

Factors Influencing Nursing Students' Willingness to Care for HIV/AIDS-Infected Patients in Korea

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간호대학생의 HIV/AIDS 환자 간호의도에 영향을 미치는 요인

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Abstract This study was conducted to identify factors affecting nursing students' willingness to care for HIV/AIDS-infected patients. Data from 345 nursing students were gathered from October 14 to November 27, 2012, and analyzed by SPSS/WIN using descriptive statistics, Pearson correlation coefficients and multiple linear regression. Results showed that there were significant correlations of nursing willingness with HIV/AIDS-related attitudes, stigma, prejudice, and social interaction, not with knowledge and ethical beliefs. HIV/AIDS-related attitudes and social interaction affected nursing willingness to care for patients with HIV/AIDS significantly with the explained variance of 35.5%.

Key Words : HIV/AIDS, Attitude, Social interaction, Nursing intention, stigma

요약 본 연구는 HIV/AIDS 환자 간호의도에 영향을 미치는 요인들을 파악하기 위하여 시도하였다. 연구 대상은 간호학과 학생 345명이었으며 자료수집기간은 2012년 10월 14일부터 11월 27일까지 시행되었다. HIV/AIDS에 대한 태도, 낙인, 편견, 사회적 상호작용, 지식, 윤리적 신념, 간호의도 정도는 기술통계로 분석하였고 제 변수들 간의 상관관계는 Pearson correlation coefficient, 간호의도에 영향을 미치는 요인은 다중 선형 회귀분석을 적용하였다. 태도, 낙인, 편견, 사회적 상호작용은 간호의도와 유의한 상관성이 있는 것으로 나타났으나 지식과 윤리적 신념은 간호의도와는 유의한 상관성이 없는 것으로 나타났다. 태도와 사회적 상호작용이 유의미한 영향을 주는 요인으로 확인되었으며 에이즈 환자 간호의도를 35.5%를 설명하였다.

주제어 : HIV/AIDS, 태도, 사회적 상호작용, 간호의도, 낙인

1. Introduction

As a global pandemic, Acquired Immune Deficiency Syndrome(AIDS) is a disease that attacks the human immune system caused by human immunodeficiency

1.1 Study Question

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virus(HIV). The term HIV/AIDS represents the entire range from early asymptomatic infection to an advanced stage of life-threatening conditions. Since HIV/AIDS has significant socioeconomic impacts on a society with the increased medical expenses to manage AIDS patients, countries in the world have made efforts to develop more effective and viable preventive measures against HIV/AIDS. As of 2012, approximately 35.3 million people had HIV worldwide[1]. In Korea, since the first AIDS case was found in 1985, the cumulated number of people with HIV/AIDS was estimated at 7,788 with 953 new patients in 2012, increased by 14.9%, compared to 2011[2].

There are three key issues on AIDS: First, the most frequent mode of transmission of HIV is sexual contact with an infected person, not casual non-sexual contact. Second, AIDS can be prevented from using condoms properly and consistently by a couple in which one person is infected. Finally, although there is currently no cure or HIV vaccine, the progression of AIDS can be slow down and HIV-infected people can live a normal life for a prolonged period of time without fully developed AIDS if treated at as early a stage of infection as possible. Nevertheless, many people have misconceptions about AIDS, in particular, about the mode of transmission, which results in AIDS being subject to collective resistance, social stigma, and discrimination[3]. A study conducted by Korea Centers for Disease Control and Prevention on knowledge, attitudes, beliefs, and behavior on AIDS in 2010 showed that 59.8% of the subjects had stigma on AIDS, increased by 14.5%, compared to 2009, indicating that a high level of stigma still existed[4]. Health care providers are no exception to these negative emotions about HIV/AIDS. Such negative attitudes and prejudice health care providers have towards people with HIV/AIDS can be detrimental in developing therapeutic relationships with the patients, raise issues on medical and nursing ethics, and affect patient care, as a

whole[5].

However, the risk of contracting the virus occupationally can significantly be reduced if nurses practice universal precautions properly. Nevertheless, a number of studies have reported that health care providers were trying to shun daily contact with HIV-infected patients[6], and restrict fundamental services by isolating inpatients or limiting the number of visitors. Jemmott, Jemmott 3rd, Cruz-Collins(1992)'s study with nursing students, and Lester, Beard(1988)'s study addressed the same issue of the avoidance of nursing care for HIV-infected patients[7,8]. People with HIV/AIDS have the right to receive the same medical care as other patients with diseases other than AIDS, and need to have familial and social support inasmuch as they are human beings with dignity. This humanitarian perspective directly reflects nursing philosophy, which is characterized by non-discriminatory nursing care to every patient: That is, all people are entitled to equal treatment in receiving nursing care, regardless of racial, gender, and socioeconomic differences. In addition, with the development of more advanced therapeutic regimens for AIDS, life expectancy of patients living with HIV/AIDS has increased. As a result, many of the HIV-positive patients have not progressed to fully developed AIDS for a long time, remaining in the chronic condition of HIV infection. Therefore, nursing students will be more likely to care for people with chronic HIV in the future than ever before.

In light of addressing an issue of developing clinically-applicable nursing willingness in nursing students, it is urgent to develop more comprehensive strategies for AIDS education that can be differentiated from an existing nursing curriculum which has focused only on knowledge transmission of etiology, modes of transmission, symptoms, diagnosis, and treatment of HIV/AIDS. Voluntary willingness of nursing professionals to care for HIV-infected patients will affect the quality of care in the long run.

Therefore, this study was conducted to identify factors influencing nursing willingness to care for patients with HIV/AIDS, for the purpose of providing the baseline data to develop educational programs for AIDS, tailored for the particular considerations of improving nursing students' willingness to care for AIDS-infected patients in Korea.

1.2 Purpose of Study

The specific objectives of this study were as follows:

The primary objective of this study was to identify HIV/AIDS-related knowledge, attitudes, social stigma, prejudice, social interaction, ethical beliefs, and nursing willingness in nursing students.

The second objective was to analyze correlations among variables under study.

Finally, factors influencing nursing students' willingness to provide nursing care for patients with HIV/AIDS were analyzed.

2. Method

2.1 Design

This study was designed as a cross-sectional survey to describe and explain factors influencing nursing students' willingness to perform nursing care for patients with HIV/AIDS.

