

Level of Knowledge and Attitude of Undergraduate Students of University of Peshawar about HIV/AIDS and its Patients

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Authors' Contributions

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ABSTRACT

Background: HIV/AIDS is one of the alarming health conditions. HIV virus attack is cureless. It completely destroys human immune system in a slow progressive manner and makes body vulnerable to other diseases.

Objectives: To evaluate the level of knowledge and attitude of undergraduate students belonging to University of Peshawar. The aim of the study was to bring the attention of students towards HIV/AIDS care and prevention.

Methodology: Cross sectional study was designed where data was collected from the students enrolled in different departments; Pharmacy, Law, Business Administration, Journalism and Political Science on a carefully designed proforma. Students were asked to fill the questionnaires composed of two sections; knowledge of students about HIV/AIDS and attitude of students regarding management of HIV/AIDS patients if any, in daily routine life. Finally results were extracted from the collected information.

Results: 62.96% of undergraduate students of University of Peshawar had proper knowledge about AIDS spread, care and prevention while, 8.32% of students shared enough information about the management of HIV/AIDS patients in routine life. It was concluded that 37.04% students were ignorant about HIV/AIDS, while 41.68% showed lack of enough knowledge about how to manage to tackle HIV patients in routine life.

Conclusion: There is significant lacking of awareness about HIV/AIDS among students. There is a dire need to aware the population about this deadly disease to avoid its spread.

Keywords: Undergraduate Students, Peshawar, HIV/AIDS, awareness.

INTRODUCTION

Pakistan is the first in South Asia by population after India and one of the countries in the WHO Eastern Mediterranean Region, where new HIV infections are at alarming level since 1987 [1]. HIV infection in human came from a type of chimpanzee in Central

Africa. The Chimpanzee version of virus (called Simian Immunodeficiency Virus, or SIV) was probably passed to human when they hunted these chimpanzee and came in contact with their infected blood [2]. Researchers found the earliest case of HIV in a blood sample of a man from the democratic Republic of Congo [3]. Human Immunodeficiency

Virus (HIV) is the cause of Acquired Immunodeficiency Syndrome (AIDS) which was identified in 1983[4]. The name of this causative agent was adopted by international committee for taxonomy of Viruses [5]. AIDS is defined as CD4 T-cell count <200 cells/ μ L [6]. There are two types of HIV:HIV-1 and HIV-2. HIV-1 is assumed to have arisen from cross-species transmission of a chimpanzee virus Simian immunodeficiency virus (SIVcpz) to human and HIV-2 from cross-species transmission of a sooty mangabey virus (SIVsmm) [4]. A gradual destruction of the naive and memory CD4+ T-lymphocyte population is the indication of HIV-1 infection [7]. HIV-1 can be classified into four groups: M (main or major), O (outlier), N (non-M, non-O), and P(pending). More than 90% of HIV-1 infections belong to group M [4].

The increasing population day by day points out the fatal condition for HIV/AIDS infection. In Pakistan, the first case of HIV/AIDS was detected in 1987 and this ratio has been increasing annually according to report issued by Pakistan [1]. The causative agent for AIDS is HIV which is transmitted by blood, serum, vaginal fluid, pre-seminal fluid, breast milk, sharing contaminated syringes and unprotected sex. The HIV Infection starts without symptoms and is accompanied by slight changes in the immune system. During primary infection, the virus is actively replicating in the lymph nodes and blood stream of infected individuals, while Symptomatic stage of disease indicates the late phase of HIV disease (AIDS) where individuals may be susceptible to other opportunistic infections [8].

According to Center for Disease Control and Prevention there are 3 stages, Stage 1: Acute HIV Infection; in this stage people have flu-like symptoms. This is the body's innate response to infection. Stage

2: Chronic HIV Infection; HIV is still active but reproduces at very low levels. People may not have any symptoms or get sick during this phase. Without taking HIV medicine, this period may last a decade or longer, but some may progress speedily. People in this stage of infection can transmit HIV, Stage 3: Acquired Immunodeficiency Syndrome (AIDS); This is most severe stage of HIV infection. People with AIDS have such weakly immune systems that they get an increasing number of severe illnesses, called opportunistic infections [9].While according to World Health Organization there are 4 stages of HIV infection, Stage 1:HIV infection; The CD4+ cell count is at least 500 cells/ μ L, Stage 2:HIV infection; The CD4+ cell count is 350 to 499 cells/ μ L, Stage 3: Advanced HIV disease; The CD4+ cell count is 200 to 349 cells/ μ L, Stage 4: AIDS; The CD4+ cell count is less than 200 cells/ μ L [10].The normal CD4+ cell count should be between 500 and 1600 cells per micro liter. The higher the CD4+ cell count, the lower the chances of opportunistic diseases [11].

