

Exposure to Sexual Explicit Materials and Associated Factors among Preparatory School Students in Northern Ethiopia: Institution Based Cross Sectional Study

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Received: January 17, 2020 Manuscript No. IPJCS-23-3216; **Editor assigned:** January 22, 2023, PreQC No. IPJCS-23-3216 (PQ); **Reviewed:** February 5, 2023, QC No. IPJCS-23-3216; **Revised:** October 01, 2023, Manuscript No. IPJCS-23-3216 (R); **Published:** October 28, 2023, DOI: 10.36648/2471-9749.8.1.004

Citation: Girmay B (2023) Exposure to Sexual Explicit Materials and Associated Factors among Preparatory School Students in northern Ethiopia: Institution Based Crossectional Study. J Reproduct Health Contracept Vol.08 No.01: 004

Abstract

Background: Sexual explicit material is refers to any materials (video, pictures textual) that is intended to produce or has the effect of producing sexual arousal. In spite of a growing presence of sexual explicit materials in contemporary life, very little research has been devoted to assess its prevalence and the factors contributing to exposure of sexual explicit materials in Ethiopia. Therefore, this study was conducted to assess the exposure of sexual explicit materials and associated factors among preparatory students.

Methods: Institution based cross sectional study involving 594 randomly selected students of preparatory school at Mekelle city. Multi stage sampling technique was used to select study subjects. Data was collected using pre-tested and self-administered questionnaire. Data was entered and analyzed using SPSS version 20.0 statistical software packages. The result was displayed using descriptive, bivariate and multivariate analysis. Statistical association was done for independent predictors (at $p < 0.05$).

Results: 491 (85.8%) participants reported to have exposed to sexual explicit materials. Male students were more likely exposure to SEM than female students (95% CI: AOR (95% CI: AOR, 8.41 (CI=3.40, 20.79)).

Conclusion: High number of students was exposed to sexually explicit materials. Sex, visit religious place, substance use, family discussion on sexual issue, sexual education at school, leisure time and premarital sexual practice were observed independent predictors of exposure to sexual explicit materials. The government, especially ministry of health and ministry of education should adopt regulatory strategies to minimize the harms associated with young people's exposure to sexually explicit content through mass media and internet access.

Keywords: Sexual explicit materials exposure; Sexual explicit materials; Preparatory school; Ethiopia

Abbreviations: AIDS: Acquired Immunodeficiency Syndrome; CI: Confidence Interval; FGD: Focus Group Discussion; HIV: Human Immunodeficiency Virus; SEM: Sexual Explicit Materials; SPSS: Statistical Package for Social

Scientists; STI: Sexually Transmitted Infections; TV: Television; UNAIDS: Joint United Nation Program on HIV/AIDS; UNFPA: United Nations Fund for Population Agency; UNICEF: United Nations Children's Fund; USA: United States of America; VCD: Visual Compact Disc; WHO: World Health Organization; SRH: Sexual and Reproductive health

Introduction

The WHO defines adolescents as persons between the ages of 10-19 and youth as persons between the ages of 15-24. The WHO also considers an adolescent as a person in a transitional phase in life and who is living in a critical time of rapid physical, mental, emotional, social and spiritual development with major physical and psychological changes. The world currently holds the largest generation of young people in history, with 1.8 billion adolescents and youth making up one quarter of the world's population, majority live in developing countries, while this segment of the population constitutes 35% of the total population in Ethiopia [1].

During adolescence, sexual exploration and expressions are common and normal. Sexual relationships may begin during adolescence. Cultural factors and peer group pressure are some social factors that increase the desire and opportunity for sexual activity. Images from mass media also play a significant role; films, television and music present explicit sexual dialogue, lyrics and behavior. All of these factors contribute to adolescent's perceptions about sexual and reproductive issues [2].

Young people often have inadequate or misleading information on sexuality and reproductive health and lack access to reproductive health care. Furthermore, young people today are increasingly exposed to misguiding information from the internet and by watching pornography, which can lead to distorted views of sexuality, lust and gender roles.

The definition of SEM (pornography) may differ in various cultural and national contexts, and pornography is to varying degrees subject to censorship and legal restraints. For the purpose of this statement, pornography refers to any materials (video, pictures textual) that is intended to produce or has the effect of producing sexual arousal. They include erotic and

sexual act materials which get released through internet, print media, VCDs, music videos and video games [3].

This definition is commensurate with those used in previous research. For the purposes of this paper, the terms pornography and SEM will be utilized interchangeably. Exposure to pornography can be described today in many parts of the world as a normal experience. The rapid growth of social media (Face book, Twitter, etc.) opens new avenues of exploitation of children or adults through web-cameras, phone cameras or sexing (that is, the voluntary sending of sexually explicit messages or images of oneself by cell phone). The world has become a highly sexualized cultural environment and the frequency and explicitness of sexual content in mainstream media has increased steadily. Use of pornography is becoming increasingly common in today's society, particularly on the internet [4].

Pornography is also widely accessible (millions of sites with sexual explicit content are available 24 hours a day; 7 days a week), from a number of sources: Books, adult magazines, videos, internet and airing of sexually explicit movies on cable television. The easy access to porn material exposes all those that are interested in viewing to unfiltered porn material irrespective of their age.

Pornography viewing in Ethiopia, just like elsewhere in the world is becoming widespread due to its availability and affordability of sexual explicit materials. This is what this thesis dares to achieve in the Ethiopian context together with assessing other factors related to sexual explicit materials exposure among the adolescents' and youth [5].

