

# An investigation on the association between students' knowledge and their tendency to take care of HIV patients among the students in nursing and midwifery school

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## ABSTRACT

**Background:** Since nursing and midwifery students avoid taking care of the diseased patients and taking care of the patients with AIDS can be influenced by their level of knowledge, the present study aimed to define the association between students' knowledge and their tendency to take care of HIV patients.

**Materials and Methods:** This is a descriptive analytical study conducted on 210 students of Nursing and Midwifery School, who were selected through random stratified and convenient sampling in 2012. Inclusion criteria were having Iranian nationality, being a Muslim, passing two credits of nursing internship, and not being an AIDS patient. The exclusion criterion was any one of the parents or relatives suffering from AIDS. The data were collected by questionnaires of personal and familial characteristics, the level of awareness, and tendency to take care of AIDS patients. Questionnaires of AIDS awareness scale and AIDS care tendency scale are valid and reliable. The data were analyzed by charts, Pearson statistical test, *t*-test, one-way analysis of variance (ANOVA), Kruskal-Wallis, and linear regression through SPSS version 16.

**Results:** The findings showed that 79.5% of the students had average awareness about AIDS and 61.4% had no tendency to take care of AIDS patients. Pearson correlation coefficient showed that there was a linear association between the score of awareness and tendency to take care of AIDS patients. The results of linear regression also showed that there was a significant association between the score of the tendency to take care of the patients and sex, education level, awareness, and educational course.

**Conclusions:** Since students' awareness level was not so high, special attention should be paid in this regard through more organized and precise programs. A separate university credit concerning the diseases and education through mass media should be also considered.

**Key words:** AIDS, knowledge, midwife, nurse, student, tendency

## INTRODUCTION

AIDS is one among the dangerous and deadly newly emerged diseases which has involved numerous individuals all over the world. It is not only one of the major obstacles for the economic development in poor countries, but also the fourth leading cause of mortality related to infectious diseases in the world.<sup>[1,2]</sup> Iran is one

among the countries in the Middle East facing AIDS crisis, as the statistics show 17,270 cases of HIV infection, 1369 cases of AIDS patients, and 2532 deaths in 2007. About 4.8% of HIV cases were reported at ages 15-24 years and 41% at age 25-34 years. With regard to the long incubation period of HIV (about 10 years), a high percentage of infection with HIV seems to have occurred in the adolescent period and youth, as the youngsters are more predisposed to high-risk events in life, including high-risk sexual behavior, and infection with AIDS occurs due to physiological, social, and cultural factors.<sup>[3]</sup> Due to youngsters getting affected by this disease and the potential social, economic, and political risks it imposes on various societies, and as one of the obstacles in the prevention of AIDS is inappropriate level of knowledge and attitude in different layers of the society, especially among university students (as a young generation), regular monitoring of knowledge and attitude in various population groups, especially among youngsters, is essential.<sup>[4]</sup>

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Koskal showed that university and school students' level of knowledge about AIDS were at moderate to appropriate levels.<sup>[5]</sup> Buskin, in a study on Chinese students, showed that their knowledge about AIDS was at a moderate level.<sup>[6]</sup> In this regard, Fadaee showed that 47.6% and 39.6% of high school students had appropriate and moderate level of knowledge about AIDS in Chabahar, respectively.<sup>[7]</sup> Sanei Moghdam showed that 50%, 44%, and 5.8% of the students had appropriate, moderate, and poor level of knowledge about AIDS, respectively, in Zahedan.<sup>[4]</sup> Individuals' ignorance about the ways that have not been proved to transmit AIDS, such as insect stings, kiss, and body secretions, is responsible for their negative attitude toward AIDS.<sup>[8]</sup>

The tendency to take care of AIDS patients is influenced by the negative attitude toward this disease among the health care staff.<sup>[9]</sup> Kermode showed that 91% of health care staff find themselves predisposed to occupational AIDS.<sup>[10]</sup> Omidvar reported that 76% of nursing and midwifery students avoided either taking care of an HIV-positive patient or helping with her delivery in labor room.<sup>[11]</sup> Zeighami Mohamadi showed that 36.4% of nurses had 81.1% of neutral tendency to take care of AIDS patients.<sup>[12]</sup> Dabirian reported that from the viewpoint of AIDS patients, the nursing services administered could not fulfill their needs and exceptions.<sup>[13]</sup> It seems that the fear of HIV infection prevents nurses from taking direct care of these patients. As nurses and midwives are high risk their level of knowledge about the disease, its ways of transmission, and methods of prevention should be regularly monitored before their involvement in giving professional services, in order to promote their services in cases of inadequacy or irrelevancy.<sup>[14,15]</sup> With respect to the above-mentioned issues and as the care of AIDS patients can be influenced by the level of knowledge of staffs, the present study aimed to define the association between knowledge and tendency to take care of AIDS patients and its association with personal, familial, and educational characteristics of students in Nursing and Midwifery School.

