



Assessment of knowledge, attitudes, and willingness of pre-clinical nursing students to provide nursing care for people living with HIV/AIDS

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ABSTRACT

Background: HIV/AIDS as a global pandemic forced the nursing student to have appropriate knowledge and attitudes toward caring for people living with HIV/AIDS (PLWHA).

Purpose: This study aims to explore the level of knowledge, attitudes, and willingness of pre-clinical nursing students to provide nursing care for PLWHA.

Methods: A descriptive and cross-sectional study is conducted. A total of 185 pre-clinical nursing students enrolled in Bachelor of Science in Nursing (BSN), and Associate Degree in Nursing (ADN) programs were recruited. Data was collected from April to May 2019 using a self-reported questionnaire and analysed with descriptive statistics, a t-test, and Pearson's correlation test with a significant level of 0.05.

Results: Overall pre-clinical nursing students had moderate knowledge about HIV/AIDS, but students had a negative attitude toward HIV/AIDS. The students' mean score of willingness to care for PLWHA was 5.45. BSN students had better knowledge than ADN students, and the difference was significant. However, differences in attitudes and willingness to manage between BSN and ADN students were insignificant. In addition, the differences in knowledge, attitudes, and desire to care between males and females were insignificant. The result revealed that attitudes and willingness to care for PLWHA were significantly correlated.

Conclusions: Based on the study results, it is essential for nursing students to have accurate knowledge about HIV/AIDS and positive attitudes toward people with HIV/AIDS to ensure that they can provide high-quality and effective care for PLWHA as well as protect themselves from being infected with HIV.

Keywords: knowledge; attitudes; willingness; HIV/AIDS

INTRODUCTION

Human immunodeficiency virus (HIV) and acquired immunodeficiency syndrome (AIDS) have been a global pandemic for the last 30 years (Jin et al., 2021). However, due to the availability of antiretroviral therapy, HIV is now considered a chronic disease, which means that all medical personnel will

Nursing and Healthcare Practices

- *It is essential for nursing students to have accurate knowledge about HIV/AIDS and positive attitudes toward people with HIV/AIDS to ensure that they can provide high-quality and effective care for PLWHA.*
- *Intervention to enhance the knowledge, attitude, and willingness to care PLWHA should be initiated.*

come into contact with HIV-infected patients throughout their careers. This requires all medical personnel to have adequate and correct HIV/AIDS knowledge, as well as a professional attitude toward patients free of fears, stigma, and misconceptions (Arifin et al., 2022). In addition, a better understanding of students' prior knowledge and attitudes toward HIV/AIDS will be used to develop better educational programs that address stigma and encourage patient empathy. HIV has infected over 70 million people and killed approximately 35 million people since the epidemic's inception, and 36.9 million people live with HIV worldwide. Worldwide, 0.8% of adults aged 15–49 years are infected with HIV, though the epidemic's impact varies greatly between countries and regions (Unaid, 2018; Unicef, 2016). In 2016, Cambodia had an HIV/AIDS incidence of 1200, a prevalence of 75000, and a mortality rate of 1500. In 2017, the incidence of HIV infection was 1000, the majority was 74000, and the mortality rate was 1400. In 2018, the incidence was 1000, the prevalence was 73,000, and the mortality rate was 1300. Myanmar had 11,000 new HIV infections, 220,000 people living with HIV, and 6,700 AIDS-related deaths (Unaid, 2021; Unicef, 2016).

In 2016, Cambodia had 713 new HIV infections, 70 498 people living with HIV, and 1807 deaths due to HIV. More than 80% of people living with HIV are aware of their HIV status, and 97% receive antiretroviral therapy. However, the HIV epidemic remains concentrated, with a higher prevalence among key populations such as people who inject drugs, female sex workers, transgender women, and men who have sex with men (Jin et al., 2021). Previous studies also found discrimination, misunderstanding, and a lack of knowledge

among nurses (Kaihlainen et al., 2019; Kok et al., 2018; Lenartz et al., 2021). Unfortunately, no studies to date have investigated the level of knowledge, attitude, and willingness of pre-clinical nursing students to provide care for people living with HIV/AIDS. Thus, this study aimed to assess pre-clinical nursing students' knowledge, attitude, and willingness to care for people living with HIV/AIDS

METHOD

Design

A descriptive cross-sectional design was used in this study to assess knowledge, attitudes toward HIV/AIDS, and willingness to care for patients living with HIV/AIDS (PLWHA) among pre-clinical nursing students.