2.2 Subjects

Subjects of this study included 360 junior and senior nursing students at 4-year nursing colleges located in Seoul and Gyeonggi-do in Korea, who had already experienced clinical training. Among the total number of 360 students who agreed to participate in the study after full explanation of study purpose was given, 15 students were excluded from this study because of the incompleteness of their responses on the questionnaires, totaling 345 subjects for final analysis.

The minimum number of the subjects required for this study was estimated at 184 participants, calculated using version 3.1 of G* power program with Cohen's sampling formula, at the effect size of 0.15, significance level of 0.5, test power($1-\beta$) of .95 and with 6 predictors of HIV/AIDS-related knowledge, attitudes, social stigma, prejudice, social interaction, and ethical beliefs. In this study, the total of 345 participants represented the sufficient number of the sample size for detecting group differences using nonparametric statistics at alpha level of .05, and the effect size of 0.15.

2.3 Instruments

Instruments used in this study included 6 items for demographic characteristics of subjects, 16 items for attitudes towards nursing care for HIV/AIDS patients, 3 items for stigma on HIV/AIDS, 12 items for prejudice against patients with HIV/AIDS, 6 items for social interaction with HIV/AIDS patients, 22 items for knowledge about HIV/AIDS, 8 items for ethical beliefs in caring for HIV/AIDS patients, and 13 items for subjects' willingness to care for HIV/AIDS-infected patients.

1) Attitudes towards Nursing Care for Patients with HIV/AIDS

To measure nursing students' attitudes towards nursing care for patients with HIV/AIDS, of the tool originally developed by Held(1993) and revised by Suominen et al.(2011), the segment of the attitudes towards nursing care for patients with HIV/AIDS was used in this study[9,10]. The tool was translated into Korean and back-translated into English by professional translators, followed by confirming the content validity of the tool by an expert group consisting of two nursing faculty members and one nurse working as an AIDS counselor. The 16-item tool of HIV/AIDS-related attitudes was a 5-point Likert-type scale with one being strongly disagree and

5 being strongly agree, indicating that the higher the score, the more negative the attitudes towards nursing care for patients with HIV/AIDS. Cronbach's α of the internal reliability of the tool in Suominen et al.(2011)'s study was .82, while Cronbach's α in this study was .86.

2) Social Stigma on HIV/AIDS

To measure the level of HIV/AIDS-related social stigma held by subjects in this study, the tool for Sohn et al.(2008)'s study was used in this study[11]. The 3-item tool of social stigma on patients with HIV/AIDS was a 5-point Likert-type scale with one being strongly disagree and 5 being strongly agree, indicating that the higher the score, the more severe the level of social stigma on patients with HIV/AIDS. Cronbach's α of the internal reliability of the tool in Sohn et al.(2008)'s study was .72, while Cronbach's α in this study was .72.

3) Prejudice against Patients with HIV/AIDS

To measure subjects' level of prejudice against patients with HIV/AIDS in this study, the tool of prejudice evaluation scale, originally developed by Kelly et al.(1988) and revised by Oh, Kang(1995), was used in this study[12,13].

The 12-item tool of prejudice against patients with HIV/AIDS was a 5-point Likert-type scale with one being strongly disagree and 5 being strongly agree, and the scores on the items that had negatively worded statements were converted for final analysis, indicating that the higher the score, the higher the prejudice against patients with HIV/AIDS. Cronbach's α of the internal reliability of the tool in Oh, Kang(1995)'s study was .75, while Cronbach's α in this study was .66.

4) Social Interaction

Social interaction is defined as the extent to which nursing students have an intention to participate in social situations with HIV/AIDS-infected patients. The

tool originally developed by Kelly et al.(1995) and revised by Lee (2001) was used in this study to measure the level of social interaction between subjects in this study and HIV/AIDS-infected patients[12,14]. The 6-item tool of social interaction with HIV/AIDS-infected patients was a 5-point Likert-type scale with one being strongly disagree and 5 being strongly agree, indicating that the higher the score, the higher the social interaction. Cronbach's α of the internal reliability of the tool in Lee(2001)'s study was .75, while Cronbach's α in this study was .85.

5) Knowledge about HIV/AIDS

To measure nursing students' knowledge about HIV/AIDS, the tool having 22 items, originally developed by Shin, Hong(1996), was used in this study[15]. If the subjects had a correct answer to an item, point one was given to it, while for a wrong answer or answer to the item of "Don't know", point zero was given, indicating that the higher the scores, the higher the level of knowledge about HIV/AIDS. Cronbach's α of the internal reliability of the tool in Shin, Hong(1996)'s study was .66, while Cronbach's α in this study was .60.

6) Ethical Beliefs in Patients with HIV/AIDS

The tool to measure ethical beliefs in diagnostic tests for HIV/AIDS, protection and disclosure of confidential information, and patient management environments, originally developed by Relf et al.(2009) was used in this study after the tool was translated into Korean and back-translated into English by professional translators, and the content validity was confirmed by two nursing faculty members[16]. The 8-item tool of ethical beliefs in patients with HIV/AIDS was a 5-point Likert-type scale with one being strongly disagree and 5 being strongly agree, and the scores on the items that had negatively worded statements were converted into final analysis, indicating that the higher the score, the more negative

the ethical beliefs in caring for patients with HIV/AIDS. Cronbach's α of the internal reliability of the tool in Relf et al.(2009)'s study was .72, while Cronbach's α in this study was .70.

7) Nursing Willingness to Provide Nursing Care for Patients with HIV/AIDS

Nursing willingness to care for patients with HIV/AIDS was operationally defined as the extent to which nursing students in this study had a voluntary intention to perform nursing care for patients with HIV/AIDS. The Nursing Willingness Questionnaire tool, which was originally developed by Kemppainen et al.(1992) and revised by Lee(2001), was used in this study[17,14]. The 13-item nursing willingness tool was a 5-point Likert-type scale with one being never willing to care and 5 being willing to care, indicating that the higher the score, the higher the nursing willingness to care for patients with HIV/AIDS. Cronbach's α of the internal reliability of the tool in Lee(2001)'s study was .93, while Cronbach's α in this study was .93.

2.4 Data Collection

Before data were collected, the approval from the institutional Review Board at S University was received (SSWUIRB2012-002). The data were collected from October 14 to November 27 in 2012. After the purpose and procedure of this study was explained to the directors of nursing colleges, study subjects were collected by the directors' permission.

