Nurses' Knowledge, Attitude and Willingness to Take Care for HIV/AIDS Patients in Bhutan

ความรู้ ทัศนคติต่อเอชไอวี/เอดส์ และความเต็มใจในการดูแลผู้ที่เป็นเอชไอวี/เอดส์ของพยาบาลในประเทศภูฏาน

Amber Bahadur Gurung (แอมเบอร์ บาฮาเดอร์ กูรุง)*
Dr. Bumpenchit Sangchart (ดร. บำเพ็ญจิต แสงชาติ) **

ABSTRACT

The purpose of the study was to describe nurses' knowledge, attitude and willingness to take care for HIV/AIDS patients in Bhutan. A descriptive survey design was used for the study. A Stratified Random Sampling with proportional allocation was conducted to draw the required sample size of 197 nurses from sixteen hospitals in Bhutan. The instrument developed was sent to five experts to assess for content validity and pilot study was conducted in Bhutan prior to data collection to assess for reliability. The data was collected from 15th October to 15th December 2007. The Statistical Package for Social Sciences (SPSS) was used to analyze the data.

The over all mean score for knowledge was 24.66 (out of 30); 80.59 (out of 105) for attitude, and 44.85 (out of 50) for willingness. However, nurses had deficit on few aspects of risk factors, pathophysiology and management of HIV/AIDS. Spearman's correlation showed that duration of HIV/AIDS training had significant positive correlation with knowledge ($r_s = 0.161$, $p < 0.05$) and with attitude ($r_s = 0.145$, $p < 0.05$). Knowledge had significant positive correlation with attitude ($r_s = 0.255$, $p < 0.01$), and attitude had significant positive correlation with willingness ($r_s = 0.317$, $p < 0.01$).

Nurses showed negative attitude on few aspects like blaming the HIV/AIDS people for contracting the disease, as 33.5% of the nurses strongly agreed and 34% of the nurses agreed that 'HIV/AIDS patients should blame themselves for getting HIV infection'. Nurses had deficit on few aspects of risk factors, pathophysiology and management of HIV/AIDS, as only 34.5% of the nurses could answer correctly to the false statement that the risk of HIV infection from needle stick injury is very high. Only about 53.8% of the nurses answered correctly to the false statement that the HIV/AIDS is highly contagious. Therefore, nurses need to be updated on these areas which could boost their morale, and become confident in executing nursing care to HIV/AIDS patients.

** Student, Master of Nursing Science (International Program), Faculty of Nursing, Khon Kaen University*

***Associate Professor, Faculty of Nursing, Khon Kaen University*

บทคัดย่อ

การวิจัยเชิงบรรยายแบบการศึกษาสหสัมพันธ์ครั้งนี้ มีวัตถุประสงค์เพื่อศึกษา ความรู้ ทัศนคติต่อเอชไอวี/เอดส์และความเต็มใจในการดูแลผู้ป่วยเอชไอวี/เอดส์ของพยาบาลในประเทศภูฏาน กลุ่มตัวอย่างได้จากการสุ่มแบบชั้นภูมิ (Stratified Random Sampling) จากพยาบาลที่ปฏิบัติงานในโรงพยาบาลของประเทศภูฏาน จำนวน 16 แห่ง มีพยาบาลที่เป็นกลุ่มตัวอย่าง จำนวน 197 คน เครื่องมือที่ใช้ในการวิจัยเป็นแบบสอบถามวัดความรู้ ทัศนคติ และความเต็มใจในการดูแลผู้ป่วยเอชไอวี/เอดส์ที่ผู้วิจัยสร้างขึ้นและได้รับการตรวจสอบความตรงตามเนื้อหา (Content Validity) โดยผู้ทรงคุณวุฒิ จำนวน 5 คน และตรวจสอบความเที่ยง (Reliability) โดยการนำเครื่องมือดังกล่าวไปทดลองใช้กับพยาบาลที่ไม่ใช่กลุ่มตัวอย่าง จำนวน 30 คน ได้ค่าความเที่ยง 0.710, 0.759, 0.923 ตามลำดับ ระยะเวลาในการเก็บข้อมูลการวิจัยระหว่างวันที่ 15 ตุลาคม 2550 ถึง 15 ธันวาคม 2550 วิเคราะห์ข้อมูลด้วยโปรแกรม SPSS โดยใช้การแจกแจงความถี่ ร้อยละ ค่าเฉลี่ย ส่วนเบี่ยงเบนมาตรฐาน หาความสัมพันธ์แบบสเปียร์แมน และแบบทดสอบความมีนัยสำคัญทางสถิติด้วยการทดสอบที