Sample and Setting

The study was conducted at Technical School for Medical Care (TSMC), Phnom Penh, Cambodia. This study employed convenient sampling, with a total sample size of 185 pre-clinical nursing students (2018-2019) enrolled in both the Association Degree in Nursing (ADN) and the Bachelor of Science in Nursing (BSN) programs.

Instruments

A self-administered questionnaire was used to collect the data. In addition, a structured survey questionnaire was designed to identify demographic characteristics (5 items), background information (2 items), knowledge (20 things) and attitude (14 items) about HIV/AIDS, and willingness to care for PLWHA (1 item).

HIV/AIDS knowledge scale has 20 items designed to determine the respondent's level of knowledge about HIV, the spreading of AIDS, and the prevention of AIDS. The participants were asked to mark one of the options 'true', 'false', or 'don't know' for each of the 20 questions. Participants who responded that they didn't know the answer were considered to have answered the question incorrectly. A correct answer was given a score of '1' and a score of '0' for 'false' or 'don't know' responses. The score ranged from 0 to 20, and answers were summed up for total scores.

The AIDS Attitude Scale (AAS) has 15 items developed for nursing and medical students (Bliwise et al., 1991). The AAS consisted of 3 subscales: fear of contagion (items 1-5),

Table 1. Demographic data of the respondents (n = 185)

Variable	Category	n	%
Sex	Male	52	28.1
	Female	133	71.9
Religion	Buddhism	180	97.3
	Christianity	3	1.6
	Islam	2	1.1
Marital Status	Single	185	100
	Married	0	0
Program	BSN	95	51.4
	ADN	90	48.6
Age	Mean \pm SD	Range	
	19.49 \pm 1.48	16-26	

Table 2. Source of get HIV/AIDS information

Variable	Category	n	%
Source of Information	Teacher	122	65.9
	Books	102	55.1
	Radio/TV	85	45.9
	Nursing Course	59	31.9
	Doctor	58	31.4
	Newspapers/Magazines	44	23.8
	Friend	31	16.8
	Parents	25	13.5
	Other	20	10.8
Know someone with HIV/AIDS	Yes	124	67
	No	61	33

negative emotions (items 6-9), and professional resistance (items 10 - 15). The AAS items were on a six-point Likert scale (strongly disagree to agree strongly). High total scores imply that individuals' attitudes towards AIDS were negative. In this study, 1 item was excluded from the contagion subscale because it was unrelated to our sample.

Willingness to care for HIV/AIDS patients was a visual analogue scale with points ranging from 0 to 10 (0: I'm not willing at all to 10: I'm very willing). The instrument used in this study was found to be reliable and valid. Cronbach's alpha was reported to be 0.82, and the internal consistency coefficient was = 0.86.

Data Collection

The pilot study was conducted among 20 nursing students at Technical School for Medical Care (TSMC) by using the questionnaire in the Khmer language to make sure our questionnaire

was validity and easy to understand. The questionnaires were given to the students who presented in class and were accompanied by the research team. The purpose of the study was explained to the participants, and they were informed that their participation was voluntary and that they could withdraw at any time without any restriction. The respondents were free to refuse to answer any questions that made them feel uncomfortable. It took 15 to 20 minutes to answer the questions. Data was collected from April to May 2019.

Data Analysis

Data were coded by number in each question and analysed using Statistical Package for the Social Science® (SPSS), version 25.0 (SPSS Inc., Illinois). Descriptive statistical information (means, percentage, and variability) was performed for all variables. Independent T-test statistics were used to compare knowledge,

Table 3. Nursing student's knowledge on HIV/AIDS: correct responses (n = 185)

Item	Statement	Response	n	%
1	AIDS always occurs in a human infected with HIV.	T	153	82.7
2	HIV can be transmitted through blood, semen and vaginal fluid.	T	181	97.8
3	The most effective way to avoid HIV is to abstain from unprotected sexual intercourse.	T	168	90.8
4	When one has HIV/AIDS, his/her body becomes more susceptible to other infections.	T	146	78.9
5	AIDS has a definitive treatment.	F	171	92.4
6	The virus is likely to infect the fetus in a pregnant woman with HIV.	T	109	58.9
7	Needles used for a patient with AIDS cause the infection.	T	175	94.6
8	Many people can have HIV or a sexually transmitted infection but symptoms may not appear.	T	80	43.2
9	HIV/AIDS can be transmitted to another person by the use of personal items such as a toothbrush or razor.	T	124	67.0
10	An HIV-positive mother can transmit the infection to her baby through breast-feeding.	T	149	80.5
11	The correct use of condoms is effective in the prevention of HIV.	T	154	83.2
12	It is possible to prevent AIDS by vaccination.	F	157	84.9
13	A person who is infected with HIV may not have AIDS symptoms for 10 or more years.	T	42	22.7
14	HIV/AIDS can be transmitted by social kissing and cuddling.	F	180	97.3
15	Ear-piercing with non-sterile instruments can pose a risk for HIV infection.	T	138	74.6
16	Anti-HIV antibodies in the blood of an HIV-infected person can be seen within the first month after the infection.	T	73	39.5
17	Those infected with HIV should have good nutrition and regular exercise in order to prevent AIDS from developing.	T	86	46.5
18	HIV/AIDS can be transmitted to people through blood transfusions.	T	173	93.5
19	A person who is infected with HIV may seem healthy or feel good.	T	119	64.3
20	A person can be infected with HIV by swimming in the same pool or using the same toilet as an HIV infected person.	F	172	93.0

