

Awareness of sexually transmitted diseases among young adults of Karachi; a cross-sectional study

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Abstract

Objective: To evaluate the young adults' awareness of sexually transmitted diseases, complications, prevention and management.

Methods: The descriptive, cross-sectional study was conducted from September 4, 2017, to September 4, 2018, in Karachi, and comprised residents of the city aged 18-35 years of either gender. Data was collected from January 1 to March 31, 2018, using an online questionnaire. Data was analysed using SPSS 21.

Results: Of the 413 subjects, 245(59.3%) were females. The overall mean age was 24.7 ± 4.76 years, and the mean household income was $\text{Rs}2,18,294 \pm 205,434$. Of the total, 342(83%) had not heard the term 'sexually transmitted diseases'. Knowledge regarding transmission and complications of common sexually transmitted diseases was also low 293(56.4%). Leading source of sexual health knowledge was media 182(44%). Awareness levels differed significantly by age, educational level, field of study, occupation and educational level of the parents ($p < 0.05$).

Conclusion: There was deficiency in terms of knowledge and awareness regarding sexually transmitted diseases.

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Introduction

Sexually transmitted diseases (STDs) are a major public health concern of the 21st century, affecting more than one million population globally.¹ Although, sexually transmitted infections (STIs) have a high incidence rate and they also promote the risk of transmission of human immunodeficiency virus (HIV), less attention has been devoted to the control of STIs to reduce the risk of HIV transmission.² These STDs differ in their course and prognosis, as most STIs remain asymptomatic and do not progress while few of these infections result in life-long complications ranging from pelvic inflammatory disease (PID), infertility and carcinomas of the reproductive tract to oral cancers.³ Regarding sexual and reproductive complications, STDs impose an additional risk of cancer, sterility, disability adjusted life years (DALYs) and mortality.⁴ In addition, these diseases also wreak socioeconomic and psychological strains on economies and societies. Globally, 12 million people are reported to be affected by STDs annually. Curable STDs alone accounted for 357 million new cases of infections in 2012.⁵ The incidence of STDs is much higher than it is believed.⁶ In a study conducted, the prevalence of STDs was found to be 4.4% in Pakistani males. The incidence of sexually-acquired infections (SAIs) was as high as 60% and

36% among eunuchs and commercial sex workers respectively.⁶ Likewise, the prevalence rates of STIs in males residing in urban areas were 8.5% in Karachi, 5.3% in Lahore, 4% in Faisalabad, 4.3% in Quetta, 2.5% in Rawalpindi and 2% in Peshawar.^{7,8} Also indicated by the Pakistan Demographic and Health Survey (PDHS) 2012-13,⁹ a negligible proportion of the population comprising about 2% females and 0.4% males reported having contacted an STI in the preceding 12 months, while PDHS 2017-18 reported the knowledge of HIV as an STI only, where the knowledge levels were 23% and 67% among females and males respectively.¹⁰ Despite high prevalence STI rates in the community, knowledge and awareness levels of the population have remained inadequate over the years.^{8,11} On the global level, the Sustainable Development Goals (SDGs) emphasise the need for dissemination of comprehensive sexual and reproductive health services to render strategies aimed at controlling and effectively preventing the prevalence of STDs.¹² Without deviation, the prevention and control of STDs have the potential to influence and improve the other SDGs, including reduction in child and neonatal mortality (SDG 3.2), the end of acquired immunodeficiency syndrome (AIDS) and other communicable diseases epidemics (SDG 3.3), improvement of sexual and reproductive health (SDG 3.7) and the achievement of universal health coverage (SDG 3.8).¹³ Globally, the knowledge level of young adults regarding STDs has been investigated, but in Pakistan, limited investigations have been conducted in this regard.¹⁴ Limited data about the

