

## Evaluation of knowledge and awareness of HIV/AIDS among medical, dental and nursing students of healthcare institution in Karachi, Pakistan

A. Ahad Shafique, Zafar Abbas, Batool S Vazir, Sabeen Masood, Sameera Asif, Tahera Ayub

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### Abstract:

**Objectives:** To determine the knowledge and awareness of HIV/AIDS among medical, dental and nursing students of health care institution in Karachi – Pakistan.

**Study design:** Descriptive cross-sectional study.

**Place and duration:** This survey was conducted in the Liaquat College of Medicine and Dentistry, Karachi. The survey was initiated on the 30th November, 2018 and was concluded on the 20th January, 2019.

**Method and Materials:** A total of 230 questionnaires were distributed among the first-year students of all the three disciplines. Approximately 187 filled questionnaires were obtained of which 165 questionnaires were found to be properly filled and were considered as valid. A questionnaire was used to evaluate the knowledge and awareness of HIV/AIDS.

**Results:** According to the results attained 75% of the participants have knowledge of the spread of disease and from the study it can be said that majority of students tend to have basic knowledge of HIV/AIDS. The students of nursing discipline are the ones that do not have proper level of knowledge and awareness.

**Conclusions:** Overall knowledge and awareness of medical and dental students about HIV/AIDS communicability and route of transmission is adequate but students of nursing discipline are the ones that do not have proper level of knowledge and awareness. Nursing students must be made aware and should understand the importance of treating HIV/AIDS patients.

**Keywords:** HIV/AIDS, T lymphocytes, immunity, medical, dental, nursing, awareness,

Liaquat College of  
Medicine and Dentistry,  
Karachi

AA Shafique  
Z Abbas  
T Ayub

Altamash Institute  
of Dental Medicine,  
Karachi.

B Sajjad  
S Masood

Bahira University Medical  
and Dental college.  
S Asif

### Correspondence:

Dr Batool Sajjad, BDS,  
MCPS (oral surgery),  
Assistant Professor,  
Department of Dentistry,  
Altamash Institute of  
Dental Medicine, Karachi.  
Cell: +92 332-3158493  
Email: b\_vazir@gmail.com

### Introduction:

Human Immunodeficiency Virus (HIV) is the main cause of Acquired Immuno deficiency syndrome and from the start of this epidemic individuals has lost their lives to this disease which spreads through human body fluid contact. HIV is an alarm for the survival of humanity because it attacks the immune system by destroying CD4 positive T lymphocytes which play an important role in one's immunity and are considered as those cells which have the ability to eliminate cancer cells and are thought to be the military of human physiology.<sup>1</sup> The acquired immune deficiency is the end stage of HIV infection. An individual suffering from AIDS has opportunistic infections such as tuberculosis or pneumonia and has momentous low number

of CD4+ T cells i.e. less than 200 cell per cubic millimeter of blood.<sup>2</sup> Healthcare workers believes that the treatment of this category of patients is a part of their duty.<sup>3</sup> The medical staff, in particular doctors and dentists are directly in contact with the body fluids of patients, are at an increased risk of HIV/AIDS.<sup>4</sup> Nurses also have to collect various body fluid samples of patient for investigation, giving medication as per instructions to patients, taking care of patients, and giving injections.<sup>5,6</sup> The people with HIV/AIDS not only have to face health problems but also have to deals with the society and face discrimination in the society. There are two types of patients with HIV infection. They are either not aware of their infection or do not want tell the health care workers for different reasons.

Table-1: Evaluation of knowledge and awareness of HIV/AIDS among medical, dental and nursing students

Variables	Frequency (165)	%
Gender		
Male	78	47.3
Female	87	52.7
Field		
Dentistry	56	33.9
Medicine	54	32.7
Nursing	55	33.3

