

KNOWLEDGE AND AWARENESS OF SEXUALLY TRANSMITTED DISEASES AMONG MALE UNIVERSITY STUDENTS IN TAIF, SAUDI ARABIA

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ABSTRACT

Background: Young adolescents constitute an equally large amount of those infected with sexually transmitted diseases (STDs). In Saudi society, discussing STDs is considered taboo where ethics and social factors give rise to many obstacles.

Aims & Objective: The objectives of this study were to assess knowledge and awareness of university male students regarding sexually transmitted diseases, to provide valid data and basis for the development of interventional educational programs in the future.

Materials and Methods: A cross-sectional survey was conducted included regular Saudi male students in Taif University, male department during the year 2012. College of Science was randomly selected as a non-medical college. A random sample of 400 eligible male students was invited to participate in the study, representing all educational years. A stratified random sampling method with proportional allocation was applied to distribute the sample throughout the 4 years. A pre-designed Arabic self-administered questionnaire was utilized. It consists of two sections. The first section includes information about socio-demographic characteristics of the students. The second section is to explore their knowledge and awareness regarding STDs including modes of transmission and curability, types, ways of prevention, their source of information and finally whether it is reasonable to be taught in schools.

Results: The study included 400 University students with a response rate of 100%. Their age ranged between 18 and 30 years with a mean of 21.30 ± 1.69 years. Among those who have knowledge about STDs, 35% had their knowledge from the friends while 29.9% and 27.7% had their knowledge from internet and television respectively. Less than half of them (47%) knew that condom could not protect 100% from STDs while slightly more than half of them (54.3%) knew that oral contraceptive use doesn't decrease the risk of STDs among women. Only 38% knew that there is no available vaccination against STDs. Slightly more than one-third of the participants (36.8%) knew that STDs infected mother could transmit a sexual disease to her newborn during labor. the great majority of students (98.5%) are aware of HIV/AIDS as a STD while only 37.3% were aware that Chlamydia is a STD. Married status, high level of paternal education and having information from friends or internet were associated with better STDs knowledge.

Conclusion: STDs knowledge was inadequate among non-medical university students in Taif, KSA. School education, peer groups, internet and mass media remain the main ways by which students learn about STDs. Thus primary prevention of STDs needs to be given high priority. Education program about types, modes of transmission, ways of prevention and religious role of STDs should be given early on in secondary schools to encourage premarital screenings and hence help reduce the risk of the possible expansion of infection in the kingdom.

Key Words: Sexually Transmitted Diseases; Knowledge; University; Students; Saudi Arabia

Introduction

The stage of life during which individuals reach sexual maturity is known as adolescence. It is the period of transition from childhood to adulthood. Although the change is biological, the duration and nature of adolescence are primarily a social construct and thus vary greatly from culture to culture. World Health Organization (WHO) identifies the age range 10-19 years as the period of adolescence, while the term "youth" denotes the age group 15-24.^[1] Young adolescents constitute an equally large amount of those infected with sexually transmitted diseases (STDs). Although pre-marital sex among unmarried people is condemned, the gap between expected and actual behaviour is enormous.^[2] Despite the commonality of STDs, they are one of the most under recognized health problems worldwide. Many people with STDs are asymptomatic and remain undiagnosed. In addition, those who are diagnosed, are frequently not

reported and counted. Furthermore, most of the published data on the prevalence and incidence of STDs come from developed countries.

In Saudi society, discussing STDs is considered taboo where ethics and social factors give rise to many obstacles. This article is design to explore the conception and knowledge about protection against STDs within the adolescent community. Living in a conservative society, denial is always the rule when questioned about STDs; but does that help in treating the ever-expanding problem?^[2] Concerns about privacy and confidentiality are important barriers to seeking medical care among adolescents with possible STDs.^[3] Despite the fact that a certain percentage acquires the disease from relations with sexually affected persons through marriage, currently in pre-marital screening not all tests for STDs is required. In Islamic countries, disapproval of homosexuality and non-marital sex and the assumption of a low prevalence of STDs are

responsible for the limited information available in the literature.^[2]

This study aimed to assess knowledge and awareness of Taif university male students, Saudi Arabia regarding sexually transmitted diseases.