Pakistan is a HIV/AIDS 'at risk' country with high level of Poverty, low level of education especially in females and low awareness level of knowledge among health workers and large mobile population [11]. The government started programs to eradicate infection. According to National AIDS Control Program (NACD) current statistics; 44,758(0.02%) HIV Cases were registered and among them 24,362(0.01%) were on Antiretroviral therapy (ART) in 49 ART Centers till December 2020[12] as shown in Table 1. The treatment for adults and pediatrics, according to National AIDS Control Program [2] shown in Table 2.

Table 1. Registration versus Treatment.

| Year | Registered | On Treatment |
|------|------------|--------------|
| 2013 | 8,069 | 3,412 |
| 2014 | 11,038 | 5,019 |
| 2015 | 14,705 | 6,564 |
| 2016 | 18,367 | 8,888 |
| 2017 | 22,333 | 12,046 |
| 2018 | 23,757 | 15,821 |
| 2019 | 39,529 | 22,947 |
| 2020 | 44,758 | 24,362 |

Table 2. Treatment for Adults and Pediatrics.

| Anti Retroviral Drugs List for Adults | | | Anti Retroviral Drugs List for Pediatrics | |
|---------------------------------------|--|------------------|--|------------------|
| S.No | Product Name | Strength | Product Name | Strength |
| 1 | Efavirenz+[Lamivudine+zidovudine] tablet | 600+[150+300] mg | Nevirapine Oral Solution | 10 mg/ml |
| 2 | Lamivudine+Neirapinev+zidovudine] tablet | 150+200+300 mg | Lamivudine Oral Solution | 10 mg/ml |
| 3 | Efavirenz+ Lamivudine+Tenofovir Tablet | 600+300+300 | Zidovudine Oral Solution | 10 mg/ml |
| 4 | L amivudine/ Tenofovir Tablet | 300+300 mg | Efavirenz Oral Solution | 30 mg/ml |
| 5 | Dolutegravir/ Lamivudine/ Tenofovir Tablet | 50/300/300 mg | Abacavir Oral Solution | 20 mg/ml |
| 6 | Zidovudine Tablet | 300 mg | Lopinavir 80mg/ml+Ritonavir 2mg/ml (Kaletra) | 80mg/ml+20 mg/ml |
| 7 | Lamivudine Tablet | 150 mg | Lamivudine/ Zidovudine/ Nevirapine | 30/50/60 mg |
| 8 | Nevirapine Tablet | 200 mg | Abacavir/ Lamivudine Dispersable Tablet | 120/60 mg |
| 9 | Efavirenz Tablet | 600 mg | Efavirenz tablet double scored | 200 mg |
| 10 | Tenofovir Tablet | 300 mg | | |
| 11 | Lopinavir 200mg + Ritronavir 50 mg (Kaletra LPV/r) | 200 mg/50 mg | | |
| 12 | Raltegravir Tablet | 400 mg | | |
| 13 | Abacavir Tablet | 300 mg | | |
| 14 | Dolutegravir Tablet | 500 mg | | |

METHODS

The cross-sectional study was carried out to analyze the data of students (n=500), of different departments of University of Peshawar. They were divided in to 5 groups ;n=120;Group A(Students of Pharmacy department), n=110;Group B(Students of Law department), n=90;Group C(Students of Bachelors of Business Administration department, BBA), n=80;Group D(Students of Journalism department), n=100;Group E(Students of Political Science department).They were accessed by questionnaires regarding HIV/AIDS. Participants were enrolled in the study after fulfilling the selection criteria; participants between 18 to 23 years old either male or female,

enrolled either in third, fourth, fifth and sixth semester of studies, who had completed the whole questionnaires along with demographics were included in the study. Incomplete filled proforma were excluded from the study. The data was collected after assessment of questionnaires. The study tools consist of questions related to demographics, HIV/AIDS and its patients. They were categorized on the basis of departments in which they were enrolled as shown in Figure 1. The latest version of Statistical Package for Social Sciences (SPSS) and MS Excel were used for data analysis. Statistical values were used for the comparison of level of knowledge and attitude of students of different departments.