Materials and Methods

Study setting

The study was conducted in Mekelle city; North Ethiopia from December to June 2016. Mekelle is located in northern part of Ethiopia and 783 kilometers from Addis Ababa (capital city of Ethiopia). It covers 28 square kilometers and had an estimated population of 300,000. There is a total of 14 preparatory school (grade 11 and grade 12) among five are governmental owned nine and are owned by private. The total number of preparatory students in the academic year 2015/16 are 7,093 among this 4,046 are female and 2,950 are male students (Tigray regional state education bureau) [6].

Participants

All students attending preparatory high school in Mekelle city, Northern Ethiopia were source of population and sampled preparatory school students in Mekelle city enrolled grade 11 and 12 during the study period were study population.

Sampling technique and procedure

A sample of 594 participants was calculated using single population proportion formula with the following assumptions: Proportion (P) of sexual explicit materials exposure 77.2% conducted at Hawassa, Ethiopia, a Confidence Level (CI) of 95%, marginal error (d) 5% and 10% non-response and considering a

design effect of 2. A multi-stage sampling was used to select the study subjects. First from 14 preparatory schools (9 private and 5 public) available in the Mekell city, seven schools (3 public and 4 private) 50% of the schools was selected to increase representativeness using of simple random sampling technique was taken as a Primary Sampling Unit (PSU) considering the available resource. Then from each of the seven schools all sections of grade 11 and 12 was separately enlisted by their respective sections and from each section samples was selected by using simple random sampling. Total numbers of samples in each school was selected based on proportional distribution of samples considering total number of students in each school [7].

The study instrument and variables

Data collection instrument: A closed and open-ended self-administered questionnaire was prepared in English by reviewing relevant literatures on the subject to ensure reliability. Then it was translated and administer in local language. Pre-test survey was done. A questionnaire was used to enable respondents express their opinions freely and to give them adequate time to give well thought out answers. According to Kothari, the use of questionnaires helps to enhance the reliability and validity of the research findings.

Outcome variable: Exposure to sexual explicit materials was the dependent variable. Independent variables were socio economic and demographic characteristics, open discussion with family on sexuality, individual and behavioral factors, communication/information gap on sexual and reproductive health.

Statistical analyses

Data was coded, entered and cleaned using SPSS version 20 statistical package. Descriptive statically analysis such as frequencies, proportions, as well as mean and standard deviation was used to present the data and univariate analysis, bivariate and multivariate logistic regression models was used to check crude and independent effect of variables by using odds ratio with a 95% Confidence Interval (CI) respectively, p-value less than 0.05 was taken as statistically significant. In bivariate analysis those variables with p value less than or equal to 0.2 was reentered to check confounding effects using multivariate logistic regression model [8].

Results

Socio-demographic characteristics

Of the 572 respondents, majority 473 (82.7%) were from three government schools. Among them, 262 (45.8%) were males and 310 (54.2%) females with the male to female sex ratio 1:1.2. The mean age of the respondents was 17.67 years (SD \pm 0.96). Regarding student's grade majority 292 (51%) were from grade 12. With the exception of very few (0.9%) of the subjects, who were married, nearly all students at the time of survey were never married (99.1%). Most students 544 (95.1%) were orthodox Christian religion followers (Table 1) [9].

Table 1: Socio-demographic characteristics of the respondents attending preparatory schools in Mekelle city, Northern Ethiopia, June 2016.

Characteristics	Category	Frequency (N=572)	Percentage (%)
Gender	Male	262	45.8
	Female	310	54.2
Age category	<18	254	44.4
	≥ 18	318	55.6
Current grade	11 th	280	49
	12 th	292	51
Marital status	Single	567	99.1
	Married	5	0.9
	Others	0	0
School type	Public	473	82.7
	Private	99	17.3
Frequency of religious attendance	Frequent	187	32.7
	Infrequent	385	67.3
Living attachment	Both parents	388	67.8
	With single parents	98	17.2
	With relatives	55	9.6
	Others	31	5.4
Father's educational status	Illiterate/read and write	113	19.8
	Elementary	110	19.2
	Secondary	64	11.2
	Tertiary	285	49.8
Mother educational status	Illiterate/read and write	143	25
	Elementary	140	24.5
	Secondary	89	15.5
	Tertiary	200	35
Father occupation	Daily laborer	27	4.7
	Private employee	315	55.1
	Civil servant	173	30.2

	Doesn't work	5	0.9
	Others	52	9.1
Mother occupation	Daily laborer	14	2.5
	Private employee	300	52.5
	Civil servant	122	21.3
	Doesn't work	130	22.7
	Others	6	1
Students perception of family economic status	Poor	37	6.5
	Medium	447	78.1
	Rich	88	15.4
School club participation	Yes	200	35
	No	372	65

The majority 388 (67.8%) of the students live with both of their parents and 285 (49.8%) of the fathers of the students were reported to complete above high school educational level and 200 (35%) of their mothers had also completed above high school education level. Four hundred forty-seven (78.1%) of the students perceived that they are from medium economic status. About 200 (35%) of the students participate in different school clubs. Among this 96 (16.8%) participated in anti HIV/AIDS club followed by reproductive health clubs 51 (8.9%). TV was reported to be owned by 562 (98.3%) followed by radio 492 (86.0%), any type of video player by 440 (76.9%) and cable TV/satellite dish by 403 (70.5%) of the households where the respondents live. Four hundred i teen 415 (72.6%) of the total respondents were users of social media (Facebook) [10].

