UNSAFE SEX PRACTICE AND ITS ASSOCIATED FACTORS AMONG REGULAR UNDERGRADUATE STUDENTS OF MEKELLE UNIVERSITY, ETHIOPIA, 2019: A FACILITY BASED CROSS-SECTIONAL STUDY

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ABSTRACT

BACKGROUND: Unsafe sex is ranked second among the top ten risk factors to health that may lead to Sexually Transmitted Infections (STIs), unplanned pregnancy and/or unsafe abortion. Despite the high burden of unsafe sex practices in Ethiopia, little was known on reasons and associated factors in the study setting in particular.

OBJECTIVE: To examine unsafe sex practice and its associated factors among regular undergraduate students of Mekelle University, Ethiopia, 2019.

METHOD: A facility based cross-sectional study design was conducted among 797 regular under graduate students of Mekelle University selected using the multistage sampling design. A multiple logit model was fitted to identify factors associated with unsafe sex practice. Finally, Adjusted Odds Ratio (AOR) was estimated and 95% confidence intervals (CI) were used for statistical decision.

RESULT: Overall, approximately 44% of the participants who had sex in the last 12 months practiced unsafe sex. Major reasons to have had unsafe sex were - for fun, lack of awareness, trusting sexual partners and no access to use condom. Dormitory living condition (AOR = 0.44; 95% CI: 0.20 – 0.99) and taking course on Sexual and Reproductive Health (SRH) (AOR =0.49; 95% CI: 0.28 – 0.85) had protective effect against unsafe sex practice.

CONCLUSION: The unsafe sex practice was significantly high in the current study. Thus, comprehensive information and education on SRH has to be implemented by the University to prevent unsafe sex practices associated bad consequences among the students.

KEYWORDS: Condom use, Mekelle University, Multiple partners, Reasons, Unsafe sex practice.

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INTRODUCTION

Since the last two decades, unsafe sex practice is defined as engaging in risky sexual behavior that allow passage of body fluids, sexual intercourse without condom, and/or having multiple sexual partners which includes early sexual practice, inconsistent use of condom and/or multiple partners[1]. On the other hand, risky sexual behavior is defined according to the behavior itself including vaginal, oral and/or anal intercourse especially with Human Immunodeficiency Virus (HIV positive, intra-venous user or non-exclusive partner)[2].

Globally, the fast growth of the young population accounts for approximately half of the total population and 90% of whom were residents of developing nations. Adolescents and young adults sexual desires increase from time to time without being adequately considering the negative consequences[3,4].

In terms of Disability Adjusted Life Years (DALYs), unsafe sex is ranked second (causes 5% global DALYs) among the leading risks for global burden of disease next to childhood underweight (6%) followed by Alcohol use (5%), unsafe water, sanitation and hygiene (4%), high blood pressure, tobacco use, suboptimal breast feeding, high blood glucose, indoor smoke and overweight and obesity. Unsafe sex affects populations particularily in Low and Middle Income Countries (LMICs) especially south-east Asia and the Sub-Saharan Africa (SSA) region[5].

More than 30 Sexually Transmitted Infections (STIs) are caused through practices of unsafe sex including Human Immune-Deficiency Virus/Acquired Immune-Deficiency Syndrome (HIV/AIDS). Unsafe sex causes an estimated of 376 million chlamydia, gonorrhoea, syphilis and trichomoniasis cases and above 290 million women infected with Human Papilloma Virus that may lead to cervical cancer. STIs such as syphilis and Herpes Simplex Virus type 2 further aggravate the risk of HIV infection spread[6-8].

Several studies have revealed that young adults in Sub-Saharan Africa (SSA) region also tend to be engaged in having multiple sexual partners and unprotected sexual intercourse, and consequently, these behaviors make the region the most severely affected. University students in the age group of 15-24 years are susceptible to risky sexual practices[9-11]. University students are in the youth age group (15-24 years) and are highly exposed to risky sexual practices such as unprotected sexual intercourse and having had sex with multiple partners[12-15].

