Knowledge and beliefs about HIV/AIDS among physiotherapy students

Priyanka Chugh1*, Rahul Sharma2, Jyoti Dahiya1, Richa Rai1, Charu Chopra1

1Banarsidas Chandiwala Institute of Physiotherapy, Kalakji, New Delhi, India
2Department of Neurology, AIIMS, New Delhi, India

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*Correspondence:
Dr. Priyanka Chugh,
E-mail: drpriyankachugh2@gmail.com

ABSTRACT

Background: The HIV epidemic poses significant challenges to the healthcare providers including Physiotherapists. The study aimed at investigating the extent to which Physiotherapy College students know about human immunodeficiency virus/acquired immune deficiency syndrome (HIV/AIDS) transmission, infection and prevention, and the transfer of such knowledge to sexual behavior change & and to know whether knowledge has any influence on the attitude and willingness to treat HIV/AIDS patients.

Methods: A cross-sectional survey was carried out on 217 physiotherapy students studying at the Banarsidas Chandiwala Institute of Physiotherapy, Kalkaji, New Delhi, India. The students completed a predesigned self-administered questionnaire assessing the knowledge, attitude and willingness to treat HIV/AIDS patients. The data were analyzed using ANOVA test (all the results are calculated at 1% level of significance) and Pearson correlation test.

Results: The total mean knowledge score was 73.23% (good knowledge). There was a significant difference in knowledge among the Fourth-year & first-year students, which was found to be statistically significant (P<0.001%). The study showed that the overall mean attitude score was 62.83% (negative attitude). There was no significant difference in the attitude of the students among the five groups (P>0.001%). Karl Pearson correlation test showed no significant correlation between the knowledge of HIV/AIDS and the attitude of students towards HIV/AIDS patients (P>0.01%).

Conclusions: The findings suggest that although the students had adequate knowledge about HIV/AIDS, their attitude towards this group of people was negative. From the study, fear of HIV contagion was observed as a major reason for the negative attitude of students towards HIV/AIDS patients.

Keywords: College students, Human immunodeficiency virus/acquired immune deficiency syndrome (HIV/AIDS) transmission, HIV/AIDS prevention, Knowledge of HIV/AIDS, HIV/AIDS denial

INTRODUCTION

According to WHO, Acquired immunodeficiency syndrome (AIDS) is a term which applies to the most advanced stages of HIV infection. It is defined by the occurrence of any of more than 20 opportunistic infections or HIV-related cancers. The human immunodeficiency virus (HIV) infects cells of the immune system, destroying or impairing their function. Infection with the virus results in progressive deterioration of the immune system, leading to “immune deficiency.” The immune system is considered deficient when it can no longer fulfill its role of fighting infection and disease. Infections associated with severe immunodeficiency are known as “opportunistic
infections”, because they take advantage of a weakened immune system.\(^1\)

India alone accounts for over 2.5 million people living with HIV/AIDS (PLWHA) and the estimated prevalence is 0.91%.\(^2,3\)

India is estimated to have the third highest number of estimated people living with HIV/AIDS, after South Africa and Nigeria (UNAIDS Report on the Global AIDS epidemic 2010).\(^4\)

A healthcare provider has been at an estimated 0.3% risk of occupational transmission of the virus from a patient, after a single percutaneous exposure to HIV-infected blood.\(^5\)

Government initiated National AIDS Control Program (NACP) to curb AIDS in various phases including areas like targeted interventions, voluntary counseling and testing and provision of care, support and ART to the affected. Initially, the approach was to target the core/HRB (high risk behavior) populations but gradually with shifting dynamics of epidemic into general population. Their approach also included focus on next generation of the adults i.e. adolescents, the school/college-going population since they constitute a very important segment of the population that need to be sensitized towards issues of HIV/AIDS considering them future citizens and productive population of the country. Behaviour change communication starting at an early age can be instrumental in bringing about long-term change in community perceptions towards HIV/AIDS be it stigma/discrimination or service utilization by government.\(^6\)

Present study was carried out to assess the existing levels of knowledge in Physiotherapy students in order to assess the knowledge and sensitization levels about basics of HIV/AIDS, prevention, support, treatment, their perceptions of programmatic services and stigma/discrimination pertaining to HIV/ AIDS as well as to assess the efficiency of a small, on-site, hands on training for the same.