Substance use and spending leisure time of respondents

Assessment of risk personal behavior among the students revealed that about 307 (53.7%) of the students have never drunk alcohol, 522 (91.3%) never smoked cigarette and 504 (88.1%) never chewed Khat. Furthermore, about 265 (46.3%) of

students have drunk alcohol, 68 (11.9%) chewed Khat and 50 (8.7%) have smoked cigarette either often, sometimes or once/twice respectively (Figure 1 and Table 2).

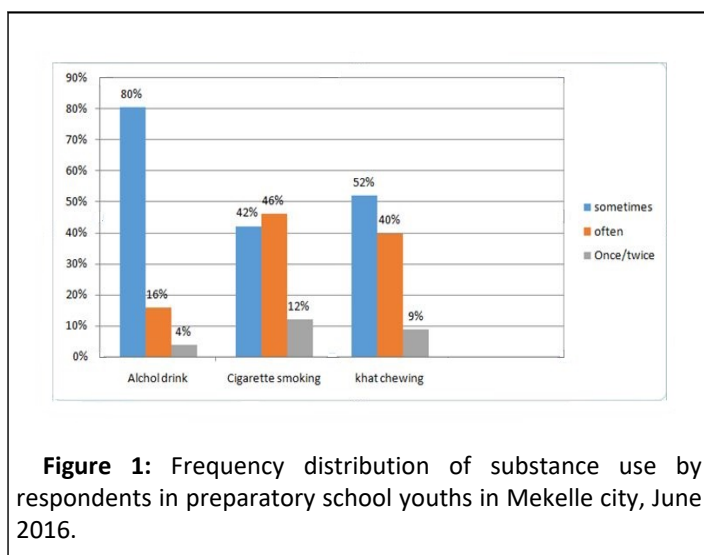


Figure 1: Frequency distribution of substance use by respondents in preparatory school youths in Mekelle city, June 2016.

Table 2: Exposure of respondents to sexually explicit text/reading among preparatory school Mekelle city, Northern Ethiopia, June 2016.

Variables	Frequency (%)	SEMs/reading exposure	
		Yes (%)	No (%)
Exposure to sexually explicit text/reading (n=572)	386 (67.5)	386 (67.5)	186 (31.2)
Gender (572)	Male	262 (45.8)	58 (31.2)
	Female	310 (54.2)	128 (68.8)
Religious place visit (5720)	Frequently	187 (32.7)	71 (38.2)

	Infrequently	385 (67.3)	270 (69.9)	115 (61.8)
Alcohol drink (572)	Yes	265 (46.3)	213 (55.2)	52 (28)
	No	307 (53.7)	173 (44.8)	134 (72)
Khat chewing	Yes	68 (11.9)	60 (15.5)	8 (4.3)
	No	504 (88.1)	326 (84.5)	178 (95.7)
Cigarette smoking	Yes	50 (8.7)	46 (11.9)	4 (2.2)
	No	522 (91.3)	340 (88.1)	182 (97.8)
Sexual education at school	Yes	226 (39.5)	144 (37.3)	82 (44.1)
	No	346 (60.5)	242 (62.7)	104 (55.9)
Discussion with family on sexual issue (572)	Yes	131 (22.9)	66 (17.1)	65 (34.9)
	No	441 (77.1)	320 (82.9)	121 (65.1)
Age	<18	254 (44.4)	157 (40.7)	97 (52.2)
	≥ 18	318 (55.6)	229 (59.3)	89 (47.8)
History of sexual practice	Yes	155 (27.1)	134 (34.7)	21 (11.3)
	No	417 (72.9)	252 (65.3)	165 (88.7)
School type	Public	473 (82.7)	313 (81.1)	160 (86)
	Private	99 (17.3)	73 (18.9)	26 (14)
Grade	11 th	280 (49)	184 (47.7)	96 (51.6)
	12 th	292 (51)	202 (52.3)	90 (48.4)
Student perception of family economic status	Poor	37 (6.5)	28 (7.3)	9 (4.8)
	Medium	447 (78.1)	296 (76.7)	151 (81.2)
	Rich	88 (15.4)	62 (16)	26 (14)
Living attachment	Both parents	388 (67.8)	256 (66.3)	132 (71)
	Single parents	98 (17.2)	68 (17.6)	30 (16.1)
	Relatives	55 (9.6)	39 (10.1)	16 (8.6)
	Others	31(5.4)	23 (6)	8 (4.3)
Father educational status	Illiterate read/write	113 (19.8)	76 (19.7)	37(19.9)
	Primary	110 (19.2)	75 (19.4)	35 (18.8)
	Secondary	64 (11.2)	46 (11.7)	18 (9.7)
	Tertiary	285 (49.8)	189 (49)	96 (51.6)
Mother educational status	Illiterate read/write	143 (25)	99 (25.6)	44 (23.7)
	Primary	140 (24.5)	91(23.6)	49 (26.3)
	Secondary	89 (15.5)	60 (15.5)	29 (15.6)
	Tertiary	200 (35)	136 (35.2)	64 (34.4)
Leisure time in searching internet	Yes	400 (70)	293 (76)	132 (71)
	No	172 (30)	93 (24)	54 (29)

As displayed in Figure 2, in response to the open-ended question on how they mainly spent their spare time, About 425 (74.3%) respondents were watching movies/TV shows, 400 (70%) spent by searching internet services/face book, 185

(32.3%) by reading books, 62 (13.8%) listening to music. 40 (7%) participating in sports and 23 (4%) attending religious services, among others.

