

# Sexual Attitudes and Associated Factors of Risky Sexual Behaviors Among University Students

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## Research

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# Abstract

## Introduction

Risky sexual behaviors, because of its adverse health consequences, are a serious problem in the health care system. Adequate awareness of reproductive health in young people is important because they are in the early years of fertility and engaging in risky sexual behaviors are more probable. This study aimed to evaluate the sexual attitude and associated factors of risky sexual behaviors among girls and boys and the difference of sexual norms by gender among university students.

## Methods

A university-based study with a cross-sectional survey conducted for nine months in 2019. A total of 800 university students were studied by a random sampling technique, using a self-administered structured questionnaire derived from World Health Organization illustrative questionnaire to assess sexual attitudes among adolescents and young adults

## Results

Most of the respondents were female and single. Girls were more religious, more frequently visited the cinemas, and were more likely to discuss sex-matters with family members compared to boys. There was no significant difference in the total score of sexual attitude in girls and boys, and both genders had negative attitudes toward risky sexual behavior (42/72). Those who go to parties, bars, or movies were more probable to have risky sexual behavior. Being a religious person is an essential predictor of having less risky behavior (RR = 2.02, 95% CI = 0.96,3.41).

## Conclusion

Being religious was a protective factor for engaging in risky sexual behavior. More interventions in schools and universities need to educate students to enhance awareness about the consequences of RSB and reduce the rate of it.

## Implication And Contribution

Risky sexual behaviors in young adults may cause serious health problem and it will affect their whole life. In this study attitudes to risky sexual behavior were negative. Adolescents who were religious had less risky sexual behavior.

## Introduction

Risky sexual behaviors (RSB), because of its adverse health consequences, are a serious problem in the health care system. According to the Center for Disease Control and Prevention (CDC), RSB refers to sexual behaviors, which leads to sexually transmitted infections and unintended pregnancies [1]. Literature suggests the following behaviors as risky: Having several partners, having unprotected sex or without contraceptive methods, anal intercourse, initiation of first sex at early ages, having sex impress by alcohol use, and paid sex [2]. Social norms about gender influence the sexual behavior of women and men [3]. Gender norms refer to a set of ideas or rules about how each gender should behave; they are informal rules adjusting social relationships and actions. These laws are not based on biology but are determined by culture, religion, social structure, and economic factors of society [4]. Attitudes about traditional gender norms make women more vulnerable than men and increase violence against women [5].

Adequate awareness of reproductive health in young people is important because they are in the early years of fertility and are more likely to engage in high-risk sexual behaviors [6]. The youth population (age 15 to 24 years) in the US in 2018, reported about 43 million, with about 22 million being between 20–24 years of age (10.67 million were female and 11.2 million male), which comprise nearly 13.1% of the total population [7].

Lifelong sex education can extend beyond one generation and reduce the risks of unsafe sexual behavior such as unintended pregnancies. Limited sexual and reproductive health literacy is one of the main causes of unintended pregnancies [8]. According to reports, in developing countries, about 21 million girls aged 15–19 become pregnant every year, which about 9.5 million of them are unwanted [9]. In 2011, the highest unintended pregnancy rate in the United States of America was among women aged 20–24 [10]. It is estimated that if all female adolescents have no plan for pregnancy using any modern contraceptive methods, the unintended pregnancies would decrease by two-third [11]. In 2014, more than half of all US abortion patients were in their 20s; patients aged 18–19 and 20–24, respectively, obtained 8% and 34% of all abortions [12]. Education has an important role in preventing unintended pregnancies [13]. Moreover, adequate knowledge and appropriate sexual attitude prevent negative consequences of RSB, including HIV and other sexually transmitted diseases (STDs) in youth [14].

The evidence showed that reproductive and sex education in school improves awareness about safe sexual behaviors and risk reduction strategies, which had a great impact on awareness and attitude of young people, especially in individuals who have never talked to family or experts about sexual issues and have insufficient and sometimes wrong information [15].

There are vivid findings of the positive association of religious belief and practice and lower prevalence of risky sexual behavior [16]. In similar studies, it was stated that adolescents and young adults who implicated religious in their lives, had lower rates of RSB [17].