ผลการศึกษา พบว่า ค่าเฉลี่ยของคะแนนความรู้ ทัศนคติต่อเอชไอวี/เอดส์ และความเต็มใจในการดูแลผู้ป่วย เอชไอวี/เอดส์ของพยาบาลโดยภาพรวมอยู่ในระดับสูง และเมื่อพิจารณาแต่ละด้านทั้ง 3 ด้าน ก็อยู่ในระดับสูงเช่นกัน โดยมีค่าคะแนนและร้อยละของแต่ละด้าน ดังนี้ ด้านความรู้ค่าเฉลี่ย 24.66 จากคะแนนเต็ม 30 คะแนน ด้านทัศนคติ ค่าเฉลี่ย 80.59 จากคะแนนเต็ม 105 คะแนน และด้านความเต็มใจในการดูแลค่าเฉลี่ย 44.85 จากคะแนนเต็ม 50 คะแนน และจากการหาความสัมพันธ์ด้วยสเปียร์แมน (Spearman's correlation) พบว่า ระยะเวลาของการฝึกอบรมสัมพันธ์ทางบวกกับความรู้ (r_s = 0.161, $p < 0.05$) และทัศนคติของพยาบาล (r_s = 0.145, $p < 0.05$) อย่างมีนัยสำคัญทางสถิติ ความรู้มีความสัมพันธ์ทางบวกกับทัศนคติอย่างมีนัยสำคัญทางสถิติ (r_s = 0.255, $p < 0.01$) และทัศนคติมีความสัมพันธ์ทางบวกกับความเต็มใจในการดูแลอย่างมีนัยสำคัญทางสถิติ (r_s = 0.317, $p < 0.01$)

พยาบาลมีความคิดเห็นสอดคล้องกับผู้ป่วยเอชไอวี/เอดส์ทางด้านลบ คือมีมุมมองว่าบุคคลที่ติดเชื้อเอชไอวี/เอดส์เกิดจากการกระทำผิด โดยร้อยละ 33.5 เห็นด้วยอย่างยิ่ง และร้อยละ 34 เห็นด้วย พยาบาลพร่องความรู้ด้านปัจจัยเสี่ยง พยาธิสรีรภาพ และการจัดการเกี่ยวกับเอชไอวี/เอดส์ โดยมีเพียงร้อยละ 34.5 สามารถตอบคำถามได้อย่างถูกต้อง ส่วนในด้านการติดเชื้อเอชไอวี/เอดส์ไม่ติดต่อโดยการสัมผัส ไอ จาม พยาบาลสามารถตอบคำถามได้อย่างถูกต้องร้อยละ 53.8 ดังนั้น พยาบาลควรได้รับการอบรม ฟื้นฟู ให้ความรู้ดังกล่าว ควบคู่กับการส่งเสริมด้านศีลธรรมพร้อมกันไปด้วย เพื่อให้สามารถดูแลผู้ป่วยอย่างมั่นใจและเต็มใจ

Key Words : HIV/AIDS, Knowledge, Attitude, Willingness, Nurses, Bhutan
คำสำคัญ : เอชไอวี/เอดส์ ความรู้ ทัศนคติ ความเต็มใจในการดูแล พยาบาล ประเทศภูฏาน

Introduction

The world has about 33.2 millions of people living with HIV/AIDS (UNAIDS/WHO, 2008). HIV/AIDS is among the leading causes of morbidity and mortality in the world. The disease not only affects the physical and physiological parameters of the patient, but also has great impact on psychosocial aspects. The first HIV positive case was detected in 1993 in Bhutan, and since then new HIV positive cases were recorded every year and reached 144 as reported on 6th March 2008 (Rinzin, 2008).

