

Original Research Article

A cross-sectional study to assess the attitude towards people living with HIV-AIDS and its determinants among undergraduate medical students in Chennai, 2022

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Received: 25 February 2025

Revised: 01 May 2025

Accepted: 03 May 2025

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ABSTRACT

Background: Attitudes of medical students toward people living with HIV/AIDS (PLWHA) influence future clinical interactions and care delivery. This study assesses the empathy and avoidance scores among medical students and examines factors associated with these attitudes.

Methods: A cross-sectional study was conducted among medical students across pre-clinical, para-clinical and clinical phases. Demographic details, personal experiences with PLWHA and responses to a validated AIDS Attitude Scale were collected. Statistical analysis included Mann Whitney U and Kruskal Wallis tests.

Results: The mean age of participants was 21.24 years (SD=1.142). A majority (97.1%) exhibited non-therapeutic attitudes, with only 2.9% displaying supportive attitudes. Female students had higher empathy scores ($p=0.010$) and lower avoidance scores ($p<0.001$) than male students. Para-clinical students had higher avoidance scores compared to clinical-phase students ($p<0.001$). No significant differences were observed based on HIV knowledge or clinical exposure. Students who had personal encounters with PLWHA reported lower empathy scores ($p=0.028$).

Conclusions: Attitudinal gaps persist among medical students toward PLWHA. Gender and phase of study influence empathy and avoidance, while knowledge and exposure alone may not. Educational strategies focusing on reflective learning and stigma reduction may help improve therapeutic attitudes in future healthcare providers.

Keywords: Awareness, HIV, Medical students, PLWHA

INTRODUCTION

Since the discovery of the Human Immunodeficiency Virus (HIV), HIV Acquired Immunodeficiency Syndrome (HIV-AIDS) has remained one of the greatest global health threats over the past three decades. According to global HIV statistics, as of 2019, 38 million people were living with HIV and 1.7 million were newly infected that year.¹ Stigma toward people living with HIV/AIDS (PLWHA) continues to persist in the general population. It is critical that medical professionals and especially medical students—are equipped not just with clinical knowledge but also with the right attitude, free

from fear or prejudice, in caring for PLWHA.² The Joint United Nations Programme on HIV/AIDS (UNAIDS) has been at the forefront of coordinating global efforts with governments and non-governmental organizations to reduce the spread of HIV and ensure access to treatment for PLWHA.³ The spread of HIV within communities is influenced not only by sexual behaviors but also by the community's knowledge and attitudes toward safe sex and HIV prevention.^{4,5} This highlights the importance of continuous education, especially among healthcare workers, to stay updated on HIV prevention and treatment. Despite these efforts, fear and avoidance of PLWHA still prevail among healthcare professionals.⁶

Most undergraduate medical curricula cover the origin, pathogenesis, transmission, treatment and complications of HIV/AIDS, but often lack emphasis on cultivating the right attitudes toward PLWHA. Studies conducted in various countries including the United States, Israel, the UK, Pakistan and parts of India have assessed medical students' knowledge, awareness and attitudes. These studies often reveal poor attitudes among students, prompting reforms in medical education.

Given this context, similar evaluations are necessary in our country as well. Today's medical students are tomorrow's healthcare providers for PLWHA. It is therefore essential that they possess not only accurate knowledge but also empathetic and nonjudgmental attitudes. This study aims to assess the attitudes of undergraduate medical students toward PLWHA and to identify the factors influencing their attitudes.

METHODS

This is a cross-sectional study conducted between February 2022 to April 2022, among undergraduate MBBS students in one of the oldest medical colleges in Chennai, Rajiv Gandhi Government General Hospital and Madras Medical College. The College has 250 students per batch. The inclusion criteria were undergraduate MBBS students with at least one year of clinical exposure. The exclusion criterion was students who did not provide consent to participate. This facilitated stratification of the population and systematic data collection. The sample size was calculated using the formula: $N = Z^2 pq / d^2$, where N is the sample size, Z value for $\alpha=0.05$ is 1.96, $p=0.5$ (assuming maximum variability), $q=1-p$, d =absolute precision, set at 5%. Applying the formula $N = (1.96)^2 \times 0.5 \times (1-0.5) / (0.05)^2 = 384$.