**METHODS**

**Study design, area and duration**

The target population in the present study consisted of all Physiotherapy students who were in 1st, 2nd, 3rd and 4th year of their education. All these students were invited to study (228 students) and 217 responses were received out of them. We distributed the questionnaires to students during their obligatory lectures in the academic year 2016/2017 after obtaining approval of the director sir. The students did not take more than half an hour to fill up the questionnaires that were distributed to them in their lectures. Participation in the study was voluntary and this was mentioned on the top of all the questionnaires; so, the received questionnaires indicated their acceptance to be included in the study.

**Study tool**

Data collection was done with a self-administered questionnaire containing knowledge and attitude questions (11 questions for each part) in addition to some demographic questions. The questionnaire was almost same as the one used in a study by Patil et al and in a previous study with modifications, and validity of the questionnaire was confirmed by similar studies.\(^7\) The entrants had the choices of correct and incorrect answers for the knowledge questions. There were 5 correct answers out of 11 questions (correct choice in the questionnaire) and the remaining 6 answers were wrong (incorrect choice in the questionnaire). The score assigned for every correct answer was 1 and for every incorrect answer was 0; the maximum score for each section was 11 and the minimum score was 0. Also, a student who did not respond to the questions (in this section) was considered as not knowing the correct answer; therefore, we assigned 0 per question that had not been answered. The total score for each participant was obtained adding the score of each answer. The total scores of knowledge and attitude sections had been calculated for each entrant upon 100. Score of 75% and above, between 50–75%, between 25–50% and score less than 25% was considered as excellent, good, moderate and weak knowledge respectively, following the study of Patil et al.\(^7\)

In case of attitude, the response of the entrants was evaluated on a five-point Likert scale using the choices of strongly disagrees, disagree, neutral, agree, and strongly agree. The score assigned for every answer ranged from 0 to 4, respectively; the maximum score for each section was 44 and the minimum score was 0. The scores were computed from five to one for a positive attitude and inversely for negative attitude. Score of 75% and above, between 50–75%, between 25–50% and less than 25% were considered as positive, negative and passive attitude respectively. The data were analyzed using ANOVA test (all the results are calculated at 1% level of significance) and Pearson correlation test.

**Data analysis**

Data were entered and analyzed in MS Excel 2007 and proportions were calculated.

**RESULTS**

The survey was conducted on 217 physiotherapy students, out of which 56 (25.81%) students were studying in the final-year of bachelor of physiotherapy (BPT) course, 54 (24.88%) students in third-year course, 52(23.96%) in second year and 55 (25.35%) were in BPT first year. The age of the participants ranged from 18-24 years and the male to female ratio was 1:3. The
total mean knowledge score was 73.23% (good knowledge), and according to the year of study it was 61.03%, 72.05%, 79.02% and 81.32% for first, second, third & Final year students of BPT respectively as shown in Table 1. Majority of the final year students (60.%) and BPT 3rd year students (53.84%) showed excellent knowledge about HIV/AIDS as compared to second-year (40.74%) & First year students (12.5%) who had knowledge categorized as good as shown in Table 2. There was a significant difference in knowledge among the three groups of students which was found to be statistically significant (P<0.001%). Majority of the students, irrespective of their year of study, showed negative attitude towards PLWHA as shown in Table 7. The attitude scores ranged from 11-52(20-94.55%) as shown in Table 3.

Table 1: Mean knowledge score.

| Knowledge score | BPT 1st Year | BPT 2nd Year | BPT 3rd Year | BPT 4th Year |
|-----------------|--------------|--------------|--------------|--------------|
| Mean Knowledge Score | 6.71 | 7.92 | 8.69 | 8.94 |
| Mean Knowledge Score percentage | 61.03% | 72.05% | 79.02% | 81.32% |

Table 2: Knowledge scores.

| Knowledge score | BPT 1st Year (56) % | BPT 2nd Year (54) % | BPT 3rd Year (52) % | BPT 4th Year (55) % |
|-----------------|---------------------|---------------------|---------------------|---------------------|
| Weak            | 0                   | 0                   | 0                   | 0                   |
| Moderate        | 30 (53.57)          | 12 (22.22)          | 4 (7.69)            | 1 (1.81)            |
| Good            | 19 (33.92)          | 20 (37.03)          | 20 (38.46)          | 21 (38.18)          |
| Excellent       | 7 (12.5)            | 22 (40.74)          | 28 (53.84)          | 33 (60)             |