Ethiopia is a developing country with an age composition dominated by a young population in the ages of 15 to 24 years. This age group represents one third of the total population and that is why HIV /AIDS pandemic is a major public health problem and concern in the country[16].

Different facility based cross-sectional studies have reported a prevalence of premarital sex from approximately 19% to 53% among school youth in various parts of Ethiopia[17-19]. Consequently, sexually active and pre-marital sexual engagement intensified the risky sexual practices up to 84% in central Tigray[20-22]. Even though the major reasons to have unsafe sex was due to sexual desire, peer pressure and alcohol use also had significant roles in risky sexual behavior[21]. Furthermore, sex , place of residence, educational level, substance use (khat, alcohol drinking, smoking), age, income, and peer pressure are some of the contributing factors of unsafe sex practices among youths[20-27].

Despite the high burden of unsafe sex practices in the country, little was known on the reasons and associated factors of unsafe sex practice among university students in the study setting in particular. Therefore, the aim of the study was to explore reasons and identify risk factors of unsafe sex practices among undergraduate students of Mekelle University, Northern Ethiopia.

METHODS:

Study design and setting

A facility based cross-sectional study design was employed among regular undergraduate students of Mekelle University from April 15 to May 21, 2019 in Mekelle, Ethiopia. Mekelle is the capital of the National Regional State of Tigray, which is located 783 kilometers far northern part of Addis Ababa, Ethiopia. According to the 2018 population projection, Mekelle has an estimated population of 342,000 where 63% of the population is under the age of 25 years old.

Currently, Mekelle University is one of the secular public universities in Ethiopia. Its student intake capacity has reached 31,000. According to its 2018/2019 registrar student statistics report, a total of 16688 regular undergraduate students were attending in three campuses (i.e. Main, Ayder and Adi-haqi campuses) of the university. Sixty five percent (65%) of them are males whereas 35% of them are females.

Sample size determination, sampling design and procedure

The minimum sample size for this study was determined using the formula for single population proportion based on the assumptions of 95% confidence level, 5% acceptable level of precision, and expected proportion of unsafe sex practice (62%) in Bahir Dar [27].

$$\text{Sample size (n)} = \frac{(Z\alpha/2)^2 * P(1-P)}{d^2} \approx 362$$

Where $Z_{\alpha/2}$ = 1.96, p= 0.62, 1 – p = 0.38, and d (margin of error) =0.05.

However, a multistage sampling design was used to select departments and participants from the selected departments as well. Thus, the final sample size is adjusted by considering design effect (2x) and adding 10% for non-response rate.

Final sample size (adjusted) = 362*2+73 ≈ 797

Thus, a total of 797 (i.e. 465 from main campus, 190 from Adi-haqi campus and 142 from Ayder campus) regular undergraduate students were selected randomly by proportionally allocating the sample based on the size of population in each campus/college and departments as well.

Study variables and data collection tool

The outcome variable was unsafe sex practice operationally defined based on two indicators (i.e. frequent condom utilization and number of sexual partners). It was labeled as 1 for "high risk" (infrequently use condom and having multiple sexual partners) otherwise 0 "low unsafe sex practice". An English version questionnaire was prepared and then pre-tested to validate its quality. Eventually, data were collected from the participants using self-administered questionnaire.

Statistical methods of data analysis

Data were entered in STATA version 12 and then cleaned prior its analysis. Categorical variables were described using frequency and percentage (%) whereas numeric variables were presented using mean and standard deviation (Mean (±sd)). Furthermore, missing values were analyzed and hence, handled by multiple imputations so as to identify factors associated with unsafe sex practice. Furthermore, model diagnostics and model fit statistics were also checked. Finally, a multiple logit model was fitted to identify the risk factors of unsafe sex practice in the last 12 months. Adjusted Odds Ratio (AOR) and 95% Confidence Interval (CI) were estimated and used for statistical decision.

