

Analysis of Self-System Predisposing Factors for Students Risky Sexual Behavior: The Case of Adigrat, Mekelle and Axum Universities

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Abstract: *Adolescents are at high risk for a number of negative health consequences associated with unplanned and unsafe sexual activity, including infection with human immunodeficiency virus, other sexually transmitted diseases and unintended pregnancy. The main aim of this study was to explore the main predisposing factors that reinforce university students to engage in such behaviour. Using multi-stage stratified random sampling 150 university students were used as participants for the quantitative approach and FGDs and interviews were used for the qualitative part. As a result, this research has attempted to pinpoint the predisposing factors associated with the self, family and extra-familial systems. Therefore, both in the quantitative and qualitative analyses of this study found that academic performance, drug and alcohol use from the self-system, family economy and fellow up from the family system and health education, peer influence from extra-familial system were found the most significant factors associated with university students risk sexual behaviour. Besides, sex, and university control were not found significant predictors. The result of this study was consistent and inconsistent with previous studies on the topic.*

Keywords: risk, sexual behavior, adolescence, self-systemic, predisposing

1. Background

The World Health Organization (WHO) defines adolescent people as those between the ages of 10 to 19 years (UNICEF, 1997). Today's adolescent and young adults constitute the largest cohort ever to enter the transition to adulthood. Evidence showed that nearly half of the global population was less than 25 years old and nearly 90% live in developing countries. About 1.7 billion people of the world's population were between the ages of 10 and 24 (UNICEF, 1997). Most of the world's youth are living in developing countries. Adolescence is a period characterized by immature exploration and experimentation behaviors of adolescents and subjection to peer influences.

When viewed from various behavioral, cognitive and developmental perspectives, young people can be labeled as the vulnerable group; because this segment of population is threatened by sexual and reproductive health problems. These days, most young people are exposed to risky behavioral practices in their teens. Moreover, negative behavioral practices during adolescence period predispose adolescents to sexual and reproductive health problems (Friedman LH, Edstron GK, 1983). Adolescents have been exposed to various sexual and reproductive health (SRH) problems because of their risky sexual behaviors without necessary precautions. Particularly these days, young people are highly suffering from the tragedy of HIV/AIDS. Millions of young people have been infected with HIV and millions of them have died of it. Adolescent females have been jeopardized by the pandemic and other reproductive health risks such as unwanted teenage pregnancy, unsafe abortion-related complications, and dropout from schools (WHO, 2003, 20004, and 2005).

Quantitative and qualitative studies of the sexual knowledge and practices of adolescents reveal that a substantial number of boys and girls in many developing countries engage in sexual intercourse before their 15th birthdays (UNICEF, 1997). Early and unprotected sexual initiation can trigger a

succession of harmful physical, emotional, and social outcomes, especially for girls (MOH, 2006). Moreover, compared with adults, adolescents are less likely to have the foresight, skills, cognitive maturity, information, and support they need to protect themselves from unwanted pregnancy, HIV, and sexually transmitted infections. In addition, the rising number of new HIV infections among these young demographic signals an urgent need to identify behavior and situations that contribute to sexual and reproductive health in adolescence (UNICEF, 1997).

In Ethiopia, over 65% of the population is under 25 years of age. Ethiopia is a nation whose youth have profound reproductive health needs and are disadvantaged in their access to sexual and reproductive health information and services. Gender inequality, sexual coercion, early sexual debut, unwanted/unplanned adolescent pregnancy, abortion, sexually transmitted infections and HIV/AIDS are the major sexual and reproductive health problems in Ethiopia. Different factors for sexual and reproductive health problems have been operating at individual, peer, and family and community level (Abubeker A, 2004).

Although Ethiopia has developed a national youth policy in 2004, yet much is expected to the provision of reproductive health care to university/college students (Abubeker A, 2004). Adequate systems such as, information education communications (IEC), appropriate guidance and counseling services are not yet rendered to deal with students' sexual and reproductive health problems which might be due to paucity of research findings.

As stated by a study done in Ethiopia among in-school and out of school youth aged 15- 24 to describe the association between *Khat* chewing, alcohol consumption and risk sexual behavior, sexual initiation among in school youth of 15-19 was found to be 5.2%, one of the lowest figures recorded (Mesfin K, Hassen T. S, Ghimijha F, Teshome T, 1999). Numerous thesis works have also been produced investigating the sexual behavior of high school students in Addis Ababa and other towns. A thesis conducted among in

school youth of Addis Ababa in 2002, came up with a proportion of 11.1% sexually active youth. 17.7% of these had more than one sexual partner and consistent use of condom was reported to be 58.7% (Fantahun M. Chala F., 1994).

A study on similar population conducted on Dessie preparatory schools, North Ethiopia, in 2004, reported a proportion of 25.8% sexually active youth. The mean age of sexual debut was 17+1.55 years. Out of these, 43.1% had history of sexual encounter with more than one partner and consistent condom use was 44% (Sebsebe D, 1983).

In a cross sectional study conducted in Agaro, Ethiopia (2004), 25% of the in-school youth were claimed to be sexually experienced and the average age of sexual debut was 16.74 years. Fifty four percent of them used condom at least once and 46.9% reported using condom always (Mesfin Belew, Dereje Kebede, Mesfin Kassaye and Fikre Enqouesslassie, 2000).