Table 3: Knowledge of HIV/AIDS.

| Knowledge of HIV/AIDS            | Score(%) |
|----------------------------------|----------|
| Questions                        | BPT 1st year (56) | BPT 2nd year (54) | BPT 3rd year (52) | BPT 4th year (55) |
| HIV infection can spread by touching, kissing, sharing food and drinks | 71.43 | 90.74 | 90.38 | 85.45 |
| Saliva can be a vehicle for transmission of HIV infection | 44.64 | 55.56 | 55.77 | 63.64 |
| HIV/AIDS patients can be identified by physical appearance | 89.29 | 83.33 | 82.69 | 70.91 |
| Needle stick injury can transmit HIV virus | 80.36 | 74.07 | 92.31 | 89.09 |
| Aerosols from hand piece can be a vehicle for transmission of HIV infection | 35.71 | 68.52 | 78.85 | 85.45 |
| ELISA/TRIDOT tests are screening tests for HIV infection | 44.64 | 55.56 | 90.38 | 87.27 |
| Western blot test is a confirmative test for HIV infection | 48.21 | 62.96 | 76.92 | 81.82 |
| Medical and paramedical staff is more prone for HIV infection | 66.07 | 70.37 | 78.85 | 85.45 |
| Treatment of HIV/AIDS patients requires special physiotherapy clinics | 53.57 | 64.81 | 69.23 | 74.55 |
| HIV/AIDS patients can be suspected from oral manifestations | 57.14 | 79.63 | 69.23 | 83.64 |
| A negative ELISA test rules out HIV infection | 80.36 | 87.04 | 84.62 | 87.27 |

Table 4: Mean attitude scores.

| Attitude score | BPT 1st Year | BPT 2nd Year | BPT 3rd Year | BPT 4th Year |
|----------------|--------------|--------------|--------------|--------------|
| Positive       | 35.55        | 34.70        | 33.09        | 34.89        |
| Negative       | 64.64        | 63.09        | 60.17        | 63.44        |

Table 5: Attitude scores.

| Attitude score | BPT 1st Year (56) % | BPT 2nd Year (54) % | BPT 3rd Year (52) % | BPT 4th Year (55) % |
|----------------|---------------------|---------------------|---------------------|---------------------|
| Positive       | 9 (16.07)           | 5 (9.25)            | 5 (9.61)            | 9 (16.36)           |
| Negative       | 42 (75)             | 42 (77.78)          | 35 (67.03)          | 41 (74.54)          |
| Passive        | 5 (8.92)            | 7 (12.96)           | 12 (23.07)          | 5 (9.09)            |
The highest positive attitude score (94.4%) was obtained for the statement “It is my moral responsibility to treat HIV/AIDS patients” by BPT 2nd year students. The statement “If my colleague or assistant is HIV-infected I will stop working with him/her” received maximum passive attitude (35.71%), by BPT 2nd year students as shown in Table 6. Karl Pearson correlation test showed no significant correlation between the knowledge of the students and the attitude to treat PLWHA (P>0.01%).

**DISCUSSION**

The results of our study revealed several interesting facts regarding the knowledge, attitude and willingness of physiotherapy students to treat patients affected with HIV/AIDS. Majority of BPT fourth-year and third year students showed higher level of knowledge about HIV/AIDS as compared to the second and first-year students. The level of knowledge was associated significantly with the year of study (P<0.001%). This might have been subjected due to the fact that knowledge level improves as one progresses & successes through the curriculum through the course of time. It was found that students showed moderate knowledge with respect to modes of HIV transmission and infection control practices. Surprisingly, most students thought that special physiotherapy clinic setups are required to treat HIV/AIDS patients. This enlightened the bitter fact that there was lack of practical exposure for students in delivering physiotherapy care to People Living with HIV/AIDS. The attitude and willingness to treat HIV/AIDS patients was assessed using a five-point Likert scale. An overall negative attitude of students towards HIV/AIDS patients was found. In the present study the attitude of the students was not related to the year of the study (P>0.001%).

