

Risky Sexual Behavior and Factors Associated with it among Public and Private Secondary School Students in Addis Ababa City (Ethiopia): a Cross-Sectional Comparative Study

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Abstract

Introduction: Currently, an unprecedented 1.8 billion youth live globally. Yet, in a world of adult concerns, young people are often overlooked. Most young people begin sexual activities during adolescence. The contribution of the school type towards developing risky sexual behaviour by the students has not been explored well. Thus, this study tried to compare Risky Sexual Behavior and Factors Associated among Public and Private Secondary School Students in Addis Ababa.

Objective: To determine the prevalence of risky sexual behavior and factors associated with it among public and private secondary school students in Addis Ababa.

Method and material: A comparative cross sectional study was conducted from February 15- Mar. 16, 2015. A multistage random sampling technique was used to identify secondary schools. Study participants were selected using simple random sampling technique. Two population proportion formulas were used to calculate a total sample size of 1037 students (517 public 518 private). Data was summarized using descriptive statistics including mean, proportion and standard deviation and inferential statistics such as chi-square test and binomial logistic regression. Ethical clearance was obtained from Debre Markos University.

Result: A total of 1,037 students (519 public and 518 private) participated in the study making the response rate 98.8%. Among all the students (public and private), a quarter of them (264(25.5%)) had started sexual intercourse at the mean age of 16.39 years (+SD 1.7). Of those who started sex, 188 (71.2%) of them reported risky sexual practices. The prevalence of risky sexual behaviour in public and private schools were 73.28 % and 69.17%, respectively. The difference between the two categories is not statistically significant ($p > 0.05$).

Conclusion: A quarter of secondary school students have started sex. Seven in 10 of those who ever started sex practiced risky sexual behavior. Thus, parents, the government and non-government organizations working on students should work further to reduce risky sexual behaviour.

Abbreviation

AIDS- Acquired Immune-deficiency Syndrome
ANC- Antenatal Care
CDC- Center for Disease Control
CSA- Central Statistical Agency
CSWs- Commercial Sex Workers
EDHS- Ethiopian Demographic and Health Survey
ETB- Ethiopian Birr
HIV- Human Immune-deficiency Virus
RSB- Risky Sexual Behavior
SPSS -Statistical Package for Social Sciences
STIs- Sexually Transmitted Infections
UNAIDS- Joint United Nations Program on HIV/AIDS
UNFPA-United Nations Population Fund

US-United States
USA-United States of America
WHO- World Health Organization

Introduction

The United Nations defines youth as those age 15–24 year, adolescents as those age 10–19 year and young between 10 and 24 year. This is a very diverse group of individuals whose life circumstances and opportunities and obstacles to improve their lives vary considerably from country to country [1]. Currently, unprecedented 1.8 billion youth exist globally. Young people (between 10 and 24 years old) accounted for 28 % of the world's population in 2010; nearly 90 % live in developing countries [2]. In Ethiopia, approximately one third of the total population is in the age range of 10- 24 years [3].

During adolescence, it is common that young people develop interest in the opposite sex, highly concerned with physical and sexual attractiveness, and are frequently changing relationships [1]. According to the 2013 report of Population Reference Bureau, a US based private nonprofit organization; the global prevalence of HIV/AIDS among young people age 15-24 is 0.5 % for females and 0.3 % for males [4]. Contemporary world has encountered a remarkable increase in the number of young people. Those people 24 years old or younger make up almost half of the world's 7 billion population with 1.2 billion between the ages of 10 and 19. About 85% live in developing countries. Their percentage of the population in some major developing countries is already at its peak [2]. In Ethiopia, over 33% of the total population falls within this age range [3]. The transition from childhood to adulthood is influenced by risky behaviors that endanger adolescents' health in general. The youth is negatively affected by the outcomes of these risky behavioral patterns [5].

Many studies confirmed that adolescents are at the heart of HIV/AIDS pandemic. According to the latest estimates from UNAIDS, there were 35 million people living with HIV in 2013 globally, youth between the ages of 15-24, account for approximately 33% of new HIV infections. Sub-Saharan African young women remain most severely affected as compared to their male counterparts. HIV prevalence among young women remains more than twice as high as among young men throughout sub-Saharan Africa [6].

In Ethiopia the prevalence of HIV among adults age 25-49 is 1.9 % while the prevalence among young people of age 15-19 and 20-24 years was 0.2% and 0.9%, respectively. The period between the initiation of sexual activity and marriage is often a time of sexual experimentation and may involve risky behavior [7]. The youth is negatively affected by the outcomes of these risky behavioral patterns [5]. Risk sexual practice was relatively high among secondary school students of Addis Ababa. According to one study, the prevalence of risk sexual behavior among secondary school students was 26.7% [8].