In another study conducted among Bale in-school youth, south east Ethiopia, in 2004, 30.8 % of the study participants (72.1% of males and 29.9% of the females) was sexually active and the mean age at first sexual intercourse was 15.87 + 1.84 years. The main reason forwarded for sexual initiation was, personal desire. Forty eight percent of them had sexual encounter with multiple sexual partner. Majority, 58.1%, have never used condom during any sexual intercourse episode, while only 19.4% of them used consistently (Gebere S, 1990).

Similar study done among students of Ambo high school, Ethiopia, in 2006, claimed 19% of the study subjects had experienced sexual intercourse. The overall mean age at first sexual intercourse was 15.91 ± 1.8 years. The mean ages at first sexual intercourse for male and female respondents were 16.08±1.708 years and 15.66 ± 1.975 years, respectively. More than half, 56.4% claimed to have more than unisexual partner and only 27.6% reported consistent condom use (Gebere S, 1990).

2. Statement of the Problem

Sexual risk behaviors are defined as sexual activities that may expose an individual to the risk of sexually transmitted infections (STIs) including HIV and unplanned pregnancies. Some of these behaviors include unprotected sexual intercourse, multiple sexual partners, forced or coerced sexual intercourse and sexual intercourse for reward. However, lack of knowledge about consequences of these negative behaviors and poverty has been identified as factors that increase the chances of adolescents engaging in risky sexual behaviors. Adolescents face different challenges related to their sexuality which have an influence on their perception of the world and themselves. There has been increasing public health concern about the reducing age of initiation of adolescents into sexual activities. The rate of risky sexual behaviors and the spread of STIs continue to be on the increase due to many factors including dearth of information regarding adolescent sexuality (UNICEF, 1997). Each year, approximately one million young women aged 15-19 become pregnant; the vast majority of these

pregnancies are unplanned (EMOH 2006). Abstaining completely from sexual activity will eliminate these risks and where abstinence is not a reasonable choice or goal, preventive measures are imperative (Friedman LH, Edstron GK, 1983). The observed that unsafe sex was second among the top ten risk factors in the world burden of all diseases globally. Fifty to seventy five percent of first teenage pregnancies, in Sub-Saharan Africa are unwanted and unplanned, while 25-57.5% of induced abortions in Ethiopia occur among young women aged 15-20 years (Ministry of Health, 2002).

Even though this is fact about Ethiopia and its youth population, this problem is not only under researched topic but also full of confusions. According to some studies, Sexual risk behavior, like many other problematic behaviors of youth, has been studied for quite some time in general and third world countries in particular (see B.A. Kotchicketal. 496 Evans, & Edmundson, 1997). Therefore, this study was aimed to systematically explore the main factors that increase university students risk sexual behaviors which in turn precipitate their sexual and reproductive health problems. Based on the statement of the study this research will answer the following research questions:

- 1) What are the main self-systemic predisposing factors that associate with students' risky sexual behaviors?
- 2) Which factor/factors significantly contribute to students' risky sexual behaviors?
- 3) Which sex group is significantly vulnerable to sexual risky behavior?

Objectives of the Study

The general objective of the study is to investigate the self-systemic predisposing factors that affect university students' risky sexual behaviors.

Specific Objectives

More specifically the study is intended to answer the following specific objectives:

- To assess the main self-systemic factors that affect university students' risky sexual behaviors.
- To investigate the factor/factors significantly contribute to students' risky sexual behaviors?
- To explore which sex group is significantly vulnerable for risk sexual behavior.

Significance of the Study

The findings of this study is going to be distributed to the beneficiaries through print and digital media and then it will help teenagers, primary care givers and educators about the risks and consequences of involving in risky sexual behaviors at a younger age. It would also contribute to existing knowledge and enhance the development of strategies that will positively influence the attitudes of adolescents regarding sex related matters. Furthermore, this study would sensitize everyone including families, educators, communities, health care professional especially nurses and policy makers. Such sensitization would

invariably help to empower adolescents on sexual issues and reduce their risk taking behaviors.

Dissemination of the Results

The finding report will be submitted to Adigrat University the funding agent. As deemed necessary, it will also be communicated in scientific conferences and will be sent for publication to a relevant scientific journal.

3. Methodology

Research design

Based on the specific objectives and the nature of the research questions of the study required, this study used both the qualitative and the quantitative approaches. The design of the research is a cross-sectional for quantitative one because this design allows for the identification of variables related to risky taking sexual behavior (see Devine et al., 1993). Multiple case study design was used for qualitative approach for it allows see things from the participants' perspective about the phenomena.

Population

The research population of this study were more than 50,000 students of Adigrat, Mekelle and Axum universities. They are the only three Ethiopian federal government higher institutions found in Tigray where the researcher is acquainted with and living in.

Exclusion Criteria

The following categories of participants were excluded from the study for convenience sake.

- Non regular students of any of those three universities like extension, distance, summer etc.
- Students who are not Ethiopians like those from Eritrea, Somalia etc.
- any post graduate students of those universities
- those who are not able to complete the questionnaire without assistance such as the visually impaired

Inclusion criteria

- Ethiopians who are in the first degree regular enrolment in those three universities
- Students who are following their education in the studied year (2015/16 G.C)

Note: for the sake of convenience and clarity from this part on wards the researchers tried to treat the quantitative and qualitative parts separately.

