

Attitudes of Saudi nursing Students on AIDs and Predictors of willingness to provide care for patients in Central Saudi Arabia: A Cross sectional Study

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ABSTRACT

Background: This study aimed to assess HIV-related knowledge, attitudes and risk perception among Saudi nursing students, and to identify predictors of their willingness to provide care for patients with AIDS

Methods: A cross sectional study of 260 baccalaureate nursing students at King Saud bin-Abdulaziz University for Health Sciences, Riyadh, Saudi Arabia was done using a previously validated instrument.

Results: Students' knowledge percentage mean score (PMS) on HIV/AIDS was 72.93 ± 10.67 reflecting an average level of knowledge. There were many misconceptions about how HIV is transmitted, e.g. use of same toilets and bathrooms and washing clothes together (24.9%), swimming (53.7%) and coughing and sneezing (49.6%). Nursing students reported an overall negative attitude towards AIDS, with a PMS of 43.48 ± 9.21 . The majority of students agreed that AIDs patients should be isolated from other patients (83%), and should not share the room with other non-infected patients (81.8%), and some reported that PLWA deserve what has happened to them (24.7%). After controlling for confounders, students' poor knowledge and negative attitude were associated only with having never been given nursing education as their primary high education ($p=0.012$ & $p=0.01$ respectively).

Conclusion: These findings have implications for development of teaching strategies and curricular approaches for nursing to address this health care issue.

Keywords: AIDs; Nursing Students; Saudi, Knowledge; Attitude.

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Introduction:

Background:

Human Immunodeficiency Virus (HIV) and Acquired Immune Deficiency Syndrome (AIDS) are among the most complex health problems of the 21st century (Ungan & Yaman, 2003). It affects all body systems as well as the mental health and social relationships of carriers and asymptomatic patients (Tavossi et al.; 2004). HIV/AIDS transmitted through sexual transmission, parenteral, perinatal transmission and contaminated blood products (Joint United Nations Programme on HIV/AIDS and World Health Organization [UNAIDS/WHO], 2006).

As of 2009, it is estimated that there are 33.3 million people worldwide infected with HIV (Worldwide AIDS & HIV Statistics, 2009). Although HIV/AIDS prevalence rates in the Eastern Mediterranean Region are low, the region has one of the fastest –growing HIV infection rates in the world (AIDS epidemic update, 2006). Djibouti and Sudan have the highest prevalence rates in the Arab world and are facing a generalized epidemic (WHO, 2010). As of January 5, 2011, the prevalence rate of AIDs among Saudi adults 15-49 years was 0.04%, with 10,000 people with AIDs. and 300 deaths (CIA, 2011). The route of infection in the Arab world is unprotected heterosexual intercourse. However, in some countries injecting drugs is the major cause of HIV infection (Badahdah & Sayem, 2010).

Health education and prevention remain the main health care priorities in HIV/AIDS prevention, because of HIV/AIDS is still a non-curable disease and developing an AIDS vaccine has proven extremely complex due to virus's ability to mutate (Preston et al., 2002, Buskin et al., 2002, Watkins & Gray, 2006, Pita-frenandez et al., 2004). Studies were conducted in Turkey (2003) and Saudi Arabia(2005) revealed that health education intervention has a positive impact on students` knowledge and attitudes towards HIV/AIDS (AL-Mazrou et al.; 2005). Several studies revealed the importance of health education to reduce Stigma related to HIV/AIDS (Earl & Penney, 2003, Martin & Bedimo ,2000). Another study in Nigeria (2005) showed that although students were knowledgeable about HIV/AIDS, many do not practice what they know (Ogbuji , 2005). Study in Iran (2004) showed that there were misconceptions about the route of transmission such as Mosquito bites 33%, public swimming pools (21%) and public toilets(20%). It also concluded that although the knowledge level seems to

be moderately high, there was intolerant attitude towards HIV/AIDS patients (Tavossi et al. 2004).

