

## Original Research Article

# A study to assess the knowledge and attitude towards HIV of pharmacy students from Mumbai university

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## ABSTRACT

**Background:** India is the biggest HIV epidemic in the world. The role of a pharmacist is pivotal in educating the general masses. The aim of the study was to determine the knowledge and attitude of pharmacy students from University of Mumbai.

**Methods:** A cross-sectional study was conducted in University of Mumbai during February-March 2020. Therein, 307 students (214: females and 94: males) participated in the study. The questionnaire was distributed in the classroom and data was collected by means of Google-forms. Furthermore, the data was analysed using IBM SPSS version 23.

**Results:** The participants demonstrated good knowledge (84%) and attitude (76%) score. With respect to knowledge score, no significant difference was observed except for responses of two questions, aim of the antiretroviral therapy (ART) and Avoidance of sexual intercourse can decrease the risk of HIV. With respect to attitude score, Volunteering to work at an institute for the welfare of HIV patients showed a significant difference.

**Conclusion:** The current study showed that there were no misconceptions or negative attitude regarding HIV among the students. However, a study with greater sample size must be conducted across India for further investigation.

**Keywords:** AIDS, HIV, Attitude, Knowledge, Pharmacy

## INTRODUCTION

Acquired immunodeficiency syndrome (AIDS) involves extreme depletion of T helper cells (CD4+) and other cells like macrophages. Supporting these findings, considerable viral load of HIV is also found in lymph nodes. However, HIV progresses to AIDS once it reaches a certain concentration or presents with certain co factors hence AIDS can be regarded as the end stage disease of human immunodeficiency virus (HIV).<sup>1</sup>

Initial HIV infection doesn't cause lethal effects however; it starts a cascade of intracellular molecules which has deleterious effects on the intrinsic, adopted and innate immunity of the infected person. Major glycoproteins involved in recognition of CD4 T helper cells by the virus are GP-41 and GP-120. GP-120 interacts with the CD4 receptor on T helper cells followed by attachment of GP-41 to the helper cell. Subsequent conformational changes occur and fusion takes place thus transforming the cell

into a virus producing factory and causing a major depletion of it.<sup>2</sup>

Globally, HIV has claimed more than 32 million lives and at the end of 2018 there were 37.9 million people living with HIV.<sup>3</sup> India is the third largest HIV epidemic and as per the India HIV estimation 2017 report, National adult (15-49 years) HIV prevalence in India is estimated at 0.22% (0.16-0.30%), among which prevalence among males is at 0.25% (0.18-0.34) and 0.19% (0.14-0.25) among females. Among other states in India, the highest estimated adult HIV prevalence in Maharashtra is at 0.33% (0.25-0.45) which is greater than the national prevalence of 0.22%. It might seem like a meagre figure but considering the huge population of India and Maharashtra, it translates to almost 30 lakh people nationally and 4 lakh people in Maharashtra living with HIV.<sup>4</sup> The number of cases in Mumbai in the last 5 years has declined by 30.6% according to the information released by Mumbai District Aids Control Organisation (MDACO) and its additional project director says it has all to do with increased awareness among people, their proactivity and the scope of HIV becoming even more community based.

The main causes of HIV infection in India and elsewhere in the world are general unprotected hetero and homosexual intercourse, commercial sex work and injecting drug use.<sup>4,5</sup> To combat this disease, the main thing to be done is to spread accurate and adequate information which will prevent formation of various social stigmas and discriminations against the infected.<sup>7</sup> Education levels also have to be increased so that population would be aware of HIV risk reduction strategies.<sup>6</sup> The best chance of controlling the infection is spreading HIV awareness and knowledge among the population through media and with well-educated and well-trained body of health care providers. It has been rightly said that education is a social vaccine in regards to this disease with information, education and communication being the key tools of HIV prevention.<sup>6</sup>

Keeping above points in mind, a pharmacist's role in curbing the spread of HIV has never been more important. The ultimate goal of anti-retroviral therapy is reviving and boosting the immune system and suppressing the replication of the virus and to achieve these long-term goals, it is the responsibility of a pharmacist to ensure adherence to medications by patients, minimizing adverse effects or drug interactions and decreasing the cost of therapy. Through proper research, a pharmacist can also come up with simplified treatment regimens by co-processing of drug formulations and manage comorbidities of the patients accordingly.<sup>8</sup> The pharmacist's role has evolved to patient care and consultation to the doctors. The result of increased pharmacist's improvement is clear increased adherence to the dosage regimen by patients, revival of the immune system, decrease in errors of medication and frequency of dosing as well as suppression of viral replication.<sup>8,9</sup>

According to NACO's website India is wholly dependent on pharmaceutical companies to manufacture 7.2 million tablets a month to keep this disease under control and save lives of the people infected by it. Hence, it rightly falls on the shoulders of the future pharmacy students to have detailed knowledge about the pathophysiology and treatment availability for the disease if the fight against the disease has to continue. This cross-sectional study was particularly designed for assessing the general knowledge and awareness about prevention and treatment of HIV of the pharmacy students. The study also focused on bringing out the real attitude and perceptions of the target audience about HIV infected people and addressed the social stigma behind it.