For the quantitative part

Sample and sample size

The sample size for this study was a total of 150 participants from the three universities and at about 50(25 females and 25 males) participants from each university disproportionately were taken for two major reasons i.e. first, the population was homogenous and second, the universities had almost equivalent number of regular under graduate students. As far as the size of the sample is considered, it was done based on two major rules of thumbs. Green (1991) makes two rules of thumb for the *minimum* acceptable

sample size, the first based on whether you want to test the overall fit of your regression model (i.e. test the R^2), possible to use the formula $50 \leq k(50 + (8 * 15) = 170)$, where k is the number of predictors, and the second based on whether you want to test the individual predictors within the model (i.e. test b -values of the model), then he suggests a minimum sample size of $104 \leq k(104 + 15 = 119)$. This study wanted to test both then the average of their sum, around 145 was taken.

Sampling procedure and sampling techniques

For the quantitative part; participants were selected using multi stage stratified random sampling technique. The multi stage stratification variables, top to bottom, were university, campus, college, department, and then gender. Initially, using simple random sampling method, 2 colleges were selected from each university and 2 departments and then gender. Finally, participants were selected from the two colleges in each university (Law and accounting) based on simple random sampling technique. Accordingly, at about 75 males and 75 females were included in the study as sampled participants.

Data collection instrument and procedure

Researchers of the present study, initially developed the survey questionnaire in English based on the main ideas of the formerly collected qualitative data of this study and the literature review of previous works on the topic and then translated it into Amharic, the working language of Ethiopia. Besides, to maintain the "content and spirit" of every original item another translator back-translated the questionnaire. Some necessary modifications were made based upon comments from peer reviewers who checked the face and content validity of the instrument. Prior to the main data collection phase, to check the reliability of the instruments a pilot study was conducted on, the non-participants of the main study, students of Mekelle university Ayder campus and it was found valid and reliable.

As far as the data collection procedure is considered, it was in line with the research ethical and legal principles of different universal research institutions. One week in advance of the day designated for data collection, the researcher communicated and decided the data collection date with the department heads of the selected departments of each university. The issue of confidentiality was insured by removing all personal identifiers from the questionnaire. Regarding the informed consent issue, during the data collection day, participants were asked their informed consent and given the chance to refuse or to discontinue participation at any time. After getting their agreement, the researcher was available throughout the administration of the questionnaires to clear any confusion just in case.

Data analyses technique

Data including participants' personal information and responses on the variables will be analyzed using the computer statistics program entitled **Statistical Package for the Social Sciences (SPSS version 20)**. **Descriptive statistics** (frequencies and percentages), mean comparison of the discrete predictors, **multiple regression**, and **Analysis of Variance (ANOVA)** were computed to answer the above research questions.

Criterion and predictor variables: the predictor and out variables were selected based on the previous researches and the emphases given to them during the qualitative data collection.

Criterion variables

- Risky sexual behavior; mainly resulted in unwanted pregnancy, inconsistent use of condom, experience of STI, commercial sex, casual sex and multi sexual partner.

Predictor variables

- Self-system: age, sex, watching pornography, age at first sex, substance and alcohol use, academic performance, and religiosity.
- Familial system: family economic status, parent involvement and parent educational level
- Extra-familial system: peer influence, university controlling systems, availability of youth programs (leisure activities, counseling services, and health education services) in these university.

For the qualitative part

Sample and sampling techniques

For the qualitative part; using purposive sampling technique, an intensive semi structured interviews were conducted with the university's clinic head and head of proctors as well as a female and male students from each university. Besides, some voluntary night club managers and waitresses were interviewed. On top of that two students' sex disaggregated focus group discussion, each consisted eight members, were conducted in each university. All the six FGD were run by the facilitators aided with notes and tape recorders. The interview and focus group guiding questions/ points were developed by the researchers based on the reviewed literatures. Point of idea saturation was the assurance to end the in-depth interview and focus group discussion. Moreover, as the topic is too sensitive and socially desirable, both participant and non-participant observation were used as the main data collection tool. It was the researchers themselves made redundant participant observation in the three cities where the universities are named after and located.

Method of Data Analysis

The qualitative data were analyzed after the analysis of quantitative data. Data were transcribed in to an English text by replaying the recorded interviews and discussions. Concepts were merged in their thematic areas and a manual thematic framework analysis was employed. The results will be summarized and presented in narrative forms.

4. Results

This chapter presents both the qualitative and quantitative findings side by side for the three dimensions risk sexual behavior predisposing causes in order to cross tabulate the results from the two approaches.

Qualitative Findings

Six FGDs were conducted among the purposely chosen two sex disaggregated groups from each university. Each group was consisted of eight members and the discussion was tape

recorded and led by the researcher for the male group and a trained female instructor for the females' group from the respective university. Besides, in-depth interviews were conducted with purposely selected concerned bodies like the head of the university clinics, head of proctors, female and male students etc. furthermore, a more impressive and valuable information has got from the participant observation. Those qualitative data were conducted to augment the quantitative study and to identify the main risky factors related to risk sexual behavior of university students.

Result from the qualitative data about Prevalence of risky behaviors among out of school youth

In all qualitative data sources undoubtedly witnessed the rampant prevalence of youth risk sexual practices. Besides, they also witnessed that it is increased in a very alarming rate from time to time. Especially, the participants of the in depth interview from the clinic and head proctors highlighted STIs and abortions are very common like above 30 up to 50 cases of abortions per a month is a usual phenomenon. Even though, rejected by the counter female participants, the males in the FGD discussed that it is becoming common, especially for females, to have more than one sexual partner for different "purposes" like for money, enjoyment etc.

