



# Knowledge And Attitude About HIV, AIDS And Post-Exposure Prophylaxis Among Paramedical Students Of North-Eastern University, India

**Lakshmi Nandan Baruah<sup>1\*</sup>, Dr. Kangkana Dutta Phukan<sup>2</sup>, Dr. Rakibul Hasan Khan (PHD-HC)<sup>3</sup>**

<sup>1\*</sup>Bachelor of Radiography and Advanced Imaging Technology , Research Intern, Department of Radiology , Faculty of Paramedical sciences, Assam down town University, Guwahati, Assam, India.  
lakshmibaruah05@gmail.com

<sup>2</sup>M.B.B.S., M.D., Associate professor, Department of Dialysis, Faculty of Paramedical Sciences, Assam down town University, Guwahati, Assam, India. Email: dr.kangkanaduttaphukan@gmail.com

<sup>3</sup>Associate Dean and Assistant Professor, Department of Optometry, Faculty of Paramedical Sciences, Assam down town University, Guwahati, Assam, India. E-mail: rakibulhasankhan1988@gmail.com

**\*Corresponding Author:** Lakshmi Nandan Baruah

\*Department of Radiology, Faculty of Paramedical science, Assam downtown University, Guwahati, Assam, India. Phone number: +91 8876077730 Email : lakshmibaruah05@gmail.com

## Abstract

Human immunodeficiency virus (HIV) stigmatization takes place in all levels of health care system. Paramedical students should get proper training and education to interact with a PLHIV (People living with HIV) so that PLHIV can easily come forward for their treatment and Paramedics can assure quality care towards HIV positive patients. A cross-sectional study was conducted using a multistage area sampling method using a standardized questionnaire among 695 undergraduate students of various departments of Paramedical science of a North-Eastern University, India. The present study showed the perceptions regarding HIV and AIDS among the Paramedical students were not consistent. Students had misconceptions about the modes of HIV transmission and students had different attitudes towards HIV-positive person. Only 15.5% of students knew about Post-exposure prophylaxis. 93.5% of students felt the need of learning resources, training and guidance to deal with the PLHIV.

**Keywords:** AIDS; HIV; HIV positive patient; paramedical student; post-exposure prophylaxis; PLHIV.

## INTRODUCTION

Acquired Immunodeficiency Syndrome (AIDS) is a chronic, potentially life-threatening condition caused by the Human Immunodeficiency Virus (HIV). HIV is a single-stranded RNA retrovirus that infects and replicates with CD4 cells (T helper cells). HIV damages the immune system of a person and it interferes with the body's ability to fight infection and disease. HIV transmits through sexual contact, sharing needles, syringes, or from mother to infant [1]. HIV/AIDS is an emerging disease of the world, being the fourth most common infectious disease causing death globally. It is one of the most fatal diseases of the century [2]. According to World Health Organization, an estimated 37.7 million people worldwide were living with

HIV infection or disease by the end of 2020. According to a UN report, India is the third-largest HIV epidemic country. Two million one hundred thousand Indians account for about 4 out of 10 people infected with the deadly virus in the Asia-Pacific region [3].

Health care is one of the most obvious perspective stakeholder where prejudice and stigmatization related to HIV/AIDS occur [4]. It has been observed that the perceptions regarding HIV /AIDS are not consistent among the health workers, and there exist many misconceptions regarding HIV/AIDS [5]. The students of the health care system are hesitant to discuss the topic with their family members [6]. Nursing and Paramedical staffs are at higher risk of getting infected by HIV

[7]. Accidental contact with infected syringes, during assistance in emergency cases and Hemodialysis are the major ways where a healthcare worker can get infected by HIV. 2.5% of the HIV positive patients have acquired the virus through occupational exposure [8]. Post Exposure Prophylaxis (PEP) is the use of antiretroviral drugs after a single high-risk event to stop HIV seroconversion. Every Health care worker should have information about Post Exposure Prophylaxis so that they can use the drug if needed. A study done in a tertiary Health Care Hospital in South India showed that among 339 workers 23.0% nurse and 14.3% Paramedical workers received PEP after needle prick injury [8].