## **METHODS**

### ***Questionnaire design***

A descriptive questionnaire-based study was carried out among people in Mumbai from February to March 2020. Questionnaire was developed by referring to previous literature.<sup>4,7,9</sup> The study was approved by Population Health Independent Ethics Committee. The aim of the study was explained before commencement of the study. 350 students were contacted by the study team coordinator in their classroom. 307 individuals comprehended and signed the ICF and were considered to volunteer for the study. The participants were assured of the anonymity and confidentiality of the information provided by them.

The questionnaire for this study was in English and was prepared on the basis of previous literature comprising of both open-ended and closed-ended questions. The present study was aimed to gather information on knowledge and attitude of Pharmacy students towards HIV-infection. A pilot study was performed to determine the validity of the questionnaire. Based on the comprehension of the participants the questions were modified. This was not a part of the final study data set.

### ***Inclusion and exclusion criteria***

Male and female volunteers who understood English were eligible to participate in this study. Minors and individuals having mental disability were excluded from the study.

### ***Data collection***

A pilot study of sample size 30 was conducted to assess time required to complete the questionnaire and to ensure if the participants understand the questions. This data was not a part of the final study. Prior to filling of the form, students were asked to assemble in a classroom in a group of 10. Content and face validity were checked by the college committee consisting of pharmacy professors and a student representative. The purpose of the study was once again explained to the participants. For the final

study, all the volunteers were ensured of maintaining anonymity and confidentiality. Data was collected by means of Google-forms and was ensured if the data was clean.

**Statistical analysis**

Data was transcribed from Microsoft excel. Data obtained from the survey was analysed using IBM SPSS version 23. Data was evaluated using descriptive statistical methods and bivariate analysis was conducted with all relevant variable, p<0.05.

**RESULTS**

Table 1 depicts the knowledge and attitude score of participants along with bivariate analysis to determine difference between male and female responses. Out of

307 participants, 93 (30%) were male and 214 (70%) females. Our study shows a good knowledge (83.5%) and attitude (76%) score of the participants. With respect to the knowledge of participants, out of the 16 questions, most questions score above 80% score. However, questions focusing on difference between HIV and AIDS, transmission of HIV via breast feeding, and aim of ART scored 63.5%, 46.6%, and 56.7% respectively. Out of the 8 questions on attitude towards HIV, all questions except maintaining physical contact with an HIV-infected person, more than 75% of the volunteers gave the correct answers. Approximately only 61% of the participants agreed that one can maintain physical touch with an HIV-infected person.

Bivariate analysis indicates that 2 out of 16 questions about HIV knowledge and 1 out of 8 questions focusing on HIV attitude show significant difference in male and female responses.

**Table 1: Depicts the knowledge and attitude score of HIV and bivariate analysis.**

Variable	Expected answer	Male	Female	Total	χ <sup>2</sup>	P value
<b>Gender</b>		93	214	307	NA	NA
<b>Education</b>						
BS		73	189	262		
MS		12	22	34	10.16	0.005
PhD		8	3	11		
<b>HIV knowledge</b>						
HIV is an airborne and contagious disease	No	85 (91.4)	187 (87.4)	272 (88.6)	1.034	0.309
HIV and AIDS are 2 separate disease/syndrome	Yes	57 (61.3)	138 (64.5)	195 (63.5)	0.286	0.593
HIV can be transmitted by hugging or kissing an infected person.	No	80 (86.8)	183 (88.5)	263 (85.7)	0.014	0.907
HIV can be transmitted by Blood transfusion from infected person	Yes	85 (91.4)	200 (93.7)	285 (92.8)	0.414	0.520
HIV can be transmitted by a pregnant woman to her fetus	Yes	75 (80.6)	179 (83.6)	254 (82.7)	0.408	0.523
HIV can be transmitted having unprotected intercourse with infected person	Yes	87 (93.5)	203 (94.9)	290 (94.5)	0.213	0.644
HIV can be transmitted by physical touch with infected person	No	83 (89.2)	181 (84.6)	264 (86)	1.173	0.062
HIV can be transmitted by breast feeding	Yes	41 (44.1)	102 (47.7)	143 (46.6)	0.333	0.564
HIV can be transmitted by using public toilets	No	91 (97.8)	198 (92.5)	289 (94.1)	3.332	0.068
HIV can be transmitted by swimming in public pool	No	93 (100)	207 (96.7)	300 (97.7)	3.113	0.078
HIV can be transmitted by sharing food, towels, clothes etc. with infected person	No	86 (92.5)	190 (88.8)	276 (89.9)	0.971	0.324
HIV can be transmitted by mosquito bite, dirty food/water	No	85 (91.4)	203 (94.9)	288 (93.8)	1.338	0.247
The aim of Anti-retro viral therapy is to stop the growth of virus	Yes	63 (67.7)	111 (51.9)	174 (56.7)	6.65	0.01
HIV can be avoided by using a condom while sexual intercourse	Yes	89 (95.7)	192 (89.7)	281 (91.5)	2.990	0.084
HIV can be avoided by avoiding usage of used needles	Yes	84 (90.3)	191 (89.3)	275 (89.6)	0.080	0.778
HIV can be avoided by avoiding multiple sexual intercourse	Yes	73 (78.5)	193 (90.2)	266 (86.6)	7.659	0.006
Average knowledge score (%)		1352/ 16=84.5	1339/ 16=83.6	1340/ 16=83.75		

Continued.