Males who need to have girlfriend are forced to accept an agreement to share her with others when she found it necessary. In support of this idea another FGD discussant mentioned that there is a demarcation between the campus and the town from which the campus boyfriend and the outside partner could possess her freely. This means, he continued, the one could not even complain if things are happening out of his territory. (One male participant)

It was explained that there are still some females who are working as waitresses in night clubs and khat houses" (a place where youths chew Khat and smoke shisha). In line with this argument, the researchers observed that one known night club at micelle where all waitresses were university students. The interview informants claim that male students are committing sex with bar ladies and commercial sex workers. They also added that it is common to most the female students to be non-café and to have rented house out of the campus. According to their explanation the sources of the money are sugar dads. Even the female FGD discussants witnessed that females are victims of the risky sexual practice for natural and cultural reasons. One dominant female from the interview said that most of female students have at least one "ande sewye" in our terms which means sugar daddy. Some participants added that homosexuality and group sex are becoming common practices.

Results of qualitative data on the self-system factors for risk sexual behavior

Most of the participants from both male and female members of the FGD discussion and interviews were almost agreed on the inevitability and dramatic increment of students' involvement on sexual risk behaviors. Regarding to the self-system variables age, poor performance at school and substance and alcohol use were clearly pinpointed as the main contributing factors in the focus group discussions and the interviews.

In line with the data of the participant observations, most focus group discussion and in-depth interview participants agreed that the key predisposing risk factor putting students at increased risk sexual behavior was the ever increasing number of “khat bet” and youth preference to visit these places more regularly. Chewing khat, along with its complimentary drugs like cigarette and shisha, is always followed by the so called “mirqena” which is a highness of feeling which later caused sleeping sickness (insomnia) and emotional disturbance. To lower those aftermath consequences, most of them thought that either have to drink alcohol or have sexual intercourse soon after that is why most youth tend to visit “tella bet” and “Tejji bet” to drink local alcoholic drinks and then to night clubs. This is a trend traditionally called “mesberia” or “chebsi” which means breaking the effect of the substances. It was also reported that everything which is talked in these “khat bet” is about sex and enjoyment likewise in the night clubs everything, the music, the dancing styles, dressing styles etc are sexually tempting and deceptive.

One of the interviewee from the night clubs manager said that

it is unbelievable to see a university student doing such low rate practice, I think the main reason behind such behavior is the expansion of khat and shisha houses and followed by alcohol consumption. If they do drug and consume alcohol, they become crazy and lose their self-control.

Most of the interviewees were agreed on the great impact of globalization and its negative consequences like the easy accessibility and availability of sexually explicit materials. According to their belief, most of the students, particularly males, are having pornography movies in their smartphones and becoming addict of it. They also said Facebook is becoming the instrumental medium of introduction.

I know a drama like incident about one of our university's female student whose elder brother created a pseudo Facebook account with false profile and became a Facebook friend with his sister. And then after a short period of fake talks over the phone, he appointed her to one of the famous hotels by telling her the bedroom number where he would wait for her and then she went and met her brother. This was once big NEWS all over the campus (one FGD female participant said)

Furthermore, the non-student interviewees mentioned on top of the luxury seeking tendency of the youths and their poor academic background their poor concern for religion is adding a fuel to their age related high sexual urge. In my observation at our town, I noticed that most of the night club regular Saturday night attendants were poor performing students. In the FGD discussion the students themselves even witnessed that most of such students are from the lower academic achievement.

“I have many peers who chew khat and their reason for doing this is that because they want to forget what ever

problem they encounter like stress and tension arising from hopeless situations due to poor performance at school” (A male participant expressed)

Moreover, most of the participants a lot of predisposing factors from the self-system such students' self-confidence, self-esteem; inter peer competition, their level of moral development, their materialist orientation etcetera. Moreover, though they were few participants, they over stressed on the power of place of residences, lack of clear demarcation between males and females dormitories, students low level of self-esteem, their attitude towards western culture.

In general, the most emphasized constructs mentioned by most of the qualitative participants were students' age, their poor academic performance, and their substance addiction, the misuse of technology and easy accessibility of sex videos. Besides, students distance and negative attitude to religion and cultural issues.

The quantitative findings

This part presents the quantitative analysis of the selected and dominant predisposing factors from the three systems. The selection of the following fifteen predictors was based their dominance from the qualitative result and their predictive value on previous studies.

5. Results of the Quantitative Analyses on Self-System Factors

Demographic characteristics

Among the total 155 respondents, 150 responded to the questionnaire correctly which makes the response rate 96.77%. From the study participants, 75 (50%) were males and 75 (50%) were females. The researcher took 50 participants from each university disproportionately. For every detail about the demographic characteristics of the respondents see table one below. As it is clearly stipulated in the table1 below, most of the respondents were first year, from the poor family background, illiterate parents, low academic performance and not connected to religion.

The following table shows that the mean differences observed on risk sexual behavior scale among the levels/categories of the pure categorical predisposing factors. The main purpose of mean comparison was to compare and contrast the within mean differences in each nominal scale variables and the magnitude of their differences.