## MATERIALS AND METHODS

This is a cross-sectional descriptive analytical study conducted on 175 nursing and midwifery students of Isfahan University of Medical Sciences in 2012. Inclusion criteria were being a nursing, midwifery, and operating room student, having Iranian nationality, passing at least two credits of nursing internship, and not being infected by HIV/AIDS. Exclusion criterion was any of the parents or relatives having HIV infection. Sampling was conducted in two steps, so that 107 BS, MS nursing, 68 BS, MS midwifery, and 35 BS operating room students were selected through simple random sampling from various courses and classes, yielding a total of 215 subjects. Data were collected by a three-section questionnaire. The first section included

personal and educational (age, sex, marital status, course, semester) and familial (parents' and spouse's educational levels and parents' job, family income level) characteristics and information source about HIV/AIDS (14 questions). The second section assessed knowledge toward AIDS and contained 45 questions, and each question was scored based on a three-point scale (right = 1 and false = zero) with a total score of 45. In this questionnaire, the range of score is from zero to 45. A score <22 shows lack of knowledge, a score from 22 to 35 shows moderate knowledge, and a score from 36 to 45 shows good knowledge. This questionnaire was designed by Carey *et al.* in 1997.<sup>[16]</sup> The third section assessed the willingness to care toward AIDS. This tool includes 14 items of which 10 have negative impact and 4 items have positive impact. Each item is scored by a five-point Likert scale (from absolutely disagree = 0 to absolutely agree = 4) with a total score of 56. In this questionnaire, a score <18 shows willingness to care, 19 < score < 37 shows indifferent attitude, and 38 < score < 56 shows lack of willingness to care. Questionnaire of knowledge toward AIDS and scale of willingness to care are valid and reliable tools which have been adopted in various studies such as Benjakul and Carey *et al.*, and confirmed with Cronbach's  $\alpha$  values of 85% and 92%, respectively.<sup>[16,17]</sup>

After getting the letter of introduction from the research chancellery of the nursing faculty and Tropical and Infectious Diseases Research Center in Isfahan University of Medical Sciences, the researcher referred to selected classes in each of the nursing and midwifery BS and MS courses, and after explaining about the research goals and filling the questionnaires, started sampling and conducted the research. The questionnaires were given to the students after getting their signed informed consent form. Then, the researcher checked the inclusion and exclusion criteria and in case of meeting the inclusion criteria, the eligible subjects were given a four-section questionnaire for assessing personal and familial characteristics, attitude toward AIDS, and willingness to care HIV/AIDS patients to complete. Data were analyzed by tables, and statistical tests like *t*-test, Pearson correlation coefficient, one-way analysis of variance (ANOVA), and linear regression test through SPSS version 16.

## RESULTS

With regard to the frequency distribution of subjects' personal, familial, and educational characteristics, the results showed that subjects' mean age was  $22.05 \pm 4.4$  years with a range of 19-46 years. About 16.25% of the nursing students and 5.7% of the operating room students were in semester two and 6.2% of the midwifery students were in semester six. Also, 108 subjects (51.4%) were male and 145 subjects (69%) were single. One hundred and seventy-seven subjects (83.4%) had adequate family

income, and the sources of acquired knowledge were books (37.1%), magazines (30%), internet (18.6%), TV (10.5%), friends (2.9%), and family members (1%). The findings showed that mean score of knowledge toward AIDS was 24.75 ( $\pm 3.7$ ). The frequency distribution of knowledge level and willingness to care HIV/AIDS patients is shown in Table 1. Pearson correlation test showed a significant association between the scores of willingness to care and knowledge ( $r = 0.231, P < 0.001$ ) [Table 2]. With regard to the association between subjects' personal, familial, and educational characteristics and the score of knowledge toward HIV/AIDS patients, Kruskal-Wallis test showed a significant association between educational course and knowledge ( $r = -0.142, P = 0.02$ ), as 30.4% of nursing students, 7.9% of midwifery students, and 12.7% of operating room students lacked adequate knowledge about HIV/AIDS. *t*-Test showed a significant association between scores of willingness to care and students' sex and educational level ( $P = 0.030, P = 0.04$ ); in addition, variance analysis test showed a significant association between scores of willingness to care and information source about HIV/AIDS ( $P = 0.010$ ). Thus, almost 60 (51.6%) male students, 84 (40%) BS students, and 51 (34.4%) whose source of information were books had lacked willingness to care HIV/AIDS patients [Table 3]. Based on linear regression test, there was a significant linear association between scores of willingness to care and sex and educational level ( $P = 0.000, P = 0.03$ ). Also, there was a significant association between score of knowledge and educational source ( $P = 0.03$ ).