Nursing students are being identified as a potential risk group for the HIV/AIDS infection, for that reason awareness regarding HIV/AIDS in this group is very important for its prevention (Rondahal et al. 2003). Literature indicated the lack of accurate information about HIV infection is associated with lack of confidence in caring for clients with HIV/AIDS patients. Researches indicated that nursing students are frightened of AIDS patients and often unwilling to care for them (Petro-Nustas et al 2002). Nursing attitudes toward HIV/AIDS patients will heavily influence their willingness to learn about and provide health care for this population (O`Sullivan et al. 2000, Lohrmann et al. 2000). Unwakwe (2000) reported that students with sufficient education and more knowledge about HIV/AIDS had more positive attitudes and were more willing to provide care for HIV/AIDS patients.

Nursing plays major role in the care for HIV/AIDS patients. So it is very important to assess the knowledge, attitudes and beliefs of this group. This will provide a basis for a much needed HIV/AIDS education for the students. Thus, This study aimed i) to assess HIV-related knowledge, attitudes and risk perception among Saudi female students of college of nursing, King Saud bin-Abdulaziz University for Health Sciences, and ii) to identify predictors of willingness to provide care for patients with HIV infection.

Methods

Study Design

A cross sectional design was applied.

Study Area/Setting

The study was conducted in College of Nursing, King Abdulaziz Medical City, National Guard Health Affairs, Riyadh, Saudi Arabia

Study Subjects

The target population of the study was the students of College of Nursing (CON-R), King Abdulaziz Medical City, National Guard Health Affairs, Riyadh, Saudi Arabia. CON-R admits female Saudi national mainly and awards a Bachelor of Science in Nursing (BSN) to two educational streams. Stream I has, as its

intake, secondary school graduates and follows what is known as the conventional program. Stream II admits holders of Bachelor of Science Degrees. These students follow what is known as the Graduate Entry Accelerated Program. This program is the first of its kind in the kingdom of Saudi Arabia, and is designed to expedite the process of graduation by recognizing these students' previous learning, thus, helping increase market supply of nurses faster. The target sample of the study was all female students registered in College of Nursing at King Abdulaziz Medical City in Riyadh, and willing to participate during the academic year 2009-2010 (around 340 students). Those who responded to the study constituted 260 students with a response rate of 76.5%.

Data Collection methods

All students were subjected to a self administered questionnaire. previously administered to both San Franciscan (Diclemente et al., 1986) and Irish (Doyle & Conroy, 1991) adolescents. as well as the health care providers in Nigeria (Adebap et al. 2003). A previously validated Arabic version (Abolfotouh, 1995) of this questionnaire with nursing- related modifications was used. This questionnaire was composed of four parts:

1) Students' personal data such as; age, origin, academic level, previous information on AIDS and source of these information.

2) HIV/AIDs – related knowledge: This part consisted of a total 51 statements, these statements addressed 5 basic categories: 1) cause of AIDs (5 statements), nature (16 statements), mode of transmission (15 statements), treatment/control (7 statements) and groups at high risk (8 statements), the correct response was scored as one and the incorrect and "Don't know" responses as Zero. An overall knowledge score was calculated by summing the scores for statements, thus the highest possible score was 51 points. Percentage mean score was estimated for each category and for the overall knowledge score.

3) Attitude of nursing students towards AIDs: This part consisted of a total 19 statements, these statements addressed 3 basic categories:²²⁻²⁵ 1) attitudes towards PLWA (10 statements), 2) attitudes towards care (4 statements), and 3) attitudes towards precautionary measures (5 statements). Attitude towards AIDs was measured on a four-point Likert scale, with 4 indicating strongly agree and 1 indicating strongly disagree. The 4-point scale, rather than a 5-point scale, was used to force respondents to indicate either a positive or a negative attitude. Approximately one-half of the statements were awarded negatively to avoid a response set and were reverse coded for data analysis. For analysis, points '1' and '2' were combined to form the category 'positive attitude', while points '3' and '4' were combined to form the category 'negative attitude'.

The instrument was piloted with 20 students for clarity and comprehensiveness. Reliability measures for internal consistency were not established prior to administration of the instrument, however, Cronbach's alpha was conducted following data collection for the attitude scale. Obtained alpha coefficients were as follows: overall instrument ($\alpha = 0.88$), attitude to AIDs patients ($\alpha = 0.83$), attitude to provision of care ($\alpha = 0.65$), attitude to precautionary measures ($\alpha = 0.76$).