Consent forms were collected from the subjects, followed by distributing and collecting self-reported questionnaires. A small gift was given to each subject as a token of gratitude to participate in this study. The total number of 360 questionnaires was collected, excluding 15 questionnaires that had incomplete responses, totaling 345 for final analysis.

2.5 Data Analysis

Data were analyzed using SPSS version 19.0 for Windows. More specifically, analysis procedure was as follows:

First, descriptive statistics were used to compute subjects' demographic characteristics as well as HIV/AIDS-related attitudes, social stigma, prejudice, social interaction, knowledge, ethical beliefs, and nursing willingness. The reliability of the study instrument was analyzed by Cronbach's α .

Second, the comparison between subjects' demographic characteristics and nursing willingness to care for patients with HIV/AIDS was analyzed by t-test and ANOVA.

Third, correlations between nursing willingness and independent variables were estimated by Pearson correlation coefficients.

Finally, multiple linear regression analysis was used to analyze factors influencing subjects' willingness to care for patients with HIV/AIDS.

3. Results

3.1 Demographic Characteristics of Subjects

The range of subjects' age in this study was from 19 to 34 years, with the mean age of 21.55. As many as 216 subjects(62.6%) had religion, while 129(37.4%) had no religion. Junior nursing students were estimated at 177(51.3%), while seniors were 168(48.7%). As many as 71 subjects(20.6%) responded that they had no previous experience of receiving instructions on AIDS. Among those who had received AIDS education previously, 132 subjects(38.3%) responded that they did not know well about AIDS, while 142(41.2%) responded that they were knowledgeable about AIDS.

The subjects who were in the middle of having a relationship with an opposite sex partner, and who had had relationships before this study was implemented were estimated at 153(44.3%), and 129(37.4%),

respectively, while those who had never had heterosexual relationships were 63(18.3%). The majority of the subjects had no sexual experience, which was estimated at 273(79.1%), while only 72(20.9%) had sexual relationships(See <Table 1>).

<Table 1> Demographic Characteristic of Subjects (N=345)

Characteristic	Categories	n(%)
Age(year)	≤20	71(20.6)
	21	142(41.2)
	22	82(23.8)
	≥23	50(14.5)
Religion	Yes	216(62.6)
	No	129(37.4)
Grade	Junior	177(51.3)
	Senior	168(48.7)
	No	71(20.6)
Educational experience for AIDS	Received education, but don't know	132(38.3)
	Received education, so know well	142(41.2)
	Present	153(44.3)
Dating experience	Past	129(37.4)
	No	63(18.3)
Sexual experience	Yes	72(20.9)
	No	273(79.1)

3.2 HIV/AIDS-Related Attitudes, Stigma, Prejudice, Social Interaction, Knowledge, Ethical Beliefs, and Nursing Willingness

The average score on attitudes towards patients with HIV/AIDS was 50.10±9.64 out of a perfect score of 80, while the average score on social stigma was 7.85±2.69 out of 15, which indicated slightly negative attitudes towards patients with HIV/AIDS in subjects in this study. The mean score on prejudice was 29.79±5.64 out of a perfect score of 60, social interaction was 21.49±4.37 out of 30, indicating a possibility of developing positive interaction with HIV/AIDS-infected patients, whereas the mean score on ethical beliefs in

patients with HIV/AIDS was 30.26±4.98 out of 40, indicating negative beliefs in nursing care for the infected patients. Out of a perfect score of 22, the mean score of subjects' knowledge about HIV/AIDS was 14.57±2.61, or 66.23 on a maximum of 100 points. The average score on nursing willingness was 45.82±10.07 out of 65(See <Table 2>).

<Table 2> Scores on Subjects' Attitudes, Stigma, Prejudice, Social Interaction, Knowledge, Ethical belief, and Nursing Willingness (N=345)

Variables	M(SD)	Ranges	Min	Max
Attitude	50.10(9.64)	16-80	27	78
Stigma	7.85(2.69)	3-15	3	15
Prejudice	29.79(5.64)	12-60	17	52
Social Interaction	21.49(4.37)	6-30	9	30
Knowledge	14.57(2.61)	1-22	7	22
Ethical Belief	30.26(4.98)	8-40	8	40
Nursing Willingness	45.82(10.07)	13-65	17	65

3.3 Attitudes towards Nursing Care for Patients with HIV/AIDS

As a whole, subjects in this study revealed negative attitudes towards nursing care for patients with HIV/AIDS. For example, 87.8% of the subjects strongly agreed on the following item, "People with HIV or AIDS should be cared for in a separate unit with specifically trained personnel", followed by 81.7% of the subjects who strongly agreed on the item, "I am/would be fearful of contracting HIV if I am dealing with people with HIV", and 66.7% and 66.7% strongly agreed on the following items. "Those who care for people with HIV or AIDS should receive additional pay", and "If I dealt with person with HIV or AIDS, I would be worry about putting my family, friends, and colleagues at risk", respectively(See <Table 3>).

〈Table 3〉 Subjects' Attitudes towards Nursing Care for HIV/AIDS Patients

(N=345)