RESULTS

Socio-demographic and family socio-economic characteristics of the participants

A total of 797 questionnaires were distributed, of which 729 (92%) respondents gave response. Approximately 68% of the students were males and the mean and standard deviation age of students was 21.6±1.9 years (i.e. 22.2±2.0 among males and 21.5±2.4 years among females). In addition, 710 (97.4%), and 476(65.7%) of the students were - single, and urban residents, respectively. Based on their family socio-economic characteristics, 282 (38.9%) mothers had no formal education where as 32.1% of fathers had college and above educational status (Table 1).

Table 1: Socio-demographic and family characteristics of regular undergraduate students of Mekelle University, Mekelle, Northern Ethiopia, 2019

Socio-demographic Characteristics	Category	Count	Percent (%)
Sex (n=729)	Male	493	67.6
	Female	236	32.4
Age (n=654)	21.6±1.9 years [a]		
Year of study (n=729)	I	134	18.4
	II	216	29.6
	II	209	28.7
	IV/V	170	23.3
Field of Study (n=729)	Medicine / Health sciences	131	18.0
	Engineering	287	39.4
	Natural sciences	75	10.3
	Agriculture	61	8.4
	Accounting/Management	87	11.9
	Law	29	4.0
	Social sciences/languages	59	8.1
Marital Status (n=729)	Single	710	97.4
	Married/Widowed/divorced	19	2.6
Residence (n=725)	Urban	476	65.7
	Rural	249	34.3
Religion (n=726)	Orthodox	608	83.7
	Muslim	50	6.9
	Catholic	10	1.4
	Protestant	48	6.6
	Others (no religion/unspecified)	10	1.4
Current campus living condition (n=724)	Non dormitory	54	7.5
	Dormitory	670	92.5
Non-Cafe status (n=724)	No	453	62.6
	Yes	271	37.4
Mother's educational level (n=724)	No formal education	282	38.9
	Primary school (1-8)	164	22.7
	Secondary school (9-12)	117	16.2
	College and above	161	22.2
Father's educational level (n=719)	No formal education	212	29.5
	Primary school (1-8)	163	22.7
	Secondary School (9-12)	113	15.7
	College and above	231	32.1
Mother's occupation (n=722)	House wife	455	63.0
	Government employee/civil servant	82	11.4
	Private employee	14	1.9
	Merchant	116	16.1
	Others	55	7.6
Father's occupation (n=714)	Unemployed/Daily laborer	19	2.7
	Farmer	265	37.1
	Government employee	104	14.6
	Private employee/NGO	26	3.6
	Merchant	199	27.9
	Others (Evangelist, driver, priest or solider)	101	14.1
Family size (n=522)	<=6	343	65.7
	>6	179	34.3

[a]: age is described using mean±standard deviation

Behavioral and family history characteristics of the participants.

Based on their behavioral characteristics, 71 (9.8%), 71 (9.8%), 216 (30.2%), 50(7.0%), and 221 (30.9%) of the students had smoking, Chat chewing, night club visiting, shisha use, and porn movies viewing practices in the last 12 months, respectively. Furthermore, 510(70.9%) of students had also information or education on SRH or HIV (Table 2).

Table 2: Behavioral characteristics of regular undergraduate students of Mekelle University, Mekelle, Northern Ethiopia, 2019