There are numerous public and private secondary schools in Addis Ababa, and these schools host many students with different economical background, culture, religion, and social characteristics as they are coming from different area of the country [9]. So many factors are contributing to risky sexual behavior among youth and adolescent in secondary school, which among others are the negative media images and the internet, which promotes lustful, irresponsible sexual behavior. Again, risky sexual behavior is often complicated by high school dropout, parental abuse, battering, social stigmatization, child abandonment and child abuse among others. Several studies showed that increased use of alcohol and drugs at younger ages was related to subsequent riskier sexual activity and delinquent behavior. High-risk sexual behavior was defined by the number of partners with whom adolescents had intercourse without condom, since having multiple sex partners without using condoms put adolescents at risk [10].

Literature review

Socio demographic factors

Several studies have investigated the impact of socio-demographic factors on sexual behaviour and the consensus seems to be that they do affect adolescent sexual behaviour. For instance gender is one important predictor. In a study of adolescents' sexual behaviour in the North West Province of South Africa, the investigators found

that 44% of the adolescents in the sample were sexually experienced, and of those 61% were male while 39% were female. Moreover, they found that males initiated sexual intercourse earlier than their female counterparts; the rate for males was about 19% higher than that of females. Age is another determining factor. In the same study, the timing of first sexual debut has found that the rate for older adolescents was about 27% higher than the rate for younger adolescents [11]. A study conducted in Finland and Estonia has observed a positive association between age and sexual experience, that is, as age increases the participation in sexual activity also increases [12]. Another study conducted in Bangladesh has proved older adolescents have better knowledge and experience and are more likely to use condom/contraceptive consistently at their first sexual encounter than younger adolescents [13]. In a meta-analysis study conducted on 26 developing countries including Ethiopia, across countries, male youth under 20 years were about 8 times more likely than were male youth aged 20-24 years to have had higher-risk sex in the last 12 months (95% CI: 6.25-10.01) [14].

Studies confirmed the effect of religiosity on lifetime sex. A study conducted in South Africa indicated that adolescents who report strong religiosity are less likely than their counterparts who report weak religiosity to report lifetime sex. The odds of adolescents who report strong religiosity were 54% less than those who report weak religiosity [11]. Several scholars have observed that adolescents who attached importance to religion were significantly more aware of the dangers of HIV/AIDS than their non-religious counterparts; they are more likely to delay sexual involvement than those with lower levels of religiosity [15].

Early sexual debut

Early sexual debut increases young peoples' risk for infection with HIV and other STIs. Youth who begin early sexual activity are more likely to have high-risk sex or multiple partners and are less likely to use condoms [11]. Also, early age at sexual debut has been associated with higher number of lifetime sexual partners [16].

Peer pressure

According to a study conducted in sexual behavior of secondary school students in Lagos State, Nigeria, peer group pressure contributed most ($P < 0.05$) to sexual behavior of secondary school students [17]. In another study conducted on risky sexual behaviors of adolescents in the North West Province of South Africa, adolescents who have strong ties are more likely than those with weak ties to their peers to report lifetime sex. Youths who had peer pressure to have sexual intercourse and those who had friends already engaged in sexual intercourse were more likely to have sexual experience (AOR = 1.96) and (AOR = 1.41) respectively [11]. A similar study conducted on school adolescents in Addis Ababa confirmed that students who perceived their peers are involved in sexual relationships were more likely to report risky sexual behavior compared to those who did not have this perception [AOR = 11.68 (95%CI: 8.76 - 15.58)] [18].

Inconsistent condom use

Consistent and correct use of the male latex condom reduces the risk of sexually transmitted disease (STD) and human immunodeficiency virus (HIV) transmission [19]. Several studies had showed that adolescents engaged in premarital sexual practices are not using condom consistently. Among U.S. high school students surveyed in

2013, from among those who ever had sexual intercourse, 40.9 % did not use condom the last time they had sex [20]. A study conducted on high school students of China among sexually active adolescents, 42.4 % had unprotected sexual intercourse [21].

According to EDHS 2011, among young men who had one or more partners in the past year, only 47 % reported using condom in their most recent sexual intercourse [6]. In a study conducted among students of Agena preparatory school of Gurage zone, Ethiopia, 37 % of students never used condom. More importantly, about 67.7 % of the respondents had no intention to use condom in the next sexual encounter [22]. Similarly, in a study conducted among high school students of Aleta Wondo town of Southern Ethiopia, from among those who were engaged in sexual intercourse 51.4 % did so without condom [23].

Sex with commercial workers (CSWs)

Sex with commercial sex workers is considered one of high-risk sexual behaviors. Individuals engaged in sex with CSWs are highly exposed to contracting sexually transmitted infections including HIV/AIDS due to the tendency of the latter having multiple sexual partners. According to the 2013 UNAIDS report, the HIV prevalence among sex workers is 12 times greater than among the general population [6].