Item	n(%)
I am/would be fearful of contracting HIV if I am dealing with people with HIV	Strongly agree/agree : 282 (81.7) neutral: 50(14.5) Strongly disagree/disagree: 13(3.8)
I would refuse to care for a person with HIV or AIDS	Strongly agree/agree : 46(13.3) neutral: 102(29.6) Strongly disagree/disagree: 197(57.1)
Health care institutions should have the right to refuse care to patients with HIV or AIDS	Strongly agree/agree : 87(25.2) neutral: 93(27.0) Strongly disagree/disagree: 165(47.9)
I should have the right to refuse to deal with persons with HIV or AIDS	Strongly agree/agree : 128(37.1) neutral: 113(32.8) Strongly disagree/disagree: 104(30.1)
Caring for people with HIV or AIDS should be on a voluntary basis only	Strongly agree/agree : 99(28.7) neutral: 122(35.4) Strongly disagree/disagree: 124(35.9)
People with HIV or AIDS should be cared for in a separate unit with specifically trained personnel	Strongly agree/agree : 303(87.8) neutral: 33(9.6) Strongly disagree/disagree: 9(2.6)
The major concerns I have/would have about dealing with a person who has HIV or AIDS are, "will I get HIV and will I die of AIDS?"	Strongly agree/agree : 206(59.7) neutral: 79(22.9) Strongly disagree/disagree: 60(17.4)
Those who care for people with HIV or AIDS should receive additional pay	Strongly agree/agree :230(66.7) neutral: 57(16.5) Strongly disagree/disagree: 58(16.8)
If I dealt with a person with HIV or AIDS, I would worry about putting my family, friends and colleagues at risk	Strongly agree/agree : 230(66.7) neutral: 75(21.7) Strongly disagree/disagree: 40(11.6)
Dealing with people with HIV or AIDS has affected/could affect my relationship with my significant others	Strongly agree/agree : 148(42.9) neutral: 102(29.6) Strongly disagree/disagree: 95(27.5)
I would prefer not to provide care to people with HIV or AIDS because of the hopelessness of the prognosis	Strongly agree/agree : 60(17.4) neutral: 90(26.1) Strongly disagree/disagree: 195(56.5)
I do not feel it is worthwhile for me to expend my time and energy caring for a person with AIDS who is dying	Strongly agree/agree : 15(4.4) neutral: 50(14.5) Strongly disagree/disagree: 280(81.2)
I would not want to be assigned to people with HIV or AIDS because I do not feel competent to meet their intense physical needs	Strongly agree/agree : 121(35.1) neutral: 129(37.4) Strongly disagree/disagree: 95(27.6)
I would not want to be assigned to people with HIV or AIDS because I do not feel competent to deal with their intense psychological needs	Strongly agree/agree : 115(33.3) neutral: 133(38.6) Strongly disagree/disagree: 97(28.1)
I feel that I have not had sufficient information/training to competently protect myself against infection when dealing with people who have HIV or AIDS	Strongly agree/agree : 156(45.2) neutral: 111(32.2) Strongly disagree/disagree: 78(22.6)
Caring for a person who is dying is uncomfortable for me	Strongly agree/agree : 21.1%(n=73) neutral: 21.4%(n=74) Strongly disagree/disagree: 57.4%(n=198)

3.4 Social Interaction with HIV/AIDS-Infected Patients

As much as 79.1% of subjects in this study responded that they were willing to live together and take care of a family member who had been infected with HIV/AIDS, indicating the most positive response of all, whereas only 35.1% of the subjects responded that they would allow their own family members to visit someone who had HIV/AIDS(See <Table 4>).

<Table 4> Subjects' Social Interaction with HIV/AIDS-Infected Patients (N=345)

Item	n(%)
Living together and taking care of HIV infected family	Strongly agree/agree : 273(79.1)
	neutral: 60(17.4)
	Strongly disagree/disagree: 12(3.5)
Attending the same social gathering	Strongly agree/agree : 181(52.5)
	neutral: 125(36.2)
	Strongly disagree/disagree: 39(11.3)
Attend a party where AIDS patient's preparing food	Strongly agree/agree : 136(39.4)
	neutral: 127(36.8)
	Strongly disagree/disagree: 82(23.8)
Studying in the same classroom	Strongly agree/agree : 197(57.2)
	neutral: 112(32.5)
	Strongly disagree/disagree: 36(10.4)
Maintaining a friendship	Strongly agree/agree : 252(73)
	neutral: 78(22.6)
	Strongly disagree/disagree: 15(4.3)
Allow family visit	Strongly agree/agree : 121(35.1)
	neutral: 115(33.3)
	Strongly disagree/disagree: 109(31.6)

3.5 Knowledge about HIV/AIDS

Although the majority of subjects in this study had a relatively high level of knowledge on the definition of AIDS, a number of the subjects did not know how to diagnose AIDS. For example, only 35.9% and 20.3% of the subjects had correct answers to the items, "ELISA is the method to test antibodies against the AIDS

virus", and "Western blot is a test for identifying antibodies against the AIDS virus", respectively, whereas only 40.6% of the subjects marked "HIV infection can be detected within 4 weeks after exposure to the virus" as a correct answer. Regarding symptoms of AIDS, 51.3% of the subjects had a correct answer to the item, "AIDS patients have lymphatic swelling in the neck or the inguinal regions", and 55.1% had a correct answer to the item, "AIDS patients have sore throat or oral thrush that is the condition of whitish patches in the oral cavity", while 71.3% of the subjects had an correct answer to the item, "AIDS patients can bruise easily." As far as the transmission and prevention of HIV/AIDS were concerned, the items to which more than 90% of the subjects had correct answers included the followings: AIDS can be transmitted when people 'have sexual intercourse without using a condom', 'have needle stick injuries or prick accidentally on a contaminated needle with HIV', 'receive a blood transfusion from blood contaminated with HIV', and 'share a razor that has been used by a patient with HIV/AIDS.' However, only a little over half the subjects, or 55.1% and 56.5% of the subjects, had correct answers to the items, "AIDS can be transmitted through 'tattooing', or 'ear piercing' at a place other than a medical facility, such as a beauty salon, respectively. Furthermore, 44.3% of the subjects had the wrong answer to the item that AIDS transmitted through mosquito biting. Despite the fact that there was a separate item on the mode of transmission of HIV through blood transfusion, 85.2% of the subjects had the wrong answer to the item that AIDS can be transmitted through blood donation(See <Table 5>).

3.6 Ethical Beliefs in Diagnostic Testing, Confidentiality, and Patient Management Environment

The results of subjects' beliefs in HIV/AIDS tests in this study showed that 38.3% of the subjects strongly

<Table 5> Subjects' Knowledge on AIDS/HIV

(N=345)

