice, whose outcomes remain uncertain with the possibility of an identifiable negative health outcome. However, the study showed that parenting practices, especially family communication and parental monitoring, prevented drug initiation and delayed alcohol initiation and sexual debut in adolescents [31]. Hence, in Family norms and values in Ethiopia, females restrict from outside for enjoyment and being under control until they leave their families for education, marriage, and others reason. Most females aged under 20 years in Ethiopia are living with their parents. It might be an impact on the result of this study. On the resi-

dence of the youth, the study noted that males and females who had lived in urban were significantly more likely to have engaged in risky sexual practices compared with those who had lived in rural areas. Similarly, Folyan and colleagues [32] observed that urbanization is the fundamental primary agent of sexual activity that has a direct influence on the sexual behaviors of youths, especially those who lived in higher cities, support this finding. This could be explained by the fact that with living in urban areas comes increased enjoyment of risky behaviors, which eventually leads youth to change their sexual behavior toward unprotected and multiple sexual activities.

By marital status, the study revealed that male married and separate/divorced youths and those of other ever married were generally associated with having a greater number of risky sexual behaviors compared with never-married youths. Related studies have found that never-ever married youths were less likely to engage in risky sexual behaviors compared with married youths [33]. In contrast, in the study conducted in Kenya [34] young and unmarried men were more likely than older and married ones to report risky sexual behavior. However, findings revealed that men's multiple wives or polygamy in some parts of Ethiopia was practiced from religious and cultural perspectives. In addition, after marriage, both sexes' spouses are expected to be faithful to each other, and Sexual extramarital affairs are not socially acceptable, but there is a little pressure on males. This might increase risky sexual practices among married males. Females with separate/divorced/window partners are more likely to risk being compared to risky sexual compared to never-married females. In a similar study revealed by Liddon and his colleagues [35] divorced/separated, women were more likely to report or more lifetime sex partners and two or more sex partners in the past year than never-married women were. The result of this study might be religious, belief, and traditional practices perspective in Ethiopia as well as conservative outlooks the divorced/separate/window females in Ethiopia most of the time not acceptable or has little chance to marry another person. It Might as the reason females other than married and single be engaged in risky sexual practices. Ever using substances predicted the risky sexual behavior of youth. Smoking tobacco increases the youths' risk of committing risky sexual behavior among males [36]. It may be the small number of smokes among female respondents compared to the total sample and very unusual in Ethiopian females. Substance uses were detected to predict risky sexual behavior. For example, the use of alcohol was significantly associated with risky sexual activities among females and males. However, the chewing chat was significant among females. These findings were consistent with findings of similar studies in other areas [37, 38].

5. Conclusion

Risky sexual behavior can hurt one's sexual and reproduc-

tive health. Although studies showed that in other nations, gender is a risk factor for Risky sexual practice, there is limited evidence at the national level of Ethiopia. Gender is a key risk factor for risky sexual practices that are heavily influenced by the sociocultural norms of youth. In the Ethiopian sociocultural context, men have greater decision-making authority and influence, which limits that of women. Males and females in Ethiopia have different sexual outlooks. This difference in societal power dynamics can lead to gender-based disparities in sexual practices. Hence, males tend to be more likely to engage in unprotected sexual intercourse than females. Therefore, it is important to consider gender when discussing sexual health, as gender-based disparities and individual characteristics can profoundly affect sexual behavior, leading to negative consequences for one's sexual and reproductive health. Moreover, the individual characteristics of males and females have risk factors for sexual practices like taking substances. Regional and residential differences in behavior happen due to socio-cultural practices. Regions represented by different biodiversity of the population belief, culture, 40 and social-economics distribution in Ethiopia. The likelihood of engaging in risky sexual practices being male or female was determined by their sexual desire, attitude, perception, and biological factors that engaged in negative outcomes. Males had more enjoyment in risky practices and more risky take behaviors than females. The result shows without other possible influential variables being Ethiopian male youth is risky compared to females in bivariate analysis. Using data from the 2016 Ethiopian Demographic and Health Survey, this study identified the gender difference and determinants of risky sexual behavior among Ethiopian youth. The study found that there was a significant gender difference in risky sexual practices among youth. A bivariate analysis was conducted to determine the association between gender and risky sexual behavior, and the results of the study revealed some interesting findings. The findings of the bivariate analysis suggest that males are more likely to engage in risky sexual behavior than females. Furthermore, various socio-demographic factors, such as region, residence, marital status, age, education, wealth status, and religious affiliations, all have a significant impact on an individual's likelihood of engaging in risky sexual behavior. The multivariate analysis observed that males had a higher risk of sexual behavior compared to females. Regardless of determinates of risky sexual practices gender, marital status, residence, and region were significant relations between both sexes risky sexual behaviors.