The result of Ethiopian demographic and health survey 2011 revealed that youths aged 15-24 who had ever paid anyone in exchange for sex is 1.5 %. Although the figure is not as high as the national average (5 %) for men aged 15-49, the practice indicates the presence of unsafe sexual practices [6,7]. A study conducted in Debreberhan town revealed that among youths who are sexually active 6.7 % of them had sex with CSWs. A similar study which was done among Debreberhan University students revealed that 14.6 % of the sexually active students confessed visiting CSWs [24]. Furthermore a study conducted among adolescent and youth of Sodo town, Wolaita, out of the total sexually active respondents 24.8 % reported to having had sex with casual sexual partner and 13.9 % had history of sexual practice with commercial sex workers in the last 12 months [25].

Substance use

Studies show that there is a significant association between drug use and risky sexual behaviour. The 2013 national Youth Risk Behavior Survey indicates that among U.S. high School students 22 % of them drank alcohol or used drugs before last sexual intercourse; 2% used a needle to inject any illegal drug into their body one or more; 41% did not use condom during last sexual intercourse [20]. According to a study among middle and high school students of Colombia, 18.4 % reported sexual intercourse after alcohol consumption, 5.8 % after illegal drugs consumption [26]. A study conducted among college students of Nepal, those who frequently consumed alcohol were 54 % (OR = 0.46) less likely to use condoms at first sexual intercourse than those who never or rarely consumed alcohol [27]. As to a study conducted among adolescents of North Gondar, Ethiopia, nearly one fourth (24.7 %) sexually active students reported that they used alcohol or drugs in their recent sexual intercourse. The same study also showed that 76 % of Khat chewer male students and 57 % of female Khat chewer students had multiple sexual practices [28]. A similar study conducted among urban youths of Addis Ababa revealed that drinking alcohol and/or taking drug were other associated factors with condom use among male adolescents and youths; out of the respondents, 34.9 % of those who drank alcohol and 24.3 % of those who took drugs before sex confessed to have used condom incorrectly

or inconsistently. In the same study, almost all the focus group discussions participants and the case studies blamed alcohol and drug use for incorrect and inconsistent use of condom [29].

Exposure to pornographic movies

A study conducted on exposure to sexually explicit websites and adolescent sexual attitudes and behaviors revealed that adolescent males indicated that their exposure to explicit sex material put their lives at risk of contracting sexually transmitted infections (STIs) including HIV/AIDS because they engaged in unsafe sexual practices as a result of impulsivity and conformity [30].

Furthermore, according to a study done in South Africa, adolescent males who watch pornography are living in sexualized environments [31]. In a study conducted among in-school youths of Shendi town, west Gojjam zone, North Western Ethiopia, watching pornographic movies was found to be significantly associated with premarital sexual practices (AOR = 1.73; 95% CI = 1.18, 2.53) [32].

Student communication with parents on sex issue

A majority of parents do not communicate with their kids about sex, and when they do it is usually not enough [33]. In a study conducted to determine the prevalence of sexual risk taking among students in Tehran it was found that parental monitoring was an influential predictor of sexual high risk behaviors directly [34].

In a study conducted in Harar town, eastern Ethiopia high parental monitoring compared to low decreases the Incidence Rate of engaging in risky sexual practices by 28% [35]. Those who had a satisfactory level of SRH communications with their parents compared to poor communicators experienced less incidence rate of risky sexual practices.

In another study conducted in Diredawa, eastern Ethiopia, 77% of students recognized the importance to discuss sexual and reproductive health issues with their parents. However, only 36.8% of students had ever discussed at least two sexual and reproductive health issues. Students were 2.9 times more likely discussed with their mother about sexual and reproductive health issues than other family members [36]. As part of normal development, adolescents form new peer relationships and become increasingly interested in romantic and potentially intimate sexual partners. In addition, adolescents crave privacy in a variety of realms, including matters related to their bodies and their relationships with peers. Consequently, parents often are the last persons an adolescent will consult for information about new physical and social realities; rather, peers, educators and other adults may become important new data sources and confidants [37]. Adolescents, who describe their relationship with at least one parent as warm and supportive, compared with those who do not describe their relationships this way, are more likely to delay the initiation of sexual activity and less likely to engage in frequent sexual intercourse. Connectedness to family (as well as to school) is another important factor in reducing adolescent sexual risk taking [38]. When parents disapprove of adolescent sexual activity, adolescents are less likely to be sexually active and, if they are sexually active, tend to have fewer sex partners [39].

The following conceptual framework developed by the principal investigator of this study shows the pertinent issues discussed above.

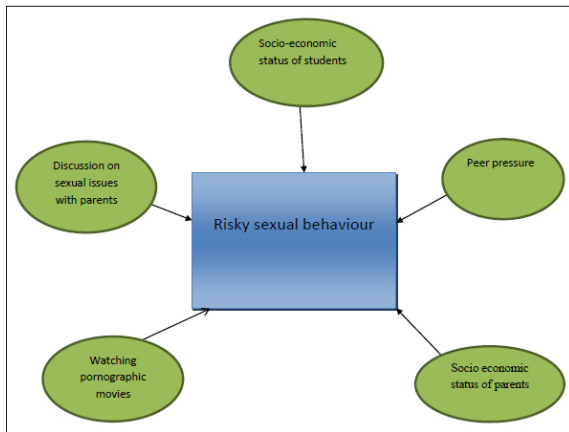


Figure 1: Conceptual Framework of the Study on Risky Sexual Behavior and Factors Associated with it among Secondary School Students in Addis Ababa.