Item	correct	wrong	not sure
	n(%)	n(%)	n(%)
Definition			
1.AIDS is a disease of destructing the immune system	299(86.6)*	32(9.3)	14(4.1)
2.If antibody to HIV is detected, it means anti-AIDS virus immunity exist	79(22.9)	212(61.4)*	54(15.7)
3.HIV positive patients without clinical symptoms will not infect other people	13(3.8)	317(91.9)*	15(4.3)
Diagnosis			
4.HIV-ELISA is a method of anti-HIV antibody detection	124(35.9)*	12(3.5)	209(60.6)
5.Western blot is a method of anti-HIV antibody detection	70(20.3)*	8(2.3)	267(77.4)
6.HIV infection can be detected within 4 weeks of exposure	80(23.2)	140(40.6)*	125(36.2)
Symptom			
7.AIDS patients have lymphatic swelling at the neck or inguinal regions	177(51.3)*	46(13.3)	122(35.4)
8.AIDS patients have sore throat or whitish patches in the oral cavity	190(55.1)*	37(10.7)	118(34.2)
9.AIDS patients are easily bruised	246(71.3)*	33(9.6)	66(19.1)
Prevention & Transmission			
10.You will catch AIDS if you have a meal together with AIDS patients	23(6.7)	306(88.7)*	16(4.6)
11.You will catch AIDS if you have sex without condom	345(100)*	0(0)	0(0)
12.You will catch AIDS if you were pricked with HIV contaminated needles	327(94.8)*	16(4.6)	2(6)
13.You will catch AIDS if you receive blood transfusion from HIV contaminated blood	341(98.8)*	3(9)	1(3)
14.You can catch AIDS if you bath with AIDS patients	48(13.9)	264(76.5)*	33(9.6)
15.You can catch AIDS if you share with razor used by AIDS patients	313(90.7)*	21(6.1)	11(3.2)
16.You will catch AIDS if you sharing toilet seat with AIDS patients	63(18.3)	247(71.6)*	35(10.1)
17.You have danger of catching AIDS if you tattoo eyebrows in the beauty salon	190(55.1)*	100(29.0)	55(15.9)
18. You have danger of catching AIDS if you punch the earlobe in the beauty salon	195(56.5)*	95(27.6)	55(15.9)
19.You will catch AIDS if you share cups with AIDS patients	50(14.5)	280(81.2)*	15(4.3)
20.You have danger of catching AIDS if you were nearby coughing or sneezing AIDS patients	66(19.1)	257(74.5)*	22(6.4)
21.You can catch AIDS if you were bitten by mosquitos which sucked AIDS patients' blood	153(44.3)	142(41.2)*	50(14.5)
22. You can catch AIDS by blood donation	294(85.2)	44(12.8)*	7(2.0)

* correct choice

agreed on the fact that there were circumstances under which it was necessary to test patients for HIV/AIDS without patients' permission, while 38.0% of the subjects strongly disagreed on the same item. Moreover, 89.9% of the subjects strongly agreed that all healthcare providers should be routinely tested for HIV/AIDS, and 79.4% of the subjects strongly agreed on the fact that HIV/AIDS testing should be routinely performed as part of the admission procedure for all patients. The results of protection and disclosure of confidential information on patients showed that 36.8% of the subjects strongly agreed that patients' relatives should be informed of the patient's condition of HIV/AIDS without patients' permission, while 40.9%

did not agree. Furthermore, 68.1% of the subjects strongly agreed that sexual partners of patients with HIV/AIDS should be informed of the patient's condition without patient's permission, and 76.8% of the subjects strongly agreed that nurses should take a responsibility to inform an infected patient's spouse, sexual partner, boyfriend or girlfriend of the patient's condition. In reference to a patient management environment, 86.6% of the subjects strongly agreed that the charts of patients with HIV/AIDS should be clearly marked so that any healthcare workers can notice of the patient's condition, and 52.5% of the subjects strongly agreed that patient rooms and beds should be clearly marked so that any healthcare workers can

〈Table 6〉 Belief about testing, confidentiality and disclosure, and environment of care

(N=345)

Question	n(%)
Belief about testing	
There are circumstances where it is appropriate to test a patient for HIV/AIDS without the patient's knowledge or permission	Strongly agree/agree : 132(38.3) neutral: 82(23.8) Strongly disagree/disagree: 131(38.0)
All healthcare workers should be routinely tested for HIV/AIDS	Strongly agree/agree : 310(89.9) neutral: 31(9.0) Strongly disagree/disagree: 4(1.2)
HIV/AIDS testing should be routinely performed as part of the admission process for all patients	Strongly agree/agree : 274(79.4) neutral: 52(15.1) Strongly disagree/disagree: 19(5.5)
Beliefs about confidentiality and disclosure	
Relatives of patients with HIV/AIDS should be notified of the patient's HIV status, even without the patient's permission	Strongly agree/agree : 127(36.8) neutral: 77(22.3) Strongly disagree/disagree: 141(40.9)
Sexual partners of patients with HIV/AIDS should be notified of the patient's status, even without the patient's permission	Strongly agree/agree : 235(68.1) neutral: 62(18.0) Strongly disagree/disagree: 48(13.9)
Nurses have the responsibility to inform a spouse/partner or boyfriend/girlfriend of the patient's HIV status	Strongly agree/agree : 265(76.8) neutral: 49(14.2) Strongly disagree/disagree: 31(9.0)
Beliefs about the environment of care	
The rooms/beds of patients with HIV/AIDS should be clearly marked so hospital workers will know the patient's status	Strongly agree/agree : 181(52.5) neutral: 68(19.7) Strongly disagree/disagree: 96(27.8)
The charts of patients with HIV/AIDS should be clearly marked so clinic/hospital workers will know the patient's status	Strongly agree/agree : 299(86.6) neutral: 34(9.9) Strongly disagree/disagree: 12(3.5)

notice of the patient's condition(See <Table 6>).

3.7 Nursing Willingness for Patients with HIV/AIDS

Nursing performance that subjects in this study were willing to do most was found to 'bring meal tray' to an HIV-infected patient, which was responded by 311 subjects, or 90.1% of the subjects, followed by taking vital signs(291 subjects or 84.3% of them), feeding patients with meals(276 or 80%), giving patients a bath at their bedside(239 or 69.3%), and 'change bed linen' (238 or 69%), indicating that the majority of the subjects did not show any hesitance to provide the patients with daily routine care in a clinical setting. On the other hand, the least the subjects were willing to provide was administering blood transfusion, responded by 137 subjects(39.7%), followed by administering intravenous injections, cleaning up

patients' feces or vomitus, shaving patient, and clearing up supplies after a diagnostic test, indicating that the more invasive procedures, the more hesitant the subjects were to provide nursing care for patients with HIV/AIDS(See <Table 7>).