Abbreviations

RSBs	Risky Sexual Behaviours
EDHS	Ethiopia Demographic and Health Survey
AOR	Adusted Odd Ratio
COR	Crude Odd Ratio
CI	Confidence Interval

Author Contributions

Tibeb Tafess: Conceptualization, Data curation, Methodology, Supervision

Tefera Tezera Negera: Formal Analysis, Methodology, Software

Conflicts of Interest

The authors declare no conflicts of interest.

References

- [1] Glen Spyron, C. (2015). Risky sexual behavior in adolescence.
- [2] Roseman & Reichenbach. (2010). International Conference on Population and Development at 15 years: achieving sexual and reproductive health and rights for all? *American journal of public health, 100(3)*, 403-406.
- [3] World Health Organization. (2022). Global health sector strategies on, respectively, HIV, viral hepatitis and sexually transmitted infections for the period 2022-2030.
- [4] Gillespie, Kadiyala, & Greener. (2007). Is poverty or wealth driving HIV transmission? *Aids, 21*, S 5-S 16.
- [5] Newman, K., Fisher, S., Mayhew, S., & Stephenson, J. (2014). Population, sexual and reproductive health, rights and sustainable development: forging a common agenda. *Reproductive Health Matters, 22(43)*, 53-64.
- [6] Idele, P., Gillespie, A., Porth, T., Suzuki, C., Mahy, M., Kasedde, S., & Luo, C.. (2014). Epidemiology of HIV and AIDS among adolescents: current status, inequities, and data gaps.. *JAIDS Journal of Acquired Immune Deficiency Syndromes, 66*, S 144-S 153.
- [7] Sam-Agudu, N. A., Folayan, M. O., & Ezeanolue, E. E. (2016). Seeking wider access to HIV testing for adolescents in sub-Saharan Africa. *Pediatric research, 79(6)*, 838-845.
- [8] Irwin Jr, C. E., & Millstein, S. G. (1986). Biopsychosocial correlates of risk-taking behaviors during adolescence: Can the physician intervene? *Journal of Adolescent Health Care, 7(6)*, S 82-S 96.
- [9] Ali, M. M., Dwyer, D. S., Vanner, E. A., & Lopez, A. (2010). Adolescent propensity to engage in health risky behaviors. *The role of individual resilience. International journal of environmental research and public health, 7(5)*, 2161-2176.
- [10] Thin Zaw, P. P., Liabsuetrakul, T., McNeil, E., & Htay, T. T. (2013). Gender differences in exposure to SRH information and risky sexual debut among poor Myanmar youths. *BMC Public Health, 13*, 1-9.
- [11] Sun, C. J., Seloilwe, E. S., Magowe, M., Dithole, K. S., Miller, K. S., & St. Lawrence, J. S. (2018). Gender differences in sexual and reproductive health protective and risk factors of Botswana adolescents: Implications for parent and adolescent interventions. *AIDS Education and Prevention, 30(1)*, 35-46.
- [12] Van Anders, S. M. (2015). Beyond sexual orientation: Integrating gender/sex and diverse sexualities via sexual configurations theory. *Archives of sexual behavior, 44*, 1177-121.
- [13] Byne, W., & Parsons, B. (1993). Human sexual orientation: The biologic theories reappraised. *Archives of General Psychiatry, 50(3)*, 228-239.
- [14] McCabe, J., Tanner, A. E., & Heiman, J. R. (2010). The impact of gender expectations on meanings of sex and sexuality: Results from a cognitive interview study. *Sex Roles, 62*, 252-263.
- [15] Leiblum, S. R. (2002). Reconsidering gender differences in sexual desire: An update. *Sexual and Relationship Therapy, 17(1)*, 57-68.
- [16] Tolman, D. L., & Diamond, L. M. (2001). Desegregating sexuality research: Cultural and biological perspectives on gender and desire. *Annual review of sex research, 12(1)*, 33-74.
- [17] McCall, K., & Meston, C. (2006). Cues resulting in desire for sexual activity in women. *The journal of sexual medicine, 3(5)*, 838-852.
- [18] Ethiopian Health and Nutrition Research Institute, Federal Ministry of Health. (2012). HIV related estimates and projections for Ethiopia. 2012.
- [19] Muche, A. A., Kassa, G. M., Berhe, A. K., & Fekadu, G. A. (2017). Prevalence and determinants of risky sexual practice in Ethiopia: systematic review and meta-analysis. *Reproductive health, 14*, 1-11.
- [20] CSA-Ethiopia, I. C. F. (2016). International. Ethiopia Demographic and Health Survey 2016: Key Indicators Report.
- [21] Fagerland, M. W., & Hosmer, D. W.. (2012). A generalized Hosmer-Lemeshow goodness-of-fit test for multinomial logistic regression models. *The Stata Journal, 12(3)*, 447-453.
- [22] Tura, G., Alemseged, F., & Dejene, S. (2012). Risky sexual behavior and predisposing factors among students of Jimma University, Ethiopia. *Ethiopian journal of health sciences, 22(3)*.
- [23] Cislighi, B., & Shakya, H. (2018). Social norms and adolescents' sexual health: an introduction for practitioners working in low and mid-income African countries. *African journal of reproductive health, 22(1)*, 38-46.
- [24] Marshall, W. L., & Barbaree, H. E. (1990). An integrated theory of the etiology of sexual offending. pp. 257-275). Springer US.
- [25] Block, J. H. (1973). Conceptions of sex role: Some cross-cultural and longitudinal perspectives. *American psychologist, 28(6)*, 512.
- [26] Wellings, K., Collumbien, M., Slaymaker, E., Singh, S., Hodges, Z., Patel, D., & Bajos, N. (2006). Sexual behaviour in context: a global perspective. *The Lancet, 368(9548)*, 1706-1728.
- [27] Odimegwu, C., Somefun, O. D., & Chisumpa, V. H. (2019). Regional differences in positive sexual behaviour among youth in sub-Saharan Africa. *Journal of biosocial science, 51(2)*, 254-272.