Significance of the study

Many studies have been conducted on risky sexual behavior among public secondary schools and college level students in Ethiopia. However, risky sexual behaviour and associated factors among public and private secondary school students have not been studied and compared. Therefore, this study tries to compare the prevalence of risky sexual behavior in public and private secondary schools in Addis Ababa. It also tries to determine factors that affect risky sexual behavior among secondary school students in the city.

The findings from this study help to inform policy and decision makers to take relevant actions based on evidence. The final report of the study is communicated with the schools that participated in the study, Addis Ababa Health and Education bureaus and other relevant stakeholders. In so doing, the study is anticipated to contribute to designing better intervention strategies and educational programs. Moreover, the study adds to the existing body of knowledge on risky sexual behavior for use of the scientific community.

Objective of the Study

General objective

To assess prevalence of risky sexual behavior and factors associated with it among secondary school students in Addis Ababa.

Specific objectives

1. To calculate levels of risky sexual behavior among secondary school students in Addis Ababa city.
2. To identify factors associated with risky sexual behavior among secondary school students in Addis Ababa city.

Methods and Materials

Study design and period

A comparative cross sectional study design was conducted among private and public secondary school students of Addis Ababa city from February 15-March 16, 2015.

Study area

The city is divided in to ten sub-cities which are the second administrative units next to city administration. In terms of area coverage, Bole is the largest sub-city followed by Akaki- Kaliti and Yeka sub-cities. Addis Ketema is the smallest and followed by Lideta and Arada Sub-cities. The sub-cities are also divided

in to woredas, which are the smallest administrative unit in the city. There are 116 woredas in the city administration. The total population of Addis Ababa was estimated to be 3,048,631, of whom 1,595,968 were females and the rest were males. This is 3.7% of the Ethiopian population and 22.42% of urban population in the country. The majority of the population is young between the ages of 10-24 years. Addis Ababa harbors people with different cultural backgrounds, norms, and value systems with a considerable diversity of socio-economic status. According to the report of 2012 from Addis Ababa Bureau of Education, there are 188 secondary schools with 152,514 students [9].

Source Population

All regular students within public and private secondary schools in Addis Ababa city were our source population.

Study Population

All regular students in selected public and private secondary school of Addis Ababa. The primary sampling units were public and private secondary schools. The secondary and tertiary sampling units are the selected grades and sections of public and private secondary schools respectively. The study units were individual students in the selected schools.

Sample size

The sample size for this study was determined using two population proportions formula with the following assumption: A decision has been made to detect a 10 % difference between private and public secondary schools where p_1 = the proportion of public-school students who have risky sexual practice is taken as 27 % based on a recent study conducted among high school students in Addis Ababa [8]. Hence, p_2 = the proportion of private-school students who have similar practice is taken as = 37 %, which means ($P_2-P_1= 10\%$). At 95 % confidence level and 80 % power and a design effect of 1.5, the final sample size for each group is found to be 506.

$$n = D (Z_{\alpha/2} + Z_{\beta})^2 * (p_1 (1-p_1) + p_2 (1-p_2)) / (p_1 - p_2)^2,$$

Where:

- $Z_{\alpha/2}$ is the critical value of the normal distribution at $\alpha/2$ (for a confidence level of 95%, α is 0.05 and the critical value is 1.96),
- Z_{β} is the critical value of the normal distribution at β (for a power of 80 %, β is 0.2 and the critical value is 0.84) and
- D is the design effect = 1.5

Sampling Procedure

A multistage sampling technique was used to select study units. First, list of all secondary schools in Addis Ababa were obtained from the Education Bureau of Addis Ababa City Administration. Second, the schools were stratified in to two strata, namely; public and private secondary schools. Next, five schools were selected from the two strata proportional to their size.

Accordingly, three private and two public schools were randomly chosen from the list of schools obtained from the education bureau. Then, within the selected schools, students were stratified in to two strata; grades 9 and 10 as one stratum and grade 11 and 12 as another stratum. This is because, this study assumes that there is no difference in risky sexual behavior within each stratum. Using simple random sampling technique, one grade level was selected

from each stratum. This means two grades were selected per school; one grade from grades 9 and 10 and the other grade from grades 11 & 12. Then, the sample size was divided between the selected grades in each school proportional to the size of student population in each selected grades. Then, the allocated sample size

to each stratum was divided to the average class/section size to determine the number of sections needed to be included in each selected grade. Finally, the sections were selected randomly and all the students in the selected sections filled questionnaire (**Figure 2**).