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prevalence of STDs in Pakistan is available in the latest report of the World Health Organisation (WHO) on global STI surveillance and the PDHS 2012-13 covered only self-reported symptoms of common STDs.^{8,14} Moreover, societal and religious constraints in Pakistan add to the situation by restraining the youth from seeking verified sexual and reproductive health knowledge. Little attention has been given to the social, behavioural, professional development and health of the youth in Pakistan due to which risky sexual behaviours are not uncommon in the youth. These risky behaviours are bolstered by inadequate sexual and reproductive health knowledge in Pakistan. Even today, comprehensive sexual education is a disputed subject and talking about sexual and reproductive health with adolescents and young adults is considered a taboo in many countries.¹⁵ In this part of the world, sexual education is still a contentious subject; sexual and reproductive health education has not been included in the national curriculum, which is why majority of young population has inadequate knowledge about STDs and protection against these infections and diseases.

The current study was planned to analyse the present level of awareness of the young adults in an urban setting towards STD, specifically with regard to their transmission, complications, management and prevention.

Subjects and Methods

The descriptive, cross-sectional study was conducted from September 4, 2017, to September 4, 2018, in Karachi, and comprised residents of the city aged 18-35 years of either gender. Data was collected from January 1 to March 31, 2018. After approval from the ethics review committee of the Shaheed Zulfiqar Ali Bhutto Institute of Science and Technology (SZABIST), Karachi, the sample size was calculated while taking STD prevalence as 59.6%³ among young adults of Pakistan. Since the young adults constitute approximately 60% of the country's total population, the estimated number of young adults in Karachi came to around 8.818 million. Using 80% power of study, 95% confidence interval (CI) and 5% margin of error, the required sample size was 389.

The sample was raised using non-probability purposive sampling. Since the nature of the research was culturally sensitive, a conventional survey design was not applicable; therefore, a web-based survey was carried out to enrol subjects using internet forums of different universities, schools and college pages on social networking websites by sharing the link of the survey document on the forums. Also, a chain-referral approach

was adopted by sending links of the survey through email to potential respondents and requesting them to further share the questionnaire link with their peers. In addition, recruitment from SZABIST was carried out by sending links of the survey questionnaire to programme managers of all faculties. Moreover, two academic personnel (Assistant Professors) from one private and another public university were contacted, who then shared the survey questionnaire link with their students through their official university accounts. An informed consent was included in the email, and the survey form was forwarded only upon receiving the consent form. Those who did not send the consent form were automatically excluded. The data-collection tool was a structured questionnaire prepared using some parts of the 27-item Sexually Transmitted Disease Knowledge Questionnaire (STDKQ).¹⁶ The questionnaire had a demographics section, and another about STD awareness with four sub-sections covering questions pertinent with familiarity, transmission, complications, management and prevention of STDs.

The questionnaire was pretested with an exploratory questionnaire amongst 15 respondents to assess its reliability. Improvements were made on the basis of the pre-test results. To measure the internal consistency of the instrument, Cronbach's alpha was calculated which produced a value of 0.78.

To reduce response bias, the language of the instrument was appropriately crafted so that even a lay-person having no biological/medical knowledge would be able to comprehend the questions. To reduce sampling bias, all university, college and high-school forums with population aged 18-35 was present were contacted to ensure that every group of population had equal chance of receiving the study invitation. Also, forums on social media like WhatsApp, Instagram, Facebook and Twitter were used and Email messages were sent with the survey link. Data was primarily collected through web-based Google Documents and was transported to Microsoft Excel for data-cleaning, and was analysed using SPSS 21. Data was described in terms of means and standard deviations (SDs) for continuous variables like age of the participants. Frequencies and percentages were worked out for categorical variables such as gender, educational level etc. Bivariate relationships between the sociodemographic variables and outcome variables were assessed using the chi-squared test for categorical variables. Significance value was set at $p < 0.05$.

Results

Of the 413 subjects, 245(59.3%) were females. The overall

Table-1: Sociodemographic characteristics of the young adults of Karachi.

