# Knowledge and Attitude of Couples about to get married toward Sexually Transmitted Diseases

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**Research article**

**Keywords:** Attitudes, Knowledge, Married Couples, Sexually Transmitted Diseases

**Posted Date:** November 23rd, 2020

**DOI:** https://doi.org/10.21203/rs.3.rs-107734/v1

# Abstract

**Background:** Sexually transmitted diseases (STDs) are among the most important health issues in the world. Negative attitudes and lack of knowledge are among the main reasons for the spread of these diseases. The aim of this study is to examine the knowledge and attitude of couples regarding STDs.

**Methods:** This cross sectional study was conducted from December 2017 to June 2018. Participants were 393 couples about to get married referring to pre-marriage counseling center in Qazvin, Iran. Data were collected using a researcher-made questionnaire including questions about knowledge and attitude about STDs and demographic characteristics. Data were analyzed using multivariable linear regression via stepwise method.

**Results:** The average age of participants was 25.77 ± 6.69 years and 52.7% were females. The knowledge and attitude mean (SD) scores about STDS were 5.86 (4.70) and 91.68 (9.88), respectively. Participants had the highest information about hepatitis and the lowest information regarding human papillomavirus and chlamydia. Age was the only significant independent predictor of knowledge toward STDs (β= 0.13, 95%CI:[0.11; 0.17]). Age (β= 0.13, 95%CI:[0.11; 0.17]), gender (Male vs. Female)(β= -0.14, 95%CI: [-4.85;-0.64]) and educational status (academic vs. diploma) (β=0.18, 95%CI:[ 1.28; 5.74]) were the significant independent predictors of attitude toward STDs. Moreover, knowledge was an important predictor of attitude (β= 0.41 in crude model and β=0.36 after adjusting for demographic variables).

**Conclusion:** The results of this study showed that young couples referring to pre-marriage counseling center have low knowledge and average attitude toward STDs. Therefore, it is recommended that proper workshops be conducted about STDs in order to increase the couples' knowledge (especially in the case of human papillomavirus and chlamydia)


# Background

Sexually transmitted diseases (STD) are among common social issues and the number of people suffering from these diseases is increasing year by year because of changes in sexual habits and the onset of human immunodeficiency virus (HIV) and acquired immunodeficiency syndrome (AIDS) disease (1). In fact, it is estimated that about 1 million people are exposed to new sexually transmitted infections each day, and a total of around 499 million people per year become infected to curable STDs (2).

As a matter of fact, the STDs are among the most common infectious diseases in the world and they are the cause of over 30 bacterial, viral and parasitic infections transmitted through sexual act between partners, the mother and the child during pregnancy and delivery, and through blood products and tissue transplantation. Common infections include gonorrhea, syphilis, trichomonas, genital herpes, hepatitis B and HIV (3). Chlamydia is one of the most commonly curable STDs which affect young people in western countries, while many of them are unaware of its dangers and outcomes (4).

Sexually transmitted infections may be benign or can be chronic and with long-term consequences including infertility, cervical cancer, pelvic inflammation or inflammatory diseases (5). Actually, several studies conducted in the teenage population indicate that adolescents are not well aware of STDs. While many teenagers are aware of HIV, there is little information about other STDs such as chlamydia and human Papillomavirus (6). In a study that assessed the knowledge of the school children of the city of Berlin between the ages of 18 up to 25 about STDs, only 50% of women and 25% of men knew about HPV (7). In another study in Saudi Arabia, conducted among young people, it was observed that the participants in the study did not have sufficient information on the types of sexually transmitted infections and how these diseases are transmitted, and the appropriate preventive approaches to mitigate or reduce the sexually transmitted infections (8). In Iran, due to the existence of ethical constraints, little research has been done on these diseases, and the results of a few conducted researches show lack of knowledge and proper attitudes about STDs in most individuals (9, 10). Therefore, the present study was conducted with the aim of assessing the knowledge and attitude associated with STDs in couples about to get married referring to pre-marriage counseling center, Qazvin, Iran.