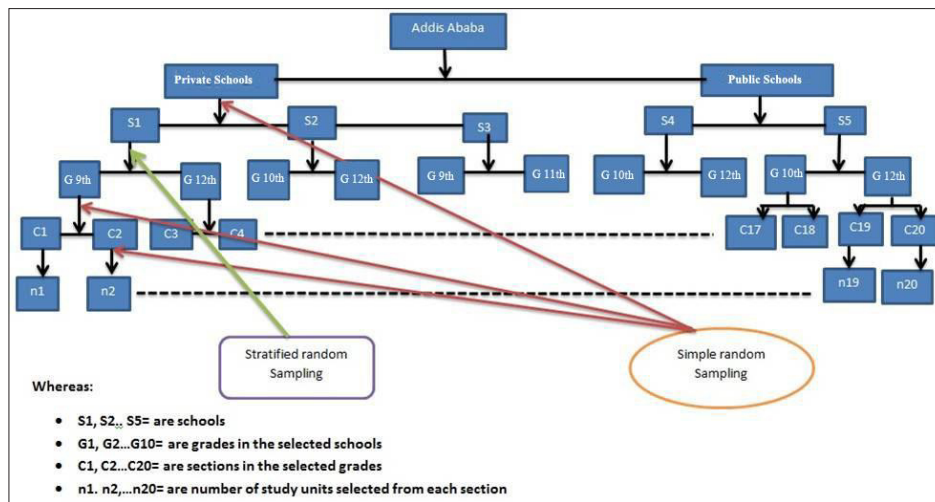


Figure 2: Schematic Diagram of the sampling procedure of the Study on Risky Sexual Behavior and Factors Associated with it among Public and Private Secondary School Students in Addis Ababa.

Inclusion criteria: All regular students in the selected private and public secondary schools within the city.

Exclusion Criteria: Those students, who can't hear or speak, drop-out during the time of the survey were excluded from the study.

Variables of the study

Independent variables

- Demographic and socio-economic characteristics of the students (age, sex, religion, religiosity, ethnicity, marital status, living condition, grade, pocket money)
- Demographic and socio-economic characteristics of parents (educational status of mother, educational status of father, average monthly income of family)
- Peer Pressure
- Substance abuse
- Discussion with parents on sexual issues
- Watching pornographic movies

Dependent variables

Risky sexual behavior

Operational definitions

- **Risky sexual behavior:** A student who has commenced sex and experiencing either of the following :
 - Started sex before 15 years (early sexual debut) or
 - Reported inconsistent condom use or
 - Reported having had sex with commercial sex worker.
- **Early sexual debut:** According to this study, it is defined as having sexual intercourse before the age of 15 years
- **Inconsistent condom use (Unsafe sex)-**report of having sex with irregular use of condom (19).
- **Sex with Commercial sex worker-** According to this study, it is defined as ever making of intercourse with a person who performs sex with people in exchange for money or gift.
- **Substance use-** According to this study, it is defined as

ever use of psychoactive stimulants such as alcohol, Khat, cigarettes, Shisha, Hashish.

- **Watching Pornographic film-** According to this study, it is defined as report of viewing sex films once, sometimes or regularly.

Data collection procedures and data collection tools

A self-administered structured questionnaire was prepared in English language and then the questionnaire was translated in to a local language Amharic; the translated questionnaire was pre-tested in 40 randomly selected students and relevant inputs were included.

During the time of data collection, data collection facilitators and supervisors were assigned on the selected sections. The students were requested to read the consent form carefully to get informed verbal consent before they were enrolled in the study. After getting informed consent questionnaires were distributed to the students. The facilitators oriented the students about how to fill the questionnaires properly, answering any inquires or difficulties from the respondents.

The students completed the questionnaires during a given class time. For the sake of maximizing the confidentiality of information and privacy of the participants, a medium sized empty box was placed in each of the classes where data collection took place so then each of the respondents could drop the questionnaire they filled in the designated boxes. This arrangement was made to make the participants feel as comfortable and secured as possible which in turn makes them freely express their responses. Finally, the investigator and supervisors checked the questionnaires for their consistency and completeness and grossly inconsistent and incomplete questionnaires were excluded.

Data quality management

Before undertaking actual data collection, questionnaires were pre-tested in randomly selected students in one of secondary schools

in Addis Ababa city. This process ensured the clarity, ordering, consistency and acceptability of the questionnaires; finally the questionnaire was made ready for use after the necessary corrections have been made. During data collection, supervision was done by the principal investigator and hired supervisors. Supervisors and data collection facilitators were trained for one day to make them familiar with the questionnaires; after being trained they knew the purpose of the study, how to orient and guide the study participants in filling the questionnaire format. The data collection process was completed within one day to avoid information contamination. After the data was entered, frequencies and sorting was performed to identify any outliers and corrections were made by viewing the original questionnaire.

Data Processing and Analysis

Prior to data entry, questionnaire was checked for completeness and consistency, coded and next data was entered in to SPSS version 20 software package. Data was cleaned by doing simple frequency and cross tabulation. The dependent variable, Risky Sexual Behaviour was calculated using computes command under the transform button.