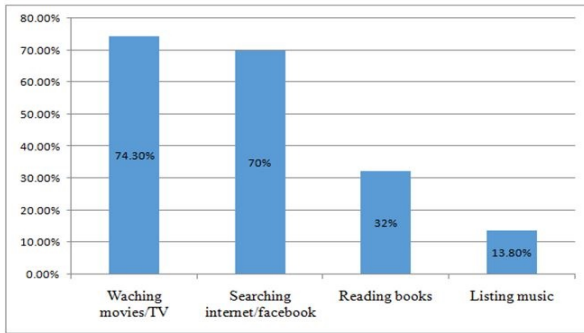


Figure 2: Percentage of respondents passing leisure time in preparatory school of Mekelle city, June 2016.

Magnitude of exposure to SEMs and related factors

Five hundred thirty eight (94.1%) of all respondents were aware of the existence of sexually explicit materials as defined in this study. From the total respondents, around 491 (85.8%) were exposed for sexually explicit materials. Internet were cited as the major source of sexually explicit information by 531 (92.8%) of the students, followed by video films 468 (81.8%) of the students. Newspaper 92 (16.1%) and radio 16 (2.8%) among others source of SEMs information (Figures 3 and 4).

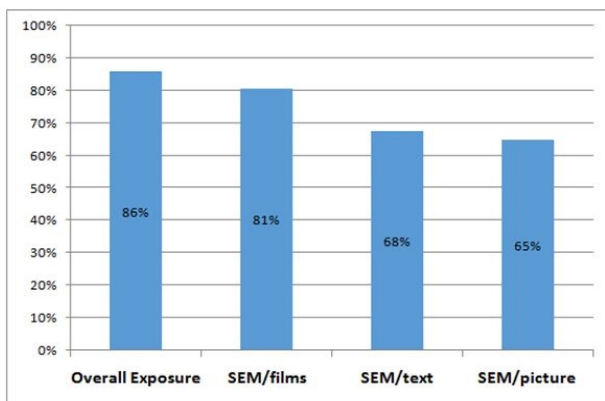


Figure 3: Proportion of exposure to SEMs in preparatory school students in Mekelle city, Northern Ethiopia, June 2016.

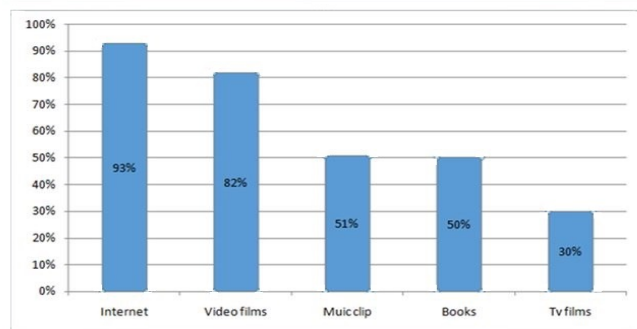


Figure 4: Sources of sexually explicit materials as cited by respondents in preparatory schools Mekelle city, June 2016.

Regarding exposure to sexually overt reading materials, (67.5%) of the participants recalled their being exposed to such texts. Internet and friends were the major source of the reading materials by 272 (70.5%), 251 (65%) respectively followed by mobile 169 (43.8%) and buying sex oriented books 152 (39.4%) respectively. Getting of sex oriented reading materials at home and library also had a considerable share *i.e.*, 38 (9.8%) and 31 (8%) respectively [11].

Texts with high sexual content were usually read alone as reported by 322 (83.4%) of the respondents, shared with same sex friends by 45 (11.7%), with opposite sex friends by 14 (3.6%) and with family members 5 (1.3%). With regard to frequency of reading, 137 (35.5%) of the respondents out of the 386 exposed, read such materials rarely (once or twice) 229 (59.3%) read them sometimes and 20 (5.2%) often. Out of 386 respondents, 72 (18.7%), recalled citation of HIV/FP in the reading material/s they came across, the rest either did not read or remember the case.

Regarding exposure to sexually explicit films, 461 (80.6%) of the 572 respondents reported exposure (Figure 5). Among those who responded for how frequent, 84 (18.2%) reported watching sexual explicit films often, 292 (63.3%) sometimes and 85 (18.4%) once or twice. Internet searching and mobile were the major source of sexually explicit movies 428 (92.8%), 395 (85.7%) respectively followed by friends 287 (62.3%) and 214 (46.4%) entering video house respectively. Renting of sex films also had a considerable share that is 175 (38%), whereas 17 (3.0%) mentioned other sources like buying and at home (Table 3).

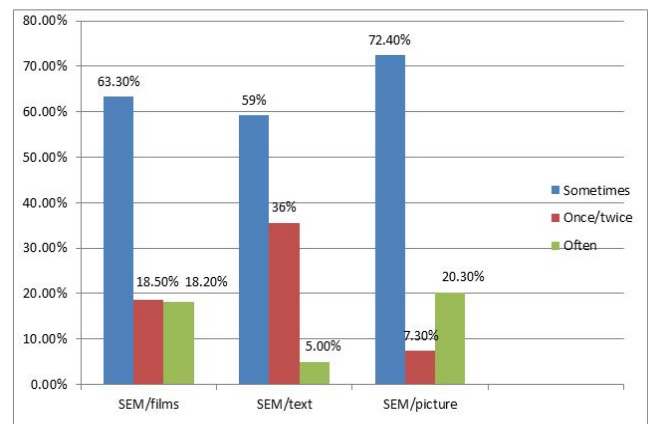


Figure 5: Frequency of exposure to SEMs among preparatory school students in Mekelle city, Northern Ethiopia, June 2016.