〈Table 7〉 Subjects' Willingness to Care for Patients with HIV/AIDS

(N=345)

Item	n(%)
Give bed bath	Strongly agree/agree : 239(69.3) neutral: 80(23.2)
	Strongly disagree/disagree: 26(7.5)
Clean up stool or emesis	Strongly agree/agree : 97(28.2) neutral: 131(38.0)
	Strongly disagree/disagree: 117(33.9)
Bring meal tray	Strongly agree/agree : 311(90.1) neutral: 32(9.3)
	Strongly disagree/disagree: 2(6)
Change bed linen	Strongly agree/agree : 238(69) neutral: 80(23.2)
	Strongly disagree/disagree: 27(7.8)

Take vital signs	Strongly agree/agree : 291(84.3) neutral: 44(12.8) Strongly disagree/disagree: 10(2.9)
Change dressings	Strongly agree/agree : 127(36.9) neutral: 121(35.1) Strongly disagree/disagree: 97(28.1)
Clear supplies after a diagnostic test	Strongly agree/agree : 108(31.3) neutral: 122(35.4) Strongly disagree/disagree: 115(33.3)
Feeding dinner	Strongly agree/agree : 276(80) neutral: 60(17.4) Strongly disagree/disagree: 9(2.6)
Complete catheter care	Strongly agree/agree : 141(40.9) neutral: 125(36.2) Strongly disagree/disagree: 79%(22.9)
Shave patient	Strongly agree/agree : 109(31.6) neutral: 120(34.8) Strongly disagree/disagree: 116(33.6)
Empty urinary drainage bag	Strongly agree/agree : 164(47.5) neutral: 110(31.9) Strongly disagree/disagree: 71(20.6)
Start IV fluids	Strongly agree/agree : 95(27.5) neutral: 115(33.3) Strongly disagree/disagree: 135(39.1)
Administer blood transfusion	Strongly agree/agree : 106(30.7) neutral: 102(29.6) Strongly disagree/disagree: 137(39.7)

3.8 Nursing Willingness by Demographic Characteristics of Subjects

There was no significant difference between subjects' demographic characteristics and nursing willingness to provide nursing care for patients with HIV/AIDS.

3.9 Correlations among Variables

There were statistically significant correlations of nursing willingness with attitudes, social stigma,

prejudice, and social interaction, whereas there were no statistically significant correlations of nursing willingness with knowledge, and ethical beliefs(See Table 8).

3.10 Multicollinearity Test for Factors Related to Nursing Willingness

In order to identify whether or not there were high correlations among independent variables at the value of Variance Inflation Factor(VIF) over 10, multicollinearity testing in regression analysis was employed and its results showed that all the independent variables in this study showed the VIF values ranging between 1.561 and 1.786, which indicated that there were no inter-correlational problems among independent variables.

3.11 Factors Influencing Nursing Willingness

Multiple regression analysis was applied to identify the influence of independent variables, including attitudes, social stigma, prejudice, and social interaction, on the dependent variable of nursing willingness to provide nursing care for patients with HIV/AIDS. Attitudes and social interaction had significant influence on nursing willingness, and their explained variance was 35.5%. Of two variables, social interaction was found to be the more influential variable($\beta=.388$) than attitudes($\beta=-.241$).

<Table 8> Correlation of study variable

(N=345)

Variables	1	2	3	4	5	6
1. Knowledge						
2. Attitude	-.135 *					
3. Stigma	-.121 *	.510 **				
4. Prejudice	-.131 *	.475 **	.538 **			
5. Social Interaction	.149 **	-.496 **	-.554 **	-.462 **		
6. Ethical belief	-.089	.239 **	.190 **	.183 **	-.053	
7. Nursing Willingness	.097	-.473 **	-.423 **	-.326 **	.552 **	-.054

*p <.05, **p <.01

(Table 9) Multiple Analysis of Factors Influencing on Nursing Willingness**(N=345)**

Variables	B	β	
Constant	41.000		***
Attitude	-.252	-.241	***
Stigma	-.360	-.096	
Prejudice	.035	.020	
Social Interaction	.895	.388	***
R ² Adjusted R ²	.362(.355)		
F	48.296	**	

*** p <.001

4. Discussion

This study was conducted to identify factors influencing nursing students' willingness to provide HIV/AIDS-infected patients with nursing care in Korea.

The summary and discussion of the major findings were as follows: First, the average score on attitudes toward nursing care for patients with HIV/AIDS was 50.10±9.64 out of a perfect score of 80, indicating that nursing students inclined to negative attitudes towards the patients, which is consistent with other studies conducted by Han, Cho, Kim, Kim(2012), and Sung(2008), both of which showed negative attitudes towards nursing care for patients with HIV/AIDS[18,19]. In comparison with Suominen et al.(2011)'s study in which the same study instrument was used as this study[10], this study revealed that 81.7%, 87.8%, 66.7%, and 66.7% of nursing students strongly agreed on items that "I am/would be fearful of contracting HIV if I am dealing with people with HIV", "People with HIV or AIDS should be cared for in a separate unit with specifically trained personnel", "Those who care for people with HIV or AIDS should receive additional pay", and "If I dealt with a person with HIV or AIDS, I would worry about putting my

family, friends and colleagues at risk", respectively. On the other hand, the proportions of disagreement on such items in Suominen et al.(2011)'s study were estimated at 50%, 53.2%, 65.7%, and 74.2% of the subjects, respectively, which indicated that the subjects in their study were more likely to have positive attitudes towards HIV/AIDS patients than those in this study. Furthermore, Lee(2001) categorized 'being fearful of HIV/AIDS' as the most negative item of all, and 84.6% of the subjects in her study revealed the fear of providing nursing care services for patients with HIV/AIDS[14], which is consistent with the result of this study, showing that 81.7% of nursing students expressed that they would be fearful of contracting HIV/AIDS if they had therapeutic contact with the infected patient.

Shea, Naqvi(1993) elucidated that the fear of HIV/AIDS stems from a lack of understanding about health problems related to HIV/AIDS, characteristics both of HIV/AIDS-infected patients and high-risk groups of HIV/AIDS infection, and the modes of transmission of HIV, all of which can be eliminated by a more appropriate educational approach based on scientific knowledge about the etiology of HIV infections and the progression to AIDS[20]. Therefore, there should be more effective educational strategies that help nursing students reduce the fear of contracting HIV/AIDS and improve positive attitudes towards nursing care for patients with HIV/AIDS.