In recent years, there has been association between early onset of sexual activity and risky behaviors such as smoking cigarettes and using alcohol [18]. According to a report of centers for disease control and prevention (CDC), American males smoke cigarettes more than females and age groups of 18–24

years, includes 7.8% of smokers [19]. Studies showed that adolescents who drank alcohol were more likely to have started sexual activity and have RSB [20]. Eke, smoking cigarettes is one of the associated risk factors in adolescents and young adults to initiate sexual intercourse [18].

In some cultures, one of the desired ways in youth to start an intimate relationship is going to cinema for watching movies. Because of lack of awareness about sexual health and undeveloped cognitive skills to analyze future outcome of risky behaviors in youth, starting intimate relationships may lead to RSB [21]. Also, there have been concerns about the effect of media exposure on adolescents' high-risk behavior and early sex initiation. It has been shown that adolescents' movie exposure influenced later sexual behavior and even sex initiation. Apparently, among the media, movies have the greatest impact on adolescents' beliefs and venture to perform risky behaviors [22]. Few studies have been done about how going to cinema with an opposite gender affects adolescents' beliefs about having high-risk sexual behavior and whether necessarily causes to start any kind of sex practice with companion or not; they may have a close link that it is not easy to explain.

Establishing effective communication between parents and adolescents, and their intervention in providing skills and information about healthy sexual behavior prevents the occurrence of high-risk sexual behaviors [23]. A recent review found that communication of adolescents with family members and talking about sexual issues had a protective association with RSB [24]. The fact that youths and young people would influence by their family, peer groups, and social media, shows the importance of multidisciplinary education in the home, school, and mass media, which affect attitudes, knowledge, skills, and norms [25]. This study examined and explored the sexual attitude of both genders, norms, and associated factors of risky sexual behaviors among university students

## Methods

### Study Design

It was a cross-sectional survey, which conducted for nine months in 2019. The first article of this survey, entitled "sexual behavior prevalence and its predictors among students in an American university" was recently published.

### Study population

The inclusion sampling criteria were Central Michigan University (CMU) students who were willing to participate in the study, while the exclusion criterion was students from Health Science School or those who refused to participate in this study.

### Sampling and sample size

A pamphlet with study information was distributed through the departments, students' housing, and students' clubs. A list of student's names and email addresses were obtained from the Registrar's Office. This study used a random sampling technique to send email invitations to CMU students in three rounds to obtain an adequate sample size.

Calculated sample size ( $n = 800$ ) was estimated using the prevalence of "being in a romantic relationship" (Lenhart, 2015) of 19%, with an expectant increase of 25%, 1.96 Z value, 5% of precision, a power of 90% and 20% non-respondent rate.

### Dependent and independent variables used in the survey

We used socio-demographic variables (age, education, work, income, religion, relationship status) as well as attending bars/parties, going to movies, drinking alcohol, smoking, discussing sex matters with family members as confounders. Gender was considered the independent variable, and the total score of risky sexual behavior was the dependent variable.

### Ethical considerations

We first sent an email to participants. In that invitation letter, the aim of the study was explained. Students were asked to spend 20 minutes to fill up the questionnaire. Students were assured that the data would be confidential as no identification was collected from the students. The risk and benefits of participation in the study were explained to the participants. Students received an email invitation with a link that would open the consent form. They would sign the consent form before entering the questionnaire. General publications and report coming out of this study were sent to students for general education purposes. Students who participate in the study were eligible to receive a coupon for Pizza. Students were free to refuse participation or discontinuation of the study at any time point. The Ethics committee of the Institutional Review Board (IRB) at CMU has approved the protocol of the study (IRB: 1031916-4).

#### *Study questions*

1. The total score of attitudes towards sexuality and norms
2. Difference between boys and girls in terms of attitude towards sexual norms

### Tool

We used a self-administered structured questionnaire derived from World Health Organization illustrative questionnaire [26]. The questionnaires sent through Qualtrics software, which would ensure the anonymity of responses necessary because of the sensitive nature of the study.