The increase in number of HIV/AIDS cases posses a great concern for nurses because nurses come in direct physical contact with patients and also with the blood and body fluids. All these account for nurses to be at greater risk of contracting the disease than the other health care professionals, and acute shortage of nursing staff may lead to burnout, stress and poor job satisfaction (Ehlers, 2006).

Significance of the Study

In Bhutan, some nurses become very apprehensive when confronted with HIV/AIDS patients, and prefer to take care of patients with other diagnosis rather than HIV/AIDS. Some nurses believed that they have the right to know the status of HIV positive patients when admitted to hospital. This was evident even in previous studies (Kermode and Holmes *et al.*, 2005; Oyeyemi and Oyeyemi *et al.*, 2006; Smit, 2005). Why do nurses become apprehensive and fear to take care for HIV/AIDS patients? Is it because of poor knowledge; or because of inadequate experience working with HIV/AIDS patients, or is it because of fear of contagion? The phenomena could be well supported as stated by Ngcongo (1998), "The influencing factors included fear of contagion associated with uncertainty of care and feeling of futility in providing care for patients with a potentiality fatal disease."

Since there was no study done in Bhutan to determine nurses' HIV/AIDS knowledge, attitude and willingness to care for HIV/AIDS patients; therefore, it was felt necessary and the present study was proposed.

Literature Review

Nurses have the duty of constantly reassuring the public and educating them on how HIV infection can and cannot be contracted. Nurses can also address the issues of risk taking behaviors, false perceptions and the myths that people hold on about HIV/AIDS. Unbiased health care should be provided to HIV positive patients irrespective of the diagnosis, and prevent prejudiced treatment.

A study in India by Kermode, Holmes *et al* (2005) found that 63% (n=266) of the nurses perceived the risk of occupational infection with HIV as "high", and 60% of the nurses thought that there was 100% risk of getting HIV infection from contaminated needle stick injury, and only 11% of nurses correctly identified the risk of HIV infection from needle stick injury as 0.3%. Low level of nurses' knowledge was demonstrated in previous studies (Walusimbi, and Okonsky, 2004; Oyeyemi and Oyeyemi *et al.*, 2006) which could have affected their role safety precautions against HIV infection.

The nurses' attitude towards HIV/AIDS influences the way how nurses feel, believe, view, think and value the life of people living with HIV/AIDS. It is through the attitude and belief systems of an individual that environmental perception acquires meaning. The process of changing attitudes requires that the individual objectively examine the critical elements of the attitude and identify those components that are valid and those that are prejudgments (Gross 1987). Negative reactions to HIV positive patients can result from the fear of contagion, homophobia, avoidance, unwillingness to perform care, increased stress and burnout for nurses, and the wish to

withdraw from nursing (Bennett and Allan, 1997; Rondahl and Innala *et al.*, 2003).

Willingness is the readiness of nurses to take care for HIV/AIDS patients and need not be forced by nursing supervisors or hospital administrators. According to Martin and Bedimo (2000); nurses had relatively low avoidance and high empathy towards people living with AIDS and were willing to take care for HIV infected individuals. More knowledgeable nurses in Uganda showed positive attitude, and positive attitude was significantly associated in those nurses with formal educational programs on HIV/AIDS (Walusimbi and Okonsky, 2004).

The HIV/AIDS disease had already been in its fourth decade, yet nurses continue to harbor the fear about the disease. This unrealistic fear of contagion may lead to biased and prejudiced nursing care to HIV/AIDS patients.