Materials and Methods

A cross-sectional study of knowledge and awareness regarding STDs was conducted among regularly attending male students, Taif University (2012). Taif City is located at the West of Saudi Arabia. It is located in the Makkah Province of Saudi Arabia at an elevation of 1700 meters on the slopes of the Al-Sarawat Mountains. It has a population of 1011316 (2010 census). Taif University (male section) consists of ten colleges, which are divided into 3 medical and 7 non-medical colleges. Each college includes many branches.

Assuming medical students have better knowledge of STDs due their study compared to other non-medical students, so this study was conducted among non-medical students. Using (EpiINFO statistical package), with an expected knowledge to STDs of about 50% and 5% acceptable error, then the minimum required sample size is 383 students at 95% confidence interval. In order to account for non-response and achieve reliable and precise result the investigator increased the sample size to 400.

One of the non-medical colleges (n=7) was selected by simple random sampling technique. A random sample of 400 eligible male students was invited to participate in the study, representing all educational years. A stratified random sampling method with proportional allocation was applied to distribute the sample throughout the 4 years.

A pre-designed Arabic self-administered questionnaire was utilized. It consists of two sections. The first section includes information about socio-demographic characteristics of the students. The second section is to explore their knowledge and awareness regarding STDs including modes of transmission and curability, types, ways of prevention, their source of information and finally whether it is reasonable to be taught in schools.

Face validity was ascertained by three consultants of different specialties (family medicine, community medicine and infection control) who are experts and having interest regarding the subject and some modifications were done. A pilot study was implemented on 20 male university students from the selected college. The pilot study helped to test the understanding of the

students of the questionnaires and modify it accordingly, to select the relevant variables suitable for the statistical methods to be used, to determine the time needed to answer questionnaire (15 minutes) and giving an actual situation of the main study.

The study proposal has been approved by the Regional Research and Ethics Team of Armed Forces Hospitals, Taif region as well as a written consent was obtained from Taif University Administration before start the study and the aim of the study was explained to them. Verbal consents were obtained from each participant to voluntary participate in the study and data were treated confidentially and used only for the purpose of research.

Statistical Analysis

The data were verified by hand then coded and entered to a personal computer. SPSS software statistical program version 18 was utilized for data entry and analysis. Continuous variables were presented as arithmetic mean and standard deviation while categorical variables were presented as frequencies and percentages. Students' knowledge score regarding STDs was calculated as follow; the participated students were asked to answer questions about the etiology, mode of transmission, common symptoms, STDs, carrier status and preventive measures of STDs. Right answer is giving the highest score. The overall score was calculated in the way that the higher the score, the higher the knowledge regarding STDs (the score ranged between 0-23). Bivariate analysis of mean of STDs knowledge score with regard to independent variables was done by Student' t-test for comparison of two groups and one-way analysis of variance (ANOVA) statistical tests for comparison of more than two groups. Least significance difference test (LSD) test was used for post hoc comparisons of ANOVA. Significance was determined at p value < 0.05.

Results

The study included 400 University students with a response rate of 100%. Table 1 presents the socio-demographic characteristics of the participants. Their age ranged between 18 and 30 years with a mean of 21.30 ± 1.69 years. They are almost equally distributed between the four grades of faculty of Science. The majority of them are singles (94%). Thirty-seven students' fathers (9.3%) are illiterate while sixty-three (15.7%) have at least university level of education. Sixty-seven (16.7%) of students' mothers are illiterate and twenty-six (6.5%) have at least university level of education.