Adding 10% for potential non-responses, the total sample size was adjusted to 422. Simple random sampling was employed. A complete list of students with clinical exposure from Phase 2, Phase 3 (Part 1) I and Phase 3 (Part II) was obtained and arranged alphabetically. The list was then serially numbered and 422 students were selected using a computer-generated random number table. Of these, 309 students consented to participate. Participants' who consented were provided with a self-administered, semi-structured questionnaire. Adequate time was given for completion and clarifications were provided when required.

The study utilized a pre-designed and pre-tested semi-structured questionnaire, in English, comprising four sections: a) Demographic details b) Attitude c) Knowledge d) Personal experience.

Attitude was assessed using the AIDS Attitude Scale (AAS) developed by Froman, Owen and Daisy (1992).⁷ The AAS is a validated, self-reported instrument to evaluate healthcare professionals' attitudes towards

individuals with HIV/AIDS. It consists of 21 items: 14 empathetic (positive attitude) and 7 avoidant (negative attitude) statements, rated on a 5-point Likert scale (1=strongly disagree to 5=strongly agree).

A higher empathetic subscale score reflects a more supportive attitude. A higher avoidant subscale score indicates a more negative attitude. The general attitude score is derived by subtracting the avoidant score from the empathetic score, yielding a range from -5 to +5. Positive scores reflect a supportive, therapeutic attitude. Negative scores indicate a non-supportive, intolerant attitude.

A 5-point scale was used (rather than the original 6-point) to incorporate a neutral option and improve clarity. HIV knowledge was assessed using the HIV-KQ-18, a validated 18-item questionnaire developed by Carey and Schroder (2002). It evaluates general knowledge on HIV transmission, prevention and treatment. Participants responded with "True," "False," or "Don't know."

Knowledge levels were categorized based on the number of correct responses.

High: 15–18, Moderate: 11–14, Low: 0–10

Personal experience

This section explored students' personal encounters with people living with HIV/AIDS (PLWHA), either among family or friends and in hospital. These factors were considered important influencers of students' attitudes towards PLWHA.

Data analysis

The data was entered in MS Excel and was analyzed using SPSS Version 23. Continuous variables following normal distribution are presented in mean and standard deviation and median and inter quartile range used for non-normal distribution. Since the variables did not follow normal distribution, non-parametric test was performed.

RESULTS

The study was conducted in a medical college with representation from pre-clinical (35%), para clinical (50.2%), Clinical (15%) branches. The mean age of the study participants is 21.24 (SD-1.142). The demographic details of the study participants and their personal encounters towards people living with HIV is given in Table 1. Knowledge towards HIV among study participants is given in Figure 1. The avoidance and empathetic score are presented as box and whisker plot in Figure 2. Among the study participants, majority (97.1%) had intolerant, non-therapeutic attitude and 2.9% had supportive attitude.

The difference in mean empathetic and avoidance score across different demographic and personal encounters among medical students is given in Table 2.

The women medical students had a lower avoidance score, higher empathy and overall AIDS attitude score compared to men which was statistically significant.