Table 3: Exposure of respondents to sexually explicit films among preparatory school Mekellecity, Northern Ethiopia June 2016.

Variables		Frequency (%)	SEMs/films exposure	
			Yes (%)	No (%)
Exposure to sexually explicit text/reading (n=572)		461 (80.6)	461 (80.6)	111 (19.4)
Gender (572)	Male	262 (45.8)	251 (54.4)	11 (9.9)
	Female	310 (54.2)	210 (45.6)	100 (90.1)
Religious place visit (5720)	Frequently	187 (32.7)	129 (28)	58 (52.3)
	Infrequently	385 (67.3)	332 (72)	53 (47.7)
Alcohol drink (572)	Yes	265 (46.3)	250 (54.2)	15 (13.5)
	No	307 (53.7)	211 (45.8)	96 (86.5)
Khat chewing	Yes	68 (11.9)	68 (14.8)	0 (0)
	No	504 (88.1)	393 (85.2)	111 (100)
Cigarette smoking	Yes	50 (8.7)	49 (10.6)	1 (0.9)
	No	522 (91.3)	412 (89.4)	110 (99.1)
Sexual education at school	Yes	226 (39.5)	172 (37.3)	54 (48.6)
	No	346 (60.5)	289 (62.7)	57 (51.4)
Discussion with family on sexual issue (572)	Yes	131 (22.9)	80 (19.1)	51 (45.9)
	No	441 (77.1)	381 (82.6)	60 (54.1)
Age	<18	254 (44.4)	180 (40)	74 (66.7)
	≥ 18	318 (55.6)	281 (60)	37 (33.3)
History of sexual practice	Yes	155 (27.1)	153 (33.2)	2 (1.8)
	No	417 (72.9)	308 (66.8)	109 (98.2)
School type	Public	473 (82.7)	378 (82)	95 (85.6)
	Private	99 (17.3)	83 (18)	16 (14.4)
Grade	11 th	280 (49)	212 (46)	68 (61.3)
	12 th	292 (51)	249 (54)	43 (38.7)
Student perception of family economic status	Poor	37 (6.5)	34 (7.4)	3 (2.7)
	Medium	447 (78.1)	353 (76.6)	93 (83.8)
	Rich	88 (15.4)	74 (16)	15 (13.5)

Living attachment	Both parents	388 (67.8)	306 (66.4)	82 (73.9)
	Single parents	98 (17.2)	82 (17.8)	16 (14.4)
	Relatives	55 (9.6))	46 (9.9)	9 (8.1)
	Others	31 (5.4)	27 (5.9)	4 (3.6)
Father educational status	Illiterate read/write	113 (19.8)	91 (19.7)	22 (19.8)
	Primary	110 (19.2)	85 (18.4)	25 (22.5)
	Secondary	64 (11.2)	55 (11.9)	9 (8.1)
	Tertiary	285 (49.8)	230 (49.9)	55 (49.5)
Mother educational status	Illiterate read/write	143 (25)	118 (25.6)	25 (22.5)
	Primary	140 (24.5)	112 (24.3)	28 (25.2)
	Secondary	89 (15.5)	71 (15.4)	18 (16.2)
	Tertiary	200 (35)	160 (34.7)	40 (36)
Leisure time in searching internet	Yes	400 (70)	358 (77.7)	42 (37.8)
	No	172 (30)	103 (22.3)	69 (62.2)

Sexual explicit films were usually watch alone as reported by 245 (53.1%) of the respondents, shared with same sex friends by 159 (34.5%), with opposite sex friends by 50 (10.8%) and with family members 7 (1.5%). Among the respondents who admitted of being exposed to SE films, about 164 (65.6%) tried to exercise what they have seen in movies. Furthermore, 372 (65%) respondents reported exposure to sexual explicit pictures through internet/face book. Accessibility of SEMs is easy for majority of the participants 521 (91.1%) followed by I don't know 9 (1.6%), difficult 8 (1.4%). The mean age of first exposure to SEMs/movies was 15.81 (SD \pm 1.428). The highest proportion of exposures 338 (59.1%) described their incident of exposure as intentionally/wanted.

One hundred fifty-five (27.1%) of the study population had practiced sexual intercourse, with mean age first sexual practice was 17.25 years (SD \pm 0.984) of whom 107 (69%) were males and 48 (31%) were females, of whom 152 (26.6%) had practiced premarital sexual intercourse. Majority of respondents reported

that majority films showed practice of unsafe sex and only 1.5% of those who were exposed to SE movies could recall films which display any mode of safe sex.

Sources of information on sexual issue

Regarding sources of information to preparatory youths on sexual issues majority of respondents 330 (57.7%), reported they got from friend, from mass media 289 (49%) and from health center 233 (40.7%). Among the respondents, about 441 (77.1%) claimed as having no open discussion on sexual issues within their family. Furthermore, About 346 (60.5%) respondents said that they had no received sexual and reproductive health education at school (Table 4) [12].

Table 4: Responses of respondents regarding sexual information in preparatory school Mekelle, city, Northern Ethiopia, June 2016.