Characteristic	Mean	S.D
Age	24.7 years	4.76
Monthly Household Income (PKR)	2,18,294	205434
	Frequency	Percentage
Education Level		
Intermediate/A-levels	84	20.3
Graduation	192	46.4
Post-Graduation/Masters	126	30.5
Other	11	2.7
Area of Study		
Biological Sciences	41	9.9
Medical Sciences	126	30.5
Humanities	53	12.8
Engineering	63	15.3
Business studies	111	27
Other	19	4.6
Employment Status		
Employed	185	44.8
Unemployed		
Occupation		
Engineer	8	1.9
Social Worker	16	3.9
Allied Health Professionals*	108	26.2
Educator/Lecturer	9	2.2
Unemployed	13	3.1
Student	149	36.1
Other**	110	26.6
Education of Father		
Uneducated	14	3.4
Primary to Matric	69	16.7
Intermediate to Graduation	246	59.6
Masters to PhD	84	20.3
Education of Mother		
Uneducated	49	11.9
Primary to Matric	116	28.1
Intermediate to Graduation	214	51.8
Masters to PhD	34	8.2

*Allied Health Professionals included: including doctors, public health professionals, medical technologist, food science technologist and other health science professionals.

**Other included: Accountants, Bankers, Media Professionals, IT Professionals, Artists and entrepreneurs.

mean age was 24.7 ± 4.76 years, and the mean household income was $\text{Rs}2,18,294 \pm 205434$. Of the total, 295(71%) respondents were single or unmarried; 223(54%) were Urdu-speaking; 192(46.4%) had studied up to graduate level (Table-1).

Of the total, 342(83%) had not heard the term 'sexually transmitted diseases'; 138(33.4%) were able to correctly name one or more STDs; 4(1%) mentioned non-communicable diseases as STDs; 240(58%) mentioned

Table-2: Percentage of each sexually transmitted disease (STD) mentioned by the respondents.

STD Mentioned	Frequency N=343	Percentage
Human Immune Deficiency Virus	119	34.7%
Syphilis	54	15.7%
Gonorrhoea	48	14.0%
Hepatitis B	44	12.8%
Genital Herpes	34	9.9%
Chlamydia	22	6.4%
Trichomoniasis	3	0.9%
Fungal Infections/Candidiasis	2	0.6%

that STDs are not transmitted by sexual contact alone; and 172(58.4%) were knowledgeable about STDs being asymptomatic. Across gender, there was no difference between males and females having no knowledge of sign and symptoms of STDs (Figure).

Majority of the respondents 119(34.7%) named HIV/AIDs as an STD, followed by syphilis, gonorrhoea, hepatitis b, genital herpes, chlamydia, human papillomavirus (HPV) infection, trichomoniasis and fungal infections/candidiasis (Table-2).

The primary source of knowledge of STDs was internet, print and electronic media for 182(44%) subjects, followed by educational institutions 154(37%) and social contacts 77(18.6%). Knowledge regarding transmission and complications of common STDs was low (Table-3).

Regarding the treatment of STDs, 180 (43.6%) respondents said a person should approach a private clinic for the services; 122 (29.5%) said a doctor/nurse; 49 (12%) government hospital; 30 (7.3%) pharmacy; (21) 5.1% homeopathy treatment; and 11 (2.7%) favoured a traditional healer, such as Hakeem. Also, 216 (52%) respondents said the risk of catching an STD can be reduced by using a protection.

Bivariate analysis showed that married young adults were more likely to know that STDs could be asymptomatic than single young adults ($p=0.001$). Likewise, married young adults were more knowledgeable about HPV infection as an STD and its tendency to cause cancer of the reproductive tract ($p=0.003$). A significant difference was found between the age of the respondents and knowledge of STDs being asymptomatic ($p=0.002$); knowledgeable of protection through condoms ($p=0.05$); knowledgeable of the hepatitis B transmission ($p=0.001$); knowledgeable about HIV ($p=0.001$), knowledgeable of the HPV as an STD ($p=0.001$); and vertical transmission of STD from mother to child ($p=0.004$). Also, respondents

Table-3 Knowledge of sexually transmitted diseases (STDs) and sexually transmitted infections (STIs), transmission, protection and complications in the study subjects.

