

# Assessment of Risk Sexual Behaviors among Adults at Adigrat Town, Tigray, Ethiopia

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**Abstract:** Back Ground. Sexuality is experienced and expressed in thoughts, fantasies, desires, beliefs, attitudes, values, behaviors, practices, roles and relationships. The influences of families and peers on sexual risk behavior and risk perception of youths are not well addressed. Objectives: To assess risk sexual behaviors among adults at Adigrat Town, Tigray, North Ethiopia. Methods: A community based cross sectional study from August 27-September, 15, 2014. A total of 327 adults who live in selected households were involved in the study. Data was collected using pre-tested self-administered questionnaires. Data was analyzed using SPSS version 20 statistical package, summarized and presented using tables, descriptive measures and statistical diagrams. P-value and odds ratio was used to interpret significant variables. Result: One hundred seventy five (53.5%) of respondents were in the age 15-26 years. Two Hundred ninety nine (91.4%) of the participants had sexual intercourse experiences. From the total respondents, only 137 (41.9%) of the participants had sexual intercourse experiences at the first time between 17 and above years old. The majority of the 119 (36.4%) of the participants had sexual intercourse behavior with 1 person during their life. However, 47 (14.4%) had sexual intercourse with Multiple partners (6 or more people). Almost half of the participants 191 (58.4%) were responded that they intend to continue relationship with first partner. Conclusion: The high risk practice necessitates intervention and low knowledge on sexual risk behavior. Because of this respondent must know about importance of identify risk sexual behaviors and prevalence of sexual behaviors. Future research should evaluate interventions targeted to adults who are not currently at increased risk.

**Keywords:** Sexuality, Risk Behaviors, Adults, Risk Sexual Behaviors

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## 1. Introduction

Sexual risk behavior is "sexual intercourse without condom use with a casual partner, and/or sexual intercourse without condoms with a new main partner with no prior HIV testing." Sexual risk behaviors can result in such negative health outcomes as emotional and social disturbances as well as the transmission of STDs (1,2,3). Since older adults are engaging in riskier sexual behaviors, health-care providers need further education regarding routine assessments of sexuality, risks of STDs, and methods of prevention (4, 5). Sexual offending is a major public health concern due in part to perceptions of its resistance to treatment (6,7). Sexuality is a central aspect of being human throughout life and encompasses sex, gender identities and roles, sexual

orientation, eroticism, pleasure, intimacy and reproduction. In addition, studies indicate that the sexual re-offense rate of the average sex offender over 5 to 6 years is 13.7%. The nature of sexual offending among the chronically mentally ill population with problematic sexual behavior is typically less severe than the average sex offender (e.g., exposing oneself in public while psychotic as opposed to committing an act of rape). Less than 1% of persons obligated to register as sexual offenders are clients of the Department of Mental Health. Nonetheless, public concerns about sex offenders have had an unfortunate impact on the release of patients within the Massachusetts mental health system who have some history of sexual misbehavior, prompting the need for risk

assessment (8, 9). Some researchers have found a relationship between sexual risk behavior and poor knowledge of HIV/AIDS. Sexual behavior studies in China and other countries have shown that poor knowledge of HIV/AIDS increases the likelihood of engaging in sexual risk behavior (10). Studies from other countries have shown that the sexual attitudes of young, mobile people become increasingly open and that they are particularly likely to indulge in HIV/AIDS-related sexual risk behavior (11, 12). Similar studies of migrant workers in China have indicated that premarital and extramarital sex appears to have become more accepted among young people (12, 13). Hesketh, a Chinese sexologist proposed that traditional attitudes to sexual relationships place migrant workers at low risk for engaging in casual sex. Another study which conducted in China by KeWei Wang *et al* (2013) found that in China, there is increasing concern because of the rapid increase in HIV infection recorded over recent years. Migrant workers are recognized as one of the groups most affected. In Malawi, for example, aside from research from industrialized nations, there is little understanding of how the latter behaviors related to HIV risk in populations from developing countries, more specifically, in Malawian adolescents and young adults. It is estimated that 46,000 new infections occur annually in Malawi, 67% of which are among children and adults 15-49 years of age (14). A sexual risk behavior is one of the main foundations in the development of research projects aimed at designing efficacious programs for HIV prevention. Such situation is urgent when treating extremely vulnerable populations to the virus, as in the case of patients with severe mental illness (SMI), whose rates are three to five times higher than that of the general population (15). All sexually active adolescents are at increased risk for STIs and should be offered counseling. Adults with current STIs or infections within the past year are at increased risk for future STIs. In addition, adults who have multiple current sexual partners should be considered at increased risk and offered counseling to prevent STIs (16). Married adolescents may be considered for counseling if they meet the criteria described for adults. Clinicians should also consider the communities they serve. If the practice's population has a high rate of STIs, all sexually active patients in no monogamous relationships may be considered to be at increased risk (17, 18). The Communicable Disease Control reported that the highest prevalence rate of HIV diagnoses in 2008 was among persons aged 45 to 54 years. In 2011, the population with the highest percentage of people diagnosed with HIV was persons aged 55 years and older. The reason for the high prevalence of STDs in this group has not been examined fully in the literature. However, a great deal of research data shows that older adults are engaging in more sexual activity than previously thought. In fact, many older adults are continuing sexual activity throughout their lifespan (18, 19). In addition, Most previous studies on factors affecting sexual risk behaviors have been restricted to individual-level factors but more recent evidence suggests that neighborhood-level factors also play an independent and significant role in