attitude, and willingness to care for PLWHA between education programs (BSN & ADN) and gender (male & female). Pearson's correlation statistics examined relationships between knowledge, attitude, and willingness to care for PLWHA. P-value <0.05 was set to determine statistical significance.

Ethical Consideration

The rector approved the study of the University of Health Sciences (UHS), and which approval letter was given to the research team before conducting their data collection. This letter was sent to TSMC. Then they let us complete the

survey with pre-clinical nursing students.

RESULTS

Characteristics of Participants

The demographic variables of the respondents are presented in Table 1. Among 185 pre-clinical nursing students, 28.1% were male, and 71.9% were female. Participants mean age was 19.49 years, SD \pm 1.38, and range 16-26 years. The majority of participants' religion was Buddhism (97.3%). All of the participants were unmarried. 51.4 % of participants were in BSN, and 48.6% were in the ADN program.

Information about Participants

The sources of received information on HIV/AIDS are presented in Table 2. In this study, the question where they get the information about HIV/AIDS is a multiple selection format in which participants select more than one option. Teachers (65.9%) and books (55.1%) were the most common source; 67% of the participants reported that they knew someone with HIV/AIDS.

Participants' Knowledge about HIV/AIDS

The results of participants' correct responses related to HIV/AIDS knowledge are presented in Table 3. The highest rates of correct responses were as follows: "HIV can be transmitted through blood, semen and vaginal fluid" (97.8%); "HIV/AIDS can be transmitted by social kissing and cuddling" (97.3%); and "needles used for a patient with AIDS cause the infection." (94.6%). The students revealed a lack of knowledge of HIV/AIDS knowledge in the following statement: "HIV-infected person may not have AIDS symptoms for ten or more years" (22.75%); "anti-HIV antibodies in the blood of an HIV-infected person can be seen within the first month after the infection" (39.5%); and "many people can have HIV or a sexually transmitted infection, but symptoms may not appear" (43.2%).

Agreement Status of The Participants with The Statements on The AAS attitude Scale

The participants' attitudes toward HIV/AIDS were measured with 6-point Likert Scale. The results of the participant responses

are presented in Table 4. The majority of students showed a negative attitude on the contagion subscale by agreeing with all these statements: "despite all I know about how AIDS is transmitted, I'm still afraid of catching it" (89.7 %) and "AIDS makes my job a high-risk occupation." (75.7%). However, 40 % of participants agreed that "I would be willing to eat in a restaurant where I know the chef has AIDS", and 55.1 % of them chose that "Even following strict infection control measures, it is likely that I would become infected with HIV if I were working with AIDS patients over a long period of time."

On the professional resistance subscale, almost students (91.4%) had a negative attitude toward the statement: "it is best to train a few specialists who would be responsible for the treatment", 34.1% of them agreed with to statement, "I would consider changing my professional speciality/position if it became necessary to work with AIDS patients", and 39.5 % of participants agreed that "Given a choice, I would prefer not to work with AIDS patients."

On the negative emotion subscale, less than half of students agreed that "I sometimes find it hard to be sympathetic to AIDS patients (43.2%), and "I would feel resentful of AIDS patients accounted for a significant part of my caseload" (41.1%).

The Participants' Mean Scores of Knowledge, Attitudes, and Willingness to Care

The mean score of knowledge, attitudes toward HIV/AIDS, and willingness to care for the patient with HIV/AIDS were presented in Table 5. The mean score for HIV/AIDS knowledge was 14.89, and the desire to care for HIV/AIDS was 5.45, indicating that the students had adequate knowledge and a strong desire to help people with HIV/AIDS. Otherwise, the results showed that students have a negative attitude toward HIV/AIDS, as evidenced by the high mean score of student attitudes (Nubed & Akoachere, 2016; Wawrzuta et al., 2021).