Characteristic	Response	Frequency	Percentage
Source of Knowledge	Media	182	44.1
	Social Contacts	77	18.6
	Educational Institute	154	37.3
Knowledge of protection from STDs	No	180	43.6
	Yes	233	56.4
Condom Protect a person from contacting and STD/STI	No	158	38.3
	Yes	255	61.7
STD/STI can be transmitted via oral and anal sex	No	213	51.6
	Yes	200	48.4
STD/STI may transmit from mother to child	No	204	49.4
	Yes	209	50.6
STD/STI may cause infertility/sterility for life	No	211	51.1
	Yes	202	48.9
Hepatitis B can be contacted through sexual contact	No	193	46.7
	Yes	220	53.3
Hepatitis B can cause serious diseases which can cause liver failure	No	150	36.3
	Yes	263	63.7
HIV spreads through sexual contact	No	115	27.8
	Yes	298	72.2
HIV is a life-threatening condition and its symptoms can be reduced, but has no cure	No	139	33.7
	Yes	274	66.3
Human Papilloma Virus (HPV) infection is an STD, if untreated can turn into a cancer of reproductive	No	260	63
	Yes	153	37
HPV can cause oral/mouth cancer in man and woman	No	219	53
	Yes	194	47
HPV cause genital Warts	No	290	70.2
	Yes	123	29.8