## Methods

# Design

This cross sectional study was conducted from December 2017 to June 2018.

# Participants

Participants in this study were couples about to get married attending a pre-marriage counseling center in Qazvin, Iran. All couples are eligible if they attend the pre-marriage counseling center together. In addition, having minimum education to complete the questionnaire and informed consent was required. Exclusion criterion was patients' willingness to leave the study

# Sample Size Estimation

The number of participants in this study according to the percentage of people with poor awareness in the paper by Najari *et al.* (9) and accuracy 0.05 and with a confidence level of 0.95 was 393 people.

# Measure

Data collection was done using a researcher-made questionnaire according to previous studies (11 and 12). The questionnaire included questions in three sections: demographic information, knowledge, and attitude towards STDs. The demographic information section of the questionnaire contained questions about gender, age, education, occupation and family income.

Knowledge about STDs was assessed using 27 questions. Each question could be answered with three choices of "correct", "false" and "I do not know". Correct answers received 1 point and "false" and "I do not know" answers received 0 points. Hence, the minimum score of this questionnaire is "0" and the maximum score is "27". According to this questionnaire, the higher the score of individuals was, the more knowledgeable they were about STDs.

Attitudes about STDs were also evaluated using 27 items in three subscales of "belief toward STDs", "feeling toward STDs", "intention to act". Each item could be answered in five points Likert of 1 to 5 including "completely disagree", "disagree", "I have no idea", "I agree" and "I totally agree." The minimum score of the attitude toward the STD was 27 and the maximum score was 135.

The validity of the questionnaire was determined by content validity method through inquiring from ten experts. The reliability of the questionnaire was determined by determining the coefficient of internal correlation of Cronbach's alpha, which was 0.81. Higher scores in the attitude questionnaire indicate a more positive attitude. The questionnaire used in this study is provided as supplementary file.

# Ethical consideration:

The proposal of study was approved by institutional review board and the Ethics Committee affiliated to Qazvin University of Medical Sciences. Ethics decree of IR.QUMS.REC.1395.142 was received prior to data collection. After explaining the research goals and obtaining written consent from the couples, they were asked to complete the questionnaires.

# Data management and statistical analysis

Data were analyzed using SPSS version 24. Qualitative variables were reported using frequency and percentages, while continuous variables were reported using mean and standard deviation (SD). Association of demographic variables and knowledge and attitude toward STDs were examined using multivariable linear regression model via ENTER method. Assumptions of linear regression including normal distribution of variables, no outlier data, Durbin-Watson less than 2, no collinearity were assessed and verified.

## Results

# Demographic characteristics

The average age of participants was 25.77 ± 6.69 years. The majority of participants were female (52.7%), had a high school diploma (33.1%) and 29.3% were unemployed. The majority of respondents had adequate income (77.2%). Table 1 provides demographic characteristics of participants.

| Table 1. Distribution of demographic characteristics and acquired mean scores of knowledge and attitude toward STDs | | |
|---|---|---|
| | | No (%) |
| Gender | Female | 203 (52.7) |
| | Male | 190 (47.3) |
| Education | Under the diploma | 95 (23.8) |
| | Diploma | 95 (33.1) |
| | Academic | 180 (43.1) |
| Employment | Unemployed | 117 (29.3) |
| | Employed | 283 (70.2) |
| Income | Less than adequate | 22 (5.5) |
| | Adequate | 302 (77.2) |
| | Saving | 69 (17.3) |
| Age | Mean (SD) | 25.77 (6.69) |

# Knowledge and attitude toward STDs

Mean score of attitude towards STDs was 91.68 (9.88). Considering the acquirable score range of 27–135 in this study; the mean score of 91.68 showed that participants have moderate attitude toward STDs.

