OUTCOME OF SEXUAL ASSAULT AND ASSOCIATED RISK FACTORS AMONG SEXUALLY ASSAULTED ADOLESCENT GIRLS IN JIMA MEDICAL CENTER, OROMIA REGION, SOUTHWEST ETHIOPIA, 2020

A THESIS TO BE SUBMITTED TO JIMA UNIVERSITY, DEPARTMENT OF OBSTETRICS AND GYNECOLOGY AS PARTIAL FULFILLMENT REQUIREMENT FOR SPECIALTY CERTIFICATE IN OBSTETRICS AND GYNECOLOGY.

September, 2020

Jima, Ethiopia

OUTCOME OF SEXUAL ASSAULT AND ASSOCIATED RISK FACTORS AMONG SEXUALLY ASSAULTED ADOLESCENT GIRLS IN JIMA MEDICAL CENTER, OROMIA REGION, SOUTHWEST ETHIOPIA, 2020

BY: DR. EYOB ASEFA (OBSTETRICS AND GYNECOLOGY RESIDENT)

A THESIS TO BE SUBMITTED TO JIMA UNIVERSITY, DEPARTMENT OF OBSTETRICS AND GYNECOLOGY AS PARTIAL FULFILLMENT REQUIREMENT FOR SPECIALTY CERTIFICATE IN OBSTETRICS AND GYNECOLOGY

ADVISORS:

Dr. Fitsum Araya (Assistant professor of Urogynecology and pelvic reconstruction)

Mr. Bashea Galana (BSc, Mph) lecture, department of health policy and management)

September, 2020

Jimma, Ethiopia

Abstract

Background: Sexual violence against women is one of the most common violence that includes all unwanted or non-consensual sexual act. It ranges from verbal threats to rape and threat of life. Adolescent girls are vulnerable to sexual violence and experience more severe and long-standing adverse effect of the situation and hinder all aspects of development of victims.

Objective: To identify outcome of sexual assault and associated risk factors among sexually assaulted adolescent girls in Jima medical center, Oromia region, southwest Ethiopia, 2020

Methods: An institutional based cross-sectional study was conducted among raped adolescent girls in Jima Medical Center from December1/2019-July 30/2020. All raped adolescent girls visited Jima University medical center were included consecutively.

Data was collected using structured questionnaire and entered to Epi Data version 3.1 then analysis done by SPSS version 21.0. Descriptive statistics was carried out to see the level of depression and STI among victims whereas bivariate and multivariate logistic regression analysis were performed to identify the candidate variables and the factors associated with major depression disorder and STI at $p \leq 0.25$ and $p < 0.05$ with 95%CI AOR respectively.

Results: One hundred seventy-four adolescent girls were interviewed yielded 100% response rate and all of them experienced the severe form of sexual assault, which is rape. The level of major depressive disorder and Sexually Transmitted Infection among rape victims in Jima Medical Center were 89.1% (95 CI%, 84.5-93.7%) and 49.9% (95% CI, 41.1%-56.9%) respectively. In multi-variable logistic regression analysis Urban residency ((AOR 14.65, 95% CI 2.57, 83.30, (p=0.002)), not currently attending school (AOR 9.01, 95% CI 2.05, 40.35, p=0.004), rape by hitting (AOR 17.67, 95% CI 3.58, 87.20, p<0.001) and unwanted pregnancy (AOR 14.68, 95% CI 3.09, 71.43, p=0.001) were the predictor variable associated with major depressive disorder among raped adolescent girls. Similarly, family income less than 500 birr per month (AOR 2.48, 95% CI 1.33, 6.04, p=0.007) and multiple rape in life time (AOR 2.3, 95% CI 1.22, 4.31, (P=0.01)) were the predictor variable associated with Sexually Transmitted Infection.

Conclusion: In this study, level of major depressive disorder and sexually transmitted disease were high. Unwanted pregnancy, urban residency, not currently attending school and sexual rape by hitting were found to be risk factor to develop major depressive disorder. Low family income and being raped multiple times in life time were found to be risk factor to develop sexually

transmitted infection.

Recommendation: Jima medical center should strengthen link between psychiatric and mental health department and gender based violence unit and also Jima zone health bureau should give community awareness on gender based violence. Jima zone administration and Jima University should look after to adolescent girls dropped out of school and facilitate how they go back to school.

Key words: Sexual assault, rape, adolescent girls, Depression and STI, JUMC, Ethiopia

ACKNOWLEDGEMENT
Above all, I thank almighty God who is with me in all my activities, up and downs.
I acknowledge my advisors, Dr. Fitsum Araya and Mr. Bashea Gelana, for their unlimited support and advice on the selection of this interesting and relevant topic, development of the proposal and finally for developing the research paper. I also acknowledge my friends and nurses in the Unit who collected the data and gave me constructive comments.

TABLE CONTENT

LIST OF TABLES

LIST OF FIGURES

ACRONYMS

AOR Adjusted Odds Ratio

CI Confidence Interval

COR Crude Odds Ratio

GBV Gender Based Violence

HBSAG hepatitis B surface antigen

IRB Ethical Review Board

JUMC Jima University Medical Center

LMIC Low and Middle Income Country

PI Principal Investigator

STI Sexually Transmitted Infection

UN United Nation

VAW Violence against Women

WHO World Health Organization

CHAPTER ONE: INTRODUCTION

1.1 BACKGROUND

Violence against women is one of the long standing and rooted problem throughout the word, adolescent girls and young adults being more vulnerable. To hasten this long standing problem, UN General Assembly's had made Declaration, defining violence against women (VAW) as any act of gender-based violence that results in, or is likely to result in, physical, sexual or psychological harm or suffering to women. It could occur in family, Community and sometimes by States(1).

Currently, violence against women has increased significantly during the last decades and become a major health and human rights concern throughout the world.(2)

By far, female adolescents are more vulnerable to sexual violence and experience more severe and long-standing adverse effect and Experiences of sexual violence during childhood or adolescence hinder all aspects of development: physical, psychological and social.(3)

As Ethiopia had signed the declaration on elimination of VAW doing a lot to decrease the problem, despite the situation continued harder in the country. Thus, recognizing the sexual violence against women as a major health problem and providing strong policy is important steps in hastening this situation. (1).

1.2 STATEMENT OF PROBLEM

Sexual violence is the act of forcing or attempting to force a female through physical body harm or any means to engage in a sexual behavior against her will. Sexual coercion exists along a continuum, from forcible rape to nonphysical forms of pressure (e.g. exposure to sexual language and images) that compels girls and women to engage in sex against their will. Around the world, at least one woman in every three has been beaten, coerced into sex, or abused in her lifetime (4). United Nations reports show that, Sexual violence which occur in variety forms (physical to nonphysical) and usually occur together. Sexual victimization that result from emotional and psychological manipulation, intimidation and verbal threats, deception or entrapment are equally intrusive and traumatic (5).

Sexual violence during childhood or adolescence hinder all aspects of development; physical, psychological, social and economy of women. Research has found that girls who have been sexually abused are at higher risk of experiencing intimate partner violence, and of being involved, or exploited, in sex work later in life (6). Early pregnancy can also be an unintended outcome for adolescent girls who have experienced the most severe form of sexual violence (fi e, forced sexual intercourse, or rape) (7).

In Women College in Chile, 2% of subjects reported that they had been physically forced to have sex (on one or more occasions) since age 14, 4% verbally pressured into having sex and 7% reported that someone had had sex with them while they were under the influence of alcohol or other drugs and unable to stop what was happening. In addition, 11% of respondents reported an attempted rape, and 25% reported another type of forced sexual contact. This indicate that there is high prevalence of sexual assault in Chile.(8).

From Study in Norway and Sweden to explore sexually coercive behavior in a population-based survey of adolescent and young adult females, About 0.8% reported that they had “ever talked someone into, used pressure or forced somebody to masturbate them, have oral or anal sex, or sexual intercourse”. Sexually coercive females were compared with the remaining 99.2% individuals. Sexually coercive females reported their parents as significantly more overprotective and less caring than did normal controls. Furthermore, sexually coercive young females were significantly more aggressive, depressive, and likely to have tried cannabis than normal control youth, and they began using alcohol earlier and used it more frequently than did controls (9).

The occurrence and threat of rape or, more generally, sexual assault and victimization, which can

be perpetrated by other detainees/inmates or staff create a dangerous and volatile custodial environment. The resulting effects of attempted or completed attacks on detainees and inmates include psychological trauma, physical ailments, and a sense of shame ((10). Following rape attack significant number of victims experience unwanted pregnancy and its consequences like abortion. Also, sexually transmitted infection is another reproductive health problem following rape. Moreover, beating of victims, making them to take alcohol and drugs are commonly used mechanisms.(11).