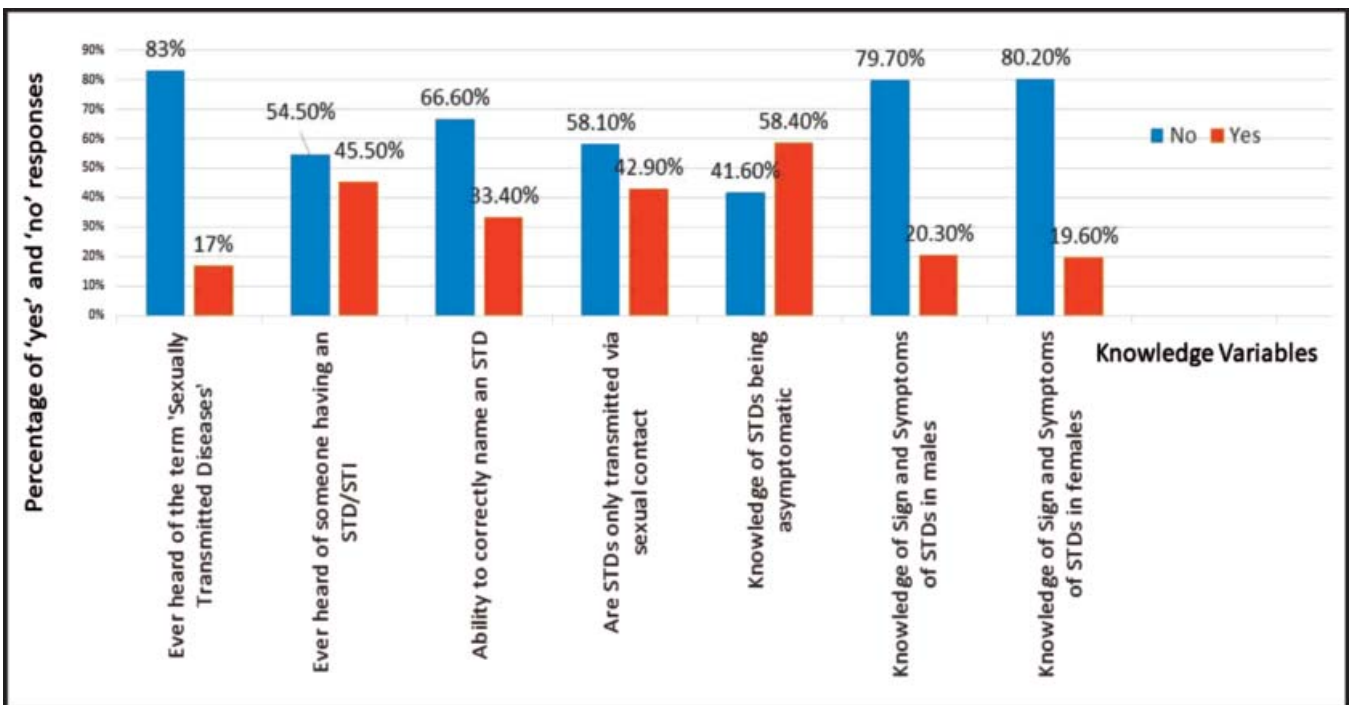


Figure: Sexually transmitted diseases awareness level among young adults of Karachi.

Table-4: Factors associated with sexually transmitted diseases (STDs) and sexually transmitted infections (STIs) awareness level.

Variable	Characteristic	Age*	Gender	Marital Status	Education Level	Field of Study	Occupation	Father's Education	Mother's Education
		p-Value							
Ever heard of the term 'Sexually Transmitted Diseases'	Yes	0.12	0.363	0.837	0.003	0.003	0.006	0.054	0.011
	No								
Ability to correctly name an STD	Yes	0.003	0.327	0.015	0.001	0.001	0.001	0.001	0.559
	No								
STDs are only transmitted via sexual contact	Yes	0.113	0.057	0.095	0.132	0.577	0.011	0.143	0.306
	No								
Knowledge of STDs being asymptomatic	Yes	0.001	0.008	0.001	0.002	0.001	0.001	0.01	0.037
	No								
Sign and Symptoms of STDs in males	Correctly mentioned	0.004	0.074	0.058	0.001	0.001	0.001	0.004	0.009
	Don't know								
Sign and Symptoms of STDs in females	Correctly mentioned	0.014	0.091	0.344	0.006	0.001	0.001	0.003	0.002
	Don't know								
A Condom Protect a person from contracting and STD/STI	Yes	0.005	0.5	0.068	0.023	0.001	0.053	0.178	0.003
	No								
Transmission of STD from mother to child	Yes	0.246	0.997	0.171	0.068	0.001	0.095	0.011	0.001
	No								
Hepatitis B also be contacted through sexual contact	Yes	0.711	0.27	0.027	0.001	0.001	0.042	0.406	0.004
	No								
HIV spreads through sexual contact	Yes	0.081	0.13	0.781	0.001	0.001	0.004	0.385	0.027
	No								
Human Papilloma Virus (HPV) infection is an STD, if untreated can turn into a cancer of reproductive	Yes	0.33	0.133	0.003	0.001	0.001	0.001	0.619	0.055
	No								

Chi square test applied to calculate p values

*t-test applied to calculate p value for continuous variable.

who studied biological and medical sciences were more knowledgeable about STDs ($p < 0.05$).

A statistically significant difference was found between the occupation of respondents and various factors related to STDs (Table-4).