Table-2: Questionnaire

AIDS IS THE ROOT CAUSE FOR HIV	MEDICINE (%)	DENTISTRY (%)	NURSING (%)
TRUE	32(19.40)	31(18.79)	24(14.54)
FALSE	20(12.12)	24(14.55)	31(18.79)
DON'T KNOW	2(1.21)	1(0.60)	0(0.00)
A PERSON CAN GET HIV BY SHARING A GLASS OF WATER WITH SOMEONE WHO HAS HIV			
TRUE	6(3.64)	26(15.76)	8(4.84)
FALSE	48(29.10)	28(16.97)	47(28.48)
DON'T KNOW	0(0.00)	2(1.21)	0(0.00)
YOU CAN USUALLY TELL IF SOMEONE HAS HIV BY LOOKING AT THEM.			
TRUE	13(7.87)	20(12.12)	12(7.27)
FALSE	41(24.84)	31(18.78)	40(24.24)
DON'T KNOW	0(0.00)	5(3.03)	3(1.81)
IT IS POSSIBLE TO GET HIV WHEN A PERSON GETS A TATTOO.			
TRUE	30(18.18)	42(25.45)	45(27.27)
FALSE	20(12.12)	12(7.27)	9(5.45)
DON'T KNOW	4(2.42)	2(1.21)	1(0.60)
A PERSON CAN GET HIV BY SITTING IN A HOT TUB OR A SWIMMING POOL WITH A PERSON WHO HAS HIV			
TRUE	19(11.51)	24(14.54)	11(6.67)
FALSE	26(15.7)	27(16.36)	37(22.4)
DON'T KNOW	9(5.45)	5(3.03)	7(4.24)
A PERSON CAN GET HIV THROUGH CONTACT WITH SALIVA, TEARS, SWEAT, OR URINE.			
TRUE	24(14.54)	31(18.78)	18(10.90)
FALSE	23(13.93)	24(14.54)	32(19.39)
DON'T KNOW	7(4.24)	1(0.60)	5(3.03)
TAKING VITAMINS KEEPS A PERSON FROM GETTING HIV.			
TRUE	26(15.75)	17(10.30)	25(15.15)
FALSE	28(16.96)	30(18.18)	27(16.36)
DON'T KNOW	0(0.00)	9(5.45)	3(1.81)
A PERSON WITH HIV CAN LOOK AND FEEL HEALTHY.			
TRUE	15(9.09)	21(12.72)	35(21.21)
FALSE	30(18.18)	30(18.18)	18(10.90)
DON'T KNOW	9(5.45)	5(3.03)	2(1.21)
EATING HEALTHY FOODS CAN KEEP A PERSON FROM GETTING HIV			
TRUE	11(6.66)	22(13.33)	6(3.63)
FALSE	43(26.06)	31(18.78)	49(29.6)
DON'T KNOW	0(0.00)	3(1.81)	0(0.00)

Thorough knowledge and professional attitude toward HIV infection control among health care workers is necessary and without adequate knowledge, they are exposing themselves and patients to this revolting disease transmitted.<sup>7,8</sup> It is important to assess the knowledge of medical, dental and nursing students regarding the HIV/AIDS to evaluate the conditions and gap so that policy measures can be taken to improve the knowledge, if there is a gap.<sup>9</sup>

### Material and Methods:

This survey is based on a cross-sectional study that is carried out in one of the leading medical and dental institution and was conducted from 30 November, 2018 to 20 January, 2019 to acquire the aims and objectives of the study. Data was collected using a self-administered structured questionnaire and analyzed by using SPSS version 20.

Data was collected using a self-structured questionnaire which had two parts. The first consisted of questions about the candidate's socio-demographic status mainly age, gender, and qualification. The second consisted of twenty-four questions that were related to assessment of knowledge and awareness of HIV/AIDS. In order to minimize the fear of stigmatization the respondents were assured about the principles of confidentiality. A total of 230 questionnaires were distributed among the first-year students of all the three disciplines. Approximately 187 filled questionnaires were obtained of which 165 questionnaires were found to be properly filled and were considered as valid. A questionnaire was used to evaluate the knowledge and awareness of HIV/AIDS.

### Results:

A total of 230 questionnaires were distributed among participants out of which 165 responses were found to be properly filled. Among all participants 52.7% (87) were female and 47.3% (78) were male in their second decade of age were involved. The mean age of the participants was 19.92 years with standard deviation of 1.864 years. The participants were all adults thereby had the age of verbal consent.