Variables		Frequency (N)	Percent (%)
Major source of information (N=572)	Friend	330	57.7
	Mass media	280	49
	Health center	233	40.7

	Teachers	166	29
	Parents	131	22.9
	Religion	54	9.4
Preferred source of information (573)	Friend	202	35.3
	Mass media	124	21.7
	Parents	88	15.4
	Health center	79	13.8
	Teachers	49	8.6
	Other*	30	5.3
Open discussion on sexual issue with family members (N=572)	Yes	131	22.9
	No	441	71.1
Sexual education at school	Yes	226	39.5
	No	346	60.5
History of sexual practice	Yes	155	27.1
	No	417	72.9

Factors associated with exposure to SEM

Binary and multivariate logistic regression was used to identify the associated factors of exposure to SEMs. Coefficients were expressed as crude and adjusted odd ratios relative to the referent category and a number of factors were emerged to be significant for SEMs exposure.

Among the socio-demographic variables, sex of respondents, age, religious visit and variables from behavioral and individual factors such as, alcohols drinking, passing leisure time using

internet/face book and discussion on sexual issue with family were associated with overall exposure to SEMs at both crud and adjusted odd ratios at $p < 0.05$, while other variables like sexual education at school, premarital sexual practice and school grade were all significantly associated with SEMs exposure at crude ratios at $p < 0.05$ (Tables 5 and 6).

Table 5: Exposure of respondents to sexually explicit materials among preparatory school Mekellecity, Northern Ethiopia, June 2016.

Variables		Frequency (%)	Overall (SEMs) exposure	
			Yes (%)	No (%)
Exposure to sexually explicit text/reading (n=572)		491 (85.8)	49 (85.8)	81 (14.2%)
Gender (572)	Male	262 (45.8)	255 (51.9)	7 (8.6)
	Female	310 (54.2)	236 (48.1)	74 (91.4)
Religious place visit (5720)	Frequently	187 (32.7)	144 (29.3)	43 (53.1)

	Infrequently	385 (67.3)	347 (70.7)	38 (46.9)
Alcohol drink (572)	Yes	265 (46.3)	255 (51.9)	10 (12.3)
	No	307 (53.7)	236 (48.1)	71 (87.7)
Khat chewing	Yes	68 (11.9)	68 (13.8)	0 (0)
	No	504 (88.1)	423 (86.2)	81 (100)
Cigarette smoking	Yes	50 (8.7)	50 (10.2)	0 (0)
	No	522 (91.3)	441 (89.8)	81 (100)
Sexual education at school	Yes	226 (39.5)	185 (37.7)	41 (50.6)
	No	346 (60.65)	306 (62.3)	40 (49.4)
Discussion with family on sexual issue (572)	Yes	131 (22.9)	88 (17.9)	43 (53.1)
	No	441 (77.1)	403 (49.1)	38 (46.9)
Age	<18	254 (44.4)	197 (40.1)	57 (70.4)
	≥ 18	318 (55.6)	294 (59.9)	24 (29.6)
History of sexual practice	Yes	155 (27.1)	153 (31.2)	2 (2.5)
	No	417 (72.9)	338 (68.8)	79 (97.5)
School type	Public	473 (82.7)	403 (82.1)	70 (86.4)
	Private	99 (17.3)	88 (17.9)	11 (13.6)
Grade	11 th	280 (49)	230 (46.8)	50 (61.7)
	12 th	292 (51)	261 (53.2)	31 (38.3)
Student perception of family economic status	Poor	37 (6.5)	34 (6.9)	3 (3.7)
	Medium	447 (78.1)	378 (77)	69 (85.2)
	Rich	88 (15.4)	79 (16.1)	9 (11.1)
Living attachment	Both parents	388 (67.8)	327 (66.5)	61 (75.3)
	Single parents	98 (17.2)	88 (18)	10 (12.4)
	Relatives	55 (9.6))	48 (9.8)	7 (8.6)
	Others	31(5.4)	28 (5.7)	3 (3.7)
Father educational status	Illiterate read/write	113 (19.8)	96 (19.6)	17 (21)
	Primary	110 (19.2)	91 (18.5)	19 (23.5)
	Secondary	64 (11.2)	60 (12.2)	4 (4.9)
	Tertiary	285 (49.8)	244 (49.7)	41 (50.6)

Mother educational status	Illiterate read/write	143 (25)	125 (25.5)	18 (22.2)
	Primary	140 (24.5)	119 (24.2)	21 (26)
	Secondary	89 (15.5)	79 (16.1)	10 (12.3)
	Tertiary	200 (35)	168 (34.2)	32 (39.5)
Leisure time in searching internet	Yes	400 (69.9)	374 (76.2)	26 (32.1)
	No	172 (30.1)	117 (23.8)	55 (67.9)

Table 6: Multivariate analysis over all exposure and association to SEM among preparatory schools students Mekelle city, Northern Ethiopia, June 2016.