Conceptual Framework

The conceptual framework was derived from literature review. The demographic variables had influenced nurses' HIV/AIDS knowledge, attitude and willingness to care for HIV/AIDS patients. Older nurses had comparatively poor knowledge than the younger nurses and also expressed negative attitudes towards people living with HIV/AIDS in Spain (Fernandez, Vazquez and Diaz, 2004). Nurses with good HIV/AIDS knowledge showed positive attitude and were more willing to take care for HIV/AIDS patients. Nurses with higher level of education and training on HIV/AIDS also had positive attitudes and willingness (Walusimbi, and Okonsky, 2004; Martin and Bedimo, 2000; Oyeyemi, Oyeyemi and Bello, 2006; and Sherman, 2000). There was a positive correlation between previous work experience with a patient with HIV/AIDS and willingness to care for HIV/AIDS patients (McCann, 1997).

Methods

A descriptive survey was designed for the study with self administered questionnaire for data collection. The main purpose of study was to describe nurses' knowledge, attitude and willingness to take care for HIV/AIDS patients.

Research Questions

The research questions are as follows:

1. What is the nurses' knowledge about HIV/AIDS?
2. What is the attitude of nurses towards the HIV/AIDS patients?
3. What is the willingness of nurses to take care for HIV/AIDS patients?
4. What is the correlation between the knowledge, attitude, willingness and the selected demographic variables?

Population and Sample

A Stratified Random Sampling with proportional allocation was followed to draw the required sample size of 197 nurses from sixteen hospitals in Bhutan. The sample was estimated to be 197 when the alpha was taken as 0.05 and power of 0.8 (Polit and Hungler, 1990).

The nursing administrators, nurse anesthetist, nurses on VIP duty, nurses who were sick and on long term leave, and nurses from the three hospitals who had participated in the pilot study were excluded from this study.

Instrumentation

The instrument developed had four sections: demographic data, nurses' knowledge, attitude, and willingness. The demographic data mainly focused on age, gender, marital status, certification level, years of service, income, any training on HIV/AIDS, any experience on taking care for HIV/AIDS patients, and hospital to which subject belonged to.

To assess the knowledge of nurses; Ecksein had developed a self administered instrument in 1987 (Walusimbi, and Okonsky, 2004). The researcher had modified the instrument to suit the nursing and HIV/AIDS situation in Bhutan. HIV/AIDS Knowledge part had 30 statements which were true or false statements. Subjects' had to tick on either true or false column against each statement. The score for the correct response was given 1, and zero for the wrong response. Therefore, the highest possible score would be 30 and the lowest possible score would be zero.

Attitude of nurses towards HIV/AIDS patients was measured by the modified "AIDS Attitude Scale"-AAS (Froman and Owen, 1997). Some of the statements in the AAS were not suitable in Bhutanese context, so they had been changed by the researcher after literature review. Attitude was measured on 5 points Likert scale: 1 = strongly disagree, 2 = disagree, 3 = neutral, 4 = agree, and 5 = strongly agree. The attitude section had 21 statements; 13 in the avoidance construct and 8 in the empathy construct.

Willingness of nurses was also measured on 5-points Likert Scale, and consists of ten statements. To assess nurses' willingness, HIV/AIDS patients condition was described and nurses were asked to rate their willingness to take care for the patient. Similar method had been followed by Lohrmann and Valimaki *et al* (2000) to assess German nursing students' knowledge and attitudes to HIV and AIDS.

Reliability and Validity

The developed instrument was reviewed by five experts in Thailand for content validity. Pilot study was done and reliability (Cronbach's Alpha) for knowledge, attitude and willingness were 0.710, 0.759, and 0.923 respectively.

Protection of Human Subjects

The approval for the study was obtained from Khon Kaen University Ethics Committee for Human Research and also from Ministry of Health in Bhutan. Nurses were assured that the information gathered would be used judiciously and confidentiality of the data would be maintained to protect subjects' personal information. The participation on the study was on voluntary basis and could decline or refuse to answer if they were not comfortable with some items. Their participation in the study would not have any risk or harmful impact in their professional career or personal matters.