The mean score of knowledge about STDs was 5.86 (4.70). Considering the acquirable score range of 0–27 in this study; the mean score of 5.86 confirmed that participants do not have enough knowledge regarding STDs. Distribution of corrected answer regarding each STD disease showed that participants had the highest information about hepatitis and the lowest information regarding human papillomavirus and chlamydia.

| Table 2- Mean scores of knowledge and attitude toward STDs | | | |
|---|---|---|---|
| Attitude toward STDs | Belief (9–45 scores) | Mean (SD) | 32.16 (4.96) |
| | Practice (9–45 scores) | Mean (SD) | 30.48 (4.42) |
| | Feeling (9–45 scores) | Mean (SD) | 29.05 (3.64) |
| | Total (27–135) | Mean (SD) | 91.68 (9.88) |
| Knowledge toward STDs (0–27 scores) | | Mean (SD) | 5.86 (4.70) |
| Correct answer regarding each STDs | Hepatitis | % of correct answers | 36.96 |
| | AIDS | % of correct answers | 26.65 |
| | Gonorrhea | % of correct answers | 22.45 |
| | Genital herpes | % of correct answers | 19.94 |
| | human papillomavirus | % of correct answers | 12.72 |
| | chlamydia | % of correct answers | 12.27 |

# Association of knowledge toward STDs and demographic factors

Based on multivariable linear regression model, age was the only significant independent predictor of knowledge toward STDs (β = 0.13, 95%CI:[0.11; 0.17]). Demographic variables explained 3% of variance regarding participants' knowledge toward STDs. Table 3 provides the results of multivariable linear regression model.

Table 3
Results of multivariable linear regression model considering related demographic factors of knowledge toward STDs

| | | Unstandardized Coefficients | | Standardized Coefficients | Sig. | 95.0% Confidence Interval for B | |
|---|---|---|---|---|---|---|---|
| | | B | Std. Error | Beta | | Lower Bound | Upper Bound |
| Age | | .088 | .039 | .126 | **.026** | .011 | .165 |
| Gender (Male vs. Female) | | − .112 | .531 | − .012 | .833 | -1.155 | .931 |
| Job (Employed vs. Unemployed) | | − .003 | .583 | .000 | .996 | -1.149 | 1.144 |
| Perceived Economic status | Poor | .603 | 1.004 | .030 | .548 | -1.371 | 2.578 |
| | Good | .872 | .621 | .071 | .161 | − .350 | 2.094 |
| | Moderate | Reference Group | | | | | |
| Educational Status | Under the diploma | − .327 | .632 | − .030 | .605 | -1.570 | .915 |
| | Academic | 1.074 | .562 | .114 | .057 | − .030 | 2.178 |
| | Diploma | Reference Group | | | | | |
| Model Summary | | R = 0.22; Adjusted R Square = 0.03 | | | | | |

# Association of attitude toward STDs and demographic factors

Based on multivariable linear regression model, age (β = 0.13, 95%CI:[0.11; 0.17]), gender (Male vs. Female)(β= -0.14, 95%CI:[-4.85;-0.64]) and educational status (higher education vs. high school diploma) (β = 0.18, 95%CI:[ 1.28; 5.74]) were the significant independent predictors of attitude toward STDs. Therefore, participants with higher age, female and academic participants had a more positive attitude. Demographic variables explained 11% of variance regarding participants' attitude toward STDs. Table 4 provides the results of multivariable linear regression model.

Table 4
Results of multivariable linear regression model considering related demographic factors of attitudes toward STDs

| | | Unstandardized Coefficients | | Standardized Coefficients | Sig. | 95.0% Confidence Interval for B | |
|---|---|---|---|---|---|---|---|
| | | B | Std. Error | Beta | | Lower Bound | Upper Bound |
| Age | | .334 | .079 | .228 | **.000** | .178 | .490 |
| Gender (Male vs. Female) | | -2.744 | 1.072 | − .143 | **.011** | -4.852 | − .636 |
| Job (Employed vs. Unemployed) | | 1.629 | 1.178 | .075 | .167 | − .686 | 3.945 |
| Perceived Economic status | Poor | − .870 | 2.029 | − .021 | .668 | -4.859 | 3.119 |
| | Good | .106 | 1.255 | .004 | .933 | -2.362 | 2.574 |
| | Moderate | Reference Group | | | | | |
| Educational Status | Under the diploma | − .870 | 1.276 | − .038 | .496 | -3.379 | 1.639 |
| | Academic | 3.505 | 1.134 | .176 | **.002** | 1.275 | 5.735 |
| | Diploma | Reference Group | | | | | |
| Model Summary | | R = 0.35; Adjusted R Square = 0.11 | | | | | |

# Association of knowledge and attitude towards STDs

Having proper knowledge can lead to more positive attitudes. This assumption was tested using univariable and multivariable linear regression model considering attitude as a dependent variable and knowledge as an independent variable. The results were adjusted for demographic variables in multivariable model.