After the data cleaning was over; univariate analysis (frequency distribution) of dependent and independent variables was computed. Bivariate analysis was done using multiple regressions to test whether there is association/ difference between dependent and selected independent variables.. Multivariate logistic regression analysis was employed to test for significance of association between selected independent variables and the dependent. Then, the data is presented using graphs, tables and in the form of texts, odds ratio.

Ethical Considerations

Ethical clearance was obtained from the ethical review committee of Debre Markos University. Permission was obtained from Addis Ababa Bureau of education and the respective school administrations. The objectives and the potential harm and benefit of participating in the study were explained, and the possibility of refusing to respond to the questionnaires was clarified before written consent was obtained from the study. Adequate time was offered to the participants to make a decision to participate or withdraw from participation. Serial numbers was used to identify the questionnaire. Names of respondents were not required and the completed questionnaires were also kept in the investigator's locker to keep the confidentiality of the study participants. The result of the study will be shared to the school administrations, teachers, students and other relevant stakeholder.

Result

A total of 1037 students, both from private and public schools completed the questionnaire yielding a total response rate of 98.8%. Among these respondents, both public and private secondary school students, a larger proportion (513 (54.1%) and 1026 (98.9) are females by gender and single by marital status respectively. The mean age of the study population was 17.7 years (+SD7.6), ranging from 14 to 24 years. Orthodox Christianity was the dominant religion consisting of 64.6%. The majority of the students belong to Amhara ethnic group, which accounts for 33.3%. Among the respondents 93.2% of the students were living with their parents (Table 1). In this study, it was reported that a quarter 264 (25.5%) of the students had ever practiced sexual intercourse and one in ten (10.2%) of them were currently sexually active (Figure 3). The mean age (+SD) for sexual initiation is 16.39 (+1.7).

The prevalence of risky sexual behaviour among sexually active students of public and private secondary schools were 73.28 % and 69.17% respectively. The difference between the two categories is not statistically significant ($p > 0.05$) (Figure 4).

Table 1: Socio demographic characteristics of participants on the study on Risky Sexual Behavior and Factors Associated with it among Public and Private Secondary School Students in Addis Ababa, March 2015

Socio demographic Variables (n =1037)	Private (n1 = 524) n (%)	Public (n2 = 513) n (%)	Total n (%)
Sex			
Male	246 (46.9)	230 (44.8)	476 (45.9)
Female	278 (53.1)	283 (55.3)	513 (54.1)
Age			
10-14	4 (2.7)	0 (0)	14 (1.4)
15-19	495 (94.5)	483 (94.2)	978 (94.3)
20-24	14 (2.7)	27 (5.3)	41 (4)
>24	1 (0.1)	3 (0.3)	4 (0.4)
Religion			
Orthodox Christian	341 (65.1)	329 (64.1)	670 (64.6)
Muslim	105 (10.1)	103 (10.1)	208 (20.1)
Protestant	68 (13)	69 (13.5)	137 (13.2)
Others	10 (1.9)	10 (2.1)	22 (2.1)
Ethnicity			
Amhara	155 (29.6)	190 (37)	345 (33.3)
Guraghe	171 (32.6)	74 (14.4)	245 (23.6)
Oromo	87 (16.6)	138 (26.9)	225 (21.7)
Tigre	62 (11.8)	51 (9.9)	113 (10.9)
Others	47 (9)	60 (11.7)	107 (10.3)
Marital status			
Single	521 (99.4)	505 (98.4)	1026 (98.9)
Married	0 (0)	2 (0.4)	2 (0.2)
Divorced	3 (0.6)	3 (0.6)	6 (0.6)
Widowed	0 (0)	3 (0.6)	3 (0.3)
Living circumstance			
With parents	515 (98.3)	452 (88.1)	967 (93.2)
With relatives	5 (1)	42 (8.2)	47 (4.5)
Alone	2 (0.4)	13 (2.5)	15 (1.4)
With spouse	1 (0.2)	2 (0.4)	3 (0.3)
With friend	1 (0.2)	4 (0.8)	5 (0.5)
Grade			
9	113 (21.6)	1 (0.2)	114 (11)
10	38 (7.3)	118 (23)	156 (15)
11	130 (24.8)	190 (37)	320 (30.9)
12	243 (46.4)	204 (39.8)	447 (43.1)
Pocket money per month			
1-150 birr	242 (61.9)	198 (60.9)	440 (61.5)
150-250 birr	63 (16.1)	62 (19.1)	125 (17.5)
251-500 birr	61 (15.6)	49 (15.1)	110 (15.4)
>500birr	25 (6.4)	16 (4.9)	41 (5.7)

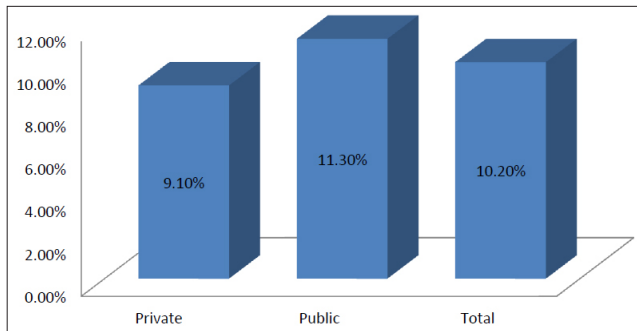


Figure 3: Proportion of currently sexually active students in public and private secondary schools in Addis Ababa, March 2015.