shaping behavior (20). This shows that assessing sexual behavior among adults is a highly relevant issue worldwide that calls for the government commitment to it as well as research in this field. Furthermore, such information is necessary for health professionals to prevent and intervene on not only unmarried young adults' sexual behavior, but also other negative consequences. Based on the communication related with sexually behavior, in a sample of Internet recruited adolescents and young adults, 19% of teenagers (ages 13–19 years) and 32% of young adults (ages 20–26 years) reported sending a nude or seminude picture or video of themselves to someone via text or e-mail (21, 22, 23, 24, 25). In Ethiopia including the study area, the influences of families and peers on sexual risk behavior and risk perception of youths are not well addressed. Considerable proportion of students was engaged in risky sexual behavior. Sex, participation in religious education, living with parents, peer pressure and looking porno graphic movies were associated with risky sexual behavior. Any interventions that can affect the above risk factors may be helpful to protect adolescent's health in school (23-33). Research on sexual risk behavior among adults in Africa especially in Ethiopia are generally very low compared with developed countries. The purpose of this study was to assess sexual risk behaviors among adults at Adigrat Town, North Ethiopia.

## 2. Methods and Materials

### 2.1. Study Area and Period

This study was conducted in Adigrat town, is located in Eastern Tigray. The total population of the town is estimated to be 63,549 people, out of which 50.8% are females. Age wise, 23.5% of the population are females in reproductive age group and 14.6% are under five children. The town is administratively divided into 6 Keble's where the Keble's are further divided into 24 ketenas. The study area has one district hospital; two governmental health centers, two higher private clinics as well as one medium private clinic. The study was conducted in 327 adults who live in selected households from August 27, 2014 up to September, 15, 2014 in the study area.

### 2.2. Study Design

A community based cross-sectional study was employed.

### 2.3. Study Population

Sampled adults who live in selected households were participated in the study area. The study population consisted of all adults who live in selected households during the study period. Written informed consent was inclusion criteria in this study.

### 2.4. Sample Size

The sample size was determined by using a single population proportion formula considering the following

assumption: Proportion of adults who live in selected households 50% ( $P=0.5$ ) (12,13), level of significance to be 5% ( $\alpha=0.05$ ),  $Z_{\alpha/2}=1.96$  margin of error to be 5% ( $d=0.05$ ) and design effect=2. By adding 10% non-response rate, the final sample size was 327.

### **2.5. Sampling Techniques**

A Probability sampling method, Systematic random sampling technique was employed. In Adigrat, there are six Kebeles and these Kebeles encompass 30 Kushets. All Kebeles of Adigrat Town administration was considered for sampling. The Numbers of households included from each Kebele was determined based on the proportion of households found in each Kebeles. Systematic random sampling technique was employed to select 327 adults from the households. When more than one eligible respondent were found in the selected household, only one respondent was chosen by lottery method. In cases where there were no eligible interviewee/ respondents in the selected household, the next household was visited.

### **2.6. Instruments and Measurements**

A pretested, structured and translated questionnaire adapted from various sexual risks behavior studies were used. The questionnaire was originally developed in English and then translated into Tigrigna language and back to English language by different experts who are familiar on the field of area and blind to the original version of the questionnaire (English Version) in order to facilitate reliable responses to underline questions and keep the original meaning of the instrument. The questionnaires were included: Socio demographic characteristics;- Individual factors “Yes” or “No” and multiple choices), question ask about sexual behavior (7 items) with “Yes” or “No” and multiple questions; Characteristics of first sexual experience (6 items) with “Yes” or “No” and multiple question. In addition. Specific responses to measures of knowledge of HIV and awareness of means of transmission and prevention “yes “or”No” and Multiple choice..