It was encouraging finding from the present study that the majority of the students accepted that it was their moral responsibility to treat HIV/AIDS patients, with a positive attitude score of 92.86%, 94.44%, 88.46% & 90.91% by the BPT first, second, third & fourth-year students respectively. At the same time the willingness to treat HIV/AIDS patient electively was quite low, with an average negative attitude score of 51.73%. The fear of HIV contagion and AIDS phobia was further revealed from the average negative attitude score of 48.47%, stating that they will stop working with a colleague if he or she is HIV-infected and an average score of 51.83% by the students for the statement that they would end the relationship if a friend or spouse was HIV-seropositive. There is limited access to healthcare facilities for PLWHA, and there is negative attitude and unwillingness of the healthcare providers to treat PLWHA. Fear of HIV contagion has been found to be the primary reason behind the negative attitude (68.45%) and unwillingness of physiotherapy students and physiotherapists to treat HIV/AIDS patients. Further it was interesting to know that such fear and prejudice existed towards HIV/AIDS patients and was not encountered with other potentially infectious patients such as those suffering from Hepatitis B. Kopacz et al, in their study found that students with homosexual and HIV-positive friends were significantly more tolerant with a positive attitude towards HIV/AIDS patients, arguing that friendship with homosexual or HIV-positive individuals may exert a positive impact on

**Table 6: Attitude towards and willingness to treat HIV/AIDS patients.**

| Questions                                                                 | Score (%) |
|--------------------------------------------------------------------------|-----------|
| It is my moral responsibility to treat HIV/AIDS patients                 | 92.86     |
| One can safely treat HIV/AIDS patients                                   | 67.86     |
| I will treat HIV/AIDS patients for elective treatment                    | 44.64     |
| Risk of HIV contagion is high, hence special precautions have            | 85.71     |
| to be followed to treat HIV/AIDS patients                                |           |
| Patients with HIV infection can lead a normal life                       | 80.36     |
| Status of HIV infection of a patient should be disclosed to all          | 76.79     |
| the family members of patient                                            |           |
| I will deliver emergency care to HIV/AIDS patients if need arises        | 55.36     |
| All patients treated in physiotherapy clinic should be                   | 71.43     |
| considered potentially infectious                                        |           |
| If I know my friend or my spouse has HIV infection, I end the            | 41.07     |
| relationship                                                             |           |
| If my colleague or assistant is HIV-infected I will stop working         | 35.71     |
| with him/her                                                             |           |
| Physiotherapists with HIV/AIDS should not be allowed to                  | 57.14     |
| practice                                                                 |           |
|                                                                   | BPT 1st year (56) | BPT 2nd year (54) | BPT 3rd year (52) | BPT 4th year (55) |

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students’ attitude. In the study we found that students had lesser knowledge on ethical issues concerned with HIV/AIDS. The average attitude score of 72.19% by the students for the statement ‘HIV infection status of the patient should be disclosed to all the family members’ shows lack of comprehensive understanding on the matter of confidentiality in healthcare management, as each and every student should be knowing the value of confidentiality and seriousness of matter.

From the study it was found that the level of HIV/AIDS knowledge was not a significant predictor of attitude and willingness to treat HIV/AIDS patients (P>0.01%). The present study findings differed from previous researches in which it was found that higher knowledge scores about HIV/AIDS among students were significantly associated with a more positive attitude and willingness to treat HIV/AIDS patients. In our study although the students exhibited excellent to good knowledge about HIV/AIDS, the majority of them felt that the risk of HIV contagion by treating PLWHA was high. This worry of occupational exposure may explain the reason of the negative attitude of the students towards PLWHA in the study. According to Azodo C et al the teaching methodology should go beyond a didactic communication of one-way transmission of knowledge and focus on problem-based learning that includes small experimental groups or affective component. Also, incorporating psychological aspects of treating HIV/AIDS patients in the curriculum has been recognized as an effective method of improving the attitude of students towards PLWHA and sensitizing them to be sympathetic according to a study by Nasir et al.