## DISCUSSION

AIDS is one of the health-related problems in the world. As there is no efficient treatment for the disease, the best way to halt its spread is prevention. The best way of prevention is to educate and promote the knowledge level among various social classes, especially those who claim of giving health services in this field.<sup>[8]</sup> The results of the present study showed that most of the students in Nursing and Midwifery School had moderate knowledge about AIDS. Other studies conducted on knowledge and attitude among the university students in other cities of Iran, including Toyserkan, Shiraz, Tabriz, Yasouj, and Yazd, as well as other countries such as Turkey, China, and Japan have evaluated the status of subjects' knowledge as moderate to appropriate.<sup>[18-23]</sup> Sanei Moghadam showed that 50.2% of university students had appropriate, 44% had moderate, and 5.8% had poor knowledge level.<sup>[4]</sup> Maswanya, in a study on university students, reported that the students believed the ways of transmission for AIDS were through mosquito stings by 11%, a shared toilet by 3%, and sneezing and coughing by 4%, which reveals their poor knowledge in this field and the need for further education in this regard.<sup>[24]</sup> With regard to previous research and our obtained results, it is suggested to establish counseling centers in universities to

conduct efficient and continuous education for the students who are supposed to take the responsibility of taking care of AIDS patients in future, to be capable of not only receiving adequate knowledge but also selecting the best strategy to lower patients' suffering. The obtained results show that over 50% of university students had no potential to take care of AIDS patients. Omidvar also showed that 76% of nursing and midwifery students refused to take care of an AIDS patient or help in a patient's delivery.<sup>[11]</sup> Chen reported that 49% of health care staff refused to touch or take care of AIDS patients.<sup>[25]</sup> Our obtained results showed a significant association between the score of knowledge and the tendency

**Table 1: Distribution of subjects based on students' knowledge about HIV/AIDS and their tendency to take care of HIV patients**

Variables	Knowledge		Tendency to take care	
	n	%	n	%
Low	42	20.0	21	10.0
Moderate	167	79.5	73	34.8
High	1	5.0	116	55.2
Total	210	100.0	210	100.0

HIV: Human immunodeficiency virus, AIDS: Acquired immunodeficiency syndrome

**Table 2: Distribution of tendency to take care of HIV/AIDS patients based on knowledge**

	n (%)			
	Low	Moderate	High	Total
No tendency	13 (6.2)	102 (48.6)	1 (5.0)	116 (55.2)
Neutral	11 (6.2)	62 (29.6)	0 (0)	73 (34.8)
Tendency	18 (8.6)	3 (1.4)	0 (0)	21 (10.0)
Total	42 (20.0)	167 (79.5)	1 (5.0)	210 (100.0)

HIV: Human immunodeficiency virus, AIDS: Acquired immunodeficiency syndrome

**Table 3: Distribution of tendency to take care of HIV/AIDS patients based on personal, familial, and educational characteristics**

	n (%)		
	Tendency	Neutral	No Tendency
Courses			
Bachelor's	21 (10.0)	68 (32.4)	84 (40.0)
Master's	0 (0.0)	5 (2.4)	32 (15.2)
Total	21 (10.0)	73 (34.8)	116 (55.2)
Information sources			
Books	6 (2.9)	21 (10.0)	51 (34.3)
Internet	3 (1.4)	21 (10.0)	15 (7.1)
Friends	1 (0.5)	4 (1.9)	1 (0.5)
Family	0 (0.0)	0 (0.0)	2 (1.0)
Radio and TV	3 (1.4)	13 (6.2)	6 (2.9)
Magazine	8 (3.8)	14 (6.7)	41 (19.5)
Total	21 (10.0)	73 (34.8)	116 (55.2)