### **2.7. Data Collection Procedure**

The data were collected for 5 days in each study Kebeles. It was collected through face to face interview of adults who live in selected households using Tigrigna version instrument based on the information taken from Keble leaders for further information about the sampled males full address of the households. Six data collectors and one supervisor one day training was given on data collection instrument, interview technique and importance of taking informed consent before data collection starts. Each day a data was checked for completeness and consistency.

### **2.8. Data Processing and Analysis**

The questionnaire checked for completeness and consistency and data editing and clearance was done on the same software. Finally, the data was taken to SPSS version

20.0 for the final analysis. Extreme observations and missing values was assessed and managed. The findings of the study was summarized and presented using tables, descriptive measures and statistical diagrams. Binary logistic regression was used to assess the independent effect of the predictors on the. Statistical inferences were made by using chi-square test and the measure of association was the odds ratio. All covariates with nearly  $p \leq 0.05$  in the bi-variable analysis or potential confounders was included in to the final model to obtain adjusted odds ratio and their 95% confidence intervals. All statistical tests was two sided and considered significant at  $p = 0.05$  or less. The different responses obtained through note taking from interviews was transcribed and translated from Tigrigna language with their own` perspective views

### **2.9. Data Quality Control**

To ensure the quality of data, first the questionnaire was pretested. The pretested was conducted in 5% of the participants at randomly selected Kebeles away from the supervisors before the actual data collection. Every day after data collection, questionnaires were reviewed and checked for completeness, accuracy and clarity by the supervisors and principal investigator.

### **2.10. Ethical Consideration**

Before the fieldwork, ethical approval and clearance was obtained from Mekelle University, College of Health Science and Tigray regional Health bureau. Then it was authenticated by the Adigrat town health office. A formal cooperation letter written from Mekelle University, Tigray regional health bureau and Adigrat town health office was submitted to all concerned bodies in the study area. Keble administrators were informed and communicated about the purpose of the study, importance and duration of the study in order to get their free and prior informed consent to the survey. All interviewee were informed about the purpose and significances of the survey. After gaining consent of the respondents, the data was collected respecting their full right to refuse or withdraw from the study. Participants name was not documented or recorded to maintain confidentiality

### **2.11. Delimitation**

Some respondents were not willing to give all the information required by the researchers because of the fear of being penalized. Efforts were however made to reduce this problem by assuring them of the confidentiality of all information provided.

## **3. Results**

A total of 327 adults who live in selected households participated in this study making the response rate of 100%. The majority of the 175 (53.5%) of the respondents were age between 15-26 years old. Regarding the religious follower, More than half (53.8%) of the respondents was Orthodox. One hundred Sixty Six (50.6%) of the respondents were

single by marital their status. The result also shows that, More than half of the respondents 222(67.9%) attained grade 7 and above ,while less than 4.5% had no formal education, and even fewer advanced beyond primary school education. The majority of the subjects 114(34.9%) were petty Rader by occupation. Followed by 99(30.3%) were students, 49(15%) of participants were Civil Servant. However, only 3(0.9%) of participants were farmer.

**Table 1.** Socio demographic characteristics of adults who live in selected households in Adigrat town, Tigray, Ethiopia, 2014.

Sociodemographic characteristics	Distribution	Number (n)	Percentage (%)
Age	15-26	167	51.1
	27-38	115	35.2
	39-49	45	45
	Total	327	100
Sex	Female	175	53.5
	Male	152	46.5
	Total	327	100
	Single	89	50.8
Marital Status	Married	166	27.2
	Live in partnership	32	9.8
	windowed	16	4.9
	Total	327	100
Religion	Orthodox	176	53.8
	Protestant	47	14.4
	Catholic	45	13.8
	Muslim	58	17.7
	Others	1	0.3
	Total	327	100
Education Status	No formal education	14	4.3
	Grade 1-6	91	27.8
	7 and above	222	67.9
	Total	327	100
Occupation	Civil Servant	49	15
	Student	99	30.3
	Petty trader	114	34.9
	House wife	31	9.5
	Farmer	3	0.9
	Other	31	9.5
	Total	327	100

Two-hundred Ninety nine (91.4%) of participants had sexual intercourse behaviors. Among the different components of the sexual behaviors, < 50% of the participants 137(41.9%) had sexual intercourse for the first time between 17 and above years old, followed by 90(27.5%) of participants had sexual intercourse at 16 years old. More than Half of the participants 189(57.8%) had drunk alcohol and use drugs before they had sexual intercourse the last time. The remaining 105(32.1%) ,33(10.1%) had not drunk alcohol or use drug before they had sexual intercourse and have never sexual intercourse and have prevalence use of condom, with each behavior being reported 200(61.2%) (Table.2).