Comparison of Participants' Knowledge, Attitudes, and Willingness to Care

An independent sample t-test was performed to compare knowledge, attitudes, and willingness

Table 4. Attitudes toward HIV/AIDS among participants

AIDS Attitude Scale	Agree	
	n	%
Contagion Subscale		
AIDS makes my job a high-risk occupation	140	75.7
Despite all I know about how AIDS is transmitted, I'm still afraid of catching it	166	89.7
I would be willing to eat in a restaurant where I know the chef has AIDS	74	40
Even following strict infection control measure, it is likely that I would become infected with HIV, if I were working with AIDS pa-tients over a long period of time.	102	55.1
Professional resistance subscale		
I would rather work with a better class of people than AIDS pa-tients.	116	62.7
I would prefer to refer persons with AIDS to my professional col-leagues.	147	79.5
Given a choice, I would prefer not to work with AIDS patients.	73	39.5
I would consider changing my professional specialty/position if it became necessary to work with AIDS patients.	63	34.1
It is best to train a few specialists who would be responsible for the treatment	169	91.4
I don't want those at higher risk for AIDS such as IV drug users and homosexuals, as patients.	60	32.4
Negative emotional subscale		
I sometimes find it hard to be sympathetic to AIDS patients.	80	43.2
I would feel resentful of AIDS patients accounted for a significant part of my caseload	76	41.1
I often have tender, concerned feelings for people with AIDS	35	18.9
I feel angry about the risk of AIDS which homosexuals have imposed on the straight community.	60	32.4

Table 5. Mean score of HIV/AIDS knowledge, attitudes, and willingness to care

Variable	M ± SD	Range
Knowledge	14.89 ± 2.24	0 - 20
Attitudes*	22.18 ± 2.66	14 - 28
Willingness	5.45 ± 1.49	0 - 10

*The higher score indicated negative attitude

to care between the education program BSN and ADN programs. The results are presented in Table 6. The mean knowledge score of BSN students was higher than ADN students. The difference was statistically significant ($t = 5.61$, $p = 0.00$). The mean attitude score of BSN students was similar to ADN students, and the difference was insignificant ($t = -.44$, $p = 0.66$). The mean willingness score of BSN students was similar to that of ADN students, and the difference was insignificant ($t = 1.03$, $p = 0.30$).

An independent sample t-test was conducted to compare males' and females'

knowledge, attitudes, and willingness to care. The results are presented in Table 7. The mean knowledge score of male students was higher than female students. The difference was insignificant ($t = 1.88$, $p = .62$). Mean attitude score of male students was higher than female students, and the difference was insignificant ($t = 1.84$, $p = 0.06$). The mean willingness score of male students was similar to that of female students, and the difference was insignificant ($t = 1.40$, $p = 0.16$).

Table 6. Attitudes toward HIV/AIDS among participants

Variable	Male (n = 52)	Female (n = 133)	df	t	p
	M ± SD	M ± SD			
Knowledge	15.73 ± 2.02	14.01 ± 2.12	183	5.61	0.00
Attitudes*	22.09 ± 2.80	22.26 ± 2.50	183	- 0.439	0.66
Willingness to care	5.56 ± 1.44	5.33 ± 1.52	183	1.028	0.30

*The higher score indicated negative attitude

Table 7. Descriptive statistics and t-test result between sex (male, female)

Variable	BSN (n = 95)	ADN (n = 90)	df	t	p
	M ± SD	M ± SD			
Knowledge	15.38 ± 2.39	14.70 ± 2.16	183	1.88	0.62
Attitudes*	22.75 ± 3.00	21.95 ± 2.48	183	1.84	0.06
Willingness to care	5.69 ± 1.89	5.35 ± 1.28	183	1.40	0.16

*The higher score indicated negative attitude

Table 8. Relationship of knowledge, attitudes, and willingness to care

Variable	1	2	3
Knowledge	1.000		
Attitudes	- 0.003	1.000	
Willingness to care	0.057	- 0.338**	1.000
Mean	14.89	22.17	5.45
SD	2.24	2.65	1.48

**Correlation is significant at the 0.01 level (2-tailed)

Correlation between Participants'

Knowledge, Attitudes, and

Willingness to Care

The results of Persons' correlation statistics are presented in Table 8. There was a negative correlation between attitude and willingness to care, and the relationship was significant ($r = -0.338$, $p = 0.00$). However, the relationship between knowledge and attitudes, knowledge and willingness were insignificant.