Table-1: Sociodemographic characteristics of the participants (n=400)

Characteristics	No.	%	
Age (years)	≤20	151	37.8
	21-23	211	52.7
	>23	38	9.5
	Range	18-30	
	Mean ± SD	21.30 ± 1.69	
Educational Grade	1 st	89	22.3
	2 nd	108	27.0
	3 rd	108	27.0
	4 th	95	23.7
	Marital Status	Single	378
Marital Status	Married	24	6.0
	Illiterate	37	9.3
Father's Education	Primary	57	14.3
	Intermediate	101	25.3
	Secondary	142	35.4
	University and above	63	15.7
	Illiterate	67	16.7
Mother's Education	Primary	149	37.3
	Intermediate	60	15.0
	Secondary	98	24.5
	University and above	26	6.5

Table-2: Student's knowledge regarding different aspects of STDs (n=400)

Questions	Right Answers	
	N	%
Preventive Measures		
Do you know how to protect yourself from STDs?	160	40.0
Is condom could protect from STDs 100%?	188	47.0
Is using of Oral contraceptives could decrease the risk of STDs among women?	217	54.3
Is there vaccination for STDs protection?	152	38.0
Etiology and Mode of Transmission		
Do you agree that STDs prevail due to ignorance of their mode of transmission?	304	76.0
Is there a common microorganism for all STDs?	195	48.8
Are STDs could be transmitted from only one sexual contact?	219	54.8
Are STDs could be transmitted through ways other than sexual contact?	248	62.0
Is STDs infected mother could transmit a sexual disease to her newborn during labour?	147	36.8
Is STDs infected father could transmit a sexual disease to his newborn if mother is not infected?	180	45.0
Causative Agents		
HIV/AIDS	394	98.5
Genital herpes	343	85.8
Malaria	138	34.5
Gonorrhoea	259	64.8
Syphilis	253	63.3
Dengue fever	214	53.5
Chlamydia	149	37.3
Genital warts	247	61.8
Hepatitis B	242	60.5
Hepatitis C	104	25.0
Bilharsiasis	151	37.8

More than half of the participants (227; 56.8%), responded that they have no enough information regarding STDs while almost one-third of them (137; 34.3%) responded that they have enough knowledge regarding STDs. Among those who have knowledge about STDS, 35% had their knowledge from the friends while 29.9% and 27.7% had their knowledge from internet and television respectively as shown in figure 1.

Table 3: Factors associated with knowledge score of the students about STDs (0-23), n=137

Variables	Mean	SD	P-value	
Age (years)	≤20 (n=151)	12.32	2.6	0.827*
	21-23 (n=211)	12.47	2.7	
	>23 (n=38)	12.26	2.78	
Educational Grade	1 st (n=89)	12.26	2.61	0.750*
	2 nd (n=108)	12.55	2.82	
	3 rd (n=108)	12.23	2.73	
	4 th (n=95)	12.53	2.48	
Marital Status	Single (n=376)	12.28	2.63	0.001**
	Married (n=24)	14.13	2.72	
Father's Education	Illiterate (n=37)	11.57	2.53	<0.001*
	Primary (n=57)	12.04	2.41	
	Intermediate (n=101)	12.29	2.45	
	Secondary (n=142)	12.15	2.81	
	University + (n=63)	13.9	2.49	
Mother's Education	Illiterate (n=67)	11.58	2.38	<0.001
	Primary (n=149)	12.02	2.52	
	Intermediate (n=60)	12.38	2.18	
	Secondary (n=98)	12.86	2.89	
	University + (n=26)	14.88	2.72	
Source of Information	TV (n=31)	12.1	2.23	0.002
	Book (n=19)	11.89	2.51	
	Friends (n=44)	12.64	2.74	
	Internet (n=36)	14.31	2.68	
	> two sources (n=7)	11.86	1.77	