Many international studies have been done on Paramedical students, though not much research has been done in this field in India particularly in the Northeastern region. The knowledge and attitude of Paramedical students on this topic is equally important as they bridge the gap between the Physicians and the Patients. This study will help us in the analysis of students understanding regarding the HIV, AIDS, PLHIV, PEP which in turn will help in minimizing the risk related to occupational exposure.

## **MATERIAL AND METHODS**

A Cross sectional study was conducted among the Paramedical students of a University from North-eastern part of India from February to May, 2021 to check the knowledge and attitude regarding Human immunodeficiency (HIV), Acquired immune deficiency syndrome (AIDS) And People living with HIV (PLHIV). Total number of 695 Students from seven different undergraduate departments of Paramedical science were taken into the study. The study was done with the help of the 3 sectional questionnaires in hard sheets.

### **Study Participants:**

The participants of the study were 695 students of the First year, Second year and Third year Undergraduate students of a University from the i) Department of Physiotherapy; ii) Department of Radiography and Advanced Imaging Technology; iii) Department of Trauma, Emergency and

Disaster management, iv) Department of Medical Laboratory; v) Department of Operation theater Technology; vi) Department of Dialysis and vii) Department of Optometry. We included the students in the study after giving them the necessary information and obtaining their consent.

### **Inclusion Criteria:**

1. Paramedical students of different departments.
2. The students who volunteered themselves were included in the study.

### **Exclusion Criteria:**

1. The students who were not interested to be part of the study.

### **Data Collection and Analysis:**

The questionnaires were filled in the class using hard sheets under the supervision of the Principal Investigator and the statistical analysis using mean and the percentages were calculated.

## **RESULTS**

A total of 695 Paramedical students were present during the time of data collection. There were 363 girls and 332 boys and their ages ranged between 18-27 years.

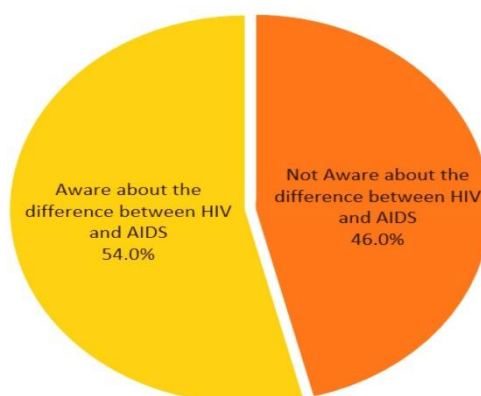
Out of 695 students; 72 students were from the Department of Dialysis; 201 students were from the Department of Medical Laboratory; 47 students were from the Department of Trauma, Emergency and Disaster management; 67 students were from the Department of Optometry; 132 students were from the Department of Physiotherapy; 128 students were from the Department of Radiography and Advanced Imaging Technology and 48 from the Department of Operation Theater Technology.

### **Knowledge about the difference between Human Immunodeficiency Virus (HIV) and Acquired immunodeficiency syndrome (AIDS):**

94.8% of the students knew the full form of HIV and 72.8% knew about AIDS. 37.0% of students responded that both HIV and AIDS are the same and 9% of the students were not

sure about it. The internal consistency of the questionnaire is present in **Figure A**.

**Figure A:** The percentage of the study population who actually understand the difference between Human immunodeficiency and Acquired immunodeficiency syndrome (N=659).



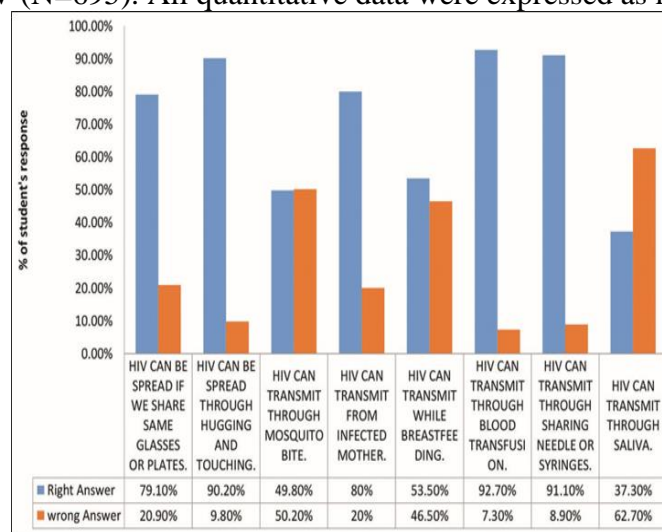
HIV=Human immunodeficiency, AIDS= Acquired immunodeficiency syndrome. Data expressed as percentage.