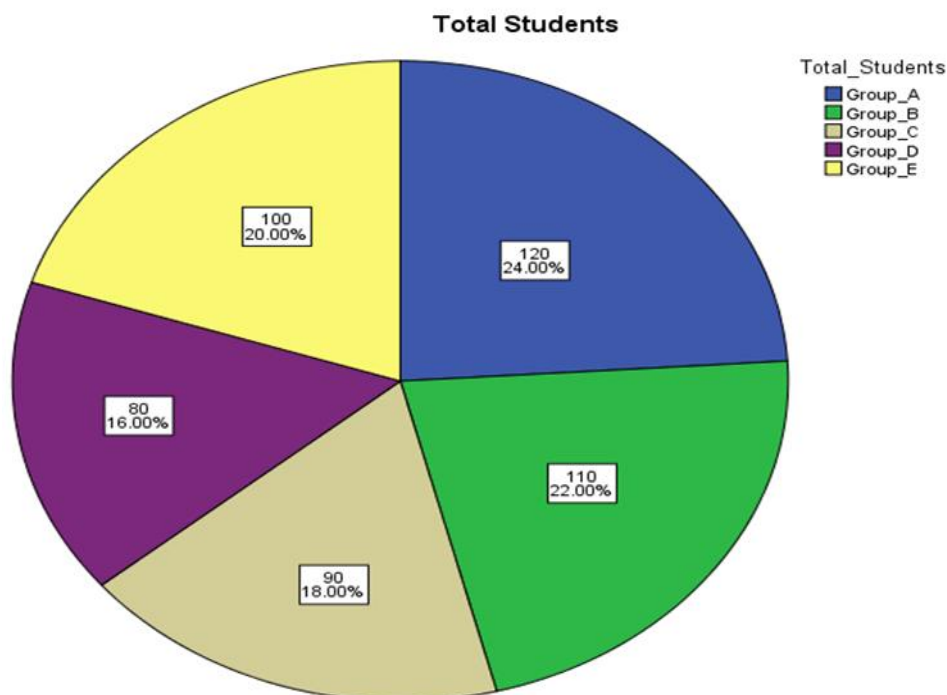


Figure 1. Percentage of students of five different departments.

RESULTS

Out of 500 participants, almost 3/5 constituted of male $n=300$ (60.0%), and 2/5 were female $n=200$ (40.0%). The anthropometric measurements included age (years), weight (kg), race, marital status and educational background. The mean age and weight of the participants was found to be 21.72 ± 1.01 years and 61.29 ± 8.63 kg. The gender wise mean of anthropometric measures is shown in Table 3.

Knowledge of Students about HIV/AIDS

Out of 500 students, there were 120 (24%) students in Group A, 110 (22%) students in group B, 90 (18%) students in Group C, 80 (16%) students in Group D and 100 (20%) students in group E. The male to female ratio was 3:2. In present study, the total participants were $n=500$, where $n=435$ (87.0%), along with mean and standard deviation (2.75 ± 1.44) had knowledge about What is AIDS (A>B>C>D>E). The students enrolled in pharmacy department had highest ratio while least ratio was found in political science department. The $n=374$ (74.8%), 2.68 ± 1.49 had knowledge about what AIDS stands for (A>E>C>B>D). Some students of journalism department knew about AIDS/HIV but they had no idea about the

abbreviation of AIDS. The students, $n=390$ (78.0%), 2.69 ± 1.48 knew about the causative agent of AIDS (A>B>E>C>D). The students $n=339$ (67.8%), 2.78 ± 1.51 had knowledge about the cells targeted by HIV/AIDS (C>A>E>B>C). The percentage of knowledge regarding screening of blood after donation for HIV/AIDS was comparatively less. It is threatening factor for recipient body, if donor is HIV carrier so students, $n=287$ (57.4%), 2.49 ± 1.48 had screened blood after donation (A>D>B>E>C) (Table 4).

The students had only 1% ratio regarding HIV/AIDS patients in their relatives either directly or indirectly where $n=5$ (1%), 3.0 ± 1.4 (D>A=B>C=E). It indicated that one person out of hundred persons had blood relation/non-blood relation with HIV/AIDS patients marked the increasing number of patients day by day. The students $n=219$ (43.8%), 2.46 ± 1.53 had attended seminars about HIV/AIDS (A>D>E>B>C).