**Table 2.** Percentage distribution of adults who live in selected households by characteristics their sexual behaviors, according to Sexual intercourse, sexual intercourse for the first time, Number people, drink alcohol or use drugs before sexual intercourse, and partner use a condom in Adigrat town, Tigray, Ethiopia, 2014.

Sexual behavior	Response	
	Frequen cy(n)	Percent age (%)
1	Have you ever had sexual intercourse?	
	Yes	299 91.4
	No	28 8.6
2	Total	327 100
	How old were you when you had sexual intercourse for the first time?	
	I have never had sexual intercourse	23 7.0
	11 years old or younger	2 0.6
	12 years old	8 2.4
	13 years old	8 2.4
	14 years old	14 4.3
	15 years old	53 16.2
	16 years old	90 27.5
	17 years old or older	137 41.9
3	Total	327 100
	During your life, with how many people have you had sexual intercourse?	
	I have never had sexual intercourse	25 7.6
	1 people	119 36.4
	2 people	63 19.3
	3 people	50 15.3
	4 people	14 4.3
	5 people	9 2.8
	6 people	47 14.4
	Total	327 100
4	During the past 3 months, with how many people did you have sexual intercourse?	
	I have never had sexual intercourse	58 17.7
	I have had sexual intercourse, but not during the past 3 months	18 5.5
	1person	150 45.9
	2 people	54 16.5
	3people	21 6.4
	4people	14 4.3
	5 people	12 3.7
	Total	327 100
5	Did you drink alcohol or use drugs before you had sexual intercourse the last time?	
	I have never	33 10.1
	Yes	189 57.8
	No	105 32.1
	Total	327 100
6	The last time you had sexual intercourse; did you or your partner use a condom?	
	I have never had	33 10.1
	Yes	200 61.2
	No	94 28.7
	Total	327 100

**Table 3.** Percentage distribution of adults who live in selected households by first sexual experience, continue relationship with first partner, Intends to marry first partner, and motivation for first sexual experience in Adigrat town, Tigray, Ethiopia, 2014.

No	Characteristics	Response	
		Frequency(n)	Percentage (%)
1	Age at first sex		
	15-26	101	30.9
	27-38	111	33.9
	39-49	115	35.2
	Total	327	100
2	First sex was voluntary		
	Yes	245	74.9
	No	82	25.1
	Total	327	100
3	Intends to continue relationship with first partner		
	Yes	191	58.4
	No	136	41.6
	Total	327	100
4	Intends to marry first partner		
	Yes	197	60.2
	No	130	39.8
	Total	327	100
5	Motivation for first sexual experience		
	Forced to have sex	41	12.5
	Curiosity	51	15.6
	Urging of friends	171	52.3
	Other	64	19.6
	Total	327	100

**Table 4.** Percentage distribution of adults who live in selected households or their partners use to prevent pregnancy in Adigrat Town, Tigray, Ethiopia, 2014.

No	Characteristics	Response	
		Frequency (n)	Percentage (%)
1	What one method did you or your partner use to prevent pregnancy		
	I have never had sexual intercourse	34	10.4
	No method was used to prevent pregnancy	52	15.9
	Birth control pills	26	8.0
	Condoms	140	42.8
	Depo-Provera /Implanon/IUCD	47	14.4
	Withdrawal	9	2.8
	Some other method	7	2.1
	Not sure	12	3.7
	Total	327	100

The majority 115(35.2%) of participants had first sexual experience between 39-49 years old. Two hundred and Forty Five (74.9%) of the respondents were applied first sex voluntary. Almost half of the participants 191(58.4%) were responded that how they intends to continue relationship with their first partner. However, 136(41.6%) of participants were response negative thinking on their continue relationship with first partners. However, more than half of the subjects 197 (60.2%) had positive response on their continue relationship with first partners. Furthermore, 171(52.3%) of participants were using of friends by motivation at first

sexual intercourse experience (table 3).

The majority 140(42.8%) of the respondents were used condom to control pregnancy, followed by 52(15.9%) of participants had never used any prevention pregnancy. Forty Seven (14.4%) of the respondents had used Depo-Provera /Implanon/IUCD contraceptive methods users to prevent pregnancy (Table 4).