#### Knowledge about modes of Transmission:

When it came to the mode of transmission of HIV, the study showed 79.1% of the students knew HIV can't spread if we share the same glass or plate and 90.2% of students knew HIV can't transmit through hugging and physical touch with a HIV positive person. Mosquitoes cannot transmit HIV but only 49.8% of students were aware of it. 80.0% of Students knew that HIV can transmit from infected mothers and 53.5% of students responded that

HIV could also transmit while breastfeeding. Students had good knowledge that HIV can transmit through blood transfusion and 92.7% of students knew about it. 91.1% of students knew HIV can transmit if we share the same needle or syringe. 40.4% of students thought HIV could transmit through Saliva and 22.3% of the students were not sure about it. The internal consistency of the questionnaire is present in **Figure B** and **Table A**.

**Figure B:** The percentage of the study population who have proper knowledge on the mode of transmission of HIV (N=695). All quantitative data were expressed as mean and percentage.



HIV= Human immunodeficiency, AIDS= Acquired immunodeficiency syndrome, PLHIV= And People living with HIV, PEP= Post Exposure Prophylaxis.

**Table A:** Basic knowledge about HIV and AIDS (N=695)

Sr. No.	Variables	Responses	N (%)	Correct Knowledge%
---------	-----------	-----------	-------	--------------------

1.	What is the full form of HIV?	A) Human infectious Virus B) Human Immunodeficiency Virus C) Human Immuno Efficiency Virus	8 (1.2%) 659 (94.8%) 28 (4.0%)	94.8%
2.	What is the full form of AIDS?	A) Acquired Immunodeficiency Syndrome B) Acquired Immune decreasing Syndrome C) Accquired Immune Deficiency Syndrome	506 (72.8%) 14 (2.0%) 175 (25.2%)	72.8%
3.	HIV positive and AIDS are same thing.	Yes No Not sure	257 (37.0%) 375 (54.0%) 63 (9.0%)	54.0%
4.	HIV can be spread if we share same glasses or plates.	Yes No Not sure	96 (13.8%) 550 (79.1%) 49 (7.1%)	79.1%
5.	HIV can be spread through hugging and touching.	Yes No Not sure	41 (5.9%) 627 (90.2%) 27 (3.9%)	90.2%
6.	HIV can transmit through mosquito bite.	Yes No Not sure	239 (34.4%) 346 (49.8%) 110 (15.8%)	49.8%
7.	HIV can transmit from infected mother.	Yes No Not sure	556 (80.0%) 53 (7.6%) 86 (12.4%)	80.0%
8.	HIV can transmit while breastfeeding.	Yes No Not sure	372 (53.5%) 141 (20.3%) 182 (26.2%)	53.5%
9.	HIV can transmit through blood transfusion.	Yes No Not sure	644 (92.7%) 18 (2.6%) 33 (4.7%)	92.7%
10.	HIV can transmit through sharing needle or syringes.	Yes No Not sure	633 (91.1%) 28 (4.0%) 34 (4.9%)	91.1%
11.	HIV can transmit through saliva.	Yes No Not sure	281 (40.4%) 259 (37.3%) 155 (22.3%)	37.3%
12.	HIV doesn't have any treatment.	Yes No Not sure	232 (33.4%) 297 (42.7%) 166 (23.9%)	42.7%
13.	Have you heard about PEP?	Yes No	114 (16.4%) 581 (83.6%)	16.4%
14.	White the full form of PEP?			15.5%

HIV= Human immunodeficiency, AIDS= Acquired immunodeficiency syndrome, PEP= Post Exposure Prophylaxis. All quantitative data were expressed as mean and percentage.