The students $n=423$ (84.6%), 2.91 ± 1.5 knew about treatment of AIDS/HIV (A>E>C>D>B). The students $n=392$ (78.4%), 2.66 ± 1.46 agreed to the fact that HIV/AIDS can be transmitted by injections, infectious fluids and bleeding cuts (A>C>E>B>D), while $n=284$ (56.8%), 2.62 ± 1.46 students agreed that HIV/AIDS infection can lead to pandemic (A>C>E>B>D).

Table 3. Gender Wise Anthropometric measurement (mean +_SD).

| Anthropometrics | Male(n=300) | Female(n=200) | Total(n=500) |
|-----------------------------|---|---|---|
| Age(years) | Mean±SD =21.89 ± 0.8 | 21.47 ± 1.2 | 21.72±1.01 |
| Weight(kg) | Mean±SD =66.92±6.02 | 52.93±3.56 | 61.29±8.63 |
| Race | Muslim (%) =295 (98.3) Non-Muslim (%) =5 (1.6) | Muslim (%) =198 (99.0) Non-Muslim (%) =2 (1.0) | Total Muslim (%) =493 (98.6) Total Non-Muslim (%) =7 (1.4) |
| Marital Status | Single (%) =299 (99.6) Married (%) =1 (0.33) | Single (%) =200 (100.0) Married=0 | Total single (%) =499 (99.8) Married= 1(0.33) |
| Education Background | 260 (86.6) | 180 (90.0) | 440 (88.0) |

Table 4. Questionnaires about HIV/AIDS.

| S.No | Questions | Group A, n=120 (%) | Group B, n=110(%) | Group C, n=90(%) | Group D, n=80 (%) | Group E, n=100 (%) | Total, n=500 (%) |
|------|---|--------------------|-------------------|------------------|-------------------|--------------------|------------------|
| 1 | What is AIDS? | 115 (95.8) | 98 (89.0) | 80 (88.8) | 66 (82.5) | 76 (76.0) | 435 (87.0) |
| 2 | AIDS stands for? | 117 (97.5) | 75 (68.1) | 63 (70.0) | 48 (60.0) | 71 (71.0) | 374 (74.8) |
| 3 | The Causative agent of AIDS? | 118 (98.3) | 80 (72.7) | 68 (75.5) | 52 (65.0) | 72 (72.0) | 390 (78.0) |
| 4 | Which of the following cells are targeted by HIV/AIDS? | 102 (85.0) | 49 (44.5) | 89 (98.8) | 20 (25.0) | 79 (79) | 339 (67.8) |
| 5 | Have you screen blood after donation for HIV/AIDS? | 109 (90.8) | 61 (55.4) | 24 (26.6) | 55 (68.7) | 38 (38) | 287 (57.4) |
| 6 | Have you know any patient about HIV/AIDS? | 1 | 1 | 0 | 3 | 0 | 5 (1.0) |
| 7 | Have you attend any seminar about HIV/AIDS? | 100 (83.3) | 24 (21.8) | 10 (11.1) | 62 (77.5) | 23 (23) | 219 (43.8) |
| 8 | Is there is treatment for HIV/AIDS? | 115 (95.8) | 63 (57.2) | 80 (88.8) | 71 (88.7) | 94 (94) | 423 (84.6) |
| 9 | Do you agree that HIV/AIDS can be transmitted by injections, infectious fluids and bleeding cuts? | 119 (99.1) | 79 (71.8) | 80 (88.8) | 41 (51.2) | 73 (73) | 392 (78.4) |
| 10 | Can HIV/AIDS lead to pandemic? | 93 (77.5) | 47 (42.7) | 69 (76.6) | 25 (31.2) | 50 (50) | 284 (56.8) |