Ethical issues

The study was described and the surveys were distributed during the recess, with an attached letter giving further information including an explanation of rights and assurance of anonymity. The students were informed that their decision regarding participation would not affect their course grades or their relationships with the faculty members. Only students who were willing to participate in the study, after being fully informed of the aim of the study and methodology, were included in the target sample of the study. Returned completed instruments constituted consent to participate. Students were asked not to write their names on the questionnaire form so as to be anonymous.

Data was treated confidentially by the PI and Co-Investigators. The study protocol received ethical approval from the Saudi National Guard Health Affairs, Riyadh, Saudi Arabia (Ref no.RC09/007)

Data analysis

Data analysis was conducted using SPSS (Windows, version 17.0; SPSS Inc., Chicago, IL, USA). Descriptive statistics such as; mean, mode, median and standard deviation, were applied to summarize the data. To compare between categorical data, Chi-square test and Fisher exact test were used. In the case of variables having more than two categories, degrees of freedom are given with the chi-square statistic. For comparison between numerical data, Student-t test, Mn-Whitney test, ANOVA were applied. To identify the significant predictors for knowledge and attitudes of students towards AIDs and PLWA, both multiple linear regression and logistic regression models were applied, with knowledge and attitude scores as the dependant variable for multiple linear regression. P-value of <0.05 was considered as the level of significance.

Results

Part I: Demographic data

The study included 280 nursing students, all of whom were females (200 from Stream I & 60 from Stream II). Their mean age was 21.55 ± 2.56 (min. 17; max. 30). The distribution of their grades was as follows; first grade 65 (25%), second grade 51 (19.6%), third grade 36 (13.8%) and fourth grade 108 (41.5%). The majority of whom were of urban origin (92.7%). Students from Stream II were significantly older than those of Stream I (24.45 ± 2.07 years versus 20.68 ± 2.00 years, $t=12.73$, $p<0.001$), and showed higher proportion of students of rural origin (18.3% versus 4.0%, FET, $p<0.001$).

Almost all students reported previous information about HIV/AIDS (97.6%). The primary source of information for students was

the media, constituting television and radio (64.2%), the second most common source was their university education (46.2%), followed by public lectures (31.1%).

Part II: Knowledge of HIV/AIDS

The students' knowledge percentage mean score (PMS) on HIV/AIDS was 72.93 ± 10.67 reflecting an average level of knowledge. However, it varied with the different aspects of AIDS as follows: knowledge related to cause (85.0 ± 18.18), nature (75.0 ± 12.46), mode of transmission (70.0 ± 12.46), risk groups (68.50 ± 16.74) and treatment (65.53 ± 22.42). Figure 1.

With regard to nature of AIDS, it was interesting that about one-half of students considered health team, patients in hospitals, adolescents and married women as groups of high risk to contract AIDs. The question on the human fluids implicated in the transmission of HIV also attracted a range of responses: blood and blood products (99.2%), semen (93.1%), vaginal secretions (90.7%), saliva (63.2%), tears (20.2%) and sweat (19%). The following incorrect options attracted responses from the students about the mode of transmission: use of same toilets and bathrooms and washing clothes together (24.9%), swimming (53.7%) and coughing and sneezing (49.6%). Meanwhile, about one-fourth of students reported mosquito bite as a mode of transmission for HIV.

The students' knowledge was the lowest in treatment and control of AIDS. One-half of the students didn't know that there is at present no cure for this disease condition, and the majority (73%) didn't know that there is no vaccine yet for prevention of AIDS contraction. Table 2.

Part III: Attitudes to HIV/AIDS

Nursing students reported an overall negative attitude towards AIDS, as reflected by the percentage mean score (PMS) of 43.48 ± 9.21 . This attitude was the least favourable for precautionary measures (PMS= 29.29 ± 20.38), followed by attitude to

patients living with AIDS-PLWA favourable for attitude to care of AIDS patients (PMS=40.50±9.28), while it was the most (PMS=67.62±17.04). Figure 1.