Regarding risky sexual behaviors among sexually active students, 13 (2.9%) of the private and 14(3.1%) of the government students had sexual contact with a commercial sex worker, with no difference across these groups ($P > 0.05$). Similarly, 55(14.6%) of the private and 59(15.6%) of the government school students had also inconsistent condom use; moreover, 49 (18.5%) and 44 (16.6%) of the former and the latter group had also early sexual debut, respectively. (**Table 2**)

Table 2: Comparison of risk related factors among the students. Addis Ababa, Mach 2015

Variable	School Category		p-value*
	Private n (%)	Government n (%)	
Sex with commercial sex worker			
Yes	17(13)	16(12)	0.698
No	114 (87)	117(88)	
Peer pressure			
Yes	68(55.3)	72(58.1)	0.546
No	55(44.7)	52(39.1)	
Inconsistent condom use			
Yes	81(61.8)	81(60.9)	0.059
No	50 (38.2)	52(39.1)	
Risky sexual behavior			
yes	96(73.3)	92(69.2)	0.499
No	35(26.7)	41(30.8)	
Early sexual debut			
Yes	49 (37.4)	44 (33.1)	0.436
No	82 (62.6)	89 (66.9)	
Watching pornographic movies			
Yes	82 (62.6)	244 (23.5)	0.747
No	49(37.4)	49(36.8)	

*p-value for Pearson chi-square

Factors affecting risky sexual behavior

In this study, all the predictor variables, except grade level, that

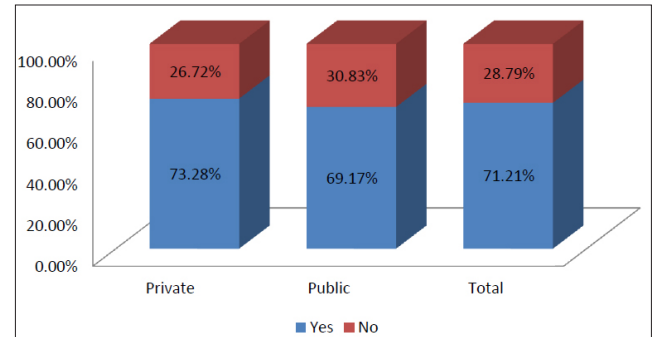


Figure 4: Prevalence of risky sexual behaviour among sexually active students in public and private secondary schools in Addis Ababa, March 2015.

were entered in bivariate analysis to predict risky sexual behavior were not found to be significant. Even though not significant, trivial differences were observed between groups. For example, the odds of risky sexual behavior among females were less by 16% than males. Risky sexual behavior among students who used substances is 1.2 times higher than those who don't use substances. The odds of risky sexual behavior among students who had peer pressure was 0.02% lesser than students without peer pressure. The odds of risky sexual behavior among students who watched pornographic movies was not significantly different from those who did not watch pornographic movies. Students who reported earning pocket money had 1.4 times higher risk of sexual behavior than those who did not (**Table 3**)

However, the odds of risky sexual behaviour among grade 11 and 12 students is less by 72 % compared to grades 9 and 10 students ($p < 0.05$). When controlled for school type (public vs private) however, the difference is insignificant (**Table 3**).

Table 3: Factors affecting risky sexual behavior of the students, Addis Ababa, March 2015

Variables	Risky sexual behavior		COR (95%CI)*	AOR(95%CI)**
	Yes	No		
Sex				
Male	102	38	1	1
Female	86	38	0.843(0.495,1.437)	0.772 (0.394,1.512)
Substance abuse				
Yes	65	23	1.218(0.686,2.163)	0.749(0.396,1.417)
No	123	53	1	1
Peer pressure				
Yes	99	41	0.985(0.566,1.0714)	1.005(0.508,1.989)
No	76	31	1	1.005(0.508,1.989)
Watching pornographic movie				
Yes	117	49	0.908(0.521,1.581)	1.230(0.668,2.263)
No	71	27	1	1
Earns pocket money				
Yes	99	34	1.374(0.805,2.374)	1.495(0.848,2.636)
No	89	42	1	1
Marital status				
Single	186	73	3.822(0.626,23.343)	0.293(0.045,1.797)
Married	2	3	1	1