1.3 SIGNIFICANCE OF STUDY

In Ethiopia, adolescent girls are at risk of sexual abuse, irrespective of their age, geographical location and ethnic background and long existed in the community. It is least recognized, unnoticed and undocumented part health problems of adolescent girls. So this research is intended to identify the hidden but the most important health problem of adolescent; in order to expose the possible risk factors and outcome and tackle the problem in the future. Outcome specifically focus on major depressive disorder and sexually transmitted disease among raped adolescent girls.

Hence, this study will try to fill the gap and addresses the issue of female adolescent sexual assault in JMC and makes a contribution to offer preventive, remedial and rehabilitative recommendation leading towards the minimizing of adolescent sexual assault.

This study can also help as a reference for future studies in the area which appears to be grossly deficient and enable the local decision makers.

CHAPTER TWO: LITERATURE REVIEW

A WHO multi-country study on women's health and domestic violence against women, reported that less than 1% of women reported sexual abuse before age 15 years when interviewed face-to-face but 7% reported sexual abuse before age 15 years when using cards the women marked and put into envelopes themselves. In addition, the report showed that 17% of women reported that their first sexual experience was forced. This indicates that most of sexual are not reported publicly in Ethiopia for different reasons. So magnitude of sexual assault is by far higher than reported in Ethiopia(12).

Comparable data are available for 18 countries (Cameroon, Zambia and Gabon- among African country involved in study) on the percentage of adolescent girls (aged 15 to 19) who were subjected to sexual violence by the age at which they first experienced it. By far the most commonly reported perpetrators across all these countries are intimate partners or family members or relatives. Early pregnancy and sex work later in life can also be an unintended outcome for adolescent girls who have experienced sexual violence.(3)(13)

In Nigeria, Lagos town, Census study done on prevalence and predictors of sexual intercourse with persons below the age of consent (statutory rape) and outright sex without consent (rape) among out-of-school adolescents, involving 480 participants shows that about 14% and 35% of the participants had been victims of rape and statutory rape respectively. Age, basic deprivation, living arrangement and previous attendance to school were strong predictors of both sorts of rape.(14)

National Survey of Kenya, conducted in 2010 on violence against children, indicates that about 10.7% of females, aged b/n 13 – 17, experienced sexual violence, which was significantly higher than levels of males sexual violence. Unwanted sexual touching (8.5%) being most common sexual violence, followed by unwanted attempted sexual intercourse 3.3% according to the study.(15)

Behavioral, life style and relationship factors have all been identified as risk factors that increase adolescent girls' vulnerability to sexual violence. A cross-sectional on female secondary school students from eastern Ethiopia, have revealed that high rejection sensitivity, having multiple sexual partners, the frequent watching of pornography and use of alcohol or other soft drugs are factors associated with higher levels of sexual violence victimization. The overall rates of victimization is high in this group with 68% of the young women having experienced at least one

instance of sexual violence. Based on type of sexual perpetration, 52% of the young women were victimized by at least one instance of sexual offense, 56% by sexual assault, 25% by sexual Coercion and 15% by sexual aggression. This indicates that there is higher rates of sexual victimization in eastern region of Ethiopia.(16)

Sexual violence in early age is associated with more longstanding and severe form of adverse consequence. The consequence may vary from physical harm to long standing mental and reproductive health problems to death of victims, either from murder or suicide. The report of violence varies throughout the world, being higher in sub-Saharan countries. Study in Caribbean had revealed that about 50% of sexually active adolescents had reported that their first intercourse was forced and it was about 40% in Lima, Peru.(17)

Study done by medical university of south Carolina, had ascertained that rape victims are more likely to develop devastating mental illness than non-victimized ones. The study have revealed that 30% of victims had experienced at least one episode of MDD in their life time and about 21% of them had MDD at the time of event, indicating that they are 3 times more to experience MDD than non-victimized counterpart(18) and also type of perpetrator was one predictor of MDD in which there will be more blame if perpetrator is known(19). Longitudinal study done on sexually assaulted children in two hospital in Nairobi, Kenya, had indicated that 85.4% of children aged below 16 and 93.6% of aged between 16-17 had moderate to severe depressive symptoms, when evaluated after one month of the assault. The mean age in this study was 13 years and about 83% ranges 10 to 17 years.(20)

Another institution based cross sectional study conducted among youth in high school students at Harari town, situated at eastern region of Ethiopia, have also shown that Sexual violence among in school adolescents were 25%. Students used addictive drugs like alcohol 18%, chat and shish 7.2% as very important contributing factors for sexual violence's. Use of physical force 15%, false promise 43% and use of power 7.2% reported contributing factors. Females dressing style, their act, peer pressure, revenge and males emotionality identified as contributing factors for sexual violence. Sexual violence had different consequences like abortion 32.2%, vaginal discharge 28.6%, genital trauma 25%, and unwanted pregnancy 14.2%.(21)

A cross-sectional study conducted among youth in high school students of Harar town with 432 students had shown that prevalence of sexual violence was 25%, use of addictive drugs like chat, shisha, and alcohol being the risk factor for violence. Consequences like abortion (32.2%),

vaginal discharge (28.6%), genital trauma (25%), and unwanted pregnancy (14.2%) were the end result of the sexual violence in this study. According to this study prevalence of sexual violence among school students is very high in Harar town.(21)

At Medawalabu university, a cross sectional study done on sexual coercion and its associated factors among female students, had shown that prevalence of sexual coercion was found to be 41.1%. 6.8 percent of the respondents reported that they were raped and only 3.2% had reported the rape event to legal body, and 28.3% of the victims were raped more than two times. This study also shown that intimate individuals and family members are the most common perpetrators of sexual violence.(22) Another cross sectional study done at Gozamin and Nigus T/Haimanot high school of east Gojam zone, have showed that 58.3% of them had faced different form of sexual assault and the mean age of sexual initiation was 16.7 years. Thirty nine percent of participants are sexually active, 59% of them being unsafe sex and 45.8% of could not negotiate on how and when to had sex.(23) A study done on street female adolescents of Addis Abeba city had indicated that prevalence of the rape was 15.3% and about 52.3% of them had experienced some form of sexual assault in their life. About 43% of the sexual intercourse was initiated by force. As consequence of the rape, 23% of participants had unwanted pregnancy and 15% had experienced induced abortion. Prevalence of STD was 58% evidenced by unusual genital discharge and swelling around groin.(24) Early sexual intercourse initiation impose the adolescents to long term impacts in their life like vicious cycle of poverty, school dropout , teenage pregnancy and its complication, long term psychosocial impact and maternal death(25) and study done in Brazilian adolescents had revealed that early initiation was associated with increased risk of developing Major depressive episodes than late initiation. First sexual intercourse initiation at age of 15-16 years increase MDD by 2.29 times and age at 11-14 years increase by 2.23 than those initiate at age greater than 18 years.(26) A cross sectional survey done among high school girls in jima town, 20.6% of them initiated being raped and 12.7% of them had been raped more than once. 12.8% the victims had experienced abortion, 12.4% of them had experienced vaginal discharge as indicator of the STI and 10.3% had depression as adverse outcome of the rape. (27). A survey study done in jima town on adolescent girls had revealed that about 88.9% of participants had experienced some form of sexual assault and about 28.5% of had initiated sexual intercourse by rape and 16 years of age being a mean age of sexual intercourse initiation. In Sixty two percent (62%) of case, perpetrators were known by the

victims. As result of rape, 21 % had unwanted pregnancy, 10% of victims had already experienced abortion and 16.7% of had unusual vaginal discharge and 10% swelling around genitalia as indicators of STI.(2)

2.1 CONCEPTUAL FRAME WORK OF STUDY

For the analysis of factors that increase adolescent girls' vulnerability to sexual assault, in absence of a well-developed model to address factors related to sexual violence, a simple framework was developed based on the literatures reviewed. In the framework, it is assumed that demographic, socio-cultural and behavioral factors are the basic risk factors for sexual violence. These background factors influence the intermediate factors. Nonetheless, the relationship shown should not be seen as unidirectional only; there can be a complex interaction among the factors shown.