DISCUSSION

HIV/AIDS-related Knowledge

In this study, most nursing students had only a basic understanding of HIV/AIDS (Table 5). This finding was similar to that of nursing students in India (Dharmalingam et al., 2015). Some studies found inconsistent results regarding nursing students' knowledge of HIV/AIDS (Abolfotouh et al., 2013). Between BSN and ADN students, BSN students had more overall knowledge than ADN students, and female and

male students were comparable (Pickles et al., 2012). This is because BSN students had more time in the hospital for learning and practicum than ADN students, and those experiences may have led to them knowing about HIV/AIDS.

Perceptions of HIV/AIDS (also

Difference Reference and

Comparison)

The current study found that nursing students negatively viewed people living with HIV/AIDS. A similar study found that nursing students had a negative attitude toward people living with HIV/AIDS (Abolfotouh et al., 2013; Pickles et al., 2012). On the other hand, nursing students in Australia and Greece had a positive attitude toward people living with HIV/AIDS, according to studies conducted in those countries (Chan et al., 2012; Turhan et al., 2010). Even though BSN and ADN students had similar attitudes. Female students were more positive than male students, but the differences were insignificant (Tables 7 and 8).

Willingness to Care PLWHA

The willingness of nursing students to care for people with HIV/AIDS was greater than that of nursing students in Turkey (5.45 vs 4.30) (Kok et al., 2018). In this study, BSN students' willingness to care for people with HIV/AIDS was comparable to that of ADN students (5.56 vs 5.33). In addition, male students were equally willing to care for people with HIV/AIDS as female students (5.69 vs 5.35). However, the differences were insignificant (Tables 7 and 8). The study presented the same result with the previous study that conducted in Indonesia (Sukartini et al., 2021).

Relationship between Knowledge, Attitudes, and Willingness to Care

Nursing students face an occupational risk of HIV infection as a subset of health care professionals due to direct contact with blood and body fluids during clinical practice. According to the literature, students who received adequate education and knowledge about HIV/AIDS had more positive attitudes and were more willing to care for HIV/AIDS patients (Eriksson & Damm Grundin, 2010). As a result, nursing students must have accurate knowledge of HIV/AIDS and positive attitudes toward people living with HIV/AIDS to provide high-quality and effective care for PLWHA and protect themselves from becoming infected with HIV. Most students got their information from the teacher, books, and radio/TV (Ibrahim et al., 2022; Olii et al., 2021). However, only one-third of nursing students received HIV/AIDS information. Therefore, the nursing student should be expected to get most of their information from the nursing education curriculum rather than from radio or television.

CONCLUSION

The current results revealed that nursing students had moderate knowledge about HIV/AIDS, and they had negative attitudes. Their negative attitudes may result from inaccurate knowledge about HIV/AIDS and fear of possibly becoming infected with HIV. There was a significant and negative correlation between the attitudes toward HIV/AIDS and the willingness to care for people with HIV/AIDS. This result emphasized that nursing students' desire to provide care will be increased when their positive attitude toward HIV/AIDS is increased. However, this study found an insignificant relationship between knowledge

and attitudes toward HIV/AIDS and between ability and willingness to care for people with HIV/AIDS. This study can contribute to curriculum development work in nursing schools to promote practical education for nursing students to improve their knowledge and attitudes about HIV/AIDS and willingness to care for people with HIV/AIDS.

Declaration of Interest

None

Acknowledgment

Researchers would like to sincerely thank the University of Health Sciences Management team who gave the research permits and nursing students regarding the data collection and research process. In addition, researchers also would like to thank all parties who have supported them. It is suggested that further research could also be recommended to explore the effect of the background variable on pre-clinical nursing students' knowledge, attitudes, and willingness to care for PLWHA and repeat this study in other universities. Thus, pre-clinical nursing students from different schools might have different knowledge, attitudes, and desire to care for people with HIV/AIDS. Before nursing students go out to clinical practice, they should get accurate knowledge about HIV/AIDS. Explore the differences in knowledge, attitudes, and willingness to care between those who have been met with someone living with HIV/AIDS and who do not. The school must revise the nursing curriculum by adding subjects on infectious diseases, primarily HIV/AIDS, to nursing students before they practice at the hospital. The first year, semester 2 for the associate degree in nursing (ADN), Second year, semester 2 for bachelor of science in nursing (BSN).

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Data Availability

The datasets generated during and/or analyzed during the current study are available from the corresponding author on reasonable request.

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