Social stigma perceived by nursing students in this study upon those who are living with HIV/AIDS was found to be slightly negative with the average score of 7.85±2.69 out of a perfect score of 15. Yun(2006), in her study, listed negative perception of patients with HIV/AIDS in the following way: Those who were infected with HIV/AIDS were fearful ones; HIV/AIDS-infected people were those who had promiscuous sexual behavior; HIV/AIDS-infected people should take a sole responsibility for their own disease; and, by law, they should be isolated from the

general public, all of which represented a high level of social stigma[21]. Social stigma appeared to be arisen from fear and misunderstanding that, once a person is infected with HIV, it will lead them to death. Therefore, in order to challenge social stigma imposed on people living with HIV/AIDS, and educate nursing students about non-stigmatizing facts, the development of more viable and suitable approaches to AIDS education is of importance. For example, Valois, Turgeon, Gogin, Blondeau, Cote(2001) reported a successful approach to increasing nursing students' willingness to care for people with HIV/AIDS by utilizing a group discussion-based educational method. Moreover, Pettigrew, Troop(2008) reported another successful educational approach based on the method of inter-group contact that made HIV-attached fear reduced and acceptance of, and empathy for people living with HIV improved. Likewise, there should be a new attempt to utilize direct and vicarious contact with people living with HIV/AIDS through instructional image media and intensive discussion-oriented learning activities[22,23].

The mean score of prejudice against HIV/AIDS in this study was estimated at 29.79 out of a perfect score of 60, indicating the neutral stance for prejudice or discrimination, but relatively lower than Lee(2010)'s and Kang(2010)'s studies that were done with nursing students in Korea, which showed 32.4 out of 60, and 34.44 out of 55, respectively[24,25]. Son, Lee, Kim(2007)'s study with students at colleges other than a nursing school reported that there was no difference in prejudice before and after the implementation of AIDS education[26], and Jeon et al.(1988)'s and Kang(2010)'s studies with nurses also showed no difference in prejudice before and after AIDS education[27,25]. These studies implied that it is not easy to change prejudice people have against those with HIV/AIDS. Considering prejudice against people with HIV/AIDS, there should be more affirmative measures that eliminate the unreasonable fear of

contracting HIV/AIDS through casual contact by reinforcing more scientific knowledge about transmission and prevention of HIV/AIDS.

The mean score of social interaction in this study was estimated at 21.49 out of a perfect score of 30, indicating a probability of developing more positive social interaction with those who were infected with HIV/AIDS among nursing students, which is consistent with other studies conducted by Kang(2010) and Lee(2001)[25,14]. For example, in Lee(2001)'s study, when subjects' family members or friends were infected with HIV/AIDS, the subjects in her study were willing to maintain the interpersonal relationship with them. On the other hand, the subjects in Lee(2001)'s study scored low on accepting an invitation with a meal prepared by a person with HIV/AIDS, and letting their family members visit the house of an HIV-infected person, which indicated the similar result to this study[14] that the subjects in this study would not avoid maintaining relationships with their family members or intimate friends who were infected with HIV, but avoid having contact with strangers or someone with whom the subjects did not have acquaintance, particularly when they had HIV/AIDS. Yun(2006) also reported that there was a statistically significant correlation between social stigma on AIDS and social interaction with someone with AIDS[21]. Therefore, there should be more effective strategic measures that reduce social stigma and prejudice against HIV/AIDS in order to improve interactive relationships between nursing students and HIV/AIDS-infected patients. As Son et al.(2008) emphasized, strategies for disseminating accurate knowledge and information need to be developed, focused on facts and information that anybody can be infected with the AIDS virus, not just those who have promiscuous sexual behavior, that AIDS is not a fearful and fatal disease, but a disease that a HIV-infected person can maintain normal life without developing AIDS for many years if properly treated with multiple

antiretroviral drugs and medical treatment, and that AIDS can not be transmitted through day-to-day casual contact in social settings[11].

The mean score of subjects' knowledge about HIV/AIDS was 14.57 out of a perfect score of 22, which indicated a higher level of knowledge than that in other studies. For example, Lee(2001)'s study with nursing students in Korea showed the mean score of 22.44 out of 32[14], and Held(1993)'s study showed 21.38 in the experimental group and 20.85 in the control group out of 34[9]. In addition, Li, Scott, Li(2008)'s study showed 14.3 out of 24, and Suominen et al.(2011)'s study showed 12.09 out of 24[28,10]. As Han et al.(2012) also suggested in their study, the result of the relatively high level of knowledge acquisition in nursing students in this study may result from the aggressive promotion of a national AIDS campaign and education in Korea, which started in 2002 as part of the Korean government's health care policy to attract the general public to AIDS and its prevention[18]. This study also showed that, although 79.5% of nursing students had received AIDS education before this study was conducted, 38.3% of them did not know well about HIV/AIDS. The fact that only 71 nursing students, or 20.6% of them, had never had AIDS education previously indicated that AIDS campaign and education at the Korean governmental level has been well implemented. The details of items on knowledge about HIV/AIDS revealed that, although the majority of nursing students in this study was knowledgeable about the definition of AIDS, a number of nursing students did not know how to diagnose HIV/AIDS. In particular, less than half of nursing students, or 35.9% of them, answered the fact that ELISA is a HIV antibody test correctly, and only 20.3% of them answered the Western blot test correctly as a well-established antibody testing technique. The item on whether or not a patient can be diagnosed with HIV infection within 4 weeks after the patient was exposed to the virus was correctly answered only by 40.6% of

nursing students. In reference to transmission and prevention of HIV/AIDS, 44.3% of nursing students had the wrong answer to the item that mosquito bite can transmit the HIV/AIDS virus, and 85.2% of nursing students had the wrong answer to the item of blood donation being the mode of transmission of HIV/AIDS. These results indicated that there should be more practical programs for AIDS education that can facilitate and reinforce knowledge acquisition on diagnostic tests and transmission modes of HIV/AIDS for nursing students.