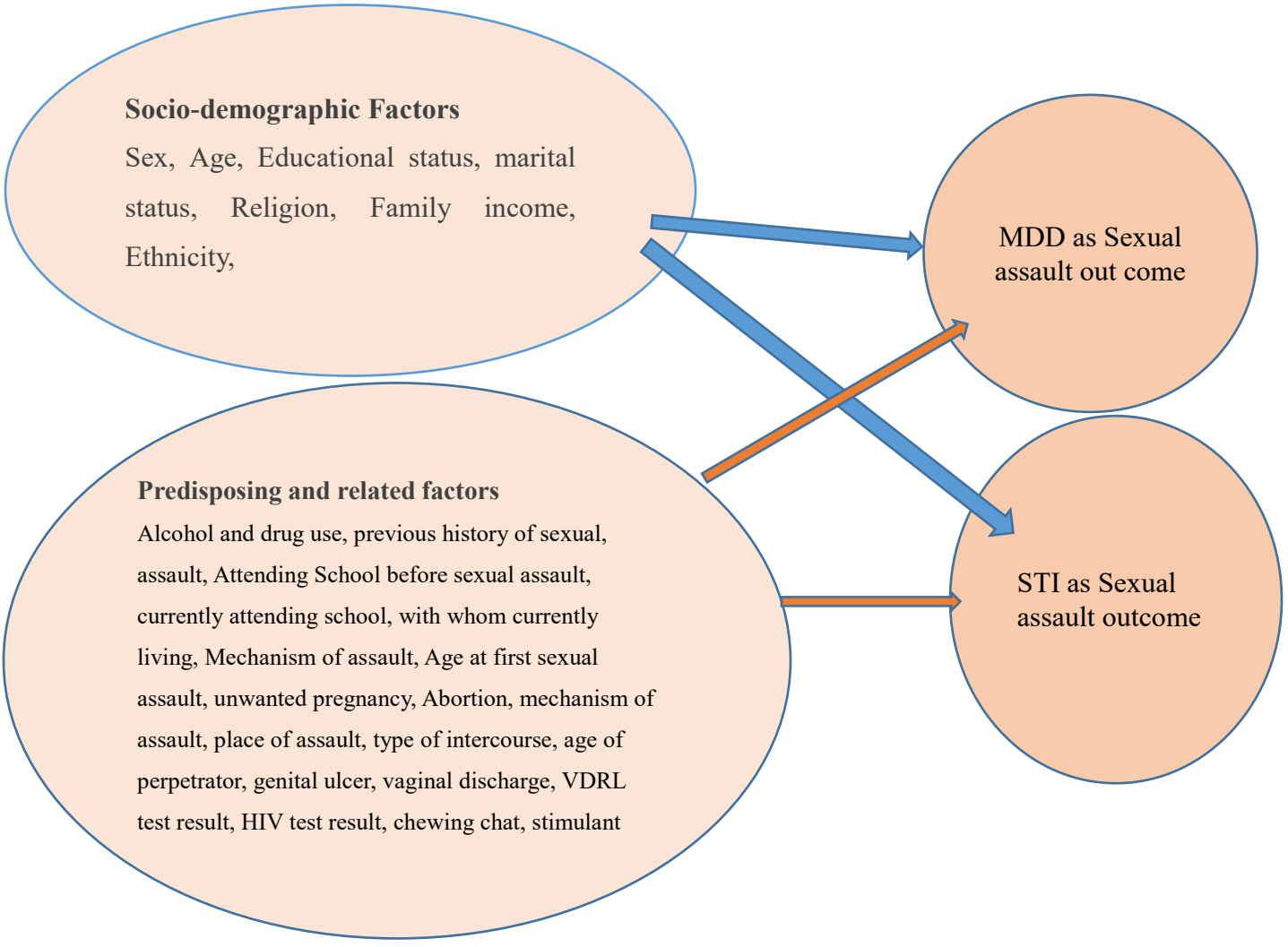

Fig I Conceptual Framework of factors associated with sexual violence

CHAPTER THREE: OBJECTIVE

3.1 GENERAL OBJECTIVE:

To determine the level of the outcomes of sexual assault and factors affecting the outcomes of sexual assault among adolescent girls evaluated in Jima medical center, Southwest Ethiopia, 2020.

3.2. SPECIFIC OBJECTIVES:

- To determine the level of the depression related with sexual assault among adolescent girls assessed in JMC
- To determine the level of the STI related with sexual assault among adolescent girls assessed in JMC
- To identify factors associated with depression disorder among adolescent girls assessed with sexual assault in JMC
- To identify factors associated with STI among adolescent girls assessed sexual assault in JMC

CHAPTER FOUR; METHODS AND MATERIALS

4.1 STUDY AREA AND PERIOD

The study was undertaken in Jima medical center, which is found in Jima town, southwestern part of Ethiopia, and 343km from the Addis Ababa. It is used as the referral hospital for southwestern region of the country. Gender based violence unit has its own trained nurse staffs and mostly obstetrics and gynecology residents and seniors were involved on evaluation of cases during the study period, December 1/2019-July 30/2020.

4. 2 STUDY DESIGN

An institutional based cross sectional study was conducted on sexually assaulted adolescent girls in JMC during the study period.

4.3 POPULATION

4.3.1 SOURCE POPULATION:

All sexually assaulted adolescent girls who visited JMC GBV unit during the study period.

4.3.2 STUDY POPULATION

All sexually assaulted adolescent girls visited GBV unit JMC during the study period and those who fulfill the Inclusion Criteria.

4.4 ELIGIBLITY CRITERIA

4.4.1. INCLUSION CRITERIA: All sexually assaulted adolescent girls, who visited JMC during the study period and at least two weeks since the sexually assaulted.

4.4. 2 EXCLUSION CRITERIA

Adolescent girls who had mental illness before the incident of sexual assault.

4. 5 SAMPLE SIZE DETERMINATIONN AND SAMPLING TECHNIQUE

4. 5 .1 SAMPLE SIZE DETERMINATIONN

The total adolescent girls who came for evaluation in last one year were 209 from JMC sexual assault unit and gynecologic ward records. Therefore, all assaulted adolescent girls who fulfil eligibility criteria were involved as the sample size was manageable to collect data from all of them who visited JMC during data collection period.

4. 5.2 SAMPLING TECHNIQUE

All adolescent girls age who came to JMC for evaluation of sexual assault and fulfilling eligibility criteria during the study, were involved consecutively.

4.6 VARIABLES

4.6.1 INDEPENDENT VARIABLES

Age, Religion, Occupation, Residency area, marital status, Educational level, previous sexual assault, Attending School before sexual assault, currently attending school, family income, whether perpetrator known by victim, unwanted pregnancy, Abortion history, mechanism of assault, place of assault, type of intercourse, age at first rape, age of perpetrator, genital ulcer, abnormal vaginal discharge, VDRL test result, HIV test result, HBSAG test result, chewing chat, stimulant drugs use, alcohol consumption

4.6.2 DEPENDENT VARIABLES

Outcome of sexual assault: Major depressive disorder, sexually transmitted disease.

4.7 OPERATIONAL DEFINITION OF TERMS

Adolescence: age of 10 years to 19 years

Early adolescent: 10 to 14 years of age

Late adolescents: 15 to 19 years of age

Sexual assault: Act of forcing or attempting to force adolescent girls through physical body harm or any means to engage in a sexual activity, ranging from verbal assault to rape.

Rape: a severe form of assault, conducted by insertion of penis into victims vagina or/and anus or/and oral.

Major depressive disorder: any of five symptoms mentioned below, according to DSM-V criteria: Often have headaches, Poor appetite, Bad sleep, Easily frightened, Blame yourself for what happened, Hate others for what has happened on you, Feel unhappy, Cry more than usual, Lost interest in sexual intercourse, Become addicted to alcohol or substance, Lost interest on things, Feel that you are a worthless Person, Thought of ending your life, had Tried to take your life, Fill tired and depressed all the time

Sexually transmitted infection: if they had any or combination of abnormal vaginal discharge, genital ulcer, VDRL positive.

4.8 DATA COLLECTION TOOL AND PROCEDURE

Data were collected by researcher administered structured questionnaire which was both developed and adopted from other literature. It has three parts.

Part I: socio-demographic

Part II: Predisposing and associated factor assessment

Part III: outcome assessment part

Two Trained nurses were involved for data collection from study population using structured questionnaire and referring to medical chart to collect Laboratory results like VDRL, HBSAG, HIV and gestational age by ultrasound.

Each day the responsible nurses would administer structured questionnaire and refer to medical

chart to collect data during Data collection period.

4.9 DATA QUALITY CONTROL

To achieve a good data quality Pretest was conducted by 5% questionnaires from the targeted group by Interviewers. Crosscheck was made before actual data were collected. Questionnaires were prepared in English and translated in to Afan Oromo, then back to English to check for consistency. Vogue points and other problems encountered about the questionnaire was given explanation and clarification. Close supervision was undertaken during data collection of nurses assigned to JMC Gender Based Violence unit, gynecology ward and outpatient unit. If there is change of nurses, training on variables of study was given. The principal investigator crosschecked each questionnaire daily.

4.10 DATA PROCESSING AND ANALYSIS

After data collection, each questionnaire was checked for completeness. Unique code was given for each questionnaire and feed in to Epidata 3.1 version. The collected data were cleaned, fed to computer every day. After all data entry completed, analysis was made using SPSS software program version 21. Results were presented by using tables and statistically tested. Bi-variable analysis was conducted to identify the candidate variables at $p \leq 0.25$. Multivariable logistic regression was conducted to identify the independent predictor variables of the outcome variables at $p < 0.05$ with 95% CI.