Table I: Table I. Socio-demographic characteristics of the study sample. (n=260)

Characteristics	Stream - I		Stream - II		Total		χ^2	P
	N	%	N	%	N	%		
Age								
18-21	138	69.0	8	13.3	146	56.2	58.09	<0.0001
22+	62	31.0	52	86.7	114	43.8		
Total	200	100	60	100	260	100	t=12.73	<0.0001
%Mean Score (M ± SD)	20.68±2.0		24.45±2.07					
Academic year								
First year	57	28.5	8	13.3	65	25.0	18.77	<0.001
Second year	29	14.5	22	36.7	51	19.6		
Third year	25	12.5	11	18.3	36	13.8		
Fourth year	89	44.5	19	31.7	108	41.5		
Total	200	100	60	127	260	99.9		
Origin								
Urban	192	96.0	49	81.7	241	92.7	13.998	<0.001
Rural	8	4.0	11	18.3	19	17.3		
Total	200	100	60	100	206	100		
Previous information								
No	13	6.5	4	6.8	17	6.6	0.006	0.939
Yes	187	93.5	55	93.2	242	93.4		
Total	200	100	59	100	259	100		
Source of information@								
No information	13	6.5	4	6.8	17	6.6	0.006,	0.94
TV and Radio	118	59.0	49	81.7	167	46.2		
School and University	96	48.0	24	40	120	46.1		
Doctors and Nurses	69	34.5	12	20	81	31.1		
Others	7	3.5	8	13.3	15	5.7		

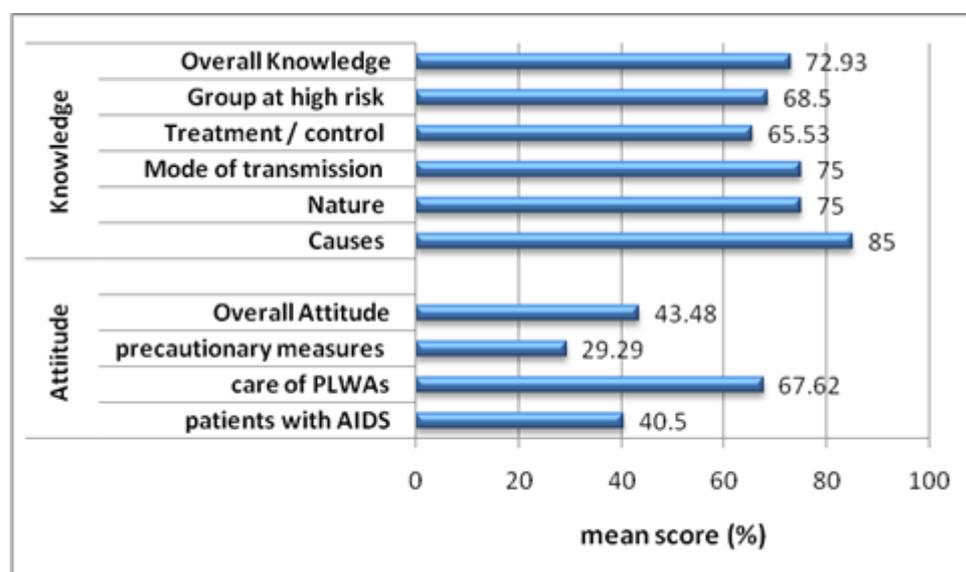


Figure 1. Percentage mean score of HIV/AIDS-related knowledge and attitudes of Saudi nursing students.

Table 2. HIV/AIDs – related knowledge of Saudi nursing students in central Saudi Arabia. (n=260)