#### Knowledge about Antiretroviral therapy:

More than half of the students (57.3%) were unaware of the availability of HIV treatment. The internal consistency of the questionnaire is present in **Table A**.

#### Knowledge about Post Exposure Prophylaxis (PEP):

16.4% of students had heard about PEP and only 15.5% of students knew the full form of PEP. The internal consistency of the questionnaire is present in **Table A**.

#### Attitude towards Patient care:

Every health care worker should provide treatment to an HIV positive patient following proper guidelines but it was found that 8.8% of students did not want to treat a HIV infected person and 11.3% were not sure about it. 59.9% of students said they would treat the HIV positive patient equivalently like any other patient. 13.5% of students agreed that Health care workers can refuse to treat if the person was HIV positive and 14.2% students were not sure about it.

24.3% of students wanted to keep PLHIV in an isolation ward and 21.0% were not sure about it. 26.8% of students agreed that HIV patients should not be allowed to stay with others in the same room for treatment and 19.7% were not sure about it. 64.2% of students wanted to share their workspace with an HIV positive person. 51.2% of students responded that HIV positive couple can have their children. The internal consistency of the questionnaire is present in **Table B**.

**Table B:** Comprehension and Students knowledge about People living with HIV (N=695).

Sr. No.	Variables	Responses	N (%)	Correct Knowledge%
1	Will you treat a patient if he/she is HIV infected?	Yes No Not sure	555 (79.9%) 61 (8.8%) 79 (11.3%)	79.9%
2	Do you think it's important to maintain the confidentiality of a HIV positive person?	Yes No Not sure	508 (73.1%) 107 (15.4%) 80 (11.5%)	73.1%
3	Will you treat people living with HIV differently?	Yes No Not sure	176 (25.3%) 416 (59.9%) 103 (14.8%)	59.9%
4	Should aids patients be kept in isolation ward?	Yes No Not sure	169 (24.3%) 380 (54.7%) 146 (21.0%)	54.7%
5	Should a HIV positive person be allowed to work in the same place as you work?	Yes No Not sure	446 (64.2%) 135 (19.4%) 114 (16.4%)	64.2%
6	Should health care worker be allowed to refuse care to people living with HIV?	Yes No Not sure	94 (13.5%) 502 (72.3%) 99 (14.2%)	72.3%
7	HIV patients can be in a room with other patients.	Yes No Not sure	372 (53.5%) 186 (26.8%) 137 (19.7%)	53.5%
8	HIV positive couple cannot have their own child.	Yes No Not sure	123 (17.7%) 356 (51.2%) 216 (31.1%)	51.2%

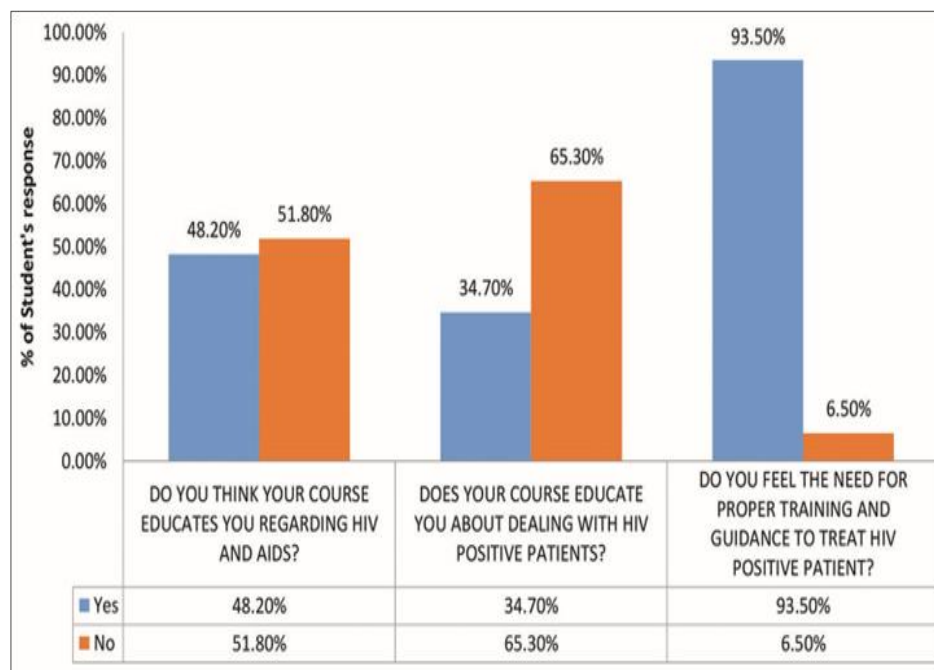
HIV= Human immunodeficiency, AIDS= Acquired immunodeficiency syndrome, PLHIV= And People living with HIV. All quantitative data were expressed as mean and percentage.