Variables		Frequency of SEM exposure		COR (95% CI)	AOR (95% CI)
		Yes (%)	No (%)		
Gender	Male	255 (51.9%)	7 (8.6%)	11.42 (5.16-25.29)	8.41 (3.40-20.79)
	Female	236 (48.1%)	74 (91.4%)	1	1
Age	<18	197 (40.1%)	57 (70.4%)	1	2.15 (1.75-3.96)
	≥ 18	294 (59.8%)	24 (29.6%)	3.54 (2.13-5.90)	1
Religious visit	Frequent	144 (29.3%)	43 (53.1%)	1	1.83 (1.01-3.32)
	Infrequent	347 (70.7%)	38 (46.9%)	2.73 (1.69-4.39)	1
Alcohol drinking	Yes	255 (51.9%)	10 (12.4%)	7.67 (3.87-15.22)	3.31 (1.49-7.35)
	No	236 (48.1%)	71 (87.6%)	1	1
Leisure time internet	Yes	374 (76.2%)	26 (32.1%)	6.76 (4.06-11.27)	5.53 (3.03-10.09)
	No	117 (23.8%)	55 (67.9%)	1	1
Sexual education at school	Yes	185 (37.7%)	41 (50.6%)	1	1.55 (0.84-2.87)
	No	306 (62.3%)	40 (49.4%)	1.69 (1.06-2.72)	1
Sexual discussion with family	Yes	88 (17.9%)	43 (53.1%)	1	3.73(2.00-6.95)
	No	403 (82.1%)	38 (46.9%)	5.28 (3.16-8.49)	1
Sexual practice	Yes	153 (31.2)	2 (2.5)	17.88 (4.34, 73.69)	3.69 (0.80-17.01)
	No	338 (68.8)	79 (97.5)	1	1
Grade	11	230 (46.8)	50 (61.7)	1	1
	12	261 (53.2)	31 (38.3)	1.83 (1.130, 2.96)	1.78 (0.83, 3.81)

The multivariate logistic regression analysis observed that being a male student had shown greater exposure to SEM than being a female both in crude (95% CI: COR, 11.42 (CI=5.16, 25.29) and after controlling other factors (95% CI: AOR,

8.41(CI=3.40, 20.79). A student who attended religious place infrequent revealed greater exposure to SEM both in crude (95% CI: COR 2.73(CI=1.69, 4.39) and adjusted odds ratio (95% CI: AOR, 1.83 (CI=1.012, 3.32) than students who attended religious

place frequently. Students who were taking alcohol had more exposure to SEM than those not taking alcohol both in crude (95% CI: COR 7.67(CI=3.87, 15.22) and after controlling other factors (95% CI: AOR, 3.31 (1.49, 7.35).

A student who were greater or equal to eighteen years old revealed more exposure to SEM both in crude (95% CI: COR, 3.54 (CI=2.129, 5.902) and adjusted odds ratio (95% CI=AOR 2.15 (1.17, 3.96) respectively. A student who were passing their leisure time by searching internet had more likely exposure to SEM both at crude (95% CI: COR 6.76 (CI=4.06-11.27) and adjusted odds ratio (95% CI: AOR, 5.53 (3.03, 10.09) than students not passing by searching internet service. Additionally, students who had history of sexual intercourse had also shown greater exposure to SEM (95% CI: COR 17.88 (4.34, 73.69) than those who didn't had history of sexual intercourse and students who had no family discussion on sexual issue were more likely exposed to SEM both at crude (95% CI: COR 5.18 (CI=3.16-8.49) and after controlling other factors (95% CI: AOR, 3.73 (2, 6.95). Furthermore, students who didn't take sexual and reproductive health education at school had almost two times higher exposure to SEM (95% CI: COR 1.69 (CI=1.06-2.72).

Nonetheless, khat chewing, cigarette smoking, school type, family economic status, living attachment, father and mother educational status lacked significant association at all with overall exposure to SEMs.

Discussion

This study was done on randomly selected students in preparatory school in Mekelle city, Northern Ethiopia to assess the magnitude of exposure to SEMs and factors associated to it. Exposure to SEMs pre-disposes students to premarital sexual practice, STIs including HIV and unwanted pregnancy; despite of this fact about 85.8% of respondents had been exposed to SEMs.

This finding was greater than in previous studies conducted in Hawassa preparatory school. On the other hand, it was relatively lower than studies done in Ghana, Sweden and USA. The difference might be due to the time gap between the studies, advancement of technology that enhance exposure to SEMs and substance use like alcohol, which might increase the probability to be expose to SEMs.

In this study, internet searching was the major source of information for sexually explicit materials/movies. In case of text exposure, internets were also the main sources to SEM followed by friends (peers). This finding was supported by a study done in Hawassa, Ghana, Sweden, Hong Kong, that higher percentage of information for SEMs was internet searching. This similarity might be due to sexually explicit material has grown in all areas of the world through internet service and increased use of mobile phones nowadays access to portable SEM/media and internet services has grown in the country and in the fastest growing city, Mekelle.

The multivariate analysis carried out using binary logistic regression indicated that being male students had almost 8.41 times higher exposure to SEMs when compared to female

students (95% CI: AOR 8.41 (CI=3.40, 20.79). It was concurrent with studies done elsewhere. This similarity could be due to culture contribution for better access of male students to SEM/media in all the study areas and exposure of males to different alcoholic and other sexual enhancing conditions than females as well as males can have better access for these materials outside home.

The multivariate analysis on substance use showed that students who drinks alcohol showed significant association to SEM than students who never drink alcohol (AOR=3.31; 95% CI: 1.49, 7.35) and it was supplemented by other study done in Hawassa, Hong Kong. It may reason out as; most of the time after they drinking alcohol decrease self-control and pre-dispose to risk behavior such as exposure to SEMs and sexual intercourse.

Among other factors, positive history of sexual intercourse was significantly associated with exposure to SEMs at (95% CI: COR: 17.88 (4.34, 73.69). Specially, history of sexual intercourse was found to be the major predictor of youth exposure to SEMs. A similar finding was reported in a study conducted in Sweden, Greek, Dutch and USA. However, it is reasonable to assume a bi-directional relationship between exposure and sexual practice since sex might have been initiated well before frequent exposure to SEM or vice versa. Exposure can precede sexual initiation and practice or more sexually experienced youth may seek out more sexual media content to stimulate increased sexual experimentation. Causative role can be established only by conducting further analytic studies on this issue.