HIV/AIDs – related knowledge		Response					
		True		False		Don't know	
		No	%	No	%	No	%
Causes of AIDs							
1	AIDs is caused by a virus	204	96.2	3	1.4	5	2.4
2	AIDs is condition you are born with	72	27.7	185	71.2*	3	1.2
3	Stress causes AIDs	9	3.5	235	91.1*	14	5.4
4	AIDs is caused by the same virus that cause (VD) / (STD)	26	10.1	185	72.0*	46	17.9
5	The cause of AIDs is unknown	29	11.2	211	81.5*	19	7.3
Nature of AIDs							
1	AIDs is a medical condition in which your body cannot fight off disease.	245	94.6*	3	1.2	11	4.2
2	Gay men are more likely to have AIDs	125	48.1	111	42.7*	24	9.2
3	Some persons are immune to AIDs	18	7.0	201	78.2*	38	14.8
4	Women are more likely to have during their period	20	7.8	130	50.4*	108	41.9
5	AIDs is not at al serious, it is like having a cold	16	6.2	212	82.2*	30	11.6
6	Most people who get AIDs usually die from the disease	207	81.2*	35	13.7	13	5.1
7	AIDs is a life threatening disease	252	97.3*	5	1.9	2	0.8
8	People with AIDs usually have a lot of other diseases as a result of AIDs	248	95.8*	3	1.2	8	3.1
9	The infected person with AIDs does not usually show any symptoms of the disease	195	75.0*	42	16.2	23	8.8
10	Married people do not get infected with AIDs virus	87	33.5	136	52.3*	37	14.2
	HIV can be found in any infected person on						
11	Blood	258	99.2*		0.0	2	0.8
12	Vaginal secretion	235	90.7*	12	4.6	12	4.6
13	Semen	242	93.1*	7	2.7	11	4.2
14	Saliva	160	63.2	69	27.3*	24	9.5
15	Tears	50	20.2	159	64.1*	39	15.7
16	Sweat	47	19.0	159	64.1*	42	16.9
Mode of transmission of AIDs							
1	If you kiss someone with AIDs you will get the disease	116	45.5	114	44.7*	25	9.8
2	If you touch someone with AIDs you will get the disease	29	11.2	208	80.6*	21	8.1
3	What you eat can give you AIDs	50	19.5	169	66.0*	37	14.5
4	AIDs can be spread by using someone's personal belongings like a comb or hair brush, clothes, plates and cups.	167	65.0	46	24.9*	26	10.1
5	Just being around someone with AIDs can give you the disease	19	7.3	225	86.9*	15	5.8
6	Having sex with someone who has AIDs is away of getting it	253	98.1*	5	1.9	258	100.0
7	If a pregnant women has AIDs, there is a chance it may harm her unborn baby	237	91.5*	11	4.2	11	4.2
8	You can get AIDs by shaking hands with someone who has it	22	8.5	225	86.9*	12	4.6
9	Receiving a blood transfusion with infected blood can give a person AIDs	254	98.4*	4	1.6	258	100.0
10	You can get AIDs by sharing needle with a drug user who has a disease	240	93.4*	2	0.8	15	5.8
11	If you donated blood you can get AIDs	79	30.5	168	64.9*	12	4.6
12	If you swim in the same place where an infected person swims in you can get AIDs	67	26.1	138	53.7*	52	20.2
13	Being exposed to an infected person who coughs or spits can give you the disease	82	31.8	128	49.6*	48	18.6
14	Bite of mosquito can cause AIDs	118	45.7	89	34.5*	51	19.8
15	If you work with an infected person with AIDs you can get the disease	27	10.6	211	82.7*	17	6.7

Table 2. HIV/AIDs – related knowledge of Saudi nursing students in central Saudi Arabia. (n=260)

HIV/AIDs – related knowledge		Response					
		True		False		Don't know	
		No	%	No	%	No	%
<i>Treatment / control of AIDs</i>							
1	AIDS can be cured.	26	10.2	190	74.8*	38	15.0
3	There is no cure for AIDS.	162	63.0	52	20.2	43	16.7
4	You can avoid getting AIDS by exercising regularly.	25	9.7	174	67.4*	59	22.9
6	A new vaccine has recently been developed for the treatment of AIDS.	55	21.5	69	27.0*	132	51.6
7	You can avoid getting AIDS by following universal precautions.	213	83.2*	22	8.6	21	8.2
<i>Groups at high risk to AIDs</i>							
1	Prostitutes	246	96.1*	2	0.8	8	3.1
2	Drug addicts	225	87.5*	20	7.8	12	4.7
3	Homosexuals	229	89.8*	13	5.1	13	5.1
4	Health care provider	113	44.8	112	44.4*	27	10.7
5	Patients in hospitals	99	39.1	119	47.0*	35	13.8
6	Adolescents	99	39.3	106	24.1*	47	18.7
7	Married women	92	36.2	123	48.4*	39	15.4
8	People with multiple sexual partners	248	96.5*	5	1.9	4	1.6

With regard to attitude to PLWA, only one-third of students (32.3%) positively considered AIDs patients as victims of the society, one third (39.2%) considered HIV carriers as unable to rear children, and 25.4% who agreed on their right to have their diagnosis kept as a medical secret. On the other hand, the majority of students (82.7%) negatively agreed not to allow seropositive women get pregnant. Table 3.