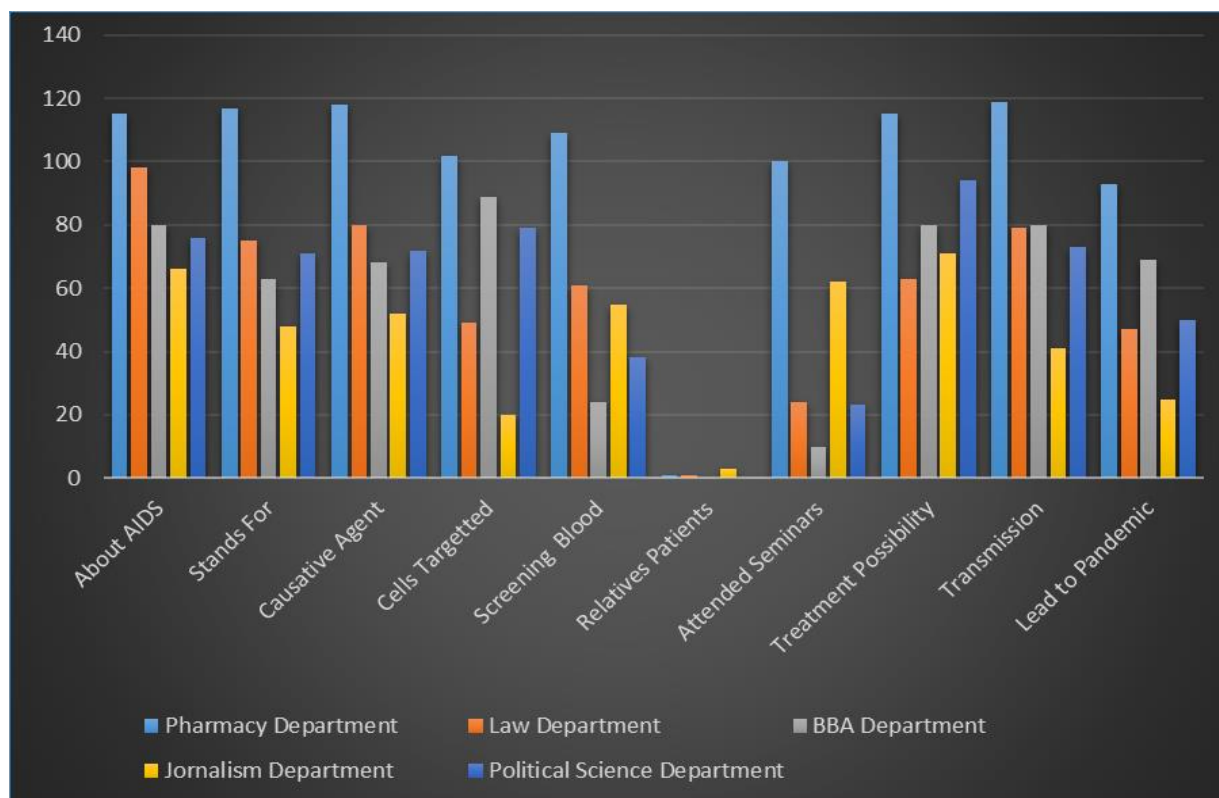


Figure 2. Level of Knowledge of students about HIV/AIDS.

Attitude of students about HIV/AIDS patients:

The second section of the questionnaire composed of the attitude of students regarding HIV/AIDS patients. It was determined that how they reacted, when they got a chance to be in such area where HIV/AIDS patients were present. There were 500 number of

participants, where N=181(36.2%), along with mean and standard deviation (0.36±0.48) had liked to eat with HIV/AIDS patients (A>D>E>B>C). The ratio was comparatively low, although HIV/HIV did not transmit by eating as shown in Figure 2. This was due to low awareness about HIV/AIDS as shown.

Table 5. Questionnaire about HIV/AIDS patients.

| S.No | Questions | Group A, n=120 (%) | Group B, n=110 (%) | Group C, n=90(%) | Group D, n=80(%) | Group E, n=100(%) | Total n=500(%) |
|------|--|--------------------|--------------------|------------------|------------------|-------------------|----------------|
| 1 | Would you like to eat with HIV/AIDS patients? | 113 (94.1) | 20 (18.8) | 0 | 25 (31.2) | 23 (23.0) | 181 (36.2) |
| 2 | Would you like to share the items, mostly used everyday with HIV/AIDS? | 0 | 24 (21.8) | 10 (11.1) | 7 (8.7) | 2 (2.0) | 43 (8.6) |
| 3 | Would you feel nervousness with HIV/AIDS patients? | 15 (12.5) | 61 (55.4) | 72 (80.0) | 48 (60.0) | 50 (50.0) | 246 (49.2) |
| 4 | Would you like to care the HIV/AIDS patients, when you get a chance? | 113 (94.1) | 61 (55.45) | 66 (73.3) | 71 (88.7) | 70 (70.0) | 381 (76.2) |
| 5 | Would you like to travel with HIV/AIDS patients? | 96 (80.0) | 20 (18.8) | 14 (15.5) | 34 (42.5) | 29 (29.0) | 193 (38.6) |