Table-3: Questionnaire of Proforma

<b>A PREGNANT WOMEN WITH HIV CAN GIVE THE VIRUS TO HER UNBORN BABY</b>			
	<b>MEDICINE (%)</b>	<b>DENTISTRY (%)</b>	<b>NURSING (%)</b>
TRUE	44(26.62)	42(25.51)	35(21.21)
FALSE	10(6.06)	11(6.67)	20(12.12)
DON'T KNOW	0(0.00)	3(1.81)	0(0.00)
<b>ALL PREGNANT WOMEN INFECTED WITH HIV WILL HAVE BABIES BORN WITH AIDS.</b>			
TRUE	38(23.03)	24(14.54)	4(2.42)
FALSE	12(7.27)	24(14.54)	49(29.6)
DON'T KNOW	4(2.42)	8(4.84)	2(1.21)
<b>USING A LATEX CONDOM OR RUBBER CAN LOWER A PERSONS CHANCE OF GETTING HIV</b>			
TRUE	36(21.82)	32(19.40)	44(26.67)
FALSE	12(7.27)	16(9.70)	9(5.45)
DON'T KNOW	6(3.63)	8(4.84)	2(1.21)
<b>HAVING SEX WITH MORE THAN ONE PARTNER CAN INCREASE A PERSON'S CHANCE OF BEING INFECTED WITH HIV.</b>			
TRUE	35(21.12)	45(27.27)	51(30.90)
FALSE	15(9.09)	9(5.45)	4(2.42)
DON'T KNOW	4(2.42)	2(1.21)	0(0.00)
<b>WOMEN ARE ALWAYS TESTED FOR HIV DURING THEIR PAP SMEARS.</b>			
TRUE	27(16.36)	15(9.09)	10(6.06)
FALSE	19(11.51)	27(16.36)	36(21.81)
DON'T KNOW	8(4.84)	14(8.48)	9(5.45)

The questionnaire comprised of questions that assessed basic as well as advanced knowledge in regards to HIV/AIDS. Statements like AIDS is the root cause of HIV which was designed specially to confuse the participants and test their knowledge seems to indicate that students are aware of the disease but do not have proper awareness. A series of questions were designed to assess the effect of stigmatization of HIV/AIDS on Healthcare students it was found that majority of students were not under the impression of stigmatization. The responses to question like a person can get HIV by sitting in a hot tub or a swimming pool with a person who has HIV indicate that majority of students i.e. 75% of the participants have knowledge of the spread of disease. Table-3 gives a detailed and through version of the level of stigmatization it can be seen from the results the students of nursing discipline are the ones that do not have proper level of knowledge and awareness. From the results obtained from the study it can be said that majority of students tend to have basic knowledge of HIV/AIDS.

In a similar manner a question was designed

to address the pregnancy related issues revolving around HIV/AIDS. The questions were designed in such a manner that the awareness and knowledge of students can be assessed thoroughly. The results obtained from the survey (table-3) depict that majority of student answered the questions in a correct manner.

The third and final part of the questionnaire was designed to assess medical knowledge of the participants the results can be seen in the table 4. The results indicate that majority of the questions were answered in a correct manner in some questions e.g. "HIV is killed by Bleach" the respondents do not answer the question correctly. In a similar manner when asked about the equipment washing with cold water the respondents answered in a negative manner

#### Discussion:

The aim of this study is to evaluate and assess the knowledge and awareness of healthcare students i.e. medical, dental and nursing students belonging to their first years. The reason behind opting first year students is to explore their basic knowledge about this virus which is derived from their high school. The study will also assess the stigmatization issue present among the general population as they consider that HIV can spread through shaking hands and speaking with an infected individual.