4.11 ETHICAL CONSIDERARION

Ethical clearance was obtained from Jima University ethical review Board and permission to conduct this research was obtained from JMC. The Guardian/police staff/ of adolescents and adolescent herself were told about the objectives and benefits of the study. After having written consent and Assent from the respondents, data collection was carried out. The right of the respondents to withdraw or not to participate was respected. Also, they were informed that the collected information were used only for research purpose and will not be delivered to third party.

CHAPTER FIVE: RESULTS

5.1 SOCIO DEMOGRAPHIC CHARACTERISTICS OF SEXUALLY ASSAULTED ADOLESCENT GIRLS AND CARE GIVERS IN JUMC, 2020.

In this study 174 victims were interviewed yielded 100% response rate. More than two-third 120 (69.0%) of the victims were found in late adolescent. Regarding residence, 92(52.9%) were from Rural. More than half of victims were Oromo in their ethnicity followed by Amhara which were 38 (21.8%) of them. Almost half of the victims were Muslims in religion 86 (49.4%) followed by orthodox 50 (28.7%). The vast majority 169(97.1%) of them were unmarried. Nearly half 83(47.7%) of the victims family income was below 500 ETB. Seventy-nine (45.4%) of them were attending school before the sexual assault happened to them. Similarly, 69 (39.7%) of study participants were attending school at the time of the event. Only 10(10.2%) of victims were willing to go back to school after they were raped. Among the reasons not to go back school, 45 (51.1%) were due to they have no family for help followed by shame of rape (28.4%) (Table 1).

TABLE 1: *SOCIO DEMOGRAPHIC CHARACTERISTICS OF ADOLESCENT GIRLS AND CARE GIVERS*

Variables	Categories	Frequency	Percent (%)
Age	10-14 years	54	31.0
	15-19 years	120	69.0
Residence	Urban	82	47.1
	Rural	92	52.9
Religion	Muslim	86	49.4
	Orthodox	50	28.7
	Protestant	37	21.3
	Others[1]	1	0.6
Ethnicity	Oromo	99	56.9
	Amhara	38	21.8
	Tigray	3	1.7
	Kafa	20	11.5
	Gurage	13	7.5
	Others	1	0.6
Marital status	Married	5	2.9
	Unmarried	169	97.1
Family income	<500 ETB	83	47.7
	500-1500 ETB	24	13.8
	1501-2500 ETB	19	10.9
	>2500 ETB	48	27.6
Attending school before event happened	Yes	79	45.4
	No	95	54.6
Currently attending school at time of event	Yes	69	39.7
	No	105	60.3
Do Want to go back to school	Yes	10	10.2
	No	88	89.8
Reason not go back to school	Have no family for help	45	51.1
	Shame of event	25	28.4
	Married	6	6.8
	Others	12	13.6
Currently living with whom	Parental	85	48.9
	Non parental	89	51.1

Regarding the level of education among victim of sexual assault, more than half 97 (55.5%) of them attended primary education followed by secondary education which was 47 (27.0%) (Figure1).

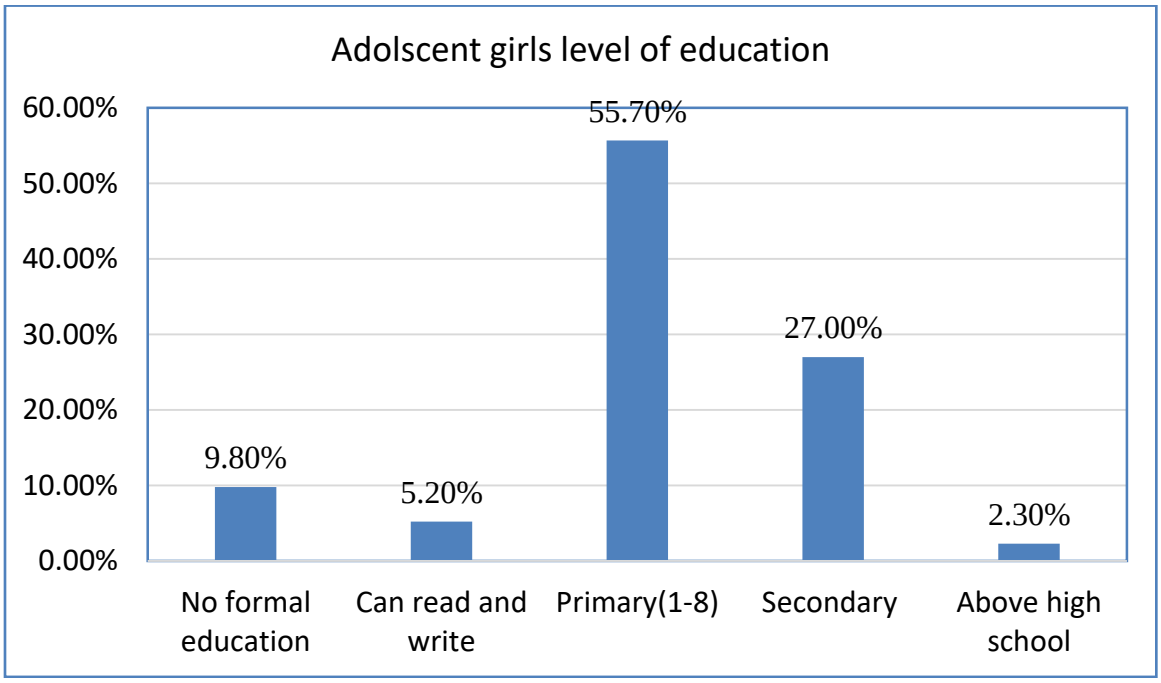

FIGURE 1: *SEXUALLY ASSAULT ADOLESCENT GIRLS' LEVEL OF EDUCATION IN JMC, 2020.*

More than half 96 (55.5%) of them had both parents alive, whereas 41 (23.6%), 25(14.4%) and 12 (6.9%) were dead, only mother alive and only father alive respectively. More than one third 67 (38.5%) of adolescent girls live with their both parents and 40 (23.0%) respondents living with their employers.

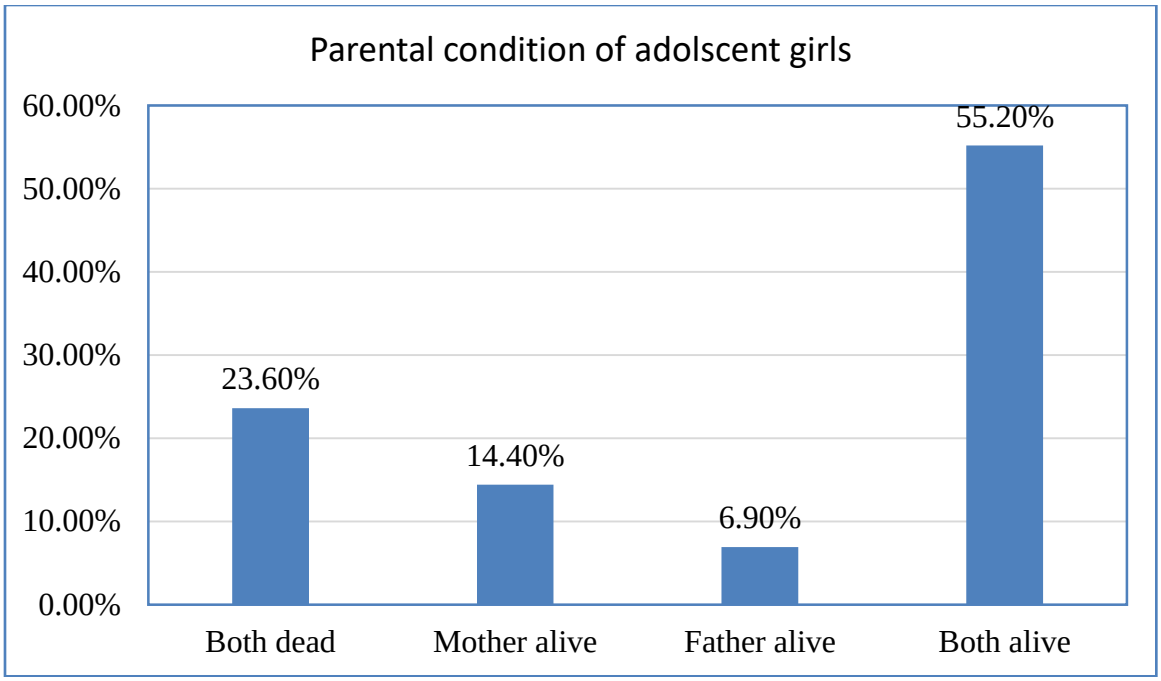

FIGURE 2: *PARENTAL CONDITION OF SEXUALLY ASSAULTED ADOLESCENT GIRLS IN JMC, 2020.*

5.2 PREDISPOSING AND ASSOCIATED FACTORS FOR MAJOR DEPRESSIVE DISORDER AND SEXUALLY TRANSMITTED INFECTIONAMONG SEXUALLY ASSAULTED ADOLESCENT GIRLS IN JMC, 2020

In this study slightly more than half 89 (51.1%) of the victims had been raped before the index event. The mean and standard deviation of age at the first sexual intercourse was 14.9±1.74 years. Among the study participants who had been raped before, 52 (50.5%) of them had initiated sexual intercourse being forced physically. The majority 156 (89.7%) of the study participants know the person who conducted rape. Forty-eight (30.8%) of respondents had raped by neighbor and 32(20.5%) of them by boyfriends. Regarding the type of sexual intercourse, almost all, (97.7%), study participants conducted penetrative vaginal sexual intercourse. In 48 (27.6%) respondents, the rape happened at their home.