While $n=43(8.6\%)$, 0.09 ± 0.28 were in favor of to share their daily usable items, consequently displaying the alarming condition of HIV transmission. The daily usable items included in the study were razor blades or toothbrushes. There were $n=246(49.2\%)$, 0.49 ± 0.500 students who felt

nervousness with HIV/AIDS patients ($C>D>B>E>A$). They were uncomfortable with such patients. The students $n=381$, 0.39 ± 0.487 had no issues to take care of HIV/AIDS patients ($A>D>C>E>B$) while $n=193(38.6\%)$, 0.39 ± 0.487 were in favor to travel with HIV/AIDS patients as shown in Figure 3.

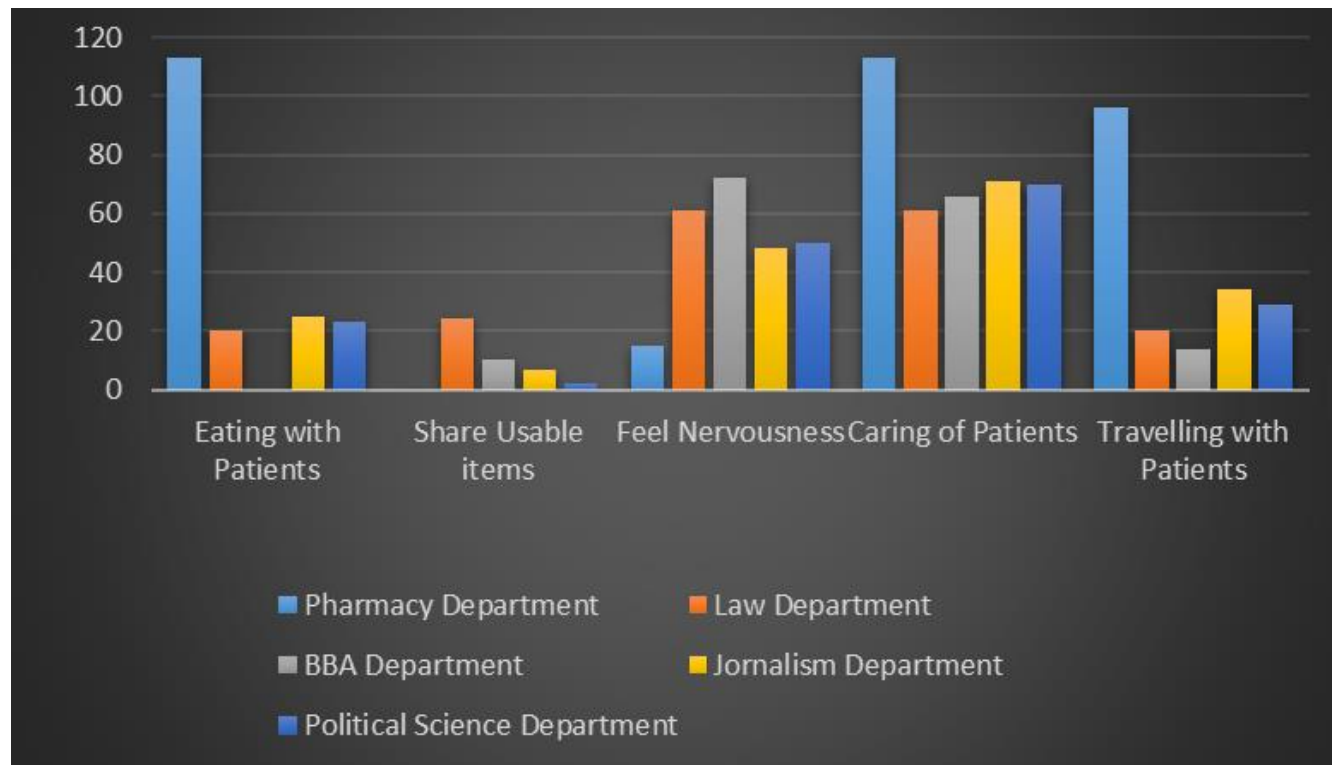


Figure 3. Level of attitude of students about HIV/AIDS patients.

DISCUSSION

The present investigation was conducted to assess the level of knowledge and attitude of undergraduate students of Peshawar University. They were asked to fill the questionnaires.