* ANOVA test; ** Student's t-test

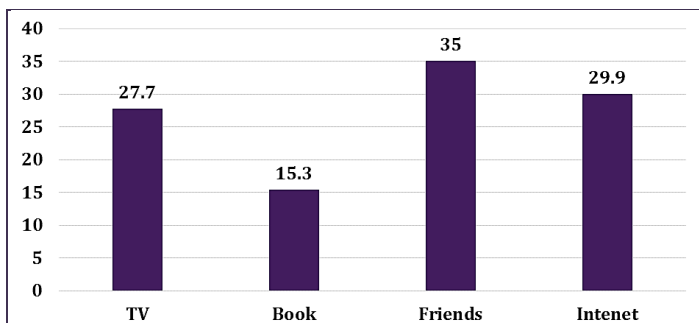


Figure-1: Source of knowledge about STDs among Taif university students (n=137)

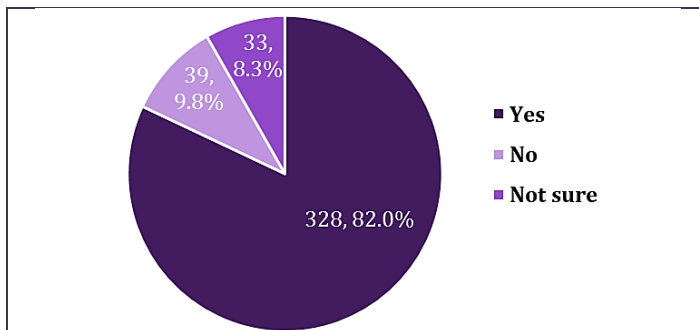


Figure-2: Response of students to a question of "If you get STD symptoms, do you think you should consult your physician immediately?"

Knowledge of STDs

Table 2 shows that 40% of the students responded that they know how to protect themselves from STDs. Less than half of them (47%) knew that condom could not protect 100% from STDs while slightly more than half of them (54.3%) knew that oral contraceptive use doesn't decrease the risk of STDs among women. Only 38% knew that there

is no available vaccination against STDs.

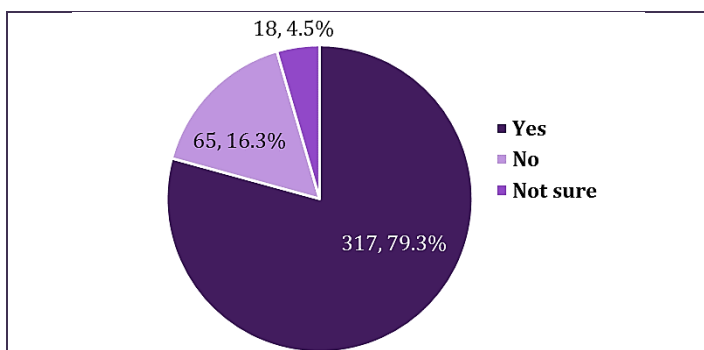


Figure-3: Response of students to a question of "Would you want to know if you have any kind of STD?"

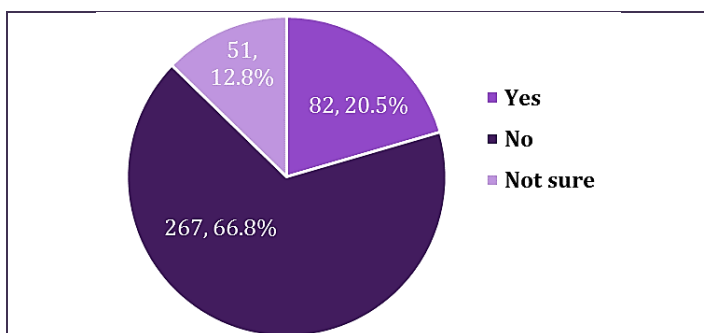


Figure-4: Response of students to a question of "Do you think that all STDs are curable?"