Behavioral Characteristics	Category	Count	Percent (%)
Having friend who started sex before marriage (n=727)	No	469	64.5
	Yes	258	35.5
Smoking history in the last 12 months (n=728)	No	657	90.2
	Yes	71	9.8
Khat chewing history in the last 12 months (n=727)	No	656	90.2
	Yes	71	9.8
Alcohol consumption history in the last 12 months (n=726)	No	483	66.5
	Yes	243	33.5
Night club visiting in the last 12 months (n=716)	No	500	69.8
	Yes	216	30.2
Shisha use (n=717)	No	667	93.0
	Yes	50	7.0
Porn moves viewing (n=716)	No	495	69.1
	Yes	221	30.9
Family history of smoking (n=722)	No	670	92.8
	Yes	52	7.2
Family history alcohol consumption (n=723)	No	539	74.5
	Yes	184	25.5
Family history khat chewing (n=717)	No	658	91.8
	Yes	59	8.2
Student's discussion with mother about sex (n=724)	No	479	66.2
	Yes	245	33.8
Student's discussion with father about sex (n=722)	No	469	65.0
	Yes	253	35.0
Course taken on HIV or SRH (n=719)	No	209	29.1
	Yes	510	70.9
Student's participation in HIV/AIDS or related	Not participated	372	51.4
	Previously participated	320	44.2
Clubs (n=724)	Currently participating	32	4.4
Disability status (n=723)	No	700	96.8
	Yes	23	3.2

SRH: Sexual and Reproductive Health HIV: Human Immunodeficiency Virus

Sexual experience, behavior and HIV screening status of the participants.

Overall, 41.2% [95% CI: 37.6% - 44.8%] of students had sexual experience throughout their life time with a mean age and standard deviation at start of sex was 18.2 ±2.7 years (i.e. 18.2±2.9 years among males and 18.2±1.8 years among females). However, only 269 of 300 (89.7%), 86 of 300 (28.7%) have had sex in the last 12, and 3 months, respectively. Only 29.3% [95% CI: 23.8% - 35.3%] of students who had sex in the last 12 months were used condom frequently and 56.1% [95% CI: 50.0% - 62.2%] had multiple sexual partners. Therefore, 43.9% [95% CI: 38.0% - 49.8%] have had sex with multiple partners without consistent use of condom in the last 12 months (Table 3).

Table 3: Sexual experience, behavior and HIV screening status of regular undergraduate students of Mekelle University, Mekelle, Northern Ethiopia, 2019

Sexual behavior and STI screening status	Category	Count	Percent (%)
Life time sexual experience (n=729)	No	429	58.8
	Yes	300	41.2
Sexual practice in the last 12 months (n=729)	No	460	63.1
	Yes	269	36.90
Sexual practice in the last 3 months (n=729)	No	643	88.2
	Yes	86	11.8
Having sexual partners in the last 12 months (n=729)	No	459	63.1
	Yes	269	36.9
Number of sexual partners in the last 12 months (n=269)	One	118	43.9
	Multiple	151	56.1
HIV or other STI Screening Status (n=708)	No	550	77.7
	Yes	158	22.3
Frequent utilization of condom (n=256)	No	181	70.7
	Yes	75	29.3
Unsafe sex practice in the last 12 months (n=269)	No	151	56.1
	Yes	118	43.9

HIV: Human Immunodeficiency Virus STI: Sexually Transmitted Infections

Factors associated with unsafe sex practice

In the final multiple logit model, only two variables were statistically significantly associated with high unsafe sex practice. Keeping the effect of other variables constant, living in campus (dormitory) decreases the odds of having unsafe sex practice by 56% (AOR = 0.44; 95% CI: 0.20 – 0.99). Like wisely, students who took a course on HIV or SRH had protected by 51% from practicing unsafe sex (AOR =0.49; 95% CI: 0.28 – 0.85) (Table 4).

Table 4: Factors associated with unsafe sex practice among regular undergraduate students of Mekelle University who initiated sex in the last 12 months, Mekelle, Northern Ethiopia, 2018/2019 (n= 269)