The questionnaire adopted by the researchers and modified to reflect cultural sensitivities. The change was minor, and no language translation was necessary. Content validity was done by sending the questionnaire to 10 students and two faculty members. The data from these ten students were excluded from the

analysis. The main questionnaire assessed the knowledge, attitudes, and practice of students about sexual health. The current paper focuses on the gender differences of risky sexual behavior.

A total score of sexual behavior was computed by adding Q1 to Q24 as follows:

The total score of sexual attitude was calculated by adding the following questions: Q1. "I believe it's all right for unmarried boys and girls to have dates" (Agree = 1, don't know/not sure = 2, disagree = 3), Q2. "I believe it's all right for boys and girls to kiss, hug and touch each other" (Agree = 1, don't know/not sure = 2, disagree = 3), Q3. "I believe there is nothing wrong with unmarried boys and girls having sexual intercourse if they love each other" (Agree = 1, don't know/not sure = 2, disagree = 3), Q4. "I think that sometimes a person has to force a partner to have sex if he/she loves her/him" (Agree = 3, don't know/not sure = 2, disagree = 1), Q5. "A boy/girl will not respect a girl/boy who agrees to have sex with him/her" (Agree = 1, don't know/not sure = 2, disagree = 3), Q6. "Most girls who have sex before marriage regret it afterward" (Agree = 3, don't know/not sure = 2, disagree = 1), Q7. "Most boys who have sex before marriage regret it afterward" (Agree = 3, don't know/not sure = 2, disagree = 1), Q8. "A boy and a girl should have sex before they become engaged to see whether they are compatible" (Agree = 1, don't know/not sure = 2, disagree = 3), Q9. "I believe that girls should remain virgins until they marry" (Agree = 1, don't know/not sure = 2, disagree = 3), Q10. "I believe that boys should remain virgins until they marry" (Agree = 1, don't know/not sure = 2, disagree = 3), Q11. "It is sometimes justifiable for a boy/girl to hit his girlfriend/boyfriend" (Agree = 3, don't know/not sure = 2, disagree = 1), Q12. "Most of my friends think that one-night stands are OK" (Agree = 1, don't know/not sure = 2, disagree = 3), Q13. "It's all right for boys and girls to have sex with each other provided that they use methods to stop pregnancy" (Agree = 1, don't know/not sure = 2, disagree = 3), Q14. "Most of my friends who have sex with someone use condoms regularly" (Agree = 1, don't know/not sure = 2, disagree = 3), Q15. "I am confident that I can insist on condom use every time I have sex" (Agree = 1, don't know/not sure = 2, disagree = 3), Q16. "I would never contemplate having an abortion my self or for my partner" (Agree = 1, don't know/not sure = 2, disagree = 3), Q17. "It is mainly the woman's responsibility to ensure that contraception is used regularly" (Agree = 3, don't know/not sure = 2, disagree = 1), Q18. "I think that you should be in love with someone before having sex with them" (Agree = 1, don't know/not sure = 2, disagree = 3), Q19. "I feel that I know how to use a condom properly" (Agree = 1, don't know/not sure = 2, disagree = 3), Q20. "Most of my friends would never contemplate having an abortion for themselves or their partner" (Agree = 1, don't know/not sure = 2, disagree = 3), Q21. "Men need sex more frequently than do women" (Agree = 3, don't know/not sure = 2, disagree = 1), Q22. "Most of my friends believe that you should be in love before you have sex with someone" (Agree = 1, don't know/not sure = 2, disagree = 3), Q23. "I would refuse to have sex with someone who is not prepared to use a condom" (Agree = 1, don't know/not sure = 2, disagree = 3), Q24. "One night stands are OK" (Agree = 3, don't know/not sure = 2, disagree = 1).

## Data analysis

Statistical analysis of this data was done using IBM SPSS Statistics, version 26.0, released in 2019 (IBM Corp., Armonk, NY, USA). Descriptive analysis, bivariate, and linear regression were performed to analyze this data. Regression analysis was conducted to find the predictive relationship between the sexual behavior of the students and their socio-demographic. As the total score of sexual behavior is a continuous variable, the relative risk (RR) and the 95% confidence intervals (CI) were calculated.