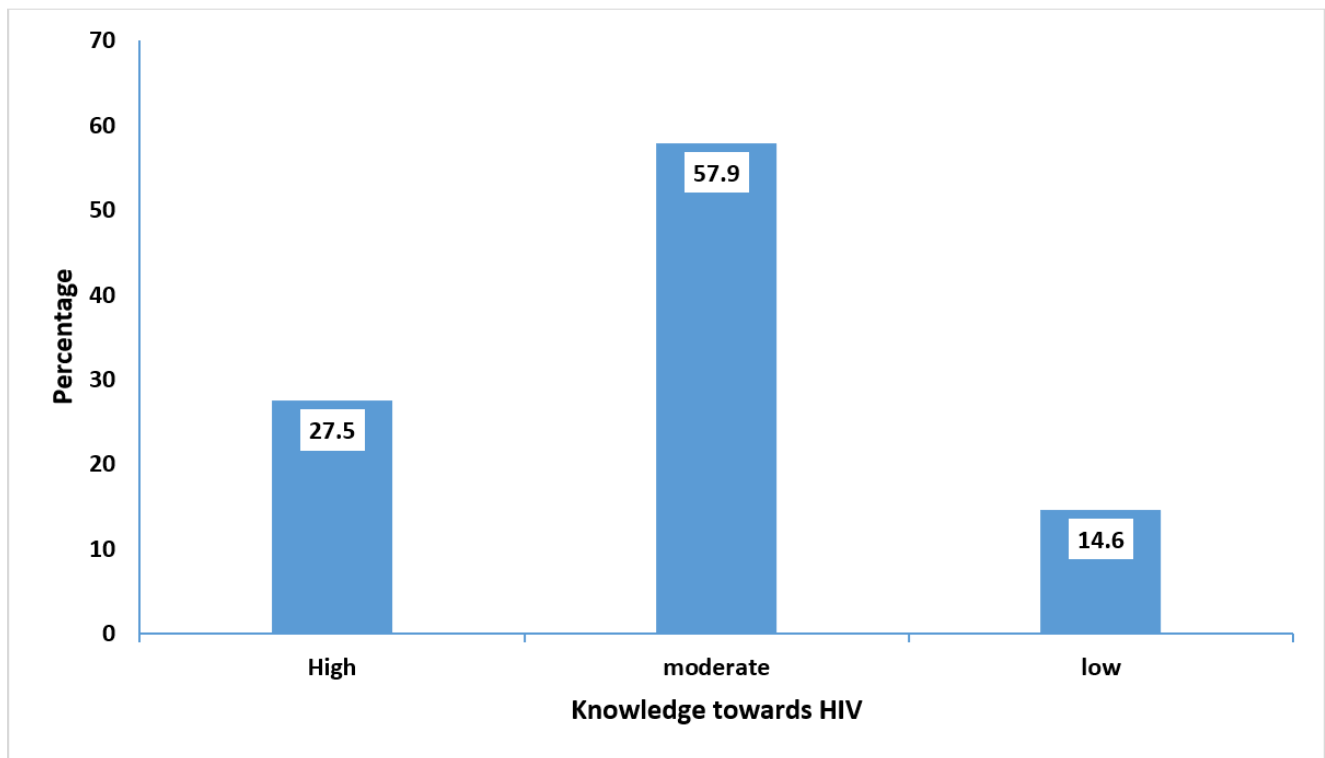


Figure 1: Knowledge towards HIV among medical students.