Data Collection Procedure

The researcher met all subjects in Category I hospital and explained them about the purpose of the study, and how the outcomes of the study could help to improve nursing services in the future. Most of the time, the researcher had tried to meet nurses after their duty hours and not to disturb them in their regular duty hours.

The questionnaires along with invitation letters and consent forms for subjects were sent to other fifteen hospitals by Express Mail Service

(EMS). The researcher didn't visit Category II and Category III hospitals because traveling to all hospitals wouldn't be cost effective. The Chief Nurses of all hospitals were contacted through phone by the researcher from time to time to clarify their doubts if they had any, and also to have 100% response rate.

Results

Descriptive statistics like mean, SD, frequencies, percentage, and Spearman's correlation were used for data analysis. Majority of the nurses (81.7%, n=197) were female and only 18.3% were male. Majority of nurses (51.8%) were in the age group of 23-30 years; 34.5% of the nurses fell in the age group of 31-40 years, and about 13.7% of the nurses were in 41-50 years. Majority of nurses (48.2%) were General Nurse Midwife (GNM), 34% were Assistant Nurses (AN), 12.7% were Auxiliary Nurse Midwife (ANM), and 5.1% were Bachelor Nurses. Majority of nurses (75.1%) had not attended any training on HIV/AIDS, and only 49 nurses (24.9%) had attended the training on HIV/AIDS. Only fifty one nurses (25.9%) had experience of taking care for HIV/AIDS patients, and rest of the nurses did not.

Majority of the nurses (99%) responded correctly that "use condom can prevent HIV infection". Only 34.5% of nurses were able to respond correctly that the "risk of infection with HIV/AIDS virus after an accidental needle stick is not high". Five statements from the higher correct response rate and five statements from the lower correct response rate are presented (Table 1) on descending order of correct response rate.

Table 1 Frequency and Percentage of Correct Response for HIV/AIDS knowledge (n=197)

Statements	CR	FCR	PCR (%)
3. Use of condom can prevent HIV infection	T	195	99.0
9. HIV/AIDS can be transmitted by hand shaking	F	194	98.5
10. Sharing plates, cups and spoons can spread HIV/AIDS	F	194	98.5
14. AIDS is caused by HIV	T	194	98.5
1. HIV can be transmitted from infected blood	T	193	98.0
17. The greatest risk of exposure to HIV/AIDS is caring for an incontinent patient with HIV/AIDS	F	120	60.9
13. HIV/AIDS is highly contagious	F	106	53.8
23. The HIV/AIDS virus is very difficult to kill with disinfectant in the environment	F	101	51.3
30. With the introduction of drugs for HIV/AIDS, the HIV/AIDS people can live up to 24 years on an average after HIV infection	T	100	50.85
20. The risk of infection with HIV/AIDS virus after an accidental needle stick is high	F	68	34.5

Note: CR = correct response; FCR = frequency of correct response; PCR = percentage of correct response; T = true; F = false.

Majority of the nurses (66.5%) had strongly agreed and about 29.9% of the nurses had agreed that patients with HIV/AIDS had the right to receive the same quality of care as any other patients. Majority of the nurses (73.6%) had strongly agreed and 20.3% had agreed that patients with AIDS should be treated with the same respect as any other patients. Attitude has a continuum which could vary from strongly negative to strongly positive, and the findings were not exceptional in this study as well. About 37.1% of the nurses had strongly agreed and 35% had agreed that they felt more sympathetic towards children who got HIV infection from mothers than those who got from IV drug abuse. Similarly, 32.5% of the nurses had strongly agreed and 34% had agreed that people with HIV/AIDS could blame themselves for getting HIV infection.