## Results

### Descriptive analysis

The demographic characteristics, educational background, and relationship status summarized in Table 1. Most of the respondents were female, 79.3% (636), and 20.7% (166) were male. The distribution of age in the two genders was the same. The majority of students were undergraduate with 549 (68.2%). Most of them believed in one type of religion (471, 60.7%) and were single (601, 95.4%).

### Gender comparison

Differences between girls and boys were found with respect to being religious ( $p = 0.02$ ), as the girls were more religious. Girls more frequently reported going to movies ( $p = 0.01$ ). On the other hand, More boys (540 out of 665) smoke cigarettes at the time of the survey or earlier ( $p = 0.01$ ). The difference between girls and boys was statistically significant ( $p = 0.01$ ) in discussing sex-matters with family members, and girls discussed more than boys.

There was no significant difference in the total score of sexual attitude in girls (636) and boys (166), respectively,  $42.42 \pm 3.61$  and  $42.59 \pm 3.87$ . The attitude of both genders was at the appropriate level, and they had a negative attitude towards risky sexual behaviors (42/72).

### Regression analysis

Bivariate and linear regression analyses were done to assess the risk ratio of sexual risk behaviors and predictive values (Table 3). Those who were religious had a negative attitude toward sexual risky behaviors (RR = 1.14, 95% CI = 0.42,1.86). Going to bars or parties was associated with sexual risky behavior (RR=-1.07, 95% CI= -1.92, -0.23), so students who go bars or parties were more likely to engage in risky sexual behaviors. Similarly, those who smoked cigarettes were more likely to have risky sexual behavior (RR=-2.13, 95% CI= -3.19, -1.07). In linear regression, it was found that being religious is an important interpersonal predictor of having less risky behavior (RR = 2.02, 95% CI = 0.96,3.41).

## Discussion

Our study highlights the relation of demographic characteristics of participants with risky sexual behaviors and students attitudes toward it. The attitude score of the students participating in the study showed that their attitude level was at an appropriate level, and they have a negative attitude towards risky sexual behaviors. Few adolescents in our study sample were in a relationship at the time of the survey, and most of them were single.

In comparison of girls and boys, it found that girls discuss sex-matters with family more than boys. The involvement of parents in the sexual education of their children has an undeniable impact on the sexual health of young people. According to studies' findings, adolescents prefer to talk about sexual issues with mothers and mothers feel more comfortable talking about sexual matters with girls than boys [27]. One possible reason for more mother-daughter sexual talk is girls' menstruation as a biological marker, which requires definite action and education in the family. Another reason is that daughters' sexual activity seems dangerous because of the probability of pregnancy [28]. Consequently, girls are talked more on sexual matters with parents than boys. Findings of a study showed that about 33% of both young girls and boys feared to discuss sexual matters with family, because of less trust and confidentiality sexual health issues [29]. Girls go to movies more than boys. In our searches no study was found about the relationship of going to cinema and risky sexual behavior. Also, there is lack of information about the difference of going to cinema in two genders. There is lack of information. Also, they were more religious than their male peers. A similar result reported in a study that examined the impact of socio-demographic and religious upon risky sexual behavior [30]. The theory of attachment has been proposed as one of the reasons why women are religious, where God assumed as a secure base for believers [31]. Women possess more positive God images more than men, and communicating with God as a secure base haven help their psychological well-being [32]. Continuing the discussion of comparing two genders, boys smoke cigarettes more than girls, which matches the findings of youth risk behavior surveillance done in the United States of America [33]. Related studies suggest that men smoke for different reasons in comparison to women, which may relate to a combination of physiological, cultural, and behavioral factors including reinforce the effect of nicotine, social acceptability and to look more attractive [34].

The present study revealed that students who go more frequently to bars or parties were more likely to have RSB. Girls went to parties and bars slightly more than boys (79%-74.8%). Incompatible with these findings, those who frequently attended to nightclubs were more likely to have RSB and even showed significant association with having sex ever [35].