CONCLUSION

From the present study it was interpreted that the overall knowledge of Physiotherapy students about HIV/AIDS was good, although, there were inadequacies in terms of modes of HIV transmission and precautions. Though the knowledge about HIV/AIDS was appropriate, yet students’ attitude towards PLWHA was negative. The results indicate that the physiotherapy students are not well prepared to treat HIV/AIDS patients. They lack willingness to treat PLWHA. Physiotherapy students must therefore be made aware of and should know the importance of providing treatment to HIV/AIDS patients. This can be achieved by proper stimulation and making the students more sensitized & empathetic towards People Living with HIV/AIDS, apart from imparting appropriate knowledge about the disease, regarding its ways of transmission, recognition of oral manifestations, treatment and monitoring the condition.

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### Appendix 1: Questionnaire

#### Knowledge and awareness of HIV/AIDS

| Question                                                                 | Answers                  |
|-------------------------------------------------------------------------|--------------------------|
| 1. HIV infection can spread by touching, kissing, sharing food and drinks. | a) Correct  b) Incorrect |
| 2. Saliva can be a vehicle for transmission of HIV infection             | a) Correct  b) Incorrect |
| 3. HIV/AIDS patients can be identified by physical appearance            | a) Correct  b) Incorrect |
| 4. Needle stick injury can transmit HIV virus                            | a) Correct  b) Incorrect |
| 5. Aerosols from hand piece can be a vehicle for transmission of HIV infection | a) Correct  b) Incorrect |
| 6. ELISA/TRIDOT tests are screening tests for HIV infection              | a) Correct  b) Incorrect |
| 7. Western blot test is a confirmative test for HIV infection            | a) Correct  b) Incorrect |
| 8. Medical and paramedical staff is more prone for HIV infection         | a) Correct  b) Incorrect |
| 9. Treatment of HIV/AIDS patients requires special physiotherapy clinics| a) Correct  b) Incorrect |
| 10. HIV/AIDS patients can be suspected from oral manifestations          | a) Correct  b) Incorrect |
| 11. A negative ELISA test rules out HIV infection                       | a) Correct  b) Incorrect |

#### Attitude towards and willingness to treat HIV/AIDS patients

| Question                                                                 | Answers                  |
|-------------------------------------------------------------------------|--------------------------|
| 1. It is my moral responsibility to treat HIV/AIDS patients             | a. Strongly Agree  b. Agree  c. Neutral  d. Disagree  e. Strongly Disagree |
| 2. One can safely treat HIV/AIDS patients                               | a. Strongly Agree  b. Agree  c. Neutral  d. Disagree  e. Strongly Disagree |
| 3. I will treat HIV/AIDS patients for elective treatment               | a. Strongly Agree  b. Agree  c. Neutral  d. Disagree  e. Strongly Disagree |
| 4. Risk of HIV contagion is high; hence special precautions have to be followed to treat HIV/AIDS patients | a. Strongly Agree  b. Agree  c. Neutral  d. Disagree  e. Strongly Disagree |
| 5. Patients with HIV infection can lead a normal life                   | a. Strongly Agree  b. Agree  c. Neutral  d. Disagree  e. Strongly Disagree |
| 6. Status of HIV infection of a patient should be disclosed to all the family members of the patient | a. Strongly Agree  b. Agree  c. Neutral  d. Disagree  e. Strongly Disagree |
| 7. I will deliver emergency care to HIV/AIDS patients if need arises   | a. Strongly Agree  b. Agree  c. Neutral  d. Disagree  e. Strongly Disagree |
| 8. All patients treated in Physiotherapy clinic should be considered potentially infectious | a. Strongly Agree  b. Agree  c. Neutral  d. Disagree  e. Strongly Disagree |
| 9. If I know my friend or my spouse has HIV infection, I end the relationship | a. Strongly Agree  b. Agree  c. Neutral  d. Disagree  e. Strongly Disagree |
| 10. If my colleague or assistant is HIV-infected I will stop working with him/her | a. Strongly Agree  b. Agree  c. Neutral  d. Disagree  e. Strongly Disagree |
| 11. Physiotherapists with HIV/AIDS should not be allowed to practice   | a. Strongly Agree  b. Agree  c. Neutral  d. Disagree  e. Strongly Disagree |

#### Tick wherever appropriate

| Year          | Answers                  |
|---------------|--------------------------|
| a) Ist yr     | b) IInd yr  c) IIIrd yr  d) IVth yr |
| a) Male       | b) Female               |