The highest percentage 303(92.7%) of respondents were heard information about HIV/AIDS. Concerning Knowledge on HIV transmission of the adults, 161(49.2%) were heard information about sexual intercourses as method of HIV transmission (Table.5)

**Table 5.** Percentage specified responses to measures of knowledge of HIV and awareness of means of transmission and prevention of couples or their partners use to prevent pregnancy in Adigrat town, Tigray, Ethiopia, 2014.

No	Characteristics	Response	
		Frequency (n)	Percentage (%)
1	Has heard of HIV/AIDS		
	Yes	303	92.7
	No	24	7.3
	Total	327	100
2	Means of HIV transmission known		
	Sexual intercourse	161	49.2
	Mother-to-child	52	15.9
	Shared needles	61	18.7
	Infected blood	53	16.2
	Total	327	100
3	High-risk groups known		
	Prostitutes	102	31.2
	People who are unfaithful	178	54.4
	Everyone	47	14.4
	Total	327	100
4	Knows a means of prevention		
	Yes	289	88.4
	No	38	11.6
	Total	327	100
5	Means of prevention known		
	Fidelity	118	36.1
	Abstinence	135	41.3
	Condom use	74	22.6
	Total	327	100
6	Knows condoms are effective against HIV		
	Yes	285	87.2
	No	42	12.8
	Total	327	100
7	Exchanged sexual message		
	Yes	154	47.1
	No	173	52.9
	Total	327	100
8	Do you use drugs in the last three months		
	Yes	208	63.6
	No	119	36.4
	Total	327	100
9	If "yes" the above which one do you use?		
	Alcohol	99	30.3
	Cigarette	70	21.4
	Khat	61	18.7
	Others	97	29.7
	Total	327	100

Less than 33.6% of the respondent was used drugs in the last three months at age between 15 and 26 years old. However, one third the participants were not used drugs in the last three months at all age groups (Table.6)

**Table 6.** Percentage distribution of adults who live in selected household's by using drugs in the last three months in Adigrat town, Tigray, Ethiopia, 2014.

Age	Do you use drugs in the last three months?					
	Yes		No		Total	
	n	%	n	%	n	%
15-26	110	33.6	57	17.4	167	51
27-38	69	21	46	14.1	115	35.1
39-49	29	8.9	16	4.8	45	13.8
Total	208	63.5	119	36.4	327	100

## 4. Discussion

This study has attempted to assess sexual risk behavior among Adult in Adigrat town, Tigray, Northern Ethiopia. Maintaining an adequate and safe adults' Life with decline their sexual risk behavior is an issue of concern to local health planners especially with increase in demand as a result of the decreases in substance user and unsafe sexual habit, and an increases in the number of people who will able to do effective work with good behavior, safer and out of bad behaviorally experiences in Adigrat town and as country. This study result revealed that the majority of the participants (91.4%) had sexual intercourse experience/behavior. This finding was different with the study conducted by Abebe et al (2014) in Jimma zone, South west Ethiopia. Which were (42%) students had sexual behavior (34). Another study also conducted by Guttmacher Institute in USA (2011) found that current data from USA showed that 46% of in-school youths had ever had sexual intercourse (35). This study result revealed that more than half of the participants had drunk alcohol and use intercourse the last time. The majority of (74.9%) of respondents were applied their first time sexual intercourse voluntarily. This study different from study was conducted by Fantahun and Mamo(2014) found that male students who consumed alcohol were 2.8 times more likely to be at risk than those who did not consumed alcohol and male students who chewed khat were 4.6 times more likely to be at risk than students who did not chew khat(36). This study finding indicated that the majority of the respondents (42.8%) were used condom to control pregnancy. Furthermore; the participants had used Depoporevera /Implanon/IUCD as contraceptive methods users to control pregnancy. The highest percentage of (92.7%) of participants was heard information about HIV/AIDS through different Medias. This findings was nearly similar with the study conducted in Dangila town ,Northwestern Ethiopia ,which was more than 98% of the respondents have heard about modern family planning methods. However, most commonly mentioned 87.2% of modern family planning methods were inject able (37-54). Therefore, understanding the various factors contributing to