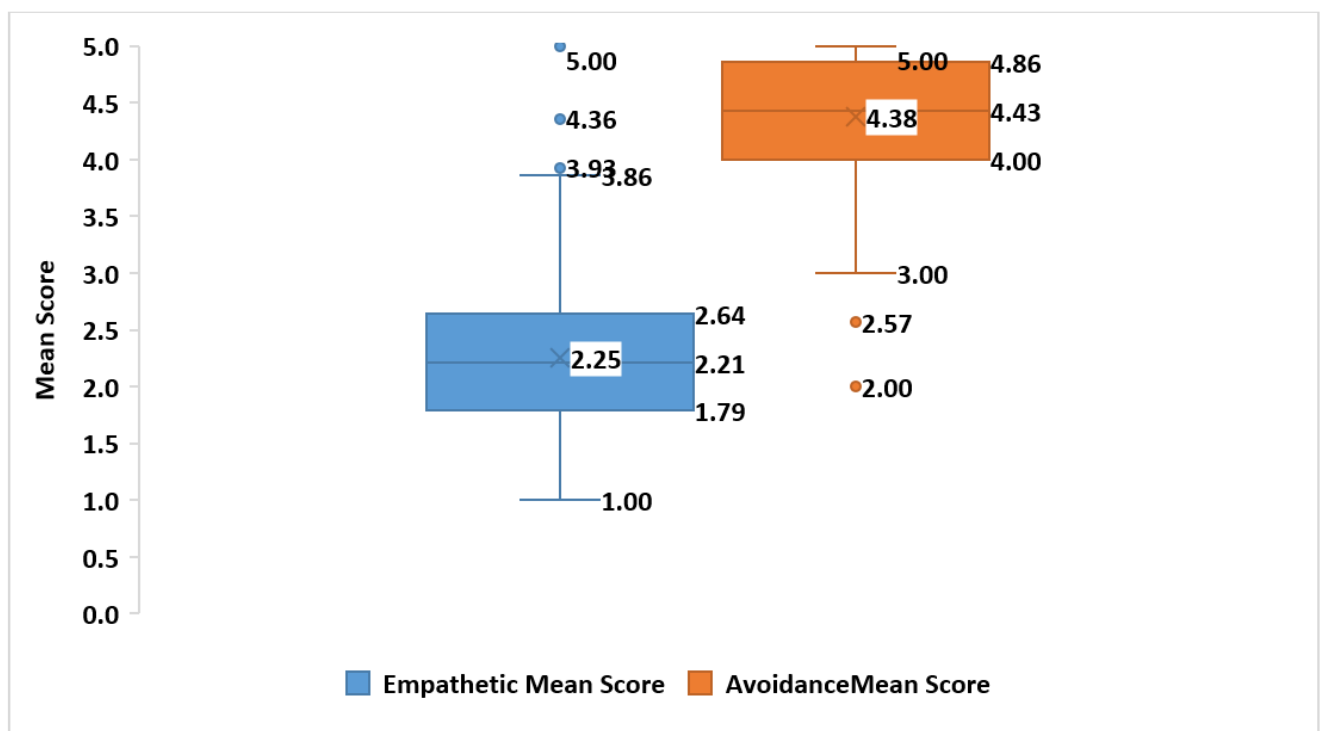


Figure 2: Empathetic and avoidance mean score among medical students.

Table 1: Demographic details and personal experience towards people living with HIV among medical students.

		Frequency	%
Gender	Female	144	46.60
	Male	165	53.40
Current phase in medical course	Phase 3	46	14.8
	Phase 2	155	50.2
	Phase 1	108	35.0
Ever encountered PLWHA among my family and friends	Yes	11	3.6
	No	291	94.2
	Maybe	7	2.2
Ever taken history or examined a PLWHA in Hospital	Yes	86	27.8
	No	211	68.3
	Maybe	12	3.9

Table 2: Determinants of AIDS attitude score among medical students.

		Empathy score		Avoidance score	
		Mean (SD)	P value	Mean (SD)	P value
Gender^{\$}	Female	2.13 (0.65)	0.010*	4.5 (0.46)	<0.001*
	Male	2.35 (0.65)		4.27 (0.59)	
Year of study[#]	Clinical	2.28 (0.68)	0.198	4.21 (0.62)	<0.001*
	Para clinical	2.19 (0.66)		4.49 (0.51)	
	Pre-Clinical	2.3 (0.64)		4.28 (0.52)	
Encountered PLWHA (Family/Friends) ^{\$}	Yes	1.87 (0.58)	0.028*	4.58 (0.61)	0.088
	No/maybe	2.26 (0.66)		4.37 (0.54)	
Taken history or examined PLWHA^{\$}	Yes	2.22 (0.73)	0.679	4.37 (0.48)	0.693
	No/maybe	2.25 (0.63)		4.38 (0.56)	
Knowledge towards HIV	Low	2.37 (0.66)	0.073	4.27 (0.50)	0.191
	Moderate	2.28 (0.62)		4.39 (0.52)	
	High	2.09 (0.72)		4.39 (0.60)	

*P value is less than 0.05 thus denoting that the difference in mean score is significant, \$-Mann Whitney U test, #-Kruskal Wallis Test.