All healthcare professionals i.e. medical, dental and nursing should have a thorough knowledge about HIV/AIDS as these individuals are the one who come direct as well as indirect with HIV/AIDS patients. Poor knowledge and awareness of HIV/AIDS among healthcare individuals may lead to spread of the disease and other blood prone individuals. Similar type of studies done in the past by several authors have shown that HIV/AIDS knowledge should be an important part of curriculum of healthcare students as they are the future professionals and should know transmission and high-risk groups among nursing students.<sup>12</sup> Similar kind of studies were conducted in Srilanka and Kuwait shows good knowledge and attitude towards HIV.<sup>13</sup>

Table-4:

HIV IS KILLED BY BLEACH	MEDICINE (%)	DENTISTRY (%)	NURSING (%)
TRUE	6(3.64)	16(9.70)	3(1.81)
FALSE	42(25.46)	32(19.40)	48(29.1)
DON'T KNOW	6(3.63)	8(4.84)	4(2.42)
IF A PERSON TESTS POSITIVE FOR HIV, THEN THE TEST SITE WILL HAVE TO TELL ALL OF HIS OR HER PARTNERS.			
TRUE	24(14.54)	26(15.75)	20(12.12)
FALSE	30(18.18)	25(15.15)	29(17.57)
DON'T KNOW	0(0.00)	5(3.03)	6(3.63)
WASHING DRUG USE EQUIPMENT/"WORKS" WITH COLD WATER KILLS HIV			
TRUE	12(7.27)	6(3.63)	5(3.03)
FALSE	40(24.24)	41(24.84)	43(26.06)
DON'T KNOW	2(1.21)	9(5.45)	7(4.24)
THERE IS A VACCINE THAT CAN STOP ADULTS FROM GETTING HIV.			
TRUE	19(11.52)	20(12.12)	18(10.91)
FALSE	23(13.94)	34(20.61)	35(21.21)
DON'T KNOW	12(7.27)	2(1.21)	2(1.21)
ATHLETES WHO SHARE NEEDLES WHEN USING STEROIDS CAN GET HIV FROM THE NEEDLES			
TRUE	33(20.00)	40(24.24)	51(30.90)
FALSE	21(12.72)	12(7.27)	3(1.81)
DON'T KNOW	0(0.00)	4(2.42)	1(0.60)
PEOPLE WHO HAVE BEEN INFECTED WITH HIV QUICKLY SHOW SERIOUS SIGNS OF BEING INFECTED			
TRUE	25(15.15)	27(16.36)	14(8.48)
FALSE	23(13.93)	22(13.33)	39(23.63)
DON'T KNOW	6(3.63)	7(4.24)	2(1.21)
A PERSON CAN GET HIV BY GIVING BLOOD.			
TRUE	22(13.33)	29(17.57)	18(10.90)
FALSE	32(19.39)	27(16.36)	36(21.81)
DON'T KNOW	0(0.00)	0(0.00)	1(0.60)
A PERSON WILL NOT GET HIV IF SHE OR HE IS TAKING ANTIBIOTICS.			
TRUE	14(8.48)	19(11.51)	12(7.27)
FALSE	38(23.03)	35(21.21)	40(24.24)
DON'T KNOW	2(1.21)	2(1.21)	3(1.81)
A PERSON CAN BE INFECTED WITH HIV FOR 5 YEARS OR MORE WITHOUT GETTING AIDS.			
TRUE	27(16.36)	27(16.36)	41(24.84)
FALSE	21(12.72)	25(15.15)	11(6.66)
DON'T KNOW	6(3.63)	4(2.42)	3(1.81)
SOME DRUGS HAVE BEEN MADE FOR THE TREATMENT OF AIDS.			
TRUE	29(17.57)	37(22.42)	47(28.48)
FALSE	13(7.87)	13(7.87)	7(4.24)
DON'T KNOW	12(7.27)	6(3.63)	1(0.60)

Another study was conducted in private institutions of Bangalore to assess and compare the knowledge of Dental, Medical and Nursing interns regarding HIV/AIDS. This study shows that several surprising facts of knowledge and attitude of the interns towards HIV/AIDS. It

was found out that the Medical, Dental and Nursing interns showed moderate knowledge with respect to modes of HIV transmission.<sup>14</sup> A similar results was described in studies carried by Patil et al<sup>15</sup> on Dental students, Sadeghi M et al<sup>16</sup> among Iranian dental students, Ryalat et al<sup>17</sup> among Jordanian dental students, Verma RK et al<sup>18</sup> on MBBS students in Malaysia and Taher E and Abdelhai RAA<sup>6</sup> on nursing students in Egypt.

