

# The Relationship Between HIV/AIDS Knowledge and Stigmatizing Attitudes Towards People Living with HIV/AIDS: An Educational Intervention Study

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**Objective:** The aim of this study is to assess the impact of educational interventions on knowledge and attitudes toward HIV/AIDS, with the goal of reducing stigma.

**Methods:** A cross-sectional epidemiological study was conducted. This intervention study assessed knowledge and attitudes about HIV/AIDS using a 5-point Likert scale. Participants, selected by convenience sampling method, included patients, their relatives, and healthcare providers at a University Hospital, excluding those with HIV/AIDS. After completing a pre-test questionnaire, participants received written information from an infectious disease specialist on HIV/AIDS, covering prevalence, transmission, prevention, and treatment per WHO guidelines. A post-test was then administered to evaluate changes in knowledge and attitudes. The study used a validated Turkish attitude scale. Statistical analysis was performed using SPSS 23.0. Continuous variables were presented as mean  $\pm$  standard deviation or median and range. Correlation analysis examined the relationship between HIV/AIDS knowledge and stigmatizing attitudes.

**Results:** In the study conducted with 388 participants, the mean age was 34, with 48.7% male and 51.3% female. Education significantly increased HIV/AIDS knowledge and improved empathetic, accepting attitudes toward individuals living with HIV ( $p < 0.05$ ).

**Conclusion:** These results suggest that educational interventions should be implemented widely, especially in healthcare settings, to combat stigma. Future actions could include integrating similar programs into routine training for healthcare workers, patient education initiatives, and community outreach. Expanding the approach to other regions and monitoring long-term effects would further support stigma reduction.

**Keywords:** HIV/AIDS, stigma, education, attitude, knowledge

## Introduction

Currently, HIV/AIDS treatment has made remarkable strides, transforming the disease from a fatal condition to a manageable chronic illness. Advances in antiretroviral therapy (ART) now allow people with HIV to live long, healthy lives with near-normal life expectancies.<sup>1</sup>

Effective ART can also reduce viral loads to undetectable levels, preventing transmission (U=U: undetectable = untransmittable).<sup>2</sup> Despite these developments, HIV/AIDS continues to be a major public health problem, especially in low- and middle-income countries such as Türkiye. There are many reasons for this; stigma is one of the important reasons.<sup>3</sup>

HIV-related stigma describes negative beliefs, feelings, attitudes and perceptions towards people living with HIV (PLHIV).<sup>4</sup> Examples of stigmatizing attitudes include viewing HIV-positive individuals as cursed, sinful, or dirty, refusing friendships, advocating for their isolation from society and work. Such behaviors can lead to feelings of loneliness, shame, and social isolation in those living with HIV. This view of life and continued discrimination may cause these patients to experience discrimination, exclusion, unemployment, economic and social collapse, and lead to mental health disorders such as depression, deterioration in mental health and suicide. In addition, consequences such as not getting tested and avoiding treatment due to stigma cause the disease to become more

severe in the later stage.<sup>3,5,6</sup> Therefore, people may have been reluctant to get tested, causing it to spread in the community.<sup>7-9</sup>

Stigma related to HIV/AIDS remains a significant barrier to individuals' ability to enter treatment, continue treatment, and cope with psychosocial. Understanding the scope and underlying causes of stigma/discrimination is crucial to developing strategies to reduce them. It has been suggested that the level of knowledge about HIV/AIDS is associated with effective prevention of the spread of HIV/AIDS and stigmatization from HIV/AIDS.<sup>10,11</sup> Taking into account its individual and social impacts, increasing knowledge and awareness about HIV is vital in combating stigma. Informing the society on this issue can lead individuals to act consciously and develop positive behaviors.

The aim of this study is to assess the impact of educational interventions on knowledge and attitudes toward HIV/AIDS, with the goal of reducing stigma. By increasing understanding, the study contributes to public health by fostering more empathetic attitudes, which can reduce discrimination, improve HIV prevention efforts, and encourage treatment adherence. Educated communities are more likely to support testing, engage in preventive measures, and create a supportive environment for those living with HIV, ultimately improving overall public health outcomes.