Table 2 Nurses' Attitude by Frequency and Percentage (n=197)

Statements	Scale	Frequency	Percentage
14. I think patients with AIDS have the right	1	1	0.5
to the same quality of care as any other patients	2	3	1.5
	3	3	1.5
	4	59	30.0
	5	131	66.5
6. Patients with AIDS should be treated with	1	8	4.1
same respect as any other patient	2	3	1.5
	3	1	0.5
	4	40	20.3
	5	145	73.6
12. I feel more sympathetic towards children who	1	6	3.0
got HIV infection from mother than those who	2	26	13.2
got it from IV drug abuse	3	23	11.7
	4	69	35.0
	5	73	37.1
1. Most people with HIV/AIDS can blame	1	9	4.6
themselves for getting HIV infection	2	34	17.3
	3	23	11.6
	4	67	34.0
	5	64	32.5

Note: Scale ; 1 = strongly disagree, 2 = disagree, 3 = neutral, 4 = agree, and 5 = strongly agree.

The Table 3 presents the willingness of nurses to take care for HIV/AIDS patients. Majority of the nurses (67.5%) stated that they strongly agreed to check patient's vital signs when ever required. Majority of the nurses (61.9%) strongly agreed to give tepid sponging to reduce patien's temperature. In relation to soiled linen contaminated with fecal matter; 53.8% of the nurses had agreed and 41.6% had strongly agreed to change it. Similarly 51.8% of the nurses agreed and 40.6% had strongly agreed to receive the patient's vomitus on kidney tray.

Table 3 Nurses' Willingness by Frequency and Percentage (n = 197)

Statements	Scale	Frequency	Percentage
3. I am ready to check Mr. A's	1	3	1.5
vital signs when ever required	4	61	31.0
	5	133	67.5
2. I am ready to change the soiled	1	1	0.5
linen which has been contaminated	2	2	1.0
with fecal matter	3	6	3.1
	4	106	53.8
	5	82	41.6
5. I am ready to give tepid sponging to	1	1	0.5
reduce Mr. A's temperature	4	74	37.6
	5	122	61.9
7. I am ready to receive Mr. A's vomitus	1	1	0.5
on the kidney tray	2	2	1.0
	3	12	6.1
	4	102	51.8
	5	80	40.6

Note: Scale ; 1 = strongly disagree, 2 = disagree, 3 = neutral, 4 = agree, and 5 = strongly agree; Freq = Frequency, and % = Percentage.

Table 4 Mean, SD for overall Knowledge, Attitude and Willingness (n=197)

Main Variables in the study	Mean	SD
1. Knowledge	24.66	3.272
2. Attitude	80.59	8.134
3. Willingness	44.85	4.776

The Table 4 presented the overall mean score of nurses' knowledge, attitude and willingness. The mean score for knowledge was 24.66 (SD = 3.272) out of possible score of 30. The mean score for attitude was 80.85 (SD = 8.134) out of possible score of 105). The mean score for willingness was 44.85 (SD = 4.776) out of possible score of 50.

The Spearman's Correlation was used to assess the correlations between the selected demographic variables, knowledge, attitude and willingness.

Table 5 Spearman's correlation

Variables	Age	DCourse	DTrain	DCare	Yr.ser	K	A	W
1. Age	1.000	-.276**	.140*	-.200**	.914**	-.199**	-.332**	-.116
2. DCourse		1.000	.130	.163*	-.438**	.379**	.187**	.142*
3. DTrain			1.000	-.026	.114	.161*	.145*	-.018
4. DCare				1.000	-.201**	.145*	.277**	.112
5. Yr.ser					1.000	-.259**	-.307**	-.145*
6. K						1.000	.255**	.082
7. A							1.000	0.317**
8. W								1.000

Note: DCourse = duration of course; DTrain = duration of HIV/AIDS training; Dcare = duration of care; Yr.ser = years of service; K = knowledge; A = attitude, and W = willingness.

* Correlation is significant at the 0.05 level (2-tailed)

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

The correlations between demographic variables with knowledge, attitude and willingness are presented in the Table 5. Knowledge had significant positive correlation with attitude ($r_s = 0.255$, $p < 0.05$). Attitude had significant positive correlation with willingness ($r_s = 0.317$, $p < 0.01$), but knowledge had no significant correlation with willingness.