Besides, such type of mean comparison helps to get rid of the confusion created by the negative sign of beta values and the correlation coefficients of each discrete predictor variables. Thus, readers or beneficiaries can clearly understand which group of one discrete predictor was highly affected by risky sexual behavior.

Table 1: Mean comparison between each self-system predictor variable on risk sexual behaviour result

| variables | levels | N | mean | Std.deviation | Eta | Eta ² |
|---------------------------|-------------------------|----|-------|---------------|------|------------------|
| gender | male | 75 | 22.63 | 12.927 | .086 | .007 |
| | female | 75 | 20.41 | 12.862 | | |
| Academic performance | upper | 64 | 13.33 | 10.732 | .580 | .337 |
| | middle | 17 | 21.24 | 13.618 | | |
| | Lower | 69 | 29.19 | 9.560 | | |
| Stay in university | One year | 62 | 17.29 | 17.29 | .295 | .087 |
| | Two year | 34 | 22.32 | 13.151 | | |
| | Three& above | 54 | 25.87 | 11.951 | | |
| Initial sex when | B4 university | 39 | 32.95 | 6.083 | .810 | .656 |
| | In university | 57 | 26.46 | 10.093 | | |
| family economic status | poor | 63 | 28.32 | 9.845 | .500 | .250 |
| | middle | 34 | 21.18 | 13.111 | | |
| | rich | 53 | 13.66 | 11.536 | | |
| Parents educational level | ≥1 st degree | 37 | 15.33 | 12.36 | .392 | 0.1536 |
| | diploma | 47 | 16.29 | 16.29 | | |
| | Can Read& write | 35 | 20.32 | 13.89 | | |
| | illiterate | 31 | 21.32 | 14.44 | | |

Note: grand mean=21.54 and standard deviation= 12.899

As it is clearly stipulated in the above table males and females mean difference were not that significant though male students were found as victims of the risk behavior in previous researches. Moreover, students who were academically poor and from poor family were found with high mean score in risk sexual behavior result. The other predictor found with high mean difference among its subdivisions was the time when students started initial sexual debuted. Accordingly, those who initiate sex before they inter university were found with high mean than those who started sex in university. Besides, the other predictors with great mean difference were parental education and family socio-economic status.

Result of the ANOVA Analysis for the self-system predisposing factors

The ANOVA analysis was computed in order to see if there is a significant difference in risk sexual behavior among students because of the self-system factors. Thus, the following table shows the coefficient determination or R Squared (the total contribution of both variables) and also their independent contribution (the partial Eta square) for the variance in students' risk behavior. Even though ANOVA is a good statistical tool to test the significance of the contribution of the predictor variables in general, it doesn't tell us the individual contribution of each predictor variable.

Table 2: ANOVA Summary Table for the self-system factors on students' risk behavior

| Model | Sum of Squares | df | Mean Square | F | Sig. |
|------------|----------------|-----|-------------|--------|------|
| Regression | 17896.893 | 7 | 2556.699 | 52.658 | .000 |
| Residual | 6894.547 | 142 | 48.553 | | |
| Total | 24791.440 | 149 | | | |

- a. Predictors: (Constant), first sex when
- b. Predictors: (Constant), first sex when, sex of the respondent, university stay, religiosity, watch pornography, substance use, academic performance
- c. Dependent Variable: risk behavior (unplanned & unsafe sex)

The result of the ANOVA in the Table shows that there was risk behavior difference among students because of their academic status. The risk behavior difference among students because of their initial sex intercourse was found to be statistically significant (F=241.378, df1=1, df2=148, p>0.05). Furthermore, the risk behavior difference was also significant for the remaining self-related predictors (F=52.658, df1=7, df2=142, p>0.05). This means, all the seven predictors in combination were found good predictors of risk sexual behaviour.

Results of Multiple-Regression

Multiple regression analysis was computed in order to see the combined and independent predictive value of the predictor variables over the criterion variable and also to check whether it is statistically significant or not. The predictor variables were the self-system Variables (first sex before or after university, sex, academic achievement, watching pornography, university stay, religiosity and substance& alcohol use) and the criterion variable was risk sexual behaviour. The Table below also presents the regression coefficient (R), squared multiple correlations or regression coefficient of determination (R²), and adjusted squared multiple correlations (R²_{adj}) when all the predictors entered simultaneously.

Table 3: Model Summary Table of the self-system predisposing factors in Predicting Students' risk sexual behavior

| Model | R | R ² | Adjusted R ² | Std.Error of Estimate | Change statistics | | | | |
|-------|------|----------------|-------------------------|-----------------------|-----------------------|----------|-----|-----|------|
| | | | | | R ² change | F change | df1 | df2 | sig |
| 1 | .850 | .722 | .708 | 6.968 | .722 | 52.658 | 7 | 42 | .000 |

- a. Predictors: (Constant), first sex when
- b. Predictors: (Constant), age at first sex, sex, university stay, religiosity, watch pornography, substance use, academic performance
- C. criterion variable: risk sexual behavior

Regressing risk sexual behavior on the self-system predictor variables revealed that overall the model significantly predicted risk sexual behavior (F=241.378, p < .05). This

means, results presented in above Table indicates that all the predictors in combination yielded a statistically significant and positive multiple correlation ($R = .850$, $df_1 = 7$, $df_2 =$, $F = 142$, $*p < .01$) which is a regression coefficient between predicted and actual scores on the criterion variable. The regression coefficient of determination ($R^2 = .722$) represents

the proportion of variance accounted for by the predictor variables. That is, 72.2% of the total variance in Students' risk sexual behavior was explained by the seven predictors. As to the independent contribution of the predictors, see the standardized betas in the Table below.