## Methods

### Research Design

This educational Intervention study was performed as a cross-sectional survey.

### Sample and Settings

This study was conducted over a period of 1 month in Balikesir Medical Faculty Training and Research Hospital. All participants who consented to join the study were provided with detailed information about its purpose and scope and were informed that they could withdraw at any time without needing to give a reason. Written informed consent was obtained from each participant. First of all, a scale of knowledge and attitudes about HIV/AIDS was administered. After the first questionnaire, the participant was informed by the infectious diseases specialist with a written text on the subject. Information was given about the topics covered, general information about AIDS, HIV prevalence, diagnosis, ways of transmission, prevention methods and treatment according to World Health Organization information. Then, the knowledge and attitude scale was re-evaluated (pre-test post-test, etc). Questionnaire, scale evaluation and information about AIDS/HIV were made face to face by infectious diseases specialist.

### Inclusion Criteria

Patients over the age of 18 who apply to the University Hospital for any reason other than HIV/AIDS health problem, relatives of patients and health care providers, participants who consented to participate.

### Exclusion Criteria

Persons younger than 18 years or living with HIV/AIDS (PLHIV). Participants who did not agree to participate. The questionnaire used, the questions, the attitude scale and the information text are presented in ([Appendix 1](#)). The data were collected in 3 stages in the study.

- 1) Demographic Data (Age, Gender, Education, etc).
- 2) Knowledge Questions
- 3) Psychological attitude-scale questions

The questionnaire and scale were made before and after the information.

### Sample Size and Selection

The sample size was determined using Epi Info 7 at a 95% confidence interval, with an acceptable margin of error at 5%. Convenience sampling method was used for sample selection.

Dependent Variable (main output): 5-point Likert-type attitude scale for Stigma PLHIV score ([Appendix 1](#)). In the study conducted in Turkey, the 5-point Likert-type attitude scale, which was presented online in the Turkish Assessment Tools Index and proved to be valid and reliable, which can be used to measure attitudes towards individuals living with HIV/AIDS, was used.<sup>12</sup>

Independent Variable: HIV/AIDS score information ([Appendix 1](#)). Participants were asked ten HIV/AIDS information questions. Ten questions were asked about the transmission and prevention of HIV. These questions are widely used to measure comprehensive knowledge about HIV/AIDS (UNAIDS, 2008). Asked. Participants' knowledge of HIV/AIDS was assessed by giving 1 point for each correct answer and 0 for incorrect answers (min 0, max 10). Higher scores indicate more comprehensive knowledge of HIV/AIDS.

## Statistical Analysis

Statistical analyses were carried out using SPSS (Statistical Package for the Social Sciences) version 23.0. Continuous variables were expressed as mean and standard deviation, or as median and range. A correlation test was performed to examine the relationship between knowledge of HIV/AIDS and stigmatizing attitudes toward individuals living with HIV/AIDS. A significance level of  $p < 0.05$  was established for determining statistical significance.

## Ethical Approval

This study was conducted in accordance with the principles of the Declaration of Helsinki and was approved by the ethics committee of Balıkesir Faculty of Medicine (date: 25/05/2022, no: 2022/72). Informed consent was obtained from all participants and confidentiality of the participants' information was ensured throughout the study.

## Results

In the study conducted with 388 participants, the mean age was 34 (16–80), with 48.7% male and 51.3% female (Demographic data in [Table 1](#)).

In the evaluation of independent variables such as knowledge level, age, gender, marital status, education and health worker for pre- and post-education; Age and HIV knowledge level were observed as the dependent variables that were significantly related in both.