Discussion

Majority of the nurses (99%) knew that "use of condom could prevent HIV infection". This awareness among nurses makes it easy for them to disseminate information to patients and public on prevention and control of the disease. Majority of the nurses knew that HIV would not be transmitted by hand shaking, or by sharing cups, plates and spoons. From this, it could be concluded that nurses were quite clear about the causative agent for AIDS, and similar result was found in previous studies (Askarian and Hashemi et al., 2006; Walusimbi and Okonsky, 2004). This should make nurses comfortable to care for HIV/AIDS patients without any fear, though following universal precaution.

The present study showed that 34.5% of the nurses could respond correctly to the false statement "the risk of infection with HIV/AIDS virus after an accidental needle stick is high". It showed that nurses had misconception about the risk of HIV infection from needle stick injury which might lead to apprehension and avoid taking care for HIV/AIDS patients. According to Kermode and Holmes *et al*., 2004; the risk of HIV infection from needle stick injury is only about 0.3%.

Most of the nurses (73.6%) strongly agreed that HIV positive patients should be treated with same respect as any other patients, and one nurse was of the opinion that she would open a HIV/AIDS care centre if she had enough money. However, 32.5% nurses strongly agreed and 34% of the nurses agreed that people with HIV/AIDS should blame themselves for getting HIV infection which might lead to avoidance and prejudiced treatment. About 46.2% of the nurses felt that HIV/AIDS was highly contagious which could be the main cause for fear and avoidance.

About 67.5% of the nurses strongly agreed and 31% of the nurses agreed to check patient's vital signs when ever required which showed nurses' were concerned and ready to care for patients with HIV/AIDS. About 40.6% of the nurses strongly agreed and 51.8% of the nurses agreed to receive patient's vomitus on kidney tray which showed that nurses were ready to help patient in any condition, which could win the trust and confidence of patient among nurses.

Age had significant negative correlation with knowledge, attitude and willingness. With regard to negative correlation with knowledge, it could be because there were no HIV/AIDS cases in Bhutan when older nurses did their training. Therefore, no importance was given towards HIV/AIDS and the topic of HIV/AIDS was not incorporated in their syllabus. But younger generation of nurses was more knowledgeable because the HIV/AIDS topic was incorporated in their course syllabus, and the Government is also playing a crucial role in creating awareness on prevention and control of the disease. The negative correlation of age with attitude and willingness could be because older nurses had served for many years which might have led to job related stress, burn out, and loss of interest. Similar result was found among nurses in Spain by Fernandez, Vazquez, and Diaz (2004).

Duration of course had significant positive correlation with knowledge, attitude and willingness. This could be because Bachelor nurses had more years to learn during their study program. Moreover, they studied in an era when HIV/AIDS had already become pandemic in many parts of the world. Duration of HIV/AIDS training had significant positive correlation with knowledge and attitude; therefore, it was worth mentioning here that some nurses were optimistic that they be given training on HIV/AIDS which could make them confident and provide best possible care to HIV/AIDS patients.

Knowledge had significant positive correlation with attitude ($r_s = 0.255$, $p < 0.01$), so it could be beneficial to educate more nurses on HIV/AIDS. More knowledgeable nurses could be more confident in executing nursing care and exhibit less fear of contagion which would help to develop positive attitude. High level of nurses' knowledge was reported to have been associated with positive attitudes in previous

studies (Lohrmann and Valimaki *et al.*, 2000; McCann and Sharkey, 1998; Uwakwe, 2000). Attitude had significant positive correlation with willingness (r_s = .317, $p < .01$), which means nurses with positive attitudes were more willing to take care for HIV/AIDS patients. Attitude had positive correlation with knowledge; therefore, nurses need to be updated on HIV/AIDS which could boost their morale in HIV/AIDS care.