DISCUSSION

This study describes the attitudes of medical students toward people living with HIV/AIDS (PLWHA). The majority of participants (97.1%) showed a non-therapeutic attitude, while 2.9% demonstrated a supportive attitude. High levels of stigma and discriminatory attitudes toward PLWHA among healthcare providers have been previously reported.⁹⁻¹¹

The overall avoidance score among medical students was high and the empathy score was low. This suggests that most students tend to maintain emotional distance from PLWHA and may experience discomfort or reluctance in engaging with them. The findings indicate that current training or experiences during medical education may not be sufficient to foster therapeutic attitudes towards PLWHA.¹¹

Female students had higher empathy scores and lower avoidance scores compared to male students and these differences were statistically significant ($p=0.010$ for empathy, $p<0.001$ for avoidance). This suggests a gender difference in attitudes towards PLWHA among medical students. Such gender difference is also observed in other studies conducted in medical students.¹²

Students in the para-clinical phase reported higher avoidance scores compared to students in the clinical phase ($p<0.001$). Empathy scores did not differ significantly across the years of study ($p=0.198$). Clinical exposure may be associated with lower avoidance behavior, although its effect on empathy was not evident.¹³

Students who reported having encountered PLWHA among family or friends had lower empathy scores ($p=0.028$). This finding suggests that personal encounters

alone may not be associated with higher empathy toward PLWHA.

There was no statistically significant difference in empathy or avoidance scores based on whether students had taken history from or examined a PLWHA in a hospital setting. This indicates that clinical exposure alone may not influence attitudes without additional structured interventions.

Knowledge levels regarding HIV were not significantly associated with either empathy or avoidance scores. This suggests that knowledge about HIV infection does not directly translate into more empathetic or less avoidant attitudes.

Overall, the findings indicate that gender and phase of study may influence attitudes toward PLWHA, while knowledge and clinical encounters without structured reflection may not be sufficient to modify these attitudes.

The findings suggest a need to strengthen the curriculum to address attitudes toward PLWHA. Educational strategies may include structured reflection, guided patient interactions and integration of values-based modules that focus on stigma, empathy and communication. The data indicate that clinical exposure without targeted educational support may not lead to changes in avoidance or empathy. Curriculum planners may consider incorporating longitudinal and experiential components that address both knowledge and attitudinal outcomes in the context of HIV care.

This study has several strengths. It included participants from all phases of medical education, allowing for comparison of attitudes across different stages of training. The use of a validated scale to assess both empathy and avoidance provided reliable measurement of attitudes toward PLWHA. However, the study also has limitations. As a single-institution study, the findings may not be generalizable to other settings. Responses were self-reported and may be influenced by social desirability bias. Clinical exposure was assessed only through self-report, without exploring the depth or quality of those encounters.

CONCLUSION

This study highlights the presence of non-therapeutic attitudes among a majority of medical students toward people living with HIV/AIDS. Higher avoidance and lower empathy scores were observed, with gender and phase of study showing significant associations with these attitudes. Knowledge and clinical exposure alone did not appear to influence empathy or avoidance scores. These findings point to the need for targeted educational interventions that go beyond information delivery, with a focus on shaping professional attitudes and preparedness for HIV care.

Funding: No funding sources

Conflict of interest: None declared

Ethical approval: The study was approved by the Institutional Ethics Committee

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Cite this article as: Murali S, Subramaniam S, Priyanka G, Manikgantan S. A cross-sectional study to assess the attitude towards people living with HIV-AIDS and its determinants among undergraduate medical students in Chennai, 2022 *Int J Community Med Public Health* 2025;12:2621-6.