Pakistan is a vulnerable country, with increasing levels of poverty, low levels of literacy, especially in women; low levels of condom use, low levels of awareness among health workers; a large mobile population including refugees in border areas, internal and external migrants, long-distance truck drivers known to engage in sexual practices that put them at risk of contracting HIV and sexually transmitted infections (STIs); social and economic disadvantages, particularly for women and girls, a booming commercial sex industry and widespread indulgence in commercial sex with low levels of condom use; limited safety of blood transfusion; high prevalence of STIs with limited access to good-quality STI care; unsafe medical injection and health care practices, extensive use and reuse of syringes without sterilization, including an increasing rate of needle-sharing; and a large proportion of young people with low levels of knowledge about HIV transmission and prevention.

### Conclusion:

HIV/AIDS has alarmingly emerged as an occupational hazard among health care workers. Therefore, having appropriate knowledge is of utmost importance. Keeping this in mind, the following study is conducted to assess the knowledge of HIV/AIDS among medical, dental and nursing students of health care institutions in Karachi. From the present study it was found that the overall knowledge and awareness of medical and dental students about HIV/AIDS communicability and route of transmission is adequate but students of nursing discipline are the ones that do not have proper level of knowledge and awareness. Nursing students

Questionnaire: For each statement, please circle True (T), False (F), or I Don't Know (DK)

Questions	True	False	Don't know
1 AIDS is the cause of HIV.	T	F	DK
2 A person can get HIV by sharing a glass of water with someone who has HIV.	T	F	DK
3 HIV is killed by bleach.	T	F	DK
4 It is possible to get HIV when a person gets a tattoo.	T	F	DK
5 A pregnant woman with HIV can give the virus to her unborn baby.	T	F	DK
6 Eating healthy foods can keep a person from getting HIV	T	F	DK
7 All pregnant women infected with HIV will have babies born with AIDS.	T	F	DK
8 Using a latex condom or rubber can lower a person's chance of getting HIV.	T	F	DK
9 A person with HIV can look and feel healthy.	T	F	DK
10 People who have been infected with HIV quickly show serious signs of being infected	T	F	DK
11 A person can be infected with HIV for 5 years or more without getting AIDS.	T	F	DK
12 There is a vaccine that can stop adults from getting HIV.	T	F	DK
13 Some drugs have been made for the treatment of AIDS.	T	F	DK
14 Women are always tested for HIV during their pap smears.	T	F	DK
15 A person can get HIV by giving blood.	T	F	DK
16 You can usually tell if someone has HIV by looking at them.	T	F	DK
17 A person will NOT get HIV if she or he is taking antibiotics.	T	F	DK
18 Having sex with more than one partner can increase a person's chance of being infected with HIV.	T	F	DK
19 person can get HIV by sitting in a hot tub or a swimming pool with a person who has HIV	T	F	DK
20 A person can get HIV through contact with saliva, tears, sweat, or urine.	T	F	DK
21 If a person tests positive for HIV, then the test site will have to tell all of his or her partners.	T	F	DK
22 Washing drug use equipment/" works" with cold water kills HIV	T	F	DK
23 Athletes who share needles when using steroids can get HIV from the needles	T	F	DK
24 Taking vitamins keeps a person from getting HIV.	T	F	DK

are not well prepared to treat HIV/AIDS patients. Nursing students must be made aware and should understand the importance of treating HIV/AIDS patients. This can be achieved by proper education, regarding its ways of transmission, treatment and monitoring of the condition and making the students more sensitized towards the care of HIV patients.

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**Role and contribution of authors:**

Dr A. Ahad Shafique, collected the data, references and write the initial write up.

Dr Zafar Abbas, collected the data, references and review the article and made the required changes.

Dr Batool Sajjad, helped in collecting the data and helped in introduction writing

Dr Sabeen Masood, collected the references and helped in discussion and result writing.

Dr Sameera Asif, ollected the reference, data and helped in discussion writing.

Dr Tahera Ayub, collected the references and helped in introduction writing.

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