The results of the study (Table 5) showed that knowledge is an important predictor of attitude. In the univariable model, each score increase in knowledge increases 0.41 score of attitude. After adjusting for demographic characteristics, each score increase in knowledge increases 0.36 score of attitude. Knowledge toward STDs could explain 16 to 23% of variance regarding participants' attitude toward STDs in univariable and multivariable models, respectively. Hence, increasing knowledge can significantly improve attitude toward STDs.

Table 5
Results of univariable and multivariable linear regression model assessing the association of knowledge and attitude towards STDs

| Variable | Unstandardized Coefficients | | Standardized Coefficients | Sig. | 95.0% Confidence Interval for B | | Adjusted R square |
|---|---|---|---|---|---|---|---|
| | B | Std. Error | Beta | | Lower Bound | Upper Bound | |
| Knowledge | Attitudes toward STDs | | | | | | |
| Univariable model | .855 | .097 | .407 | .000 | .664 | 1.046 | 0.16 |
| Multivariable model adjusted for demographic characteristics | .746 | .096 | .355 | .000 | .558 | .934 | 0.23 |

# Discussion

The aim of this study was to investigate the knowledge and attitude of young couples towards STDs. As the results of this study showed, couples had very limited knowledge about STDs (the highest percentage of correct answers to a question in this study was 39.2% and corresponded to the availability of a vaccine which is used to prevent hepatitis B infection). The results of this study are consistent with those in most studies carried out among young people in different parts of the world (13, 14 and 15). Eski *et al.* showed that 888 first year students had poor knowledge about STDs (15). El-Tholoth found that 5040 young individuals did not have proper information about the various types of STDs, their transmitting methods and protection against them (8). Moreover, Turkish first and last year university students, despite the fact that the youths of Turkey were sexually active and had high-risk sexual behaviors, their awareness about the transmission methods, signs and symptoms and the groups at risk of sexual disease was inadequate (16). Previous Iranian studies also revealed the weakness of young people's knowledge about sexual STDs (9 and 10). Miri *et al.* found that 3.10% of students were not familiar with STDs at all, and 61.6% of them were familiar only to some extent. 83.8% of medical science students and 85.5% of private university students were not familiar with STDs (17).

On the other hand, in some studies, such as Reis and Zeeb's, the students had good knowledge of STDs (6, 18). In Iran, Ravandi *et al.*, reported that students have a good awareness of HIV (19). Consistently, we found that the couple had more knowledge about hepatitis and AIDS than other diseases. It seems that increasing the prevalence of HIV and hepatitis and increasing the awareness of these diseases by the Ministry of Health has somewhat contributed to improving general knowledge about them. However, knowledge about Chlamydia and human Papillomavirus was very poor in this study, and it is necessary to hold training courses on human papillomavirus and chlamydia. Other studies in European countries have also shown a poor knowledge of these two diseases (4, 6, 20). This lack of enough knowledge about STDs in different societies seems to be related to several factors, such as social, cultural, religious, and political factors (21). In this study, a significant relationship was found between age and knowledge

about STDS. Consistently, Kagan et al. showed that there is a significant relationship between age and knowledge about sexually transmitted diseases among Turkish couples. According to Kagan et al., Increasing people's experiences of sexually transmitted diseases at older ages leads to an increase in knowledge about these diseases (22).