Table 4: Summary Table of Stepwise Regression Analysis for self-system predisposing factors' independent Predictive power on Students' risk sexual behavior

| Variables | Unstandardized | | Standardized | t | Sig. | Correlations | |
|----------------------------|----------------|------------|--------------|---------|------|--------------|---------|
| | B | Std. Error | Beta | | | Zero order | Partial |
| (Constant) | 27.44 | 5.689 | | 4.823 | .000 | | |
| Sex of respondents | -.054 | 1.185 | -.002 | -.045 | .964 | -.086 | -.004 |
| University stay | .607 | .783 | .041 | .775 | .440 | .294 | .065 |
| Academic performance | 1.981 | .884 | .145 | 2.240 | .027 | .580 | .185 |
| Age at 1 st sex | -.184 | .017 | -.595 | -11.015 | .000 | -.787 | -.679 |
| Drug and alcohol use | -5.466 | 1.658 | -.212 | -3.296 | .001 | -.623 | -.264 |
| Watching pornography | .578 | 1.580 | .022 | .366 | .715 | -.467 | .036 |
| religiosity | 1.674 | 1.611 | .068 | 1.039 | .301 | .516 | .087 |

a. Dependent Variable: risk behavior (unplanned & unsafe sex)

b. Note: Total $N = 150$

Codes: sex: male=1, female=2; Academic performance: upper=1, middle=2 & poor=3

Although zero-order correlations indicated all the predictor variables predicted students' risk sexual behavior significantly, when all of the predictors were included only three of them added unique variance. Those were first sex when, substance use, and academic performance respectively. In other words, stay in university, watching pornography, religiosity and sex of the respondents were found to have non-significant contribution for the variance in students' risk sexual behavior ($\beta = .041$, $t = .775$, $p > .05$), ($\beta = .022$, $t = .366$, $p > .05$) ($\beta = .068$, $t = .301$, $p > .05$) and ($\beta = -.002$, $t = -.964$, $p > .05$) respectively.

Besides, in order to determine which of the treated variables (those which have significant beta weights) were more influential in predicting the variance in students' risk behavior, multiple-regression was conducted by entering sex, university stay, and first sex when, academic performance, drug use, watching pornography and religiosity as predictors. Three predictors of the self-system variables had statistically significant contribution for the variability in risk behavior, relatively first sex when ($\beta = -.595$, $t = -11.015$, $*p < 0.05$) had strongest and significant effect on sexual risk behavior, which was followed by academic performance, ($\beta = .145$, $t = 2.240$, $*p < 0.05$), and drug use ($\beta = -.212$, $t = -3.296$, $*p < 0.05$) with their such strong and significant effect for the variation in students' risk behavior. The Beta weight presented in the above Table indicated the magnitude of variance explained by each predictor independently when all the predictor variables were entered. Accordingly, the variation in risk behavior accounted for by first sex when was 59.5 % (42.96% out of the 72.2%: their combined contribution), by drug and alcohol use was 21.2 % & by academic performance was 14.5 % respectively in descending order. The result shows that students who committed sexual intercourse before university had an experience of more sexually risk full life.

Regarding the correlation staff, zero order and partial correlations were computed to see the magnitude and

direction of the relationship existed between the predictors and the outcome variable. Unlike the zero order, the partial correlation was mainly to see their relationship status when predictor variables were entered one by one while controlling the confounding effect of the other variables. Therefore, accordingly only first sex when and drug & alcohol use were found strongly related with students risk sexual behavior. However, as you can see from the above table in the zero order correlation column all the six predictors, except sex of the respondent, are strongly related with the output variable, risk sexual behavior. Negative sign for sex and academic performance are not but directly related with the way how the levels or categories were labeled or coded. This is to mean that males and academically poor students were found to be at risk. Besides, according to the result of the study as alcohol and drug use increases risky sexual practice increases.

6. Discussion

This exploratory study investigated the main predisposing constructs that contribute to the university students risk sexual behavior. In this study both qualitative and quantitative approaches were used in order to triangulate their findings with each other. In addition to the manual thematic analysis for the qualitative data, rigorous quantitative data analyses techniques were computed to cross check whether the dominantly pinpointed predisposing factors in the qualitative data could be supported by the quantitative approach. Therefore, mean comparisons, analysis of variance, and stepwise multiple regression analyses were performed to answer all the above research questions. The findings of this study were both consistent and inconsistent with the results of past studies. Accordingly, the discussion of the results is presented in accordance the above leading question in this chapter.

Note: readers should notice that the discussion of the study is arranged according to the three dimensions of the predisposing factors i.e. self-system, family system and extra-familial system. For convenience sake the quantitative and qualitative findings were discussed in harmonic fashion.