TABLE 2: *FREQUENCY OF PREDISPOSING AND ASSOCIATED FACTORS FOR MAJOR DEPRESSIVE DISORDER AND SEXUALLY TRANSMITTED DISEASE IN JMC, 2020.*

Variables	Categories	Frequency	Percent (%)
Ever had sexual intercourse before the index event	Yes	89	51.1
	No	85	48.9
Age at first sexual intercourse	10 - 14 years	75	43.1
	15-19 years	99	56.9
Reason for first sexual intercourse	Marriage	4	4.5
	Personal desire	2	2.3
	Deceived by promising words	38	42.3
	Exchange of properties	7	7.8
	Forced	52	58.4
Do you know the person	Yes	156	89.7
	No	18	10.3
Who raped you	Relative	29	18.6
	Neighbor	48	30.8
	A boyfriend	32	20.5
	Another friend	13	8.3
	A family's friend	8	5.1
	Teacher	2	1.3
	Employer	24	15.4
	Unknown person	18	10.3
Type of intercourse	Penetrative vagina	170	97.7
	Anal	3	1.7
	Oral	1	0.6
Estimated age of the perpetrator	Younger than me	10	5.7
	The same age	12	6.9
	Older than me	152	87.2
Place where the incidence happens	At her home	53	30.5
	Neighbor	42	24.1
	At school	6	3.4
	Hotel	36	20.7
	On street at night	37	21.3

This study had revealed that, 152 (87.2%) of perpetrator were found to be older in estimated age than the victims and 10(5.7%) found to be younger than victims. Regarding the mechanism of the rape, 101 (58.0%) was conducted by threats of harm. Similarly, from the total of victims, nearly two third (65.5%) of was conducted through hitting (Figure 3).

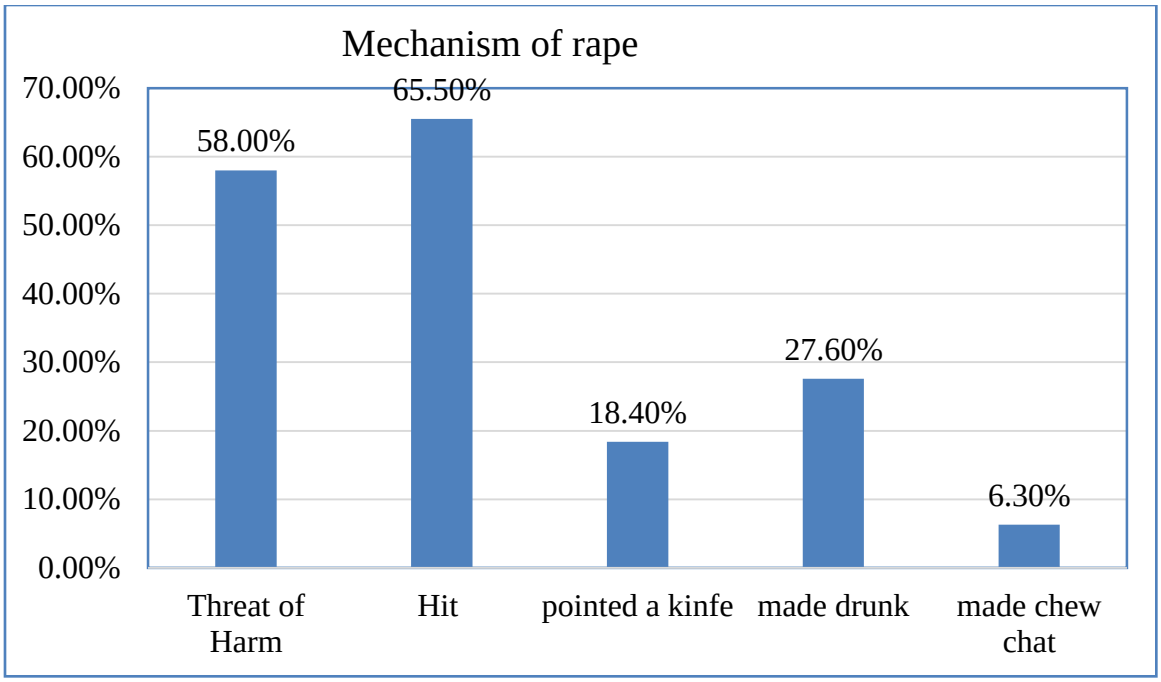

FIGURE 3: *THE WAY OF SEXUAL ASSAULT AMONG ADOLESCENT GIRLS, IN JMC, 2020*

Regarding substance use, 55 (31.6%), 17 (9.8%) and 22 (12.6%) of them drink alcohol, chew chat and taking any type of stimulant drugs respectively, at the time of assault.

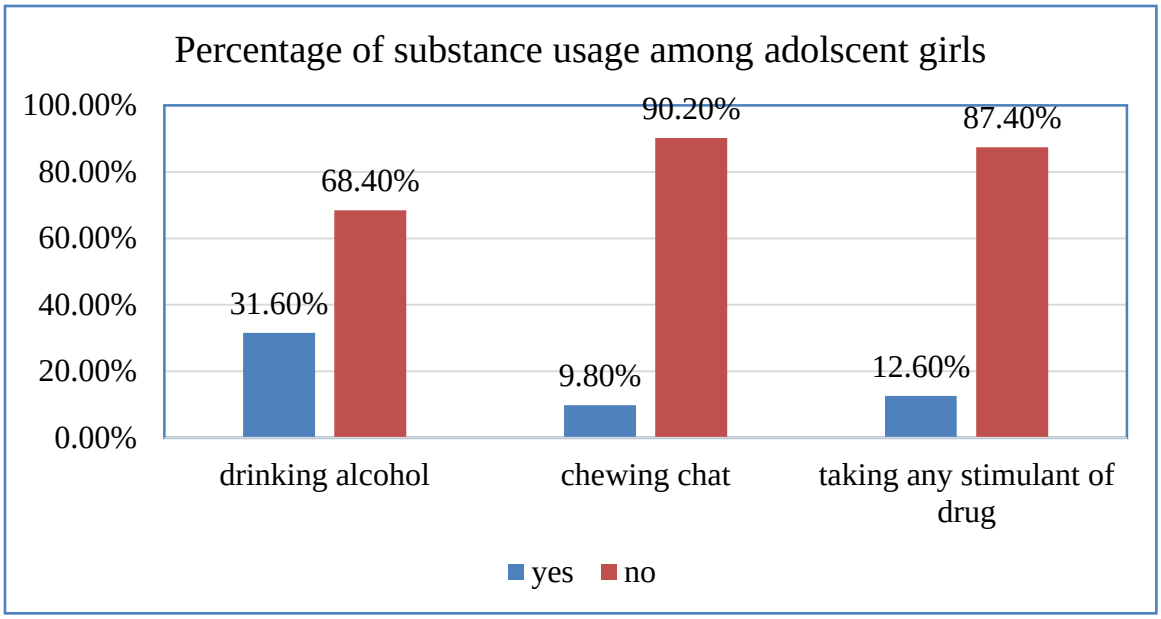

FIGURE 4: *PERCENTAGE OF SUBSTANCE USAGE AMONG SEXUALLY ASSAULTED ADOLESCENT GIRLS IN JMC, 2020.*

Regarding to the frequency of rape, more than half 85 (48.9%) of the victims had been raped once time and the rest 77 (44.3%) and 12 (6.9%) had been raped 2- 4 times and more than five times respective ly.