Living Condition				
With Parent	172	63	0.917(0.361,2.326)	0.645(0.219,1.900)
Others (alone and with relatives)	16	7	1	1
Religious teaching attendance				
Always	32	7	1	1
Sometimes	151	67	0.496(0.207,1.173)	0.490(0.192,1.249)
Never	5	2	0.547(0.088,3.417)	0.517(0.079,3.381)
Mother's Education				
None or Informal	47	24	0.591(0.281,1.245)	0.568(0.257,1.255)
1-8	34	10	1.026(0.417,2.524)	0.996(0.382,2.598)
9-12	54	26	0.627(0.308,1.300)	0.795(0.361,1.750)
Above 12	53	16	1	1
Father's education				
None and below 8 th grade	52	24	0.730(0.388,1.374)	0.797(0.333,1.905)
9-12	44	21	0.706(0.365,1.366)	0.794(0.350,1.801)
Degree/Diploma	92	31	1	1
Family monthly income (birr)				
Less than 30,000	81	49	1	1
Greater than 30,000	49	107	0.728 (0.419,1.263)	0.793(0.445,1.412)
Grade level				
9 and 10 grades	24	3	1	1
11 and 12 grades	164	73	0.281(0.082, 0.962)	0.287(0.83,0.989)

*COR=Crude odds ratio

**AOR=Adjusted odds ratio

Discussion

This study examined risky sexual behavior and associated factors among secondary school students in Addis Ababa.

The leading information contained in the finding is that a sizable (25%) of the secondary school students have already begun sexual intercourse and one in ten of them are still practicing it. This is slightly different from the findings of other previous studies conducted in Addis Ababa [28.1% and 26.7%] [8,30]. The possible reason for this difference might be the difference in method and time of data collection. There were also number of previous studies conducted in different towns of Ethiopia which revealed that the prevalence of lifetime sexual intercourse for secondary school youths and adolescents were ranging from 18.3% in Aleta wondo 19 % in Shendi (Gojjam), 23% in North Gondar, 27.1 in Gurage, 29% in Wolaita, and 51.3% in Dessie [22,23,25,28,32,42]. The difference might be as a result of cultural differences, community norms, availability of risk factors and the result of SRH information disseminations through various mechanisms.

In studies of other countries, adolescents who ever had sexual intercourse was 7% in China, 13.8 in India 25% in Colombia, 47 % in South Africa, 48.7% in the United States [20,21,25,26,40]. The disparity in the prevalence of sexual intercourse among youths and adolescents of different countries may be due to different sample characteristics, different traditional cultural background, and different socioeconomic environment.

The level of risky sexual behavior in this study is by far above the findings of other studies among Addis Ababa Public Hospitals and in Humera, Tigray [41,43]. This difference might be due to the approaches taken to quantify risky sexual behaviour. This study tried to consider three different risky practices to measure the student overall risky sexual behaviour while other studies included four factors. This study couldn't get a significant difference in terms of risky sexual behaviour between public and private secondary schools (73.28 % and 69.17% respectively). This might be due to the fact that both public and private secondary school students live in the same communities which could have more impact on their risky sexual behaviour than the type of school they are attending.

In this study, none of the independent variables, except grade level, that were included in the multivariate logistic regression, were found to be significant predictors of risky sexual behavior. However, grade level was also found to be not significant predictor of risky sexual behaviour when controlled for school type. The non-significance of the predictors is in contradiction with other studies that reported age, amount of pocket money, SRH discussion with parents and religious attendance to have significant effect on risky sexual behavior among adolescents [12,18,24]. Behavioral factors such as, watching pornographic movies, peer pressure, substances abuse were also reported to have been associated with risky sexual behavior in other studies in Addis Ababa, other towns of Ethiopia including north Gondar and Shendi - West Gojjam and other countries [19,21,26,29,30,33,41]. The reason for the non-significance of these very plausible factors could be due to the small size of students who started sex making the sample size inadequate to assess factors.

Strengths and Limitations of the Study

Strengths

Selection of students with probability method might be one of the strengths of this study, since it may give representative result for secondary school students in public and private school students in Addis Ababa.

Limitations of the study

The nature of the study involves asking very sensitive topics. Despite measures taken to reduce the bias, some students may not correctly respond to the questions to show their real practice. There are also limitations in this study that emanate from nature of the study design used to form casual associations.

Conclusion

The study shows that one out of four secondary school students in Addis Ababa have started sexual activity. Of those who were sexually active, 7 out of 10 practiced risky sexual behavior. Secondary school students in Addis Ababa initiate sex at a very young age. There is no statistically significant difference in the prevalence of risky sexual behavior between private and public secondary school students in Addis Ababa.

Recommendation

The findings of this study indicate that both public and private secondary school students are practicing risky sexual behavior that requires great attention. Therefore; based on the findings the following recommendations are given:

- Government and non-government organizations and different school clubs such as Anti- AIDS clubs of the schools should

further work for reduction of risky sexual behavior.

- Sexuality education needs to be promoted to help reduce the vulnerability of young and adolescent secondary school students.
- Further works should be done to delay early sexual initiation in secondary school adolescents.
- We recommend heightened concerns be targeted to adolescents, particularly those adolescents with substance use behaviors.
- Further research is needed to develop effective interventions for this population to reduce sexual risk behaviors, which may have a long beneficial to the control of HIV and STI.

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