The study of couples' attitudes towards STDs in this study showed us that the couples have a relatively good attitude towards such diseases, and in this respect, the results of this study were consistent with those of Zeeb, Reis and Ravandi's studies (6 and 18 and 19). However, some studies have shown the participants have poor attitude towards such diseases (13 and 19). In this study, there was a positive correlation between age, gender, and educational level with attitude towards STDs, which is consistent with other studies, showing that the age is an effective factor in the knowledge and attitude of individuals towards STDs (6 and 23). It seems that acquiring more experience through higher age and having a higher education level in older people leads to improved knowledge and attitudes towards STDs. In this study, the higher education level was an important factor affecting the knowledge and attitude of individuals. In many studies, such a relationship between the level of education of individuals with knowledge and attitudes has also been observed (10, 23), but about the relationship between sex and attitudes towards STDS, similar to this study, in many studies, sex has been introduced as a major impactful factor in knowledge and attitudes towards STDs (6, 18, and 23). Moreover, many studies show the higher levels of knowledge and attitudes towards STDs among women than men (6, 18, and 23). However, in the study of Rahmati, the knowledge and attitudes towards STDs in men was higher (9) although in the study of Ravandi *et al.*, there was no difference between genders about knowledge and attitude towards HIV (19).

The income level was another factor that was investigated in this study, and there was no difference among people with different levels of incomes about knowledge and attitude towards STDs. However, some studies have examined the role of socioeconomic status in STDs, and the results of these studies have demonstrated poor knowledge and attitude and higher prevalence of STDs at lower socio-economic levels (13, 24 and 25).

In the present study, there was a positive correlation between knowledge about STDs and attitudes towards these diseases in a such way that those who had the higher knowledge had a better attitude towards methods of transmitting and preventing STDs. This finding was consistent with the study of Ostovar *et al.* (10). Ravandi *et al.* also have reported that improvement in the knowledge about STDs leads to a better attitude towards these diseases (19), but among different factors of attitude (belief, feeling, and practice), in this study, the highest score belonged to feeling in the sense that this result suggests in order to persuade people to follow activities to prevent the transmission of these diseases, it is required to strengthen their attitudes about such diseases.

# Study Limitation

The limitations of this study can be data collection using a questionnaire, and information self-reported by individuals, moreover, the use of a researcher-made questionnaire and the cross-sectional nature of the study.

# Conclusion

The study found that young couples referring to marriage counseling have low knowledge of STDs (especially about the human papillomavirus and chlamydia), and it is essential to strengthen their knowledge and attitudes in order to follow the methods of preventing the transmission of these diseases. Thus, as having good knowledge leads to improved attitudes, and improvement in attitudes results in the prevention of inappropriate behavior, it is recommended that proper workshops be conducted on STDs before marriage for young couples.

# Abbreviations

STD
Sexually Transmitted Diseases

# Declarations

### Ethics approval and consent to participate:

Sampling was started after securing a medical ethics license under IR.QUMS.REC.1395.142 (Ethics Committee of Qazvin University of Medical Sciences) and an informed letter of consent from the participants. In addition, all the items in the Declaration of Helsinki were observed. Written consent was obtained from participants to participate in the study.

### Consent for publication:

There is no information in this study that dangers the anonymity of the participants. Also, all patients have completed a written consent to participate in the research.

### Availability of data and materials

The datasets used and/or analysed during the current study are available from the corresponding author on reasonable request. The questionnaire is provided as supplementary file.

### Competing interests

The authors have no conflict of interests.

### Funding:

Qazvin University of Medical Science: Research support and assistance in coordinating research units. But not financial investment.

### Authors' contributions:

**M.T**: Conceptualization, Methodology**,** Reviewing **ZA**: Supervision and Editing Software, Validation, , **AR**: Data curation, **AK**; Data curation, **H S**:, Writing- Original draft, Preparation-Visualization, Investigation

All study authors have read the final version and confirmed its validity.

### Acknowledgement

The authors wish to express their gratitude towards the Research Dept., Ghazvin University of Medical Sciences, the Staff of shahid bolandian consuling center , and the participating.

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## Supplementary Files

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- TheSexuallyTransmittedDiseaseKnowledgeQuestionnaire.doc
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