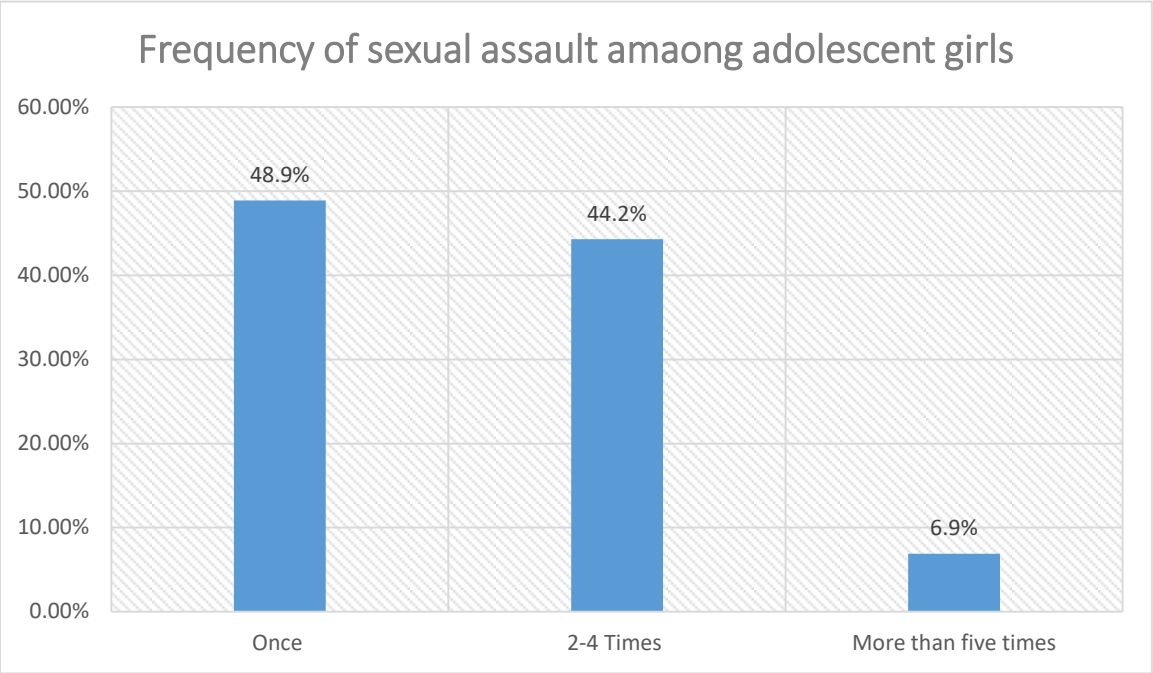

FIGURE 5 *FREQUENCY OF SEXUAL ASSAULT AMONG ADOLESCENT GIRLS IN JMC, 2020.*

5.2.1 PREGNANCY RELATED CHARACTERISTICS AMONG SEXUALLY ASSAULTED ADOLESCENT GIRLS IN JMC, 2020

About two third 118(67.2%) of victims had unwanted pregnancy of which nearly half of them had less than 12 weeks in GA. Among pregnant victims, the majority110 (91.5%) of them were decide to terminate the pregnancy. In the same way 52 (29.9%) of victims had history of abortion before.

TABLE 3: ***PREGNANCY RELATED CHARACTERISTICS AMONG SEXUALLY ASSAULTED ADOLESCENT GIRLS IN JMC, 2020***

Variables	Categories	Frequency	Percent (%)
Unwanted pregnancy	Yes	118	67.8
	No	57	32.2
GA in weeks (n=118)	<12	56	47.5
	12.1-27.6	54	45.7
	>28	8	6.8
Plan about the pregnancy	Terminate	108	91.5
	Continue	10	8.5
History of Abortion	Yes	52	29.9
	No	122	70.1

5.2.2 DEPRESSION STATUS AMOND SEXUALLY ASSAULTED ADOLESCENT GIRLS IN JMC, 2020

In this study, 118 (67.8%) of victims often had a headache and 56 (47.5%) of them had poor appetite. As well as, 111 (63.8%) of them had bad sleep. More than half 112(64.4%) of the study participants had easily frightened after the event happened. The majority 148 (85. 1%) of victims feels unhappy after the event happened and 112 (64.4%) of them feel tired and depressed all the time (Table 4).

TABLE 4: *DEPRESSION STATUS RELATED WITH SEXUAL ASSAULT AMONG ADOLESCENT GIRLS IN JMC, 2020*

Variables	Frequency	Percent (%)
Often have headache	118	67.8
Poor appetite	56	47.5
Bad sleep	111	63.8
Easily frightened	112	64.4
Blame yourself for what happened	106	60.9
Hate others for what happened on you	71	40.8
Feel unhappy most of the time	148	85.1
Cry more than usual	123	70.7
Lost interest in the sexual intercourse	23	13.2
Became addicted to substance	10	5.7
Lost interest in things previously interested in	86	49.4
Feel that you are worthless person	59	33.9
Thought of ending your life	78	44.8
Tried to take life(suicide attempt)	84	48.3
Feel tiered and depressed all the time	112	64.4

In this study, magnitude of major depressive disorder among raped adolescent girls was 89.1% (95 CI%, 84.5-93.7%). The level of major depressive disorder was 109 (70.3%) among individuals who were 15-18 years old and were 46 (29.6%) among 10-14 years old, when compared to age subgroup category. Similarly, the level of major depression was 90 (90.9%) among individuals of their first age at sex greater than 14 years old and it was 65 (86.7%) among individuals age at first sex less than or equal to 14 years when compared to same age categories.

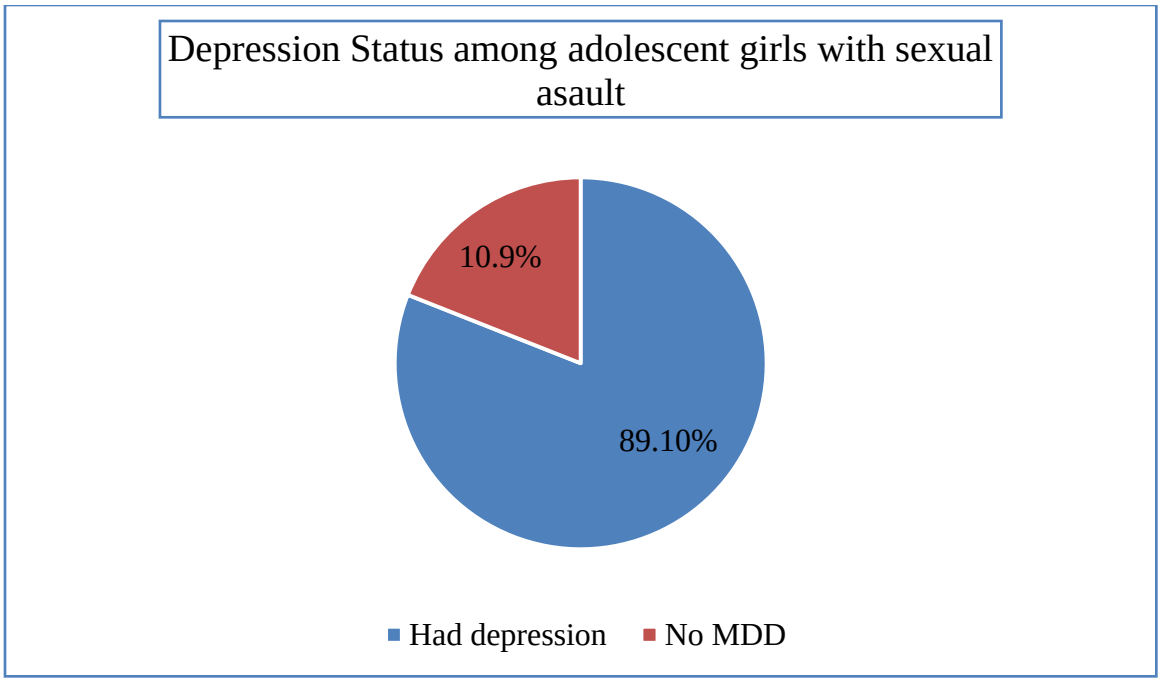

FIGURE 6: *DEPRESSION STATUS OF ADOLESCENT GIRLS WITH SEXUAL ASSAULT IN JUMC, 2020*

5.2.3 SEXUALLY TRANSMITTED INFECTION CHARACTERISTICS AMONG SEXUALLY ASSAULTED ADOLESCENT GIRLS IN JUMC, 2020

In this study, among adolescent girls screened for STI, 29 (16.7%), 26 (14.9%) and 10/168(10%) were found to be positive for VDRL, HBsAg and HIV respectively. Twenty eight (16.1%) of them have ulcer in genitalia and fifty (28.7%) of them have abnormal vaginal discharge and 29 ((16.7%) of them had swelling around the genitalia. Generally nearly half 85 (49.9%) of victims had developed STI after they were raped. (Table 5).