decreases risky sexual behavior is crucial. Similarly, the result of this study an assess the sexual risk behavior among adults shows that the majority of subjects had experience on sexual intercourse. In this study indicates that the majority of the participants had sexual intercourse for the first time between 17 and above year's old. In addition, less than 15% had sexual intercourse with multiple partners ( $\geq 6$  people). It indicates that most of the people have sexual intercourse experience with multiple partners. In the present study; More than half of the participants were not more likely than minority participants to report sexting, despite no differences in cell phone ownership or overall texting behavior. Previous work has suggested that individuals in the Adigrat town are less likely to perceive risk in a variety of activities relative to minority individuals. It may be that white participants in the present study were less concerned about the potential adverse consequences of sexting. Although it would be premature to attribute too much weight to this finding in this initial study of predominantly young adults, Future research should examine sexual differences in sexting and, if differences exist, attempt to deter-mine whether differences in risk perceptions account for racial/ethnic differences in sexting. Regardless of the relationship between race and sexting, in the present study, sexting was related to high-risk sexual behavior after accounting for race/ethnicity and other demographic factors. In this study most of the respondents had known a high risk group for HIV transmission was people who are unfaithful followed by prostitutes. Of the participants engaging in premarital sex in our sample, 14.4% reported having had more than one sexual Partner in their life, a proportion significantly higher than that reported by another study. This finding is important because it enhances our understanding of the possible effects of multiple sex partners as increasing the Likelihood of rapid transmission of HIV/AIDS. If someone has acquired HIV/AIDS, he may infect other partners, so not only are a large proportion of unmarried men at high risk of infections (those with multiple sex partners), but their partners are also likely to be at risk. The study also showed that only about 87.2% of all participants believed that use of condoms could prevent HIV/ AIDS, and infrequent condom use, another high-sexual risk behavior, was common among the males who had had sex in the three months before the study period. Nearly three-quarters (15.9%) of respondents did not used condom. More importantly, condom use was also higher among the Participants who engaged in sexual risk behavior. A considerable proportion (15.9%) of the male Participants also did not use a condom in their last sexual intercourse. These results show that sexually active individuals do not routinely practice safe sex, leading to a high risk of HIV infection. The low rate of condom use may explain their poor knowledge about the protective effects of condoms against HIV. The findings indicate that the government needs to pay more attention to interventions targeting unmarried male adults that could be effective in improving their awareness of condom use. For example, community interventions, including lectures (experts lecture), posters, brochures, and videos, could be used to help them

think of condoms as a cost-effective approach to sexually transmitted diseases/HIV prevention and contraception (38-44).

## 5. Conclusion

More than three fourth (91.4%) had sexual intercourse experience/behavior and had drunk alcohol and use intercourse the last time. Adult's empowerment through education, improving Controlling pregnancy and HIV/AIDS transmission including substance abuse. Adult involvement were significantly associated with Prevention and control method, knowledge, attitude and using condom continuously during sexual intercourse. The proportion of adults who had engaged in risky sexual behaviors and various risk factors were associated with risky sexual behaviors. First, adult should be targeted with an emphasis placed on contraception and HIV knowledge, since adult are not adequately versed in these domains of sex knowledge. Second, they should be informed about the negative consequences associated with high-risk sex behavior, thus those adult with good knowledge are more likely to change their thinking on sexual risk behavior. Our findings indicated that most of the participants had sexual intercourse experience with multiple partners. This can provide insights into the key role that individual characteristics play in sexual risk taking behavior, such as multiple sexual partners. Large proportions of couples were engaged in multiple sexual partners and unprotected sex. This indicates lack of knowledge and decreasing the perception that the risk sexual behavior is harmful can lead to an increase in the pool of risk sexual behavior. In addition, this study result also revealed that the majority of the subjects had drunk alcohol and use drugs before they had sexual intercourse the last time. 15.9% of unmarried adults had not use a condom in their last sexual intercourse. The low rate of condom use may explain their poor knowledge about the protective effects of condoms against HIV. Health education on the potential risk outcome of communities, who have not exchanged sexual messages through phone, text, e-mail or by other means, needs to be given by the all health sectors, government and other concerned organizations. Future research should evaluate interventions targeted to adults who are not currently at increased risk.

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## Author Contributions

ZY and MA have made substantial contributions to beginning and design, collection of data, analysis and

interpretation of data and in drafting the manuscript and correcting the comment given by the advisors.

TB and AA, involved in revising the research paper and the manuscript critically for important intellectual context and approval of the final version to be published and participated in its design and coordination. TB participated in the approval and funding process, participated in the design of the study participated in its design and coordination. AA and WG had greater contribution in reviewing the manuscript English and topography. And helped to draft the manuscript.

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