Conclusion

Since new HIV infections have been reported every year in Bhutan; increased admission of HIV positive patients to hospital in near future is inevitable. HIV/AIDS is a chronic disease and nurses should be able to adequately address patients' problems and needs. The HIV/AIDS is a socially stigmatized disease and it is the responsibility of health care workers in general and nurses in particular to address this issue for the wellbeing of patients and family members affected by HIV/AIDS. Since knowledge had significant positive correlation with attitude, and attitude had significant correlation with willingness of nurses to take care for HIV/AIDS patients; therefore, it was necessary for nurses to keep updated on HIV/AIDS.

Acknowledgment

The researchers would like to thank Royal Government of Bhutan for financial support. We would also like to thank the nurses in Bhutan and others for their contribution in this study.

References

Askarian, M., Hashemi, Z., Jaafari, P., Jaafari, P., and Assadian, O. 2006. Knowledge about HIV infection and attitude of Nursing Staff toward patients with AIDS in Iran. Infection Control and Hospital Epidemiology, 27(1), 48-53.

Bennett, C., and Weale, A. 1997. HIV and AIDS awareness: an evaluation of a short training programme for midwives. Journal of Advanced Nursing, 26, 273-282.

Ehlers, JV. 2006. Challenges nurses face in coping with the HIV/AIDS pandemic in Africa. International Journal of Nursing Studies, 43, 657-662.

Froman, RD., and Owen, SV. 1997. Further Validation of the AIDS Attitude Scale. Research in Nursing and Health, 20, 161-167.

Gross. RD. 1987. Psychology, London. Retrieved December 4, 2007, from http://www. codesria.org/links/publications/aids/eff-heap.pdf.

Kermode, M., Holmes, W., Langkham, B., Thomas, MS., and Gifford, S. 2005: HIV-related knowledge, attitudes and risk perception amongst nurses, doctors & other health care workers in rural India. Indian J Med Res, 122, 258-264.

Lohrmann, C., Valmaki, M., Souminen, T., Muinonen, U., Dassen, T., and Peate, I. 2000. German nursing students' knowledge of and attitudes to HIV and AIDS: two decades after the first AIDS cases. Journal of Advanced Nursing, 31(3), 696-703.

McCann, TV., and Sharkey, RJ. 1998. Educational intervention with international nurses and changes in knowledge, attitudes and willingness to provide care to patients with HIV/AIDS. Journal of Advanced Nursing, 27, 267-273.

Martin, JE., and Bedimo, AL. 2000. Nurse Practitioner, Nurse Midwife and Physician Assistant attitudes and care practices related to persons with HIV/AIDS. Journal of American Academy of Nurse Practitioners, 12(2), 35-41.

Ngcongo, VN. 1998. Nurses fighting HIV/AIDS in Africa. International Nursing Review, 45, 85-88.

Oyeyemi, A., Oyeyemi, B., and Bello, I. 2006: Caring for patients living with AIDS: Knowledge, attitude and global level of comfort. Journal of advanced Nursing, 53(2), 196-204.

Rinzin, 2008. 19 new HIV cases. Bhutan's daily news site, Retrieved March 5, 2008, from http://www.kuenselonline.com.

Rondahl, G., Innala, S., and Carlsson, M. 2003: Nursing Staff and Nursing students' attitudes towards HIV-infected and homosexuals HIV-infected patients in Sweden and the wish to refrain from Nursing. Journal of Advanced Nursing, 41(5), 454-461.

Smit, R. 2005. HIV/AIDS and the workplace: Perceptions of nurses in a public hospital in South Africa. Journal of Advanced Nursing, 51(1), 22-29.

UNAIDS/WHO. 2008. AIDS epidemic update. Retrieved March 7, 2008, from http://www.unaids.org/en/KnowledgeCentre/HIVData/EpiUpdate/.

Uwakwe, CB. 2000. Systematized HIV/AIDS education for student nurses at the University of Ibadan, Nigeria: Impact on knowledge, attitudes and compliance with universal precautions. Journal of Advanced Nursing. 32, 416-424.

Walusimbi, M., and Okonsky, GJ. 2004. Knowledge and attitude of Nurses Caring for patients with HIV/IDS in Uganda. Applied Nursing Research, 17(2), 92-99.