The $n=374 (74.8\%)$, 2.68 ± 1.49 had knowledge about what AIDS stands for ($A> E >C >B >D$). The students had sufficient level of knowledge about HIV/AIDS. 87% students had idea about what is AIDS, while the remaining 13% had no idea about AIDS. It pointed the alarming condition because these students are the leaders of tomorrow, they will serve for community. The 74.8% students were aware about the abbreviation of AIDS while 25.2% had no idea about AIDS stands for. This percentage is less than the percentage (82%) of the study conducted in 2003 [14]. The 78.6% students knew about the causative agent of HIV. Whenever, there is a disease there

must be causative agent. Hence 21.4% students had no idea about the agent which causes AIDS. The 67.8% students had idea about the cells targeted by HIV/AIDS. The 57.4% students had screen blood after donation for HIV/AIDS. It is a threatening factor for recipient body, if donor is HIV carrier so students, $n=287 (57.4\%)$, 2.49 ± 1.48 had screened blood after donation ($A>D>B>E>C$). The incidence of HIV was recorded to be low in the female blood donors as compared to male blood donors of Khyber Pakhtunkhwa because of the fact that female are mostly confined to their homes and hence relatively less vulnerable to HIV infection [15].

Only 1% students knew patients of HIV/AIDS in their relatives. The 84.6% students had idea about the availability of treatment while 78.4% students agreed that HIV/AIDS can be transmitted by injections, infectious fluids and bleeding cuts. The 43.8% students had attended seminars about HIV/AIDS while remaining 56.2% had never attended any

seminar about HIV/AIDS. Pakistan response to HIV/AIDS began in 1987 with the establishment of a Federal Committee on AIDS by ministry of health as a result National AIDS Control objectives of students seminars toward HIV/AIDS [16]. The 56.8% students agreed that HIV could lead to pandemic while 43.2% denied. The reductions in HIV prevalence are associated with reductions in HIV incidence due to HIV/AIDS preventions activities [17]. National AIDS Control Program (NACP) was established in 1986-87 by Pakistan and with the advent of antiretroviral drugs, AIDS has gradually changed from a fatal disease to a manageable disease [18][19]. Antiretroviral therapy can be modified but still 80-90% HIV/AIDS patients effectively response to high active anti-retroviral therapy (HAART) [20-23]. Although there are 18 HIV/AIDS centers but it was noted that most of infected people did not visit toward these centers because they felt fear to be disgrace by the society [15]. There are many other factors other than the low level of awareness which did not let the HIV/AIDS to be treated [4].

The attitude of students of University of Peshawar about HIV/AIDS patients were analyzed by questionnaires. The 36.2% students were agreed to eat with HIV/AIDS patients while the remaining 63.8% were denied to eat with the HIV/AIDS patient, even it is known that HIV/AIDS cannot transmitted by eating. The 8.6% students were agreed to share the items, mostly used every day with HIV/AIDS, it meant these 8.6% students were unaware of the fact that HIV/AIDS transmitted by sharing daily life usable items such as razor blades, shaving machine etc. The 38.6% students were agreed to travel with HIV/AIDS patients. The 49.2% students were felt nervousness with HIV/AIDS patients while 76.2% students were agreed to took care of the HIV/AIDS patients. If our studies were compared with the studies conducted in undergraduate students of University of Peshawar in 2007. It showed that comparatively the ratio of awareness was increased but it did not up to acceptable level [14]. Although all the positive values were improved but still in such modern era, where technology are at peak level, students have not enough knowledge about HIV/AIDS, also their attitude toward HIV/AIDS patients were not satisfied. This was due to lack of awareness sessions and interest. There should be awareness sessions and seminars about HIV/AIDS and its patients, HIV criminalization laws and Penal Code criminalizes acts [13], at University

level where the students must be involve, so in such a way they can easily know about HIV/AIDS.

CONCLUSION

We concluded from our study that there should be awareness sessions about HIV/AIDS for undergraduate students of University of Peshawar. However, the correctness ratio was high in students of pharmacy department among other four departments, because of their field of interest. These students are the future health care providers who will implement appropriate preventive measures and health education sessions to promote knowledge among the public. Thus, it is essential that these future doctors should have profound knowledge of this fatal infection. The students of other department will also serve for society, so they must know about HIV/AIDS.

LIMITATION

The research study had few limitations. Firstly, the study was only limited to University of Peshawar. Moreover, the ratio of male to female (3:2) was high and only five departments and undergraduate students were targeted.

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