Discussion on the self-system risk sexual predisposing factors

According to the result of this study, risky sexual behavior had positive and strongly significant correlations (Eta) with three of the self-system predictor variables and had also negative and significant associations with the rest three. In other words, risky sexual behavior was correlated positively and significantly with time stay in university, academic performance, and religiosity. Besides, it was negatively correlated with age of initial sex, substance use, and watching pornography movies. However, to avoid the effect of multicollinearity, which severely affects measures of association, partial correlation technique was conducted and then, unlike their boosted zero correlation, three of the predictor variables (academic performance, initial sex & substance use) were found with significant relationship. This means being poor at school, starting sex before the entering university and substance and alcohol use were the significantly associated risky sexual behaviors. The result was in agreement with the qualitative analysis of this study and previous studies (e.g. Harvey & Spigner, 1995; Levy, Lampman, Handler, Flay, & Weeks, 1993). For instance, according study conducted at Bahir dar university, Khat chewing, drinking alcohol, attending night clubs and watching porno videos were independently associated with sexually risky behaviors (Wondemagegn Mulu, Mulat Yimer and Bayeh Abera, 2013). In both correlation analyses sex of respondents had not meaningful association with the criterion variable. This result was contradictory with some previous studies. Some previous studies stated that sex was strong predictor and males are highly exposed to risk behaviors (e.g. Harvey & Spigner, 1995; Levy, Lampman, Handler, Flay, & Weeks, 1993). This contradiction might be raised because of two major reasons. First, the setting of the previous study and this study was entirely different, abroad and Ethiopia respectively and the participants of this study were university students who are believed to in similar age category i.e. emerging adulthood. Second, because of the freedom that Ethiopian females are enjoying currently may narrowed the gap between female and male students exposure to outdoor activities. In line to the idea of the qualitative approach, the quantitative analysis proved that age of initiating sex was found with very strong correlation with the outcome variable. Likewise, previous studies were also in support of this finding (Wondemagegn Mulu, Mulat Yimer and Bayeh Abera, 2013).

The qualitative and quantitative analyses strongly claimed that students' performance and motivation was a strong and significant correlation. Even past researches reviewed at this study like (Metzler et al. 1994) mentioned that what students feel about their academic condition (i.e. their self-efficacy) is one of the few and most significantly associated factors with risk behavior.

To see whether or not the selected predictor variables significantly predict students' risk behavior, ANOVA and multiple regressions were performed. The self-system predictor variables were sex, age of initial sex; years stay university, religiosity, watch pornography, substance use, and risky sexual behavior as criterion variable.

The result of the ANOVA and the multi-regression analyses showed that the combined effect of the seven self-system predictors was found strong and statistically significant predictors. This is like what the qualitative part of this study dictates. Previous research works on the topic stated that not only these but also many other self-related predisposing factors were indeed with significant predictive value (Bronfenbrenner, 1979).

To see the significance of the independent predictive power of each self-system risk associative variables, stepwise multiple regression was computed and then only three of them, age at initial sex, academic performance & substance use, were found with noticeable beta value and statistically significant t-statistic at .05 alpha level. This result was supported by the qualitative part of this study and previous researches. For instance, in a longitudinal study employing latent growth curve modeling, Duncan et al. (1999) found strong support for Problem Behavior Theory, as the development of three types of substance use (alcohol, cigarettes, and other drugs) strongly covaried with the development of risky sexual behaviors.

In contrast to previous studies, the quantitative finding of this study shows that four predictor variables were found to be non-significant in explaining student's risky sexual behavior. Those predictor variables were sex, religiosity, years stay in university, and watching pornography respectively (Bingham & Crockett, 1996; Crockett, Bingham, Chopak, & Vicary, 1996). These self-system predictor variables were found non-significant because it did not yield enough evidence to contribute to the variation in student's risk sexual behavior. For some of the variables like religiosity, previous researches were with inconsistent findings. One study stated that adolescents who report higher levels of religiosity are less likely to engage in sexual intercourse (Bingham & Crockett, 1996; Crockett, Bingham, Chopak, & Vicary, 1996). However, in line with study, religiosity has not been found to reliably predict sexual risk behavior. Jemmott and Jemmott (1992) said that religiosity was inversely related to sexual risk behavior in a large survey sample of adolescents in Minnesota; however, the standardized regression coefficient was very small and accounted for very little of the variance in the dependent variable (Neumark-Sztainer, Story, French, & Resnick, 1997). In a more recent study, Miller et al. (2000) found no relation between religiosity and adolescent sexual behavior among minority youth.

Another controversial result of this quantitative analysis was the about watching pornography. Unlike to the qualitative analysis and past researches, this self-predisposing variable was found with lesser and non-significant contribution for the variation accounted for adolescents risk behavior. This self-contradicting finding might result from the attempt made to dichotomize this interval scale variable in this study. Furthermore, the other justification for this conflict may be students' self-sex activity like masturbation which is highly related with watching explicit pornography films. In one study done in Europe found strong and positive correlation between watching sex videos and masturbation.

7. Conclusions and Recommendations

Conclusions

This research was aimed to draw attention to some of the socio-environmental factors that contribute to students' sexual risk behavior on campuses. In recognition of many other factors addressed by numerous previous researches discussed in the literature review, the findings of this research suggest that students' sexual risk behavior on campuses is typically influenced by multi-systemic factors such as their poor academic performance, early sexual debut, substance use, low family socio-economic status, low parent education level and lack of parental involvement and communication as well as the school environment, negative peer influence, lack of health education and counseling services. Those factors were selected mainly based on their dominance in the qualitative data of this study along with past studies recommendations. These findings are not exhaustive in exploring factors that shape students' sexual risk behavior. Nevertheless, it is critical to note that the Problem Behavior Theory provides a good theoretical framework for understanding the key factors that encourage students' sexual risk-taking behavior.