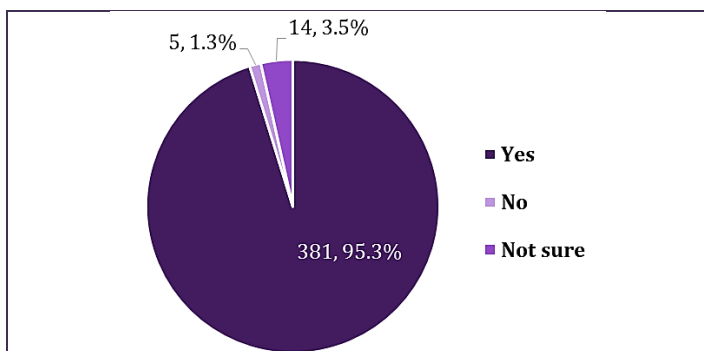


Figure-5: Response of students to a question of "Do you think that education about STDs should be taught in school?"

Most of the participants (76%) agreed that STDs prevail due to ignorance of their mode of transmission. Almost half of the students (48.8%) believed that there is a common organism for all STDs. Slightly more than half of the participants (54.8%) knew that STDs could be transmitted from only one sexual contact. Approximately two-thirds of students (62%) recognized that STDs could be transmitted through ways other than sexual contact. Slightly more than one-third of the participants (36.8%) knew that STDs infected mother could transmit a sexual disease to her newborn during labor while 45% of them knew that STDs infected father could not transmit a sexual disease to his newborn if mother is not infected.

The great majority of students (98.5%) are aware of HIV/AIDS as a STD while only 37.3% were aware that

Chlamydia is a STD. Most of students (85.8%) knew that genital herpes is a STD. Almost two-thirds of the participants recognized that Gonorrhoea and Syphilis are STDs (64.8% and 63.3% respectively). Exactly one-quarter of the students (25%) knew that hepatitis C is not a STDs while approximately one-third of them know that malaria (34.5%) and Bilharziasis (37.8%) are not STDs while slightly more than half of them knew that Dengue fever is not a STDs (53.5%). Hepatitis B and Genital warts were recognized as STDs by 60.5% and 61.8% of students respectively.

Table 3 shows that the total STDs knowledge score is significantly higher among married students compared to singles (14.13±2.72 versus 12.28±2.63), P=0.001. It is also obvious that the highest STDs knowledge score is reported among students whose fathers are at least university educated while students whose fathers are illiterate have reported the lowest STDs score. These differences in STDs knowledge score between university or above educated fathers and all other categories is statistically significant, p<0.001 and the highest STDs knowledge score is reported among students whose mothers are at least university educated while students whose mothers are illiterate have reported the lowest STDs score. These differences in STDs knowledge score between university or above educated mothers and all other categories is statistically significant, p<0.001. Regarding source of information, the highest STDs knowledge score is reported among students who reported internet as the source of their information while the lowest STDs knowledge score is reported among students who depend on books or more than one source for their STDs information. Friends, as a source of information about STDs leads to higher STDs knowledge score than TV and books. These differences in STDs knowledge score are statistically significant, p=0.002. Knowledge about STDs was not significantly associated with student's age or educational grade.

Attitude and Concern towards STDs

Figures 2 and 3 show that the majority of students (328; 82%) have positive attitude towards consulting physicians if they got STDs symptoms and desire to know if they have any of STDs (317; 79.3%) respectively. As illustrated in figure 4, almost two-thirds of the students believed that all STDs are not curable and 12.8% are not sure about that. Figure 5 shows that the majority of the students have positive attitude towards teaching of STDs at schools.

Discussion

The study included 400 students with a response rate of

100%. This high response rate can probably be ascribed to the researcher himself in personal contact with the college dean as well as to the explanation of the purpose of the study, scientific importance and value of the study to students. According to Rosnow and Rosenthal (1999).^[4] these techniques (e.g. personal contact, using reminders and explaining the scientific importance and value of the study, ensuring the participants confidentiality) are linked to increase participation in surveys. Data on STDs in SA and other Islamic countries are very limited.^[5] Detailed information on the epidemiology of HIV infection in SA has recently been published.^[6] However, data on other STIs in SA have not been published.^[7]