**Table 1** Demographic Data of the Participants in the Study

		Frequency N	Percent %
<b>Age group (years)</b>	<25	76	19,6
	25–34	149	38,4
	35–44	74	19,1
	≥45	89	22,9
	Total	388	100,0
<b>Education</b>	None	6	1,5
	Elementary and below	42	10,8
	High school	89	22,9
	Faculty	251	64,7
	Total	388	100,0

(Continued)

**Table 1** (Continued).

		Frequency N	Percent %
<b>Healthcare worker</b>	Yes	71	18,3
	No	317	81,7
	Total	388	100,0
<b>Marital status</b>	Married	219	56,4
	Single	159	41,0
	Divorced	10	2,6
	Total	388	100,0
<b>Gender</b>	Male	189	48,7
	Female	199	51,3
	Total	388	100,0

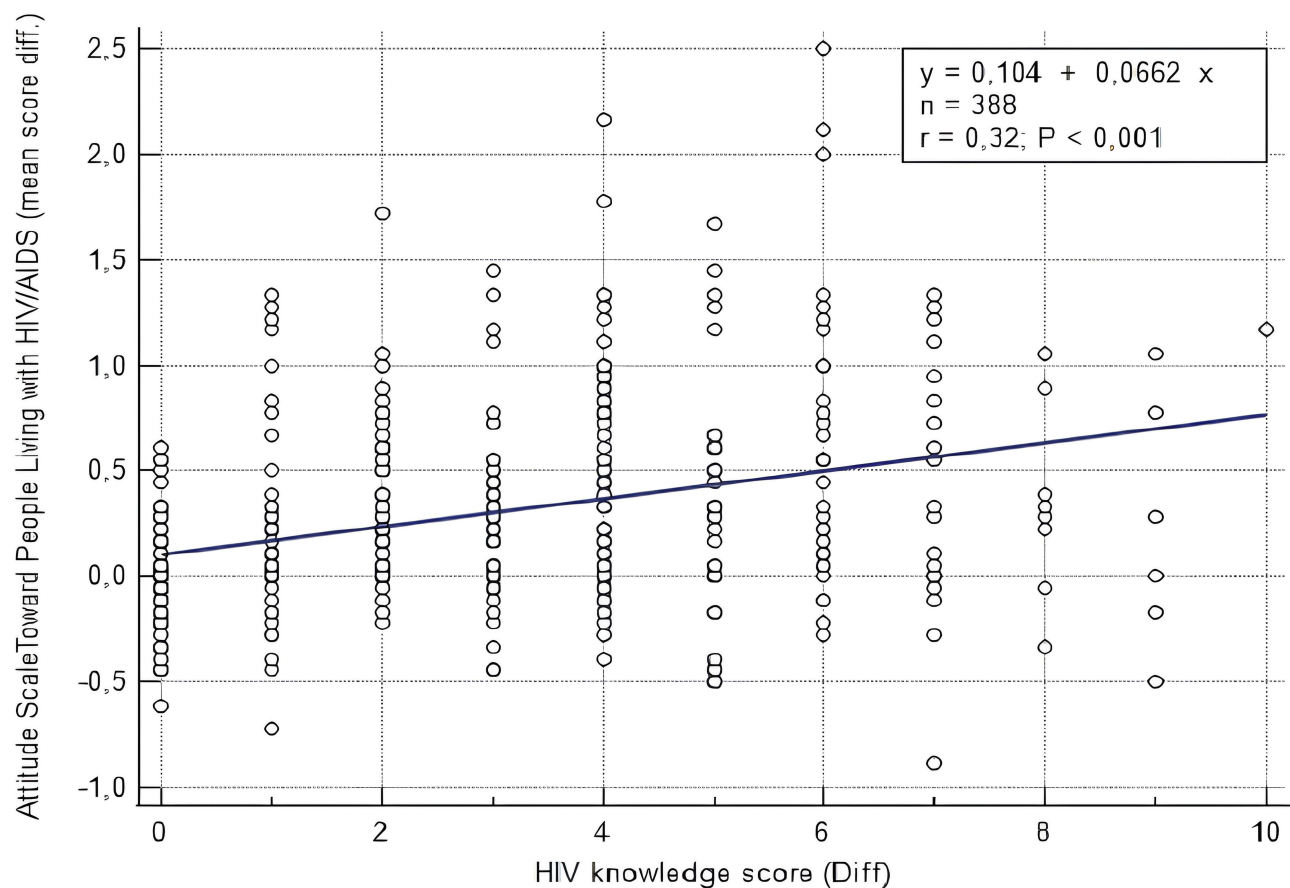
As the level of HIV knowledge increased, the attitude scale score increased, and as the age increased, the attitude scale score decreased. It was observed that the level of knowledge decreases with age, and as the level of knowledge increases, avoidance behavior decreases and acceptance increases. No difference was observed in the analysis of variance, in which the change in attitude scale was examined between pre-training and post-training, and other independent variables (such as healthcare workers) in repeated measurements ( $p>0.05$ ).