- [28] 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), e 0198657.
- [29] Cherie, A., & Berhane, Y. (2012). Peer pressure is the prime driver of risky sexual behaviors among school adolescents in Addis Ababa, Ethiopia. *World Journal of AIDS*, 2(03), 159.
- [30] Igra, Vivien, and Charles E. Irwin Jr. (1996). "Theories of adolescent risk-taking behavior." In *Handbook of adolescent health risk behavior*, pp. 35-51. *Boston, MA: Springer US*.
- [31] Ryan, J., Roman, N. V., & Okwany, A. (2015). The effects of parental monitoring and communication on adolescent substance use and risky sexual activity: A systematic review. *The Open Family Studies Journal*, 7(1).
- [32] Folayan, M. O., Adebajo, S., Adeyemi, A., & Ogunbemi, K. M. (2015). Differences in sexual practices, sexual behavior and HIV risk profile between adolescents and young persons in rural and urban Nigeria. *PloS one*, 10(7), e 0129106.
- [33] Coleman, L. M., & Testa, A. (2008). Sexual healthknowledge, attitudes and behaviours: variations among areligiously diverse sample of young people in London, UK. *Ethnicity and Health*, 13(1), 55-72.
- [34] Akwara, Madise, & Hinde. (2003). perception of risk of HIV/AIDS and sexual behaviour in Kenya. *Journal of biosocial science*, 35(3), 385-411.
- [35] Liddon, N., Leichter, J. S., Habel, M. A., & Aral, S. (2010). Divorce and sexual risk among US women: Findings from the national survey of family growth.. *Journal of Women's Health*, 19(11), 1963-1967.
- [36] Thepthien, B. O. (2022). Risky sexual behavior and associated factors among sexually-experienced adolescents in Bangkok, Thailand: findings from a school web-based survey. *Reproductive Health*, 19(1), 1-11.
- [37] Thepthien, B. O., & Celyn. (2022). Risky sexual behavior and associated factors among sexually-experienced adolescents in Bangkok, Thailand: findings from a school web-based survey. *Reproductive Health*, 19(1), 127.
- [38] Derese, A., Seme, A., & Misganaw, C. (2014). Assessment of substance use and risky sexual behaviour among Haramaya University Students, Ethiopia. *Science Journal of Public Health*, 2(2), 102-110.