The risky sexual behavior was higher in respondents who were smoking cigarettes at the time of the survey. Boys and girls who were smoke cigarettes were more likely to experience high-risk behaviors. Other studies are concordant with our findings related to smoking cigarettes and RSB [36].

There was a protective association between being religious and having RSB. In other words, students who religion played a bold role in their lives were less likely to have RSB than those who were not. Recent studies provide evidence to support this finding, so that young people who were not religious and did not participate in church religious activities did not adhere to moral principles and safe sexual behavior [37]. As well as, three studies were done among undergraduate university students in the US, Sri Lanka, and Ethiopia revealed similar findings. In the first study, of those 3.168 women and men contributed in the survey, who had religion as a crucial part in their life, had attended frequently to church and had religious sexual attitudes, not only were 27–54% less likely to have sex but also had fewer sex partner than counterparts [38]. In the second study done in Sri Lanka, those who frequently engage in religious activities and religion was important part in their lives (1238/1575) were 1.5 times less likely to engage in high-risk behavior than others [35]. In study conducted recently, those students who attended religious institutions regularly had lower odds of risky sexual behavior than those who never attended [39]. In opposition to the findings, result of a study showed that students who had religious beliefs and had less religious behavior was more likely to engage in RSB. A possible explanation for this finding could be that young people want to break free from pre-university restrictions and engage in sexual practices that they have never had the chance to experience before [40].

This study has given us a cross-sectional view in a short time period. More comprehensive studies are recommended for detailed review and assessing risk factors in the long term. It was a sensitive and self-reported study, and participants may have withheld some information due to unacceptable risky behaviors. In our study, the positive response of 'are you religious person' assumed as being religious, and we did not distinguish between religious belief and religious behavior. Future studies should design to assess the relation of religious and RSB with precise differentiate between religious belief and religious behavior.

## Conclusion

The current study investigated the relationship between potential risk factors and risky sexual behavior in undergraduate students. Attitudes to risky sexual behavior were negative. Those who were religious were associated with less risky sexual behavior. The schools should provide comprehensive education with the orientation of gender equality and safe sexual behaviors for all students, whether sexually active or inactive, and counseling them to minimize risks when engaging in sexual practice and choose the method of pregnancy prevention that could meet their needs. Talking about gender equality in the long term will reduce gender-based violence in society by changing minds, attitudes, and, finally, acts of individuals, which will lead to change in detrimental gender norms. It is obvious that the curriculum of sex education presented in schools and universities must change as norms, values, and practice change to meet the young population's needs. Future studies should investigate how gender norms caused behavioral differences in girls and boys, and an interventional study should design to adjust the gender norms in the mind of students with the aim of changing gender-oriented risky sexual behaviors.

## Declarations

### Conflict of Interest

The authors declare that they have no conflict of interest.

### Acknowledgments

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### Funding

Not applicable.

### ***Conflict of Interest***

The authors and planners have disclosed no potential conflicts of interest, financial or otherwise.

### ***Availability of data and material***

Not applicable.

### ***Code availability***

Not applicable.

### ***Declaration***

Shayesteh Jahanfar: supervisor, study design, data collection, data analysis, compilation of the article

Zahra Pashaei: study design, data collection, data analysis, compilation of the article

### ***Ethics approval***

The Ethics committee approved the study's protocol of the Institutional Review Board (IRB) at CMU (IRB: 1031916–4). All procedures performed in the study under the ethical standards of the university research and ethics committee. Consent for participation was understood by the completion and submission of the survey.

### ***Consent to participate***

All participants were informed of the contents of the study in writing and informed written consent was obtained from them.

### ***Consent for publication***

The authors agree to be published in this journal and this article has not been published in any other journal.