There was a positive correlation between the level of knowledge about HIV and the attitude scale, and it was determined that the attitude was positive as the level of knowledge increased ( $p<0.001$ ). (Table 2). The increase in the level of knowledge about HIV/AIDS after education was statistically significant in attitude scores and participants exhibited a more empathetic and accepting attitude towards individuals living with HIV (Figure 1).

**Table 2** Attitude Scale Toward People Living with HIV/AIDS (Pre – Post Mean Score)

	N	Mean	Std. Deviation	Minimum	Maximum	Percentiles			
						25th	50th (Median)	75th	p
HIV knowledge score (pre)	388	6,12	2,54	0,00	10,00	4,00	6,00	8,00	0,000
HIV knowledge score (post)	388	9,15	1,28	3,00	10,00	9,00	10,00	10,00	
Attitude ScaleToward People Living with HIV/AIDS (pre - mean score)	388	3,26	0,68	1,28	4,94	2,78	3,28	3,76	0,000
Attitude ScaleToward People Living with HIV/AIDS (post - mean score)	388	3,56	0,65	1,67	5,00	3,11	3,56	4,06	
Avoidance (pre - mean score)	388	2,96	1,03	1,00	5,00	2,13	3,00	3,75	0,000
Avoidance (post - mean score)	388	3,39	0,99	1,00	5,00	2,75	3,50	4,13	
Empathy (pre - mean score)	388	4,33	0,76	1,00	5,00	4,00	4,60	5,00	0,000
Empathy (post - mean score)	388	4,43	0,74	1,00	5,00	4,00	4,60	5,00	
Relationship (pre - mean score)	388	1,87	1,15	1,00	5,00	1,00	1,25	2,50	0,002
Relationship (post - mean score)	388	1,99	1,17	1,00	5,00	1,00	1,50	2,50	
Acceptance (pre - mean score)	388	3,20	1,14	1,00	5,00	2,33	3,33	4,00	0,000
Acceptance (post - mean score)	388	3,62	1,00	1,00	5,00	3,00	3,67	4,33	

Note: P value: <0.05.



**Figure 1** Correlation between HIV/AIDS knowledge score and attitudes towards people living with HIV/AIDS (PLHIV).

## Discussion

In our study, the increase in the level of knowledge about HIV/AIDS after education was statistically significantly reflected in the attitude scores. Studies show that HIV stigma may reduce access to basic HIV care services.<sup>13</sup> This result may affect the increase in the spread in the community. It is important that the priority of education is given to health personnel. By changing the attitudes of healthcare professionals who are informed with this approach towards the patient, hesitant behaviors about providing healthcare services can be eliminated.<sup>14,15</sup>

Timely interventions to address HIV-related stigma following diagnosis can reduce depression, improve long-term mental health outcomes, and promote better engagement in care [11]. Suicide risk factors in PLHIV are multifaceted, including the physiological effects of antiviral medications, reduced CD4 counts, neurological symptoms in patients with neuro-HIV, persistent stigma, and challenges in interpersonal relationships. A meta-analysis published in *BMJ General Psychiatry* revealed that the suicide risk in PLWHA is 100 times higher than in the general population, with a particularly high lifetime prevalence of suicidal thoughts and attempts. Consequently, suicide risk assessments should be prioritized, especially for individuals with advanced HIV [4]. Stigma and discrimination within healthcare systems are still reported by people with HIV worldwide.<sup>12</sup> It is a multifaceted social process in which people are socially devalued and often discriminated against, in part because of their HIV status.