The level of nursing students' beliefs in occupational nursing ethics in this study appeared to be low, compared to Relf et al.(2009)'s study[16]. For example, regarding the item, "Nurses should be responsible to inform a HIV-infected patient's spouse, sexual partner, and boyfriend or girlfriend of the patient's condition", Relf et al.(2009)'s study showed that 21.4% of South African students and 22.7% of American students agreed on the item, but 76.8% of Korean nursing students in this study agreed on the same item. In reference to a patient management environment, only 4.6% of South African students and 13.1% of American students in Relf et al.(2009)'s study agreed on the item, "Patient rooms and beds should be clearly marked so that any hospital health care workers can notice the patient's condition", whereas 52.5% of Korean nursing students in this study agreed on such an item. Furthermore, 17.6% of South African students and 54.5% of American students in Relf et al.(2009)'s study agreed on the item, "The clinical charts of a HIV/AIDS patient should be clearly marked so that any clinical and hospital workers can be aware of the patient's condition", whereas 86.6% of Korean nursing students in this study agreed on the same item. In a clinical nursing setting, it is very important for nurses to provide nursing care for all patients with the high quality of ethical standards that guarantee the preservation of human rights of all the patients, regardless of their conditions. Nursing students in this

study were characterized by an inexperienced group of students who were in the middle of learning and developing ethical standards for nursing performance, and who were subject to experiencing role conflict without firm philosophy and beliefs in role performance. Therefore, there should be more effective learning and teaching strategies both in didactic and clinical training programs, which can help nursing students to develop appropriate attitudes towards, and beliefs in nursing performance for HIV-infected patients in the future.

The mean score on nursing willingness among nursing students in this study was 45.82 ± 10.07 out of a perfect score of 65, indicating a comparatively positive intention to care for people with HIV/AIDS. However, in more details, nursing students became more reluctant to provide HIV-infected patients with nursing care as nursing care services included invasive procedures. Lee(2001), Li et al.(2008), and Han et al.(2012)'s studies also reported that their subjects showed a negative willingness to provide HIV-infected patients with nursing care when there were more invasive nursing procedures involved[14,28,18]. As Li et al.(2008) emphasized, instructions on how to practice 'universal precautions' in order to avoid direct contact with patients' bodily fluids, such as wearing medical gloves, goggles, and face shields, should be provided to all health care providers and nursing students as part of AIDS education[28].

Correlations among variables under study showed that knowledge about HIV/AIDS had significant correlations with HIV/AIDS-related attitudes, social stigma, prejudice, and social interaction, which suggested that more positive HIV/AIDS-related attitudes, and better social interaction should be improved while social stigma and prejudice against HIV-infected patients should be reduced by means of reinforcing educational programs focused on knowledge acquisition on HIV/AIDS. In this study, knowledge about HIV/AIDS showed correlations neither with ethical beliefs, nor with nursing willingness, which is

not consistent with other studies. For example, Park, Lee, Lee(1997) reported a positive correlation between knowledge about HIV/AIDS and willingness to perform nursing care management[29]. However, Li et al.(2008)'s study showed the similar findings with this study that there was no significant correlation between knowledge about HIV/AIDS and willingness to perform nursing care[28], which was also supported by Lee(2001)'s study that knowledge about HIV/AIDS acquired through educational activities would lead to changes in cognitive improvement, but not in negative attitudes or fear for getting infected with HIV, which resulted in failure in the willingness to perform direct nursing care[14]. There were correlations of nursing willingness with HIV/AIDS-related attitudes, social stigma, prejudice, and social interaction in this study, which is consistent with Oh, Kang(1995)'s and Yang(2013)'s studies, both of which reported that the worse the prejudice, the lower the social interaction[13,30]. Yun(2006) also reported the same results, showing that the lower the social stigma imposed upon HIV-infected patients, the higher the social interaction with them. Sohn et al.(2008) stressed that social stigma attached to someone with HIV/AIDS affected the social distance from HIV-infected patients[21,11].

In this study, social interaction with HIV-infected patients as well as attitudes towards HIV/AIDS appeared to affect nursing students' willingness to perform nursing care for those infected, with the explained variance of 35.5%. Of two, social interaction had more powerful influence on nursing willingness($\beta = .388$) than attitudes($\beta = -.241$), which is consistent with other studies. For example, Lee(2001)'s study showed that social interaction was found to be the most powerful predictor of all, influencing nursing willingness with the explained variance of 33.4%, and the explanatory power increased to 42.5%, or by 9.1%, when the attitude variable was added. Yang(2013) also reported that the direct effect size of social interaction

with HIV/AIDS-infected patients was .42, and attitudes towards HIV/AIDS was -.35[14,30]. Tyler-Viola(2007)'s study with maternal nurses showed that attitudes and social stigma affected nursing willingness, as well[31], and Han et al.(2012)'s study showed a partial consistence with this study, showing that only attitudes towards HIV/AIDS-infected patients affected nursing willingness[18]. In addition, the result of this study was supported by a study conducted by Yoo(1997), reporting that nursing attitudes towards HIV/AIDS was found to be one of the major predictors for nursing willingness[32].

Wertz et al. (1987) stressed that the health care management system should include a diversity of AIDS educational programs, tailored to meet particular needs of nursing care providers[33]. Park et al.(1997) also stressed that AIDS education should be provided not on a short-term or temporary basis, but on a long-term, continuous, and systematic basis, in order to lead health care providers to a change not only in knowledge but also in attitudes towards patients living with HIV/AIDS[29].

In conclusion, in light of boosting nurses' willingness and voluntary intention to provide HIV-infected patients with quality nursing care and management, it is necessary to develop educational programs focused on various learning and teaching strategies, in order to convey accurate knowledge about nursing care for the infected patients, reduce unscientific fear and resistance against AIDS patients, and improve a more amicable therapeutic relationship and interaction between nursing professionals and someone who is suffering from the disease on which stigma is imposed or affixed, and promote more positive attitudes towards those who are underprivileged members of a society.

5. Conclusion

The results of this study suggest developing educational programs which lead nursing students to improve not only a more knowledgeable capability but also a more acceptable and emphatic attitude towards those who are living with HIV/AIDS, develop a more healthy and constructive relationship with HIV/AIDS-infected patients, and provide more quality nursing care for the patients. More practically, educational programs and preventive measures should be developed based on scientifically sound information and data on universal precautions as means of reducing unscientific fear and misconceptions. Additional programs for clinical training should be provided in order for nursing students to establish ethical standards for nursing care for all patients, regardless of the conditions of the disease.

The sample of this study consisted of nursing students at more than one nursing college. Although the study sample of this study was a diverse one and appeared to be representative of nursing college population, this study may limit the generalization of the findings to other groups of health care providers. Therefore, future studies involving more nursing colleges with more diverse groups of nursing students as well as clinical nurses would reinforce the results of this study.

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