#### **Students' opinion about receiving proper training to deal with People living with HIV (PLHIV) and study material on HIV and AIDS:**

The study concluded that 51.8% of students thought their courses did not educate them properly on HIV, AIDS and PEP. According

to 65.3% of students, they did not receive any proper guidance and training to deal with HIV positive patients. 93.5% of students agreed that they need proper training and guidance to treat HIV positive patient. The internal consistency of the questionnaire is present in **Figure C**.

**Figure C:** Student's opinion about receiving proper training to deal PLHIV and study material on HIV and AIDS (N=695). All quantitative data were expressed as mean and percentage.



HIV= Human immunodeficiency, AIDS= Acquired immunodeficiency syndrome.

## DISCUSSION

HIV stands for Human immunodeficiency virus. It attacks cells in the immune system of the human body. The virus destroys T-helper cell which is a type of white blood cell in the immune system and uses these cells to make copies of themselves. On the other hand, Acquired immunodeficiency syndrome (AIDS) is a set of symptoms caused by HIV. A person is said to have AIDS when their immune system is too weak to fight off infection, and they develop certain symptoms and illnesses known as opportunistic infections [9]. The study shows 94.8% of students knew the correct full form of HIV and 72.8% of students knew the full form of AIDS. 54.0% of students were aware of the fact that HIV and AIDS are not the same.

Every health care professional has an important role to play in the detection and referral of a suspicious patient to physicians for early management not only to increase the lifespan of the patient but also to enhance the quality of life and to prevent its spread. Proper knowledge can decrease the taboo related to HIV and AIDS. Paramedical students should aware about different mode of HIV

transmission. Our study showed Paramedical Students had low to moderate knowledge when it came to different modes of HIV transmission as many misconceptions are still prevalent among them.

Post-exposure Prophylaxis is very important for health care workers so that they can use the drug in case of any occupational exposure. The study conducted by Harsha Vardhini et al showed there is a huge gap between the knowledge and practice of PEP among nurse and Paramedical workers. Our study showed 16.4% students had knowledge related to PEP. This can be improved by providing proper knowledge and formal training to every Health Care staff and Paramedics [2,5,8].

Early diagnosis and using proper Antiretroviral therapy can increase the CD-4 count of the human body of an HIV-positive patient. Indian government provides free treatment and drug supply for HIV-positive patients in Anti-Retroviral Therapy (ART) centers. 57.3% of students were unaware of the fact that there is treatment available for HIV positive patients. The internal



consistency of the questionnaire is present in **Table A**.

It is very important to teach ethics and positive friendly behavior to health care workers so that they can treat every patient equally. We could observe different viewpoints and attitudes of the students towards HIV positive people in our study. A study conducted among Nigerian students in various health disciplines revealed that health care professional students are hesitant to treat PLHIV [10]. Our study showed though the Paramedical students had many misconceptions related to Modes of HIV transmission and AIDS, 79.9% of the students were ready to treat the PLHIV. Which shows a positive attitude of the Paramedical students.

Maintaining the privacy of the HIV status of a patient is very important. It is an offence in India according to disclose a person's HIV status except under the directions of the court according to The HIV and AIDS (Prevention and Control) Act, 2017. 15.5% of students thought it's not important to maintain the confidentiality of an HIV positive patient and 11.5% were not sure about it.