TABLE 5: *STI STATUS AMONG ADOLESCENT GIRLS WITH SEXUAL ASSAULT IN JUMC, 2020.*

Variables	Categories	Frequency(n=174)	Percent (%)
Ulcer in the genitalia	Yes	28	16.1
	No	146	83.9
Abnormal vaginal discharge	Yes	50	28.7
	No	124	71.3
VDRL	Positive	29	16.7
	Negative	145	83.3
HIV Test (168)	R	10	6.0
	NR	158	94.0
HBsAg	Positive	26	14.9
	Negative	148	85.1
STI	Yes	85	48.9
	No	89	51.1

5.3 FACTORS ASSOCIATED WITH MAJOR DEPRESSIVE DISORDER AMOND SEXUALLY ASSAULTED ADOLESCENT GIRLS IN JMC, 2020

In order to identify the factors associated with major depression disorder among raped adolescent girls in JMC, bivariate and multivariate logistic regression analysis were conducted. The variables with p-value ≤0.25 on bivariate analysis includes residency, attending school before event happening, currently attending school at time rape, rape by hitting, unwanted pregnancy, abnormal vaginal discharge, genital swelling and currently living condition of victims were candidate variable for multivariable logistic regression. Out of these variables residency area, currently attending school at time of rape, rape by hitting and unwanted pregnancy had statically significant association with major depression disorder on multivariable logistic regression at p-value <0.05 with 95% CI of AOR.

The odds of having MDD was 14.6 times higher among victims who were living in urban compared to respondents living in rural areas ((AOR 14.65, 95% CI 2.57, 83.30, (p=0.002)). The odds of having MDD was 9.1 times higher among individuals who were not attending school at time of rape compared to their counterparts (AOR 9.01, 95% CI 2.05, 40.35, p=0.004). Victims who were raped by hitting had 17.6 times more likely to develop MDD compared to those had been raped without hitting ((AOR 17.67, 95% CI 3.58, 87.20, p<0.001). Similarly, the odds of having major depression disorder was 14.8 times higher among individuals who had unwanted pregnancy compared to their counterparts (AOR 14.68, 95% CI 3.09,71.43, p=0.001).

TABLE 6: *BINARY AND MULTIVARIATE LOGISTIC REGRESSION MODEL TO IDENTIFY FACTORS ASSOCIATED WITH MAJOR DEPRESSIVE DISORDER AMONG SEXUALLY ASSAULTED ADOLESCENT GIRLS IN JMC, 2020*

Variables	Category	Outcome Variables		COR 95%CI	AOR 95%CI
		Depression (%)	Normal (%)		
Residency	Urban	79(96.3)	3(3.7)	5.54(1.55, 19.79)	14.64(2.25,83.29)**
	Rural	76(82.6)	16(17.4)	1	1
Attending school before the event	Yes	65(82.3)	14(17.7)	1	1
	No	90(94.7)	5(5.3)	3.87(1.33,11.33)	0.26(0.02,3.26)
Attending school at time rape	Yes	54(78.3)	15(21.7)	1	1
	No	101(96.2)	4(3.8)	7.01(2.21,22.20)	9.10(2.05,40.35)**
Sexual assault by hitting	Yes	108(94.7)	6(5.3)	4.98(1.78,13.89)	17.68(3.58,87.17)**
	No	47(78.3)	13(21.7)	1	1
Unwanted pregnancy	Yes	112(95.7)	5(4.3)	7.29(2.47,21.47)	14.85(3.09,71.43)**
	No	43(75.4)	14(24.6)	1	1
Abnormal vaginal discharge	Yes	48(96.0)	2(4.0)	3.81(0.847,17.16)	6.02(0.85,42.43)
	No	107(86.3)	17(13.7)	1	1
Genital swelling	Yes	28(96.6)	1(3.4)	4.00(0.51,31.22)	4.71(0.50,43.65)
	No	126(87.5)	18(22.5)	1	1
Current living status	Parental	71(83.5)	14(16.5)	1	1
	Non parental	84(94.4)	5(5.6)	3.31(1.14,9.65)	1.57(0.37,6.65)

Key: ** indicates variables statically significant association with depression at $p<0.05$.

5.4 FACTORS ASSOCIATED WITH SEXUALLY TRANSMITTED INFECTION AMOND SEXUALLY ASSAULTED ADOLESCENT GIRLS IN JMC, 2020

In order to identify the factors associated with STI among sexually assaulted adolescent girls in JMC, bivariate and multivariate logistic regression analysis were conducted. The variables with p-value ≤0.25 on bivariate analysis which includes attending school before rape happening, had ever sexual intercourse, age of the perpetrator, current living condition, chewing chat, any stimulant drug use, frequency of sexual assault, family income and age at the first sexual intercourse were candidate variables for multivariate logistic regression. Out of these variables had ever sexual intercourse and family income ≤ 500 birr per month had statically significant association with STI among victims on multivariate logistic regression at p-value <0.05 with 95% CI of AOR.

The odds of having STI was 2.8 times higher among adolescent family's income < 500 ETB per month compared who had >2500 ETB ((AOR 3.34, 95% CI 1.53,7.26, (p=0.002)). Similarly, victims who had multiple time rape in life time was 2.3 times more likely to develop STI compared to those experienced once (AOR 3.28, 95% CI 1.71, 6.29, (P<0.001)).

TABLE 7: *BINARY AND MULTIVARIATE LOGISTIC REGRESSION MODEL TO IDENTIFY FACTORS ASSOCIATED WITH SEXUALLY TRANSMITTED INFECTION AMONG SEXUALLY ASSAULTED ADOLESCENT GIRLS IN JMC, 2020*

Variables	Category	STI		COR 95%CI	AOR 95%CI
		Yes (%)	No (%)		
Attending school before the rape	Yes	32(40.5)	47(59.5)	1	1
	No	53(55.8)	42(44.2)	1.85(1.01,3.39)	1.09(0.51,2.31)
Parental condition	Dead	25(61.0)	16(39.0)	2.09(0.95,4.23)	1.27(0.45,3.57)
	Mother alive	11(44.0)	14(56.0)	1.01(0.42(2.45)	1.04(0.37,2.94)
	Father alive	7(58.3)	5(41.7)	1.80(0.53,6.07)	2.02(0.50,8.14)
	Both alive	42(43.8)	54(56.2)	1	1
Ever had sexual intercourse	Yes	53(59.6)	36(40.4)	2.44(1.32,4.48)	1.12(0.45,2.70)
	No	32(37.6)	53(62.4)	1	1
Frequency of sexual assault in life time	Once	32(35.6)	58(64.4)	1	1
	Multiple	53(63.1)	31(36.9)	3.09(1.67,5.75)	3.28(1.71,6.29) **
Age of the perpetrator	Younger than me	3(30.0)	7(70.0)	1	1
	Same age	4(33.3)	8(66.7)	1.16(0.91,7.12)	2.69(0.39,18.22)
	Older than me	78(51.3)	74(48.7)	2.46(0.61,9.86)	3.35(0.76,14.78)
Family income per month	<500 ETB	51(61.4)	32(38.6)	2.90(1.38,6.08)	3.34(1.53,8.42)**
	500-1500 ETB	11(45.8)	13(54.2)	1.54(0.56,4.20)	1.83(0.65,5.34)
	1501-2500 ETB	6(31.6)	13(68.4)	0.84(0.27,2.61)	1.10(0.40,3.62)
	>2500 ETB	17(35.4)	31(64.6)	1	1
Age at first sexual intercourse	≤14 years	32(42.7)	43(57.3)	1.55(0.84,2.83)	1.22(0.62,2.40)
	>14 years	53(53.3)	46(46.5)	1	1
Current living condition	Parents	36(42.4)	49(57.6)	1	1
	Other than parents	49(55.1)	40(44.9)	1.67(0.91,3.04)	0.93(0.45,1.89)
Chewing chat	Yes	11(64.7)	6(35.3)	2.05(0.72,5.85)	1.59(0.52,4.90)
	No	74(47.1)	83(52.9)	1	1
Any stimulant drug use	Yes	15(68.2)	7(31.8)	2.51(0.96,6.50)	2.35(0.85,6.70)
	No	70(46.1)	82(53.9)	1	1

Key ** indicates variables statically significant association with depression at $p<0.05$.

CHAPTER SIX: DISCUSSIONS

According to this study, significant number of participants were affected by mental health as a result of sexual assault and its consequences. One hundred fifty five (89.1%) of them had major depressive disorder, indicating sexual assault had significant impact on mental health of raped adolescent girls. Longitudinal study done on raped children in two hospital of Nairobi, Kenya, had indicated that 85.4% of children aged below 16 and 93.4% of aged between 16-17 had moderate to severe depressive symptom one month later to the rape, which is almost similar with this study(20). Study done high school adolescents reported that only 10% of victims had depression which is lower than reported in this study(27). It is also higher than reported by study done at medical university of South Carolina which was, 30% of participants had symptom of MDD at least once in life time and 21% of participants had MDD symptom at the time of assessment. It also had indicated that rape victims are 3 time more likely to develop MDD symptoms in their life time(18).