Certainly, research in the area of adolescent sexual risk behavior has come a long way from the exploratory and mostly descriptive studies of several decades ago (e.g. Kinsey, Pomeroy, & Martin, 1948; Kinsey, Pomeroy, Martin, & Gebhard, 1953).

Questions such as these present dilemmas and challenges to researchers in this field. The rapid advances in statistical methodology and measurement strategies offer tools with which to address the limitations noted in this review and to move our knowledge and understanding of adolescent sexuality to new heights. With these challenges and advances in mind, we offer the following recommendations for future research:

- 1) More attention must be given to comprehensive models that take into account factors from multiple systems of influence and their combined effects on adolescent sexual risk-taking behavior in general but a particular focus should be given to factors related to the individual him/her self. Examples of such models would include mediational pathways in which familial (e.g., parent \pm child relationship) and extra-familial (e.g., peer norms) factors influence sexual behavior through their effect on self-system variables, and models that consider nonlinear relationships among predictor and outcome variables (e.g., too much or too little parental strictness being related to more adolescent sexual risk behavior).
- 2) Many variables found to be related to the sexual activity of adolescents have not been studied with regard to sexual risk-taking behaviors. More research is needed to understand the role of these variables in promoting sexual risk or sexual safety.
- 3) Strategies to enhance the validity and accuracy of self-report of sexual behavior need to be further explored and developed. The use of computer-assisted interviewing offers particular promise; however, the practicality of its use with low literacy teens and those unfamiliar with computers still needs to be established.

- 4) By far, the most extensively studied sets of variables are those from the self-system. Future research should focus more attention on familial and extra-familial factors that may contribute to adolescent sexual risk behavior. Extra-familial contexts, such as school and neighborhood conditions, offer particular promise for inclusion as both targets and resources in prevention programs designed to reduce STD infection, pregnancy, and the transmission of HIV among youth. However, the specific factors within these contexts that are predictive of sexual risk behavior must be better specified or identified before they may be useful additions to prevention efforts. Furthermore, many of the self-system variables found to be related to sexual risk behavior are not amenable to change (e.g., age, gender, race) and may merely serve as proxies for the familial or extra-familial conditions or factors associated that truly influence behavior.

For practitioners working to reduce sexual risk behaviors and their resultant health hazards, the literature reviewed here and the multi-systemic perspective used to integrate the findings offer several guidelines. First, prevention and education efforts must be broad in scope and target factors from multiple systems of influence. While skills and knowledge are important, adolescents who possess adequate knowledge about the risks involved with sexual activity and the competence to engage in risk reduction strategies are still having unprotected sex, becoming pregnant, and contracting STDs, including HIV. Prevention programs need to consider the broader context in which the adolescent lives. Familial and extrafamilial sources of behavioral influence should not be ignored when designing prevention programs, and, to the extent possible, both family members and peers should be included in prevention efforts.

The findings of the present researcher proposed that parents are a very powerful socializing force in the lives of children and adolescents. Parents are in a unique and powerful position to shape young people's attitudes and behaviors and to socialize them to become sexually healthy adults. They can do this, in part, by providing accurate information about sex and its risks, consequences, and responsibilities, and by imparting skills to make responsible decisions about health. However, the strength of their impact, relative to other information sources, may arise from their unique ability to engage their children in dialogues about sexual development and decision-making that occur early and are continuous (i.e., not one-time events), sequential (i.e., building upon each other as the child's cognitive, emotional, physical, and social development and experiences change), and time-sensitive (i.e., information is immediately responsive to the child's questions and anticipated needs rather than programmed to a curriculum). Thus, we would encourage that prevention efforts include the family as an active treatment component.

Finally, the literature suggests that targets for intervention include both competencies specific to sexual behavior and more general areas of psychosocial or family functioning. For adolescents, individual knowledge regarding sexuality and risk reduction, attitudes about condoms and sexual self-efficacy represent specific competencies known to be related to reduce sexual risk-taking. For parents, specific targets for

intervention include knowledge of adolescent sexual behavior, monitoring of dating behavior, and skills to communicate with their adolescent children about sex. However, broader indices of functioning, such as depression and anxiety, general parenting skills, and parent-child relationship quality, are all appropriate targets for interventions seeking to promote well-being and reduce sexual risk behavior among adolescents.

In this sense, we would encourage prevention and intervention efforts that have as their ultimate goal the development of healthy and well-adjusted youth. Risk reduction would be part, but only a part, of such programs, and the result would be teens and families that value and foster sexual health and safety as part of overall well-being.

As this literature review noted, numerous variables from the self, family, and extra familial systems have been found to be related to adolescent sexual behavior. Only recently have multisystem analyses that capture the complexity of the adolescent sexual experience been undertaken, yielding evidence for the influence of variables from all systems and suggesting that variables from across systems interact to increase the probability of adolescent sexual risk-taking behavior. Numerous issues face researchers and clinicians working with youth who are sexually active or who may soon become sexually active. Armed with recent advances in statistical and measurement technology, researchers in this field stand poised to make substantial contributions to our understanding of sexual risk behavior among adolescents. It is our hope that the suggestions offered in this review prompt researchers and clinicians alike to adopt a broad perspective toward adolescent sexual risk and health in general, and, in doing so, take those important next steps toward advancing our knowledge and improving the lives and safety of today's and tomorrow's youth

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