Discussion

Using a quantitative research approach, the current study assessed the awareness among young adults with regard to STDs, their transmission, complications and management. A deficiency in the knowledge of STDs was found as 83% subject had not heard of the term 'sexually transmitted diseases' ever before taking the survey. These findings correlate with another study in which only 17% males and 13% females had heard of STDs in Karachi.¹³ In the present study, 66% respondents were unable to correctly name even a single STD, 41% had no idea that STDs could be asymptomatic, and 79% males and 80% females had no knowledge of sign and symptoms of STDs. These findings indicate poor knowledge regarding STDs and are in congruence with earlier studies.¹³⁻¹⁵

Interestingly, regarding the transmission and

complications of STDs, majority of the respondents 56% had knowledge that STDs can be prevented through protection and 62% know that a condom can protect a person from contracting an STD. Likewise, 53% respondents were aware of hepatitis B, HIV/AIDs and HPV infections and their complications, with 72% knowing about HIV as an STD. These findings indicate that knowledge of HIV and hepatitis B transmission and complications was relatively higher than the knowledge of other STDs in general. Another study also found that the population was more aware of HIV/AIDs than other STDs.¹³ Similarly, a study on adolescent sexual knowledge, attitudes and risk behaviour found that HIV was the most widely known STD.¹⁷ This difference in knowledge can be attributed to mass media awareness campaigns regarding HIV and hepatitis B in Pakistan. Moreover, approximately 41% respondents in the current study had studied or were studying medical and biological sciences. Therefore, this group of the population must have contributed to better knowledge levels regarding transmission and complications of HIV and hepatitis B. However, general STD knowledge score was low. Also, these findings are in congruence with a study conducted in Nepal in which 86% of the population was

aware of HIV/AIDS as an STD.¹⁸ However, knowledge of HPV infection as STD was low with only 37% knowing it as an STD. Regarding management of STDs, 85% said that a person should seek treatment from a registered medical practitioner to avoid complications. These findings are in contrast with previous studies which indicated that people refrain from visiting medical practitioners in case they develop an STD due to the embarrassment factor.^{18,19}

No significant relationship between gender and STD awareness was found in this study. Age was found to have the most profound impact on sexual health knowledge. In the present study, young adults <24 years were less knowledgeable about STDs than those 26 years and older. This could be explained by knowledge gained through stages of higher education, especially through life sciences education. Earlier studies have argued that parents usually discourage their children from attending sex awareness programmes in Pakistan.¹⁹⁻²¹ This possibly explains why adolescents and young adults <24 are less aware of sexual health. A study also mentioned that education of children on topics such as safe sex practices and prevention of STDs in schools is often taken as an un-Islamic and immoral activity.²¹ These attitudes are ingrained in the religious ideology of the people, due to which even the subject of safe sex is a taboo. Furthermore, consistent with other studies conducted in India, Ethiopia, United States and many other countries, media was the leading source of sex education/information among the population (44%).²²⁻²⁴ This indicates that socio-cultural perspectives regarding sex education in our society are analogous with those in other countries, and young adults seek information through media rather than other modes. These findings also exhibit insufficiency of programmes for comprehensive sex education due to which majority of young adults use social and electronic media for information on sexual and reproductive health issues.

Also, educational level and field of study were found to be a significant determinant of STD knowledge. These findings coincide with the evidence that suggest that lack of education is the leading reason underlying misinformation regarding STDs in Pakistan.¹⁹ In the current study, education levels of father and mother were also found to have a significant impact on the STD knowledge of the children. With the increasing level of parents' education, the awareness of respondents regarding STDs also improved. Occupation was another significant determinant of sexual health and STD knowledge. Professionals working in the health and social sciences were more aware of STDs than the others.

A major limitation of this survey was the use of euphemisms like "intercourse", "unconventional sex", "methods of contraception" for strong words and phrases like "sex", "anal and oral sex", "condom" respectively. This was owing to the cultural sensitivity of the indicators that were evaluated during the survey. Another limitation was the lack of randomisation in the study which was due to the fear of criticism and judgment. People often feel they are subjected to scrutiny when participating in a session where their sexual life comes under discussion. As such, internet-based survey was used to offer a trustworthy environment to the respondents where they would feel free to share information and experiences regarding STDs.

Conclusion

There was deficiency in terms of knowledge and awareness regarding STDs in young urban adults. However, a positive change was noticed in terms of STD management as the subjects favoured seeking treatment from safe and authentic sources.

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