In Saudi Arabia, Young people are at particular risk because they are at their peak of sexual activity and they travel abroad extensively. The older generation, being more religious and relatively free from Western influence, is less likely to contract STD.^[8] To date, prevention and control of STDs, especially among the youth, is a low priority for most countries. Lack of awareness of the problem of STDs and their complications, competition for resources to control other important health problems and the reluctance of public health policy makers to deal with diseases associated with sexual behaviour have all played a role in this neglect.^[3,5,9] Similarly, most programmers for the prevention of STDs have, until recent past, focused on the prevention of complications (secondary prevention).^[6]

The prevention of transmission of infection (primary prevention) is at present receiving increased attention because of the global epidemic of HIV/AIDS and the identification of several STDs as risk factors for the spread of HIV.^[10-14] In this study, the focus was on university students knowledge about STDs. The majority of the participants were familiar with HIV and genital herpes. A considerable proportion was not aware of syphilis, genital warts, hepatitis B and gonorrhoea as STDs. Moreover, knowledge about Chlamydia was poor as being an STD. Findings similar to our findings have been reported by other researchers.^[2,15,16]

Although it is well known that South Africa is the most severely affected country with STDs, this does not change the fact that other communities are not immune, not even the most conservative ones. Saudi Arabia is considered one such conservative country. This study showed that the level of awareness regarding STD protection is quite deficient among adolescents. Some believe that promoting condom use may result in risk compensation thus facilitating the onset or frequency of high-risk sexual activity.^[17] Clinical studies of the effectiveness of condoms

against most STDs suggest inconsistent levels of protection (50-90%).^[18-21] In this study, 53% of students thought that condoms could protect them 100% from STDs.

Almost 16% of the students didn't want to know if they had an STD even though this goes against basic Islamic beliefs which state that a person's body is not entitled to him but to the Creator. This prevented them from seeking treatment and avoiding complications for themselves and their partners even though some of these diseases are curable. Consciously endangering one's body is strictly forbidden since most of these STDs are considered a life-threatening condition. During this study, we faced hesitation from the administrations of universities concerning the distribution of the questionnaires. Many thought it would be inappropriate to discuss such issues with unmarried individuals. That not only reflected the ignorance of our society but the magnitude of the problem facing the Kingdom today. Fear of knowing about diseases breaks down the fundamental basics of screening and prevention.

Almost 82% of the participants claimed they would ask medical advice immediately if they got symptoms of STDs, which reflected the fear from this behaviour, which in turn demarcates the necessity of awareness and prevention rather than dealing with the problem. Such information could be better perceived and awareness could be spread via peer to peer education, internet and media since they are primary source of information among the designated age group nowadays as evidenced from our findings.

In the current study, STDs knowledge was better among students obtained their information from friends rather than books or TV. This finding reflects the importance of peer to peer education in increase awareness of young population about preventive measures of STDs. Peer education has been used in many areas of public health, including nutrition education, family planning, substance use and violence prevention. Use of peer education in the realm of HIV/AIDS stands out because of the number of examples of its use in the recent international public health literature. Because of this popularity, global efforts to further understand and improve the process and impact of peer education in the area of HIV/AIDS prevention, care and support have also increased. Peer education may affect change at the group or societal level, by modifying norms and stimulating. Collective action that leads to changes in program and policies.^[22]

Educational activities at schools should be increased in order to better inform the students of these problems as it

is very important to offer young people better and more correct information about STDs and HIV/AIDS.^[23-26] In the present study, more than 95% of participants thought that STD knowledge should be taught in schools. People were found to be more informed about HIV/AIDs than the other STDs due to media coverage and publicity.^[27]

Some of the STDs preventive strategies that are advocated and used in non-Islamic countries are not acceptable in Islamic countries. For instance, the concept of "Safe Sex" to prevent STDs in non-Islamic countries basically promotes the use of condoms for non-marital sexual relations, considered in Islamic countries a way of promoting non-marital sex which is absolutely prohibited in Islam. The concept of safe sex in Islam implies monogamous sexual relationship through legal marriage. Similarly, needle exchange programs advocated in non-Islamic countries as a means to prevent HIV and other blood-borne infections, is viewed by Islam as a way of encouraging people engaged in intravenous drug use to continue this prohibited practice. Such programs, therefore, cannot be accepted by Muslim communities.^[5]