This study had revealed that significant number of victims had sexually transmitted infection. Eighty five of participants (49.9%) had sexually transmitted infection. Rate of STI was higher than value indicated by study done in Jima town female adolescents which was 26.7 % of the victims had STI, indicated by unusual vaginal discharge(2). Still it was higher than the resulted indicted by study done among Jima town high school adolescent girls which was 12.6% of them having unusual vaginal discharge, as indicator of STI.(27). Institutional based cross sectional study done among female high school adolescents at Harar Town, Eastern part of Ethiopia, indicated that 28% of participant victims had STI, showing that it is lower than finding in this study.(21). When compared to study done of street female adolescents of Addis Abeba city, about 58% of participants had STI, which was higher than finding in this study.(24). The possible reason for higher result of STI in this study were methodology of the study i.e characteristic of the participants in which only assaulted adolescent girls were involved in this study and both study done in Jima town, mentioned above, used only clinical symptom to estimate STI level.

Those with unwanted pregnancy, residency in Urban, rape by hitting and not currently attending school were identified risk factors for MDD according to this study. Unwanted pregnancy increased risk of developing MDD 14.8 times more likely than those with no unwanted pregnancy. Residency in Urban increased risk of developing MDD 14.6 times than those from rural area and being raped by hitting increased risk of developing MDD 17.6 times than those not by hitting. Not currently attending school increased risk of developing MDD 9.1 time than those attending school at the time of assault.

The possible reasons for high result of MDD in those with unwanted pregnancy were; getting pregnant before marriage is socially unacceptable and had exposed them to more stress on how to manage the unwanted pregnancy on top of being raped, most of victims(89.7%) were raped by known person which was predicting factor for MDD(19)(28) and unwanted pregnancy was higher in urban adolescent girls which was one of predictors in this study. Also, age at first intercourse would increase risk of MDD, age15-16 by 2.29 and age 11-14 increase by 2.23 than those at age later than 18. (26). In this study. Mean age at first intercourse was 14.7 ± 1.7, indicating that it was early initiated. Another possible reason was that 61(51.6%) of participants with unwanted pregnancy were from urban residency, in which both unwanted pregnancy and urban residency were predictor of depressive disorder in this study.(29)

According to the study, Family income and frequency of rape were found to have association with STI on multivariate analysis. Low family income less than 500 birr/month and multiple time rape of adolescents were 2.8 times and 2.3 times at increased risk to develop STI compared to adolescents with better income family and those experienced rape only once. Multiple partner in life time increase STI risk by 2.7 fold and non-use of condom by 2 folds, which is similar finding in this study.(30). On global level, prevalence of STI among adolescents is not well known but different studies had indicated that significant portion of adolescents are vulnerable. In developing countries, it is more higher compared to developed countries(31).

7. CONCLUSION AND RECOMMENDATION

7.1 CONCLUSION

Conclusion: In this study, level of major depressive disorder and sexually transmitted disease are high. Unwanted pregnancy, urban residency, not currently attending school and sexual assault by hitting were found to be risk factor to develop major depressive disorder. Low family income and being assaulted multiple times were found to be risk factor to develop sexually transmitted infection.

7.2 RECOMMENDATION

1. Jima medical center Gender based violence unit and psychiatric and mental health department link should be strengthened.
2. Jima zone health bureau should give community awareness on gender based violence.
3. Jima zone administration and Jima University should look after to adolescent girls dropped out of school and facilitate how they go back to school.

Annex I - References

1. United Nations. Declaration on the Elimination of Violence Against Women General Assembly Resolution 48/104 of 20 december 1993. 1993;(December):115–22. Available from: http://www.ohchr.org/Documents/ProfessionalInterest/eliminationvaw.pdf
2. Dibaba Y. Sexual Violence Against Female Adolescents in Jimma Town : Prevalence , Patterns and Consequences Sexu al Violence Agai nst Female Adolescents in Jimma Town : Appr oved by the Exam ining Boar d. 2003;
3. United Nations Children's Fund. A statistical Snapshot of Violence against Adolescent girls. 2014;40. Available from: https://www.unicef.org/publications/files/A_Statistical_Snapshot_of_Violence_Against_Adolescent_Girls.pdf
4. Ending Violence against Women: 2003 Series," Population Reports 11, 2003.
5. United Nations committee on the rights of the child, General Comment No. 13 (2011): The right of the child to freedom from all forms of violence, un document crc/c/gc/13, office of the high commissioner for human rights, geneva, 18 April 2011.
6. daigneaulta, i ., et al , "Men"s and women's childhood sexual Abuse and victimization in Adult partner relationships: A study of risk factors', Child Abuse & Neglect, vol 33, no 9, 2009, pp 638-647;
7. Krahe, B , et al , "childhood sexual Abuse and revictimization in Adolescence", Child Abuse & Neglect, vol 23, no 4, 1999, pp 383-394.
8. Vivian L, Evelyn L, Lehrer JA, Lehrer YEL. Prevalence of and Risk Factors for Sexual Victimization In College Women in Chile. :168–75.
9. Adolescent sexual offending. Prevalence, risk factors and outcome. Kjellgren, Cecilia 2009. 2009;0–80.
10. Smith & Yarussi, 2012.
11. Takele A, Setegn T. Sexual Coercion and Associated Factors among Female Students of Madawalabu University , Southeast Ethiopia. 2014;2014.
12. Birhan Y. WHO multicountry study on women's health and DV againest women: Ethiopian profile. Ejhd. 2003;3–4.
13. Devries KM, Meinck F. Sexual violence against children and adolescents in South Africa:

making the invisible visible. Lancet Glob Heal. 2018;6(4):e367–8.

14. Kunnuji MON, Esiet A. Prevalence and correlates of sexual abuse among female out-of-school adolescents in Iwaya community, Lagos State, Nigeria. Afr J Reprod Health. 2015;19(1):82–90.
15. United Nations Children's Fund, United Nations Entity for Gender Equality and the Empowerment of Women, United Nations Populations Fund, International Labour Organisation, Office of the Special Representative of the Secretary-General on Violence against Children. Breaking the Silence on Violence against Indigenous Girls , Adolescents and Young Women - A call to action based on an overview of existing evidence from Africa , Asia Pacific and Latin America. 2013;75.
16. Determinants of sexual violence among eastern ethiopian secondary school students alemayehu belachew bekele.
17. Zalewski M. Sexual violence. Vis Glob Polit. 2018;279–83.
18. Kilpatrick DG. The Mental Health Impact of Rape [Internet]. 2000. Available from: https://mainweb-v.musc.edu/vawprevention/research/mentalimpact.shtml
19. Abrahams N, Jewkes R, Mathews S. Depressive symptoms after a sexual assault among women: understanding victim-perpetrator relationships and the role of social perceptions. Afr J Psychiatry. 2013;16(4):288–93.
20. Mutavi T, Obondo A, Kokonya D, Khasakhala L, Mbwayo A, Njiri F, et al. Incidence of depressive symptoms among sexually abused children in Kenya. Child Adolesc Psychiatry Ment Health [Internet]. 2018;12(1):1–8. Available from: https://doi.org/10.1186/s13034-018-0247-y
21. Cafo JM. Assessment of Sexual Violence and Associated Factors among High School Students in Harari Regional State, Harar Town, Eastern Ethiopia. Sci Res. 2014;2(5):91.
22. Breitbart RE. Literature Review. Vol. 21, American Journal of Medical Quality. 2006. p. 76–8.
23. Desalegne Z. Gender-based violence and its associated effects on female students: The case of Gozamin and Nigus T/Haimanot secondary schools in the east Gojjam administrative zone, Ethiopia. J Int Womens Stud. 2019;20(7):237–46.
24. Molla M, Ismail S, Kumie A, Kebede F. Original article Sexual Violence among Female Street Adolescents in Addis Ababa , April 2000. 2000;(April).

25. Nigatu AM. Geographical variations of early age sexual initiation among reproductive-age women in Ethiopia : Evidence from EDHS 2016. 2016;1–18.
26. Gonçalves H, Gonçalves Soares AL, Bierhals IO, Machado AKF, Fernandes MP, Hirschmann R, et al. Age of sexual initiation and depression in adolescents: Data from the 1993 Pelotas (Brazil) Birth Cohort. J Affect Disord [Internet]. 2017;221(May):259–66. Available from: http://dx.doi.org/10.1016/j.jad.2017.06.033
27. Gorfu M, Demsse A. Sexual Violence against Schoolgirls in Jimma Zone: Prevalence, patterns, and consequences. Vol. 2, Ethiopian Journal of Education and Sciences. 2008.
28. Tarzia L, Thuraisingam S, Novy K, Valpied J, Quake R, Hegarty K. Exploring the relationships between sexual violence, mental health and perpetrator identity: A cross-sectional Australian primary care study. BMC Public Health. 2018;18(1):1–9.
29. Uebelacker LA. 乳鼠心肌提取 HHS Public Access. Physiol Behav. 2017;176(1):139–48.
30. Kassie BA, Yenus H, Berhe R, Kassahun EA. Prevalence of sexually transmitted infections and associated factors among the University of Gondar students , Northwest Ethiopia : a cross-sectional study. 2019;1–8.
31. WHO recommendations on adolescent sexual and reproductive health and rights.