Variable	Expected answer	Male	Female	Total	$\chi^2$	P value
<b>HIV attitude</b>						
Would you work with a colleague who has recently been diagnosed with HIV-AIDS?	Yes	70 (75.3)	162 (75.7)	232 (75.6)	0.007	0.935
Would you maintain physical touch with an infected person?	Yes	64 (68.8)	122 (57)	188 (60.6)	3.785	0.052
Would you share your meal with an HIV positive patient?	Yes	80 (86)	177 (82.7)	257 (83.7)	0.521	0.470
Do you want to remain a secret if you or your family member is found infected with HIV?	No	77 (82.8)	188 (87.9)	265 (86.3)	1.403	0.236
Will you remain friends if a friend is infected by HIV?	Yes	90 (96.8)	209 (97.7)	299 (97.4)	0.202	0.653
Should HIV positive patients be quarantined?	No	85 (91.4)	191 (89.3)	276 (89.9)	0.329	0.566
Do you think HIV-AIDS is a disease of the poor and illiterate?	No	90 (96.8)	213 (99.5)	303 (98.7)	3.836	0.050
Will you volunteer in an institution which works for the welfare of HIV patients?	Yes	77 (82.8)	194 (90.7)	271 (88.3)	3.868	0.049
Average attitude score (%)		681/8=85	681/8=85	605/8=76		

Aim of the ART shows a significant difference ( $p < 0.01$ ) and  $\chi^2$  Value of 6.65. It means that there was a significance difference in male and female responses with respect to the aim of the (ART). 67.7% (63/93) of males answered it correctly compared to 51.9% (111/214) of the female participants. Responses for the question, HIV can be avoided by avoiding multiple sexual intercourse, showed a significant difference ( $p < 0.01$ ) and  $\chi^2$  Value 7.659.

The Pearson's chi-square value shows a significant difference ( $p < 0.05$ ) and  $\chi^2$  value of 3.868 between male and females on volunteering to work at an institute for the welfare of HIV patients. 67.7% (63/93) of males answered it correctly compared to 51.9% (111/214) of the female participants.

## DISCUSSION

Pharmacists play a pivotal role in the society. They are not only obliged to dispense drugs ethically but are also responsible to educate the general masses. A study shows that one third of the respondent had negative attitude towards HIV and gender was on the causative factor associated with it.<sup>10</sup> A study shows discriminatory attitude of pharmacy students and Pharmacists against HIV patients.<sup>11</sup> A study shows that pharmacy students have good knowledge; however certain misconceptions and negative beliefs remain.<sup>12</sup> In this study, focused to assess the knowledge and attitude of pharmacy students from Mumbai University towards HIV.

The current study indicates overall decent knowledge (83.5%) and positive attitude (76%) score for HIV. The results are in accordance to previously conducted studies.<sup>13</sup> Similar studies have been conducted at University Saints, Malaysia.<sup>8</sup> With respect to knowledge score, aim of the ART and avoiding intercourse with

multiple partners showed significant difference. More number of male candidates answered this question correctly compared to female candidates. More female volunteers answered that HIV can be avoided by avoiding intercourse with multiple partners.

A study conducted in UAE amongst university students depicted that 85% of the participants expressed negative attitude towards people living with HIV.<sup>14</sup> This study demonstrated better results in term of knowledge and attitude score than reported studies conducted in Nepal and UAE.<sup>15,8</sup> These major differences in the study could be attributed to inadequate awareness and curricula offered at these universities. Overall, no significant difference was observed between male and female population's attitude and knowledge with respect to HIV. Similar results were obtained in studies conducted in UAE and India

## CONCLUSION

Knowledge of healthcare students about transmission, diagnosis, and treatment of HIV is very important. Nowadays, many individuals travel across the world and experience a wide variety of culture and religion. These changes contribute to the increased risk of HIV. Therefore, it is certain that individuals should have adequate knowledge of the disease so that they can restrict the incidence of the disease and protect themselves. It is the job of the healthcare professionals to educate the common masses. The present study demonstrates that there is no negative attitude or false impression regarding HIV among pharmacy students. The limitation of this study was small sample size, similarity in the value of education, and no cultural differences between the participants as they were from same state. Therefore, a longitudinal study with larger sample size across India is recommended.

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