With regard to attitude to care of AIDS patients, more than one half of students (55.1%) negatively agreed that treating PLWAs puts health workers at high risk. Another half (46.7%) negatively reported that they would not be happy to work with a colleague who was an HIV carrier.

With regard to attitude to precautionary measures, the majority of students negatively agreed that AIDS patients and/or carriers be isolated from other patients (83.0%), have their care in specialized hospitals (89.6%), and not allowed to share a room with non-infected patients (81.8%). Meanwhile, those who positively disagreed to wear gloves when touching a patient with AIDS were only 15.7% of all students. Higher PMS of attitude to precautionary measures was significantly associated with stream-I before ($p=0.019$) and after adjustment ($p=0.038$). Table 4.

The present study showed that knowledge score of the students had no significant association with any of the attitude categories [PLWA ($t=1.27$, $p=0.21$)], [care ($t=1.79$, $p=0.075$)], [precautionary measures ($t=0.92$, $p=0.36$)] and [overall attitude ($t=0.22$, $p=0.82$)].

Part IV: Predictors of Knowledge on and attitude towards AIDs and patients

As the grades of the students increased, the total mean percentage score of knowledge rose significantly ($F= 4.64$, $p= 0.004$), Students with previous knowledge showed significantly higher percentage mean score of knowledge than those without ($t=2.62$, $p=0.01$). However, after adjustment for potential confounders, higher knowledge percentage mean score was significantly associated with stream I ($p=0.012$), older age ($p<0.001$), and having previous information on HIV/AIDS ($p=0.006$). Table 4

Table 3. HIV/AIDs – related attitudes of Saudi nursing students. (n=260)

HIV/AIDs-related attitude	Response								
	Strongly Agree		Agree		Disagree		Strongly disagree		
	No	%	No	%	No	%	No	%	
Attitudes towards patients with AIDs									
1	HIV/AIDs is a threat to health workers.	78	30.4	117	45.5	55	21.4*	7	2.7*
2	PLWAs are responsible for their illness.	57	22.2	78	30.4	103	40.1*	19	1.1*
3	PLWAs are dangerous to others.	79	31.0	115	45.1	51	20.0*	10	3.9*
4	PLWAs deserve what has happen to them.	20	7.8	43	16.9	118	46.3*	74	29.0*
5	Fetuses infected with AIDs virus should be aborted.	56	22.0	67	26.4	94	37.0*	37	14.6*
6	Seropositive women should not be allowed to get pregnant.	134	52.5	77	30.2	31	12.2*	13	5.1*
7	AIDs virus carriers have the right for their diagnosis to be kept a medical secret.	18	7.0*	47	18.4*	83	32.4	108	42.2
8	Being carrier of the AIDs virus should not be on obstacle to receiving education and employment.	43	16.7*	79	30.7*	82	31.9	53	20.6
9	AIDs sufferers should be considered as victims of the social system.	29	11.3*	54	21.0*	110	42.8	64	24.9
10	Being an AIDs virus carrier should not get in the way of being able to rear children.	36	14.0*	65	25.2*	98	38.0	58	22.9
Attitudes of respondents towards care of PLWAs									
1	Health workers are duty bound to treat all patients irrespective of their HIV status	191	74.3*	53	20.6*	8	3.1	5	1.9
2	I would not be happy to work with a colleague who was a carrier of the AIDs virus	40	15.7	79	31.0	91	35.7*	45	17.7*
3	Patients with AIDs don't have right to receive care as other diseases	11	4.3	15	5.9	80	31.4*	149	58.4*
4	Treating PLWAs puts health workers at high risk	29	11.4	111	43.7	87	34.3*	27	10.6*
Attitudes towards precautionary measures toward PLWAs									
1	AIDs patients should be isolated from other patients	147	57.0	67	26.0	29	11.2*	15	5.8*
2	Special hospitals should be created for AIDs carriers and suffers	149	57.8	82	31.8	22	8.5*	5	1.9*
3	In a hospital, AIDs virus carriers should not share a room with non-infected patients	129	51.2	77	30.6	33	13.1*	13	5.2*
4	As a safety measure, we should avoid contact with AIDs sufferers and carriers	31	12.2	43	16.9	123	48.4*	57	22.4*
5	We should wear gloves when touching a patient with AIDs.	140	55.1	74	29.1	25	9.8*	15	5.9*

*denotes positive attitude

PLWAs: People living with AIDs

Table 4. HIV/AIDs – related knowledge and attitude scores of Saudi nursing students according to some characteristics.