HIV: Human immunodeficiency virus, AIDS: Acquired immunodeficiency syndrome, TV: Television



to take care of AIDS patients. It was such that 48.6% of students with moderate level of knowledge had no tendency to care of these patients. In a study conducted in one of the universities in Germany, the level of nursing students' knowledge was found to be high and the male students who were already experienced in taking care of an AIDS patient had higher knowledge and tendency to take care of these patients.<sup>[26]</sup> Reis showed that the health care staff who had low knowledge about professional ethics refused to treatment interventions for AIDS patients.<sup>[27]</sup>

Providing knowledge to the nursing personnel about patients' rights and principles of professional ethics seems to be effective on increasing their tendency to care AIDS patients and ignore discrimination in patients' care.<sup>[12]</sup> The present study also showed that among the personal and educational characteristics of students, only their course of study was significantly associated with their score of knowledge about AIDS. On the other hand, it revealed that 64 (30.4%) and 20 (9.54%) nursing and midwifery students had low and high knowledge about AIDS, respectively (level of knowledge was more among midwifery students compared to two other courses). This result seems logical as most of the midwifery subjects were in semester six at the time of research, but the students had entered the labor room in semester three and were warned about potential AIDS and HIV contamination in that ward. Results showed no significant association between the level of knowledge about AIDS and students' gender. Lotfipour showed no significant difference in the level of knowledge about AIDS between boys and girls, and 57.5% of boys and 60.6% of girls had moderate level of knowledge,<sup>[28]</sup> possibly due to similar access to the ways of obtaining knowledge about AIDS among boys and girls. Savaser reported a significant difference in the knowledge of male and female university and school students.<sup>[29]</sup> But Panahandeh reported no significant difference in the level of knowledge of boys and girls.<sup>[30]</sup> Similar access of male and female university students to information sources seems to be a reason for this. In the study of Lotfipour, Kruskal-Wallis test showed no significant difference between the level of knowledge, attitude, and behavior of university students and their course of study.<sup>[28]</sup> The present study showed no significant difference between knowledge score and the source of obtaining information about AIDS, and books were the most common source of information concerning AIDS. Meanwhile, Mirnejad showed that 75.5% of students referred to mass media (radio and TV) as one of their sources to obtain information about AIDS, which was the highest among the sources to obtain knowledge in that group.<sup>[31]</sup> Al-Ghanim, in a study on university students in Saudi Arabia, reported mass media, especially radio and TV, as the most common source to obtain information, possibly due to the high access of students and people to this source of information. Mass media can have a notable effect on public knowledge through

improvement of quality and quantity of educational programs, especially at the time when they have the highest number of watchers and listeners.<sup>[32]</sup> Clearly, in attitude or behavior change, the audio-visual effect of TV is more than that of books. Lack of an association between students' source of information and level of knowledge seems to be reasonable. Therefore, it is suggested to include educational materials in an extra course (such as the course of hospital infections in the curriculum of students of medicine) for nursing and midwifery students. Findings showed that among the personal, familial, and educational characteristics of the subjects, gender (male), level of education (BS), and source of information (books) had an association with their tendency to take care of HIV/AIDS patients; thus, male students, those with a bachelor's degree, and those whose source of information was mostly books reported their lack of tendency to take care of AIDS patients. In the study of Zeighami, Pearson correlation coefficient showed a significant association between mean source of tendency to care of AIDS patients and age, income, work experience, and work experience of subjects in the present ward at the time of study.<sup>[12]</sup> Jean-Baptiste showed that male nurses reported more discrimination behavior in the treatment and care of AIDS patients.<sup>[33]</sup> Zeighami showed that nurses with higher education were more familiar with the ethical issues concerning care and perceived the existence of discrimination in the care of AIDS patients more. He also believes that planning to increase nurses' knowledge leads to a decrease in nurses' fear of getting infected with occupational AIDS, positive behavioral changes, an increase in tendency to care, and a reduction in discriminative behaviors, and eventually results in promotion of AIDS patients' care.<sup>[12]</sup>

## CONCLUSION

It can be concluded that students' knowledge is not at a high level. As medical groups, especially midwives, operating room personnel, and nurses, are in direct contact with blood, blood products, secretions, and other contaminating factors of AIDS patients and as no tendency to take care of HIV patients is a result of ignorance,<sup>[31]</sup> enhancement of students' level of knowledge should be specifically considered in more comprehensive and precise programs. It is even better to run appropriate educational programs through mass media, especially radio and TV, and consider a separate educational course in universities to increase the knowledge of university students.

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