Furthermore, in this study increment in age raised likelihood of exposure to SEMs. Age of respondents was associated with exposure to sexual explicit materials; those students whose age >18 years were almost two times more likely to expose SEMs compared to students age <18 years at (95% CI: AOR 2.15 (1.75-3.96). No doubt those respondents who are older have had more opportunity to expose to SEMs. This finding is in agreement with study conducted in Kenya. The age difference for exposure of SEMs in this study might be >18 years youth might have stay sexually mature for long period of time that would be encourage to expose SEMs.

In this study respondents who had not communication with their family about SRH and visit religious place infrequently were more likely expose to SEMs than those who had communication and visit religious place frequently (95% CI: COR 5.18 (CI=3.16, 8.49), (95% AOR: 3.732, 6.95) and (95% CI: COR 2.73 (CI=1.69, 4.37), (95% AOR: 1.83: 1.01, 3.32), respectively. Furthermore, students who didn't receive sexual and reproductive health education at school were more likely expose to SEMs than who did (95% CI: COR 1.69 (1.06, 2.72). This finding was supported by other study done in USA Hong Kong, Hawassa and journal of Australia and Israel. This might be open discussion of sexual matter within school and families assisted young people in decision making and did not increase likelihood of exposure to SEM and earlier engagement in sex. Religion serves as a personal control against a risk behavior like SEMs exposure and premarital sexual practice. Religious/spiritually/morally orientated students are more prone to feelings of shame when and if they consume pornography because it is associated with wrongdoing and even evil [13].

Conclusion

According to the study findings of this study, great majority of students were exposed to sexually explicit materials. School youths were often exposed to SEM within their immediate environment through social media, friends and family members. Sex, substance use, visiting religious place, family discussion on sexual issue, sexual education at school and premarital sexual practice were observed as independent predictors for exposure to SEM in this study.

Ethical Consideration

All needed research activities was carried out with great care. The study was conducted after getting ethical clearance from Mekelle university, college of health science ethical review committee. Official letter was taken from Mekelle university to regional education bureau to get permission to conduct the study in each selected schools in the study area. After explaining the purpose of the study, written consent was obtained from respondents before data collection. The right to withdraw from the study at any time was also assured. Coding was used to eliminate names and other personal identification of respondents throughout the study process to ensure participants confidentiality.

Ethics Approval and Consent to Participate

The study was approved by Mekelle university institutional review board (ERC1305/2018). Written informed consent was obtained from each study participant. Written informed consent was obtained from a guardian for participant under 16 years old.

Consent for Publication

Not applicable for this.

Competing Interest

The author(s) declare that they have no competing interests.

Funding

Graduate research grant was provided Mekelle university. The funder had no role in study design, data collection, analysis and interpretation, decision to publish or preparation of the manuscript.

Authors' Contribution

TTA: Conceived and designed the study, performed analysis and interpretation of data and critically reviewed the manuscript.

DH: Participated in the design, developing methods, interpretation of data and critically reviewed the manuscript.

BG: Participated in the study design, data analysis and interpretation and the draft manuscript.

HGW: Participated in the data analysis and interpretation and critically revise the manuscript.

MWA: Critically evaluated and made progressive suggestions throughout the study.

References

1. Raphael D (1996) Determinants of health of North-American adolescents: Evolving definitions, recent findings and proposed research agenda. *J Adolesc Health* 19: 6-16.
2. Merrick J, Tenenbaum A, Omar HA (2013) Human sexuality and adolescence. *Front Publ Health* 1: 41.
3. Brown JD, Halpern CT, L'Engle KL (2005) Mass media as a sexual super peer for early maturing girls. *J Adolesc Health* 36: 420-427.
4. Kheswa JG, Notole M (2014) The impact of pornography on adolescent males' sexual behaviour in the Eastern Cape, South Africa. A qualitative study. *Mediterr J Soc Sci* 5: 2831.
5. Smith M (2013) Youth viewing sexually explicit material online: Addressing the elephant on the screen. *Sex Res Soc Policy* 10: 62-75.
6. Mesch GS (2009) Social bonds and internet pornographic exposure among adolescents. *J Adolesc* 32: 601-618.
7. Brown JD, L'Engle KL (2009) X-rated: Sexual attitudes and behaviors associated with US early adolescents' exposure to sexually explicit media. *Comm Res* 36: 129-151.
8. Haggstrom-Nordin E, Hanson U, Tyden T (2005) Associations between pornography consumption and sexual practices among adolescents in Sweden. *Int J Std AIDS* 16: 102-107.
9. Braun-Courville DK, Rojas M (2009) Exposure to sexually explicit web sites and adolescent sexual attitudes and behaviors. *J Adolesc Health* 45: 156-162.
10. Lo VH, Wei R (2005) Exposure to internet pornography and Taiwanese adolescents' sexual attitudes and behavior. *J Broadcast Electron Media* 49: 221-237.
11. Peter J, Valkenburg PM (2008) Adolescents' exposure to sexually explicit internet material and sexual preoccupation: A three-wave panel study. *Media Psychol* 11: 207-234.
12. Svedin CG, Akerman I, Priebe G (2011) Frequent users of pornography. A population based epidemiological study of Swedish male adolescents. *J Adolesc* 34: 779-788.
13. Peter J, Valkenburg PM (2010) Processes underlying the effects of adolescents' use of sexually explicit internet material: The role of perceived realism. *Comm Res* 37: 375-939.