It has been found that a proportion of adults in much of the world continue to display discriminatory attitudes towards PLHIV. According to recent population-based survey data, in 52 out of 58 countries, more than 25% of people aged 15 to 49 exhibit discriminatory attitudes towards PLHIV, and 36 of 58 countries reported that more than 50% of them had discriminatory attitudes.<sup>7</sup> Discrimination against PLHIV can come from family, friends, society, and healthcare providers.<sup>16–18</sup> HIV-related stigma and discrimination is a complex social process that relates to and

reinforces sexuality, gender, race, and poverty. HIV/AIDS-related stigma and discrimination can be seen everywhere.<sup>19</sup> The main source of their negative attitudes and fears towards the disease; It dates back to times when little was known about HIV/AIDS and its causes.<sup>20</sup> It is known that education is the most effective weapon in the fight against stigma in societies where the disease is common. WHO, from the very beginning, has invited countries to be sensitive about providing this service, emphasizing that the conduct of informative trainings on health in schools positively affects the health of young people, giving them a new perspective on life and people, and this reflects positively on behaviors.<sup>13</sup> HIV/AIDS stigma is a chain that must be broken in society. Strategies to deal with this situation should be developed. In order to reduce stigma in health care services, organizing informative in-service seminars on the disease and holding them periodically will also reduce stigma against patients. They can contribute to the fight against stigma and discrimination by organizing or supporting meetings such as panels, seminars and conferences that are open to the public.

Education is the most effective way to fight this disease. Without delay, the society should be informed about the disease, prejudices should be eliminated, and regulations should be made to prevent stigmatization and discrimination however, the first step that starts with education should be supported by other measures.<sup>18</sup> While tackling ignorance of the facts about HIV is both important and will go a long way in reducing HIV stigma, eliminating ignorance alone will not be enough to eliminate stigma. Discrimination is not simply based on ignorance of the facts; discrimination is often based on a negative assessment that is independent of the facts<sup>21</sup>. Because, attitude; which affects both social perception and behavior, has three components: cognitive, affective and behavioral. What people know about a subject determines how they will approach it (neutral, positive, negative) and how they will behave towards it.<sup>17</sup> It is a mental, emotional and behavioral reaction predisposition that an individual is shaped based on his knowledge, emotions, motivations and experiences against any object, social issue, event in his or her environment.

In our study; as the level of HIV knowledge increased, the attitude scale score increased, and as the age increased, the attitude scale score decreased. It was observed that the level of knowledge decreases with age, and as the level of knowledge increases, avoidance behavior decreases and acceptance increases. Considering this situation, education and awareness at an early age is an important factor. The results of a study conducted with senior medical students were similar to our study. It has been determined that as the level of knowledge about the ways of transmission of HIV increases, positive results are obtained in attitudes and behaviors towards HIV-positive individuals.<sup>22</sup> However, when the results of some studies are examined, it is seen that having sufficient information is not always effective in changing discriminatory, exclusionary, accusatory and judgmental approaches.<sup>23</sup> Therefore, apart from education, we should not forget the influences such as culture, religion and philosophy of life that may be effective in the formation of HIV/AIDS-related stigma.

Interventions, such as information to reduce stigma, may need to be adapted to be an ideal combination or culturally specific.<sup>24</sup>

**Limitations of the Study:** This study is regionally based data obtained from a single-time survey. The convenience sampling method used in this study may introduce bias that affects generalizability. Although the sample includes samples from different regions, sociocultural and educational levels, the limitation of the study is that it does not include broader national data. The relationship between factors such as socio-cultural and regional differences and HIV-related stigmatisation levels can be much more guiding for awareness-raising activities with the results of more comprehensive multi-centre studies with national data. However, considering the importance of data in this field, analyzing HIV-related stigma and discrimination in our country is important in terms of contributing to the transfer of experiences and understanding of views on this issue.

## Conclusion

These findings suggest that educational interventions to combat stigma should be widely implemented, particularly in health settings. Future actions could include integrating similar programs into routine training for health care workers, patient education initiatives, and community outreach efforts. Involving schools and religious



institutions in HIV education would further reduce stigma. Expanding this approach to other regions and monitoring long-term effects would further support stigma reduction.

## Ethics Statement

This study was conducted in accordance with the principles of the Declaration of Helsinki and was approved by the ethics committee of Balıkesir Faculty of Medicine (date: 25/05/2022, no: 2022/72). Informed consent was obtained from all participants and confidentiality of the participants' information was ensured throughout the study.

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## Disclosure

All authors declare that they have no conflict of interest.

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