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## Tables

**Table 1.** Sociodemographic characteristics (n=804)

Variables	N (%)
<b>Age (Mean±SD)</b>	23.87±7.56
<b>Gender</b>	
Male	167 (18.1)
Female	636 (68.8)
<b>Education</b>	
Undergraduate	549 (68.2)
Graduate	256(31.8)
<b>Work</b>	
Yes	520(68.8)
No	236(31.2)
<b>Income</b>	
\$1000 or less	721 (78.0)
More than \$1000	203 (22.0)
<b>Are you a religious person?</b>	
Yes	471(60.7)
No	305(39.3)
<b>Relationship status</b>	
Single	601(95.4)
No single	29(4.6)
<b>Total Score of sexual attitudes</b>	42.46(±3.66)

**Table 2.** Comparison of socio-demographic characteristics, sources of information, and risky sexual behavior between male and female students (n=802)

	Male N=166	Female N=636	P
<b>Age (Mean±SD)</b>	23.59±6.62	23.95±7.81	0.58
<b>Education</b>			
Undergraduate	110(20.1)	437(79.9)	0.55
Graduate	56(22.0)	199(78.0)	
<b>Work</b>			
Yes	109(21.0)	409(79.0)	0.63
No	46(19.5)	190(80.5)	
<b>Income</b>			
\$1000 or less	86(20.1)	342(79.9)	0.60
More than \$1000	47(21.9)	168(78.1)	
<b>Are you a religious person?</b>			
Yes	79(25.9)	226(74.1)	0.02
No	36(19.0)	153(81.0)	
<b>Relationship status</b>			
Single	126(21.0)	475(79.0)	0.17
No single	3(10.3)	26(89.7)	
<b>Do you ever go to bars/parties?</b>			
Yes	119(20.0)	476(80.0)	0.30
No	40(23.7)	129(76.3)	
<b>Do you ever go to movies?</b>			
Yes	140(19.7)	569(80.3)	0.01
No	20(39.2)	31(60.8)	
<b>Do you ever drink alcohol?</b>			
Yes	133(20.2)	527(79.8)	0.12
No	26(27.1)	70(72.9)	
<b>Do you ever smoke cigarettes?</b>			
Yes	33(34.4)	63(65.6)	0.01
No	125(18.8)	540(81.2)	
<b>Discussed sex-matters with family member</b>			
Yes	47(18.0)	214(82.0)	0.01
No	15(40.5)	22(59.5)	
<b>Total score of sexual attitude*</b>	42.59±3.87	42.42±3.61	0.70

\*Mann-Whitney U test

**Table 3.** Unadjusted and adjusted risk ratio of sexual risky behaviour and predictive values

	Unadjusted RR 95%CI	Adjusted RR 95%CI
<b>Gender</b>		
Male	0.17(-0.70, 1.04)	0.05(-1.55, 1.65)
Female	1	1
<b>Age (Mean±SD)</b>		
	-0.02(-0.08, 0.04)	0.06(-0.06, 0.19)
<b>Education</b>		
Undergraduate	0.12(-0.67, 0.92)	0.59(-1.15, 1.65)
Graduate	1	1
<b>Work</b>		
Yes	0.15(-0.61, 0.91)	-0.09(-1.72, 1.52)
No	1	1
<b>Income</b>		
\$1000 or less	-0.04(-0.89, 0.81)	-1.08(-2.81, 0.65)
More than \$1000	1	1
<b>Are you a religious person?</b>		
Yes	1.14(0.42, 1.86)	2.02(0.96, 3.41)
No	1	1
<b>Relationship status</b>		
No single	0.79(-1.31, 2.89)	0.82(-2.37, 4.02)
Single	1	1
<b>Do you ever go to bars/parties?</b>		
Yes	-1.07(-1.92, -0.23)	-0.67(-2.49, 1.16)
No	1	1
<b>Do you ever go to movies?</b>		
Yes	0.45(-1.04, 1.94)	-0.86(-4.24, 2.52)
No	1	1
<b>Do you ever drink alcohol?</b>		
Yes	-0.86(-1.88, 0.15)	-1.40(-3.81, 1.01)
No	1	1
<b>Do you ever smoke cigarettes?</b>		
Yes	-2.13(-3.19, -1.07)	0.04(-2.24, 2.31)
No	1	1
<b>Discussed sex-matters with family member</b>		
Yes	0.71(-1.04, 2.45)	0.84(-1.49, 3.17)
No	1	1