Strategies to prevent STDs in Islamic countries have to abide by the Islamic rules and values and should include strengthening of Islamic and health education, encouraging people to follow and implement the Islamic rules and values that prohibit adultery and homosexuality, and to practice safe sex only through legal marriage. Helping the youth to get married and reducing the cost of marriage are also strongly recommended in Islam and should be the responsibility of both governmental and non-governmental charitable organizations and the population at large. There are several charitable programs in KSA successfully helping thousands of young men and women to get married with the cost entirely covered by donations.^[5]

Other aspects in Islam to prevent non-marital sex include allowing men to be married to up to four women and permitting adolescents to get married with no age limit for marriage. Additionally, Islam obliges women to cover themselves with veils (Hijabs) and to be segregated from men in educational institutes and other gathering places to prevent provocation of men. Islam also fights poverty, a driving force for commercial sex and prostitution, through a well-established system of obligatory charity, known as "Zakat", and voluntary charity, known as "Sadaqa", taken from the rich people and given to the poor and needy. Additionally, Islam obliges the rulers to eliminate all means and factors that are conducive to indulging in non-marital sex and intravenous drug use such as sex trade and

prostitution and to implement the Islamic penalties on those involved in such illegal acts.

The penalties for those who commit adultery (non marital sex between a woman and a man) range from just whipping (for those who are not married) to execution (for those who are married). However, these penalties can only be implemented if the act of illegal sexual intercourse was witnessed by four people, which is practically almost impossible. The penalty for adults involved in homosexuality is execution of both partners regardless of whether they are married to women. Again, the actual act of anal intercourse has to be witnessed by four people for the adult partners to be sentenced to death. Such penalties, albeit rarely implemented because of the conditions that need to be fulfilled, are scary enough to make most people with weak faith to stay away from adultery and homosexuality. The penalties for drug abuse involve whipping and incarceration and do not reach to execution.^[5]

In KSA, detoxification and treatment are also always offered to drug addicts in special detoxification centers. The penalties for those involved in drug smuggling are vast but in KSA, it may reach up to execution.^[5] Other strategies to prevent STIs in KSA include health education, early diagnosis and treatment, contact tracing, and routine screening of blood and organ donors, pregnant women, newborns of infected mothers, prisoners, intravenous drug users, patients with other sexually transmitted infections, and expatriates pre-employment for HIV, syphilis, and viral hepatitis B and C. Partners of patients with STIs are informed and counselled on the appropriate preventive measures and the required tests and, when necessary, treatment.^[5]

The impact of adhering to Islamic values on the prevalence of STDs was demonstrated by several studies. According to the United Nations and the World Health Organization data on HIV prevalence in different countries, the prevalence of HIV infection in Islamic countries is strikingly low compared to other countries.^[28,29] A recent study showed that among 38 sub-Saharan African countries, the percentage of Muslims within countries negatively predicted HIV prevalence.^[30] A survey of published journal articles containing data on HIV prevalence and religious affiliation showed that six of seven such studies indicated a negative relationship between HIV prevalence and being Muslim.^[30] It should be noted, however, that the preventive strategies in some Islamic countries do not necessarily abide by the Islamic doctrine and that knowledge, attitude, and practice of Muslims in various

Islamic societies do not necessarily conform to Islamic norms.

Conclusion

STDs knowledge was inadequate among non-medical university students in Taif, KSA. School education, peer groups, internet and mass media remain the main ways by which students learn about STDs. Thus primary prevention of STDs needs to be given high priority. Education program about types, modes of transmission, ways of prevention and religious role of STDs should be given early on in secondary schools to encourage premarital screenings and hence help reduce the risk of the possible expansion of infection in the kingdom.

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