HIV positive couple can have their child with proper planning. It is possible to have a safe and successful pregnancy without transmitting the disease either to the partner or to the offspring. Highly active antiretroviral therapy (HAART) has reduced the mother-to-child transmission rates to around 1-2% [11]. 51.2%

of students knew that the HIV positive couple can have their children.

## CONCLUSION

Based on the study on the sample population done by us, it has been seen that there are many misconceptions among the Paramedical students regarding Human immunodeficiency virus (HIV), Acquired immunodeficiency syndrome (AIDS) and People living with AIDS (PLHIV). HIV stigmatization is present in every level of the Health care system. All Paramedical students need to be provided with proper study material, seminar, workshops and training in their curriculum to create a friendly and quality healthcare system for the HIV positive people in India. It is desirable that during the entire Paramedical course, special emphasis is provided on dealing with HIV positive patients. This study can be taken forward to evaluate the knowledge about HIV and AIDS on to a larger population of Paramedical students in entire north eastern India.

**CONFLICT OF INTEREST:** Nil.

**FINANCIAL SUPPORT:** Nil.

## ACKNOWLEDGEMENT:

The authors would like to thank Assam downtown University to giving us opportunity to conduct the study. Special Thanks to Prof. Sunandan Baruah for his Guidance and help.

## REFERENCES

- <sup>1</sup>Fitzgerald G. HIV. TeachMeObGyn: Last update:14th April 2021 [cited 2021 July 4]. Available from: <https://teachmeobgyn.com/sexual-health/sexually-transmitted-infections/hiv/>
- <sup>2</sup> Mohammad A, Ahmad K, Saghar S, Mehdi R. Knowledge, attitude and Practice of Nursing and Medical students about HIV/AIDS and Hepatitis. *Open Public Health J* 2020;13:257-262.
- <sup>3</sup> Satheesh BC, Thilak SA, Sarada AK, Venugopalan PP, Madusoodanan KV. A study on awareness of HIV among first year MBBS students in a private Medical College, Kerala, India. *Int J Community Med Public Health* 2016;3(8):2305-8.

- <sup>4</sup> Yousuf A, Shah AF, Jan SM, Sidiq M, Baba IA. Awareness of HIV/AIDS infection and ethical concerns amongst dentistry students and auxiliary staff in a hospital setup in Kashmir, India. *Int J Community Med Public Health* 2016;3(10):2850-5.
- <sup>5</sup> Rairikar SV, Bhandari SR. Knowledge and attitude of paramedical staff and hospital support staff towards HIV infection. *J Cont Med A Dent* 2016;4(1).
- <sup>6</sup> Islam F, Roy S, Pathak R, Parashar M, Agarawala R, Kapilashrami MC, et al. Knowledge and Attitude About HIV/AIDS Among First Year Medical & Paramedical Students of a University in New Delhi. *National J Res Community* 2015;4:336-43.

<sup>7</sup> Kuhls TL, Viker S, Parris NB, Garakian A, Sullivan-bolyai J, Cherry JD. Occupational Risk of HIV, HBV and HSV-2 Infections in Health Care Personnel Caring for AIDS Patients. *Am J Public Health* 1987;77:1306-9.

<sup>8</sup> Vardhini H, Selvaraj N, Meenakshi R. Assessment on knowledge and practice of post exposure prophylaxis of HIV among staff of nurse and paramedical workers at a tertiary care hospital in South India. *Int J of pure Med Res.* 2020;5(4).

<sup>9</sup> Uyl DD, Horst-Bruinsma IEVD, Agtmael MV. Progression of HIV to AIDS: a Protective Role for HLA-B27?. *AIDS Rev* 2004;6:89-96.

<sup>10</sup> Oyeyemi AY, Jasper US, Aliyu SU, Oyeyemiz AL. Knowledge and attitude of health professional students toward patients living with AIDS. *Afr J Med Med Sci* 2012;41(4):365-71.

<sup>11</sup> Volmink J, Brocklehurst P. Antiretrovirals for reducing the risk of mother-to-child transmission of HIV infection. *Cochrane Database Syst Rev* 2002;(1): CD003510.