Variables	Category	Unsafe sex practiceCount (%)	AOR [95% CI]	P-value
Current living condition	Non-dormitory	18 (58.1)	1.00	
	Dormitory	100 (42.0)	0.44 [0.20, 0.99]	0.048*
Non-Café status	No	84(48.0)	1.00	
	Yes	34 (36.2)	0.80 [0.43, 1.50]	0.489
Having Friend started Sex	No	71 (51.8)	1.00	
	Yes	47 (35.6)	0.75[0.41, 1.40]]	0.374
Alcohol Consumption History	No	74 (48.7)	1.00	
	Yes	44 (37.6)	0.99 [0.48, 2.05]	0.991
Viewing Porn Movies	No	77 (48.7)	1.00	
	Yes	41 (36.9)	0.66 [0.33, 1.32]	0.235
Visiting Night Club	No	82 (49.4)	1.00	
	Yes	36 (35.0)	0.90 [0.41, 2.00]	0.805
Discussion with Mother about Sex and STIs	No	84 (48.0)	1.00	
	Yes	34 (36.2)	0.72 [0.41, 1.25]	0.243
Course taken on HIV and SRH	No	48 (56.5)	1.00	
	Yes	70 (38.0)	0.49 [0.28, 0.85]	0.011*

AOR: Adjusted Odds Ratio 95% CI: 95% confidence Interval 1.00: Reference category *: statistically significant at 5% Level of significance

DISCUSSION

Unsafe sex practice rate

In the current study, the prevalence of unsafe sex practice was 43.9% [95% CI: 38.0% - 49.8%] among regular undergraduate students of Mekelle University. The magnitude was higher when compared to other similar studies conducted in Sri Lanka, Western Ethiopia, Jimma, Gondar and Bahir dar though the participants from Bahir Dar were private college students and high school students in Gondar[12,22,28-30]. However, it was lower as compared other studies from in Nigeria, Debre Tabor University, Bahir Dar University and Aksum University[25-27]. The possible reasons for the low unsafe practice rate could be due to recall and social desirability that participants might be reported the expected practices than the actual practices in the current study.

Students were practicing unsafe sex for reasons- fun, lack of awareness, trusting sexual partner, for business purpose, no access to use condom, knowing status of partner/s, unconsciously, no privacy to buy condom and even no fear about HIV and other STIs. Despite this fact, the reasons will be best addressed by qualitative studies.

Dormitory living status was statistically significantly associated with unsafe sex practice among regular undergraduate students in the current study. The odds of having unsafe sex practice was reduced by 56% among dormitory regular undergraduate students who had sexual experience in the last one year prior to conducting the current study. The reason why the unsafe sex practice was high among non-dormitory students (58.1% versus 42.0%) might be non-dormitory students getting the chance of visiting night clubs and also became non-dorm intentionally for seeking freedom.

Students who had taken a course on HIV or SRH education were less likely to practice risky sexual practice. Consistent recommendations and reports were also

disseminated by the World Health Organization and United Nations Educational, Scientific and Cultural Organization (UNESCO) that compressive information and education can reduce the problems related to unsafe sex practice associated negative consequences in young people especially girls[31-33].

CONCLUSIONS

In the current study, the unsafe sex practice was found to be significantly high. Dormitory and taking course on HIV or SRH reduced the odds of practicing unsafe sex significantly. Therefore, expanding youth friendly confidential clinics, implementing and strengthening comprehensive SRH information and/or education are some of the recommended solutions applied to reduce the practices of unsafe sex among regular undergraduate students. Furthermore, qualitative studies are recommended to explore the reasons.

LIMITATION OF THE STUDY

The current study was a cross-sectional study that was based on the self-report of the students on risky sexual behavior and thus, it was prone to recall and social desirability bias. The operational definition for high risky sexual behavior might be under-estimated its rate as his/her partner could have multiple sexual partners and a comparative study by sex was not employed.

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ETHICS APPROVAL AND CONSENT TO PARTICIPATE

Ethics approval was obtained from the Institutional Review Board (IRB) of Mekelle University, College of Health Sciences on April 8/2019 with reference number (ERC: 1322/2019). We received written informed consent and confidentiality of data was kept.

COMPETING INTERESTS

No conflict of interests to be declared by the authors. The final draft of the manuscript has read and approved by all authors.

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