	Overall knowledge		Attitude		
	Mean \pm SD	PLWA Mean \pm SD	CARE Mean \pm SD	PM Mean \pm SD	Overall Mean \pm SD
Stream					
S1	72.9(10.6)	40.8(9.1)	70.2(16.7)	30.9(20.8)	44.7(9.4)
S2	73.0(11.0)	39.5(9.8)	59.3(15.5)	23.6(17.8)	39.4(7.3)
T, p=value	T=0.08, p=0.94, adj.p=0.012*	T=0.89, p=0.37, adj.p=0.14	T=4.39, p<0.001*, adj.p=0.004*	T=2.36, p=0.019*, adj.p=0.038*	T=3.69, p<0.001*, adj.p=0.01*
Age group					
18-21	71.8(9.9)	41.8(8.8)	70.2(16.1)	29.9(20.3)	45.0(9.0)
22+	74.4(11.5)	38.9(9.6)	64.4(17.7)	28.5(20.5)	41.7(9.2)
T, p-value	T=1.56, p=0.12, adj.p<0.001*	T=2.46, p=0.015*, adj.p=0.18	T=2.70, p=0.007*, adj.p=0.58	T=0.53, p=0.60, adj. p=0.81	T=2.64, p=0.009*, adj. p=0.43
Origin					
Rural	73.6(10.6)	41.9(9.4)	65.7(21.4)	31.2(18.7)	44.7(8.1)
Urban	72.9(10.7)	40.4(9.3)	67.8(16.7)	29.1(20.5)	43.4(9.3)
	T=0.24, p=0.81, adj.p=0.61	T=0.64, p=0.52, adj.p= 0.90	T=0.48, p=0.63, adj. p=0.74	T=0.43, p=0.67, adj.p=0.38	T=0.56, p=0.58, adj.p=0.19
Academic year					
1 st	67.9(10.1)	41.0(9.5)	69.0(14.6)	29.0(18.9)	43.6(8.8)
2 nd	75.7(8.1)	40.7(8.8)	62.2(18.2)	23.9(18.8)	40.9(9.4)
3 rd	73.8(13.1)	39.4(10.5)	71.2(17.7)	32.5(21.4)	44.4(10.5)
4 th	74.3(10.6)	40.5(9.1)	68.1(17.3)	31.0(21.3)	44.2(8.9)
	F=4.64, p=0.004*, adj.p=0.22	F=0.23, p=0.88, adj.p=0.09	F=2.25, p=0.08, adj.p=0.72	F=1.66, p=0.18, adj.p=0.24	F=1.33, p=0.26, adj.p=0.21
Previous information					
Yes	73.5(10.1)	40.3(9.3)	67.8(1.1)	29.0(20.1)	43.4(9.2)
No	64.5(16.2)	42.2(8.7)	66.7(20.2)	34.5(23.8)	45.4(9.1)
	T=2.62, p=0.01*, adj.p=0.006*	T=0.79, p=0.43, adj.p=0.49	T=0.27, p=0.79, adj.p=0.82	T=1.07, p=0.28, adj.p=0.27	T=0.85, p=0.40, adj.p=0.36

S---stream PLWA----people living with AIDS.

PM---- precautionary measures

With regard to attitude, PMS of attitude to PLWA was significantly higher in younger age (p=0.015), but this association disappeared after adjustment for other confounders (p=0.18). Higher PMS of attitude to provide care to patients was significantly associated with stream-I (p<0.001), and younger age (p=0.007). However, association with stream-I was the only significant association that remained after adjusting for other confounders (p=0.004). Table 4. Higher PMS of attitude to precautionary measures was significantly associated with stream-I before (p=0.019) and after adjustment (p=0.038). Table 4. . Higher PMS of overall attitude to AIDS was significantly associated with stream-I (p<0.001) and younger age (p=0.009).

However, after adjusting for potential confounders, stream-I was the only significant predictor of higher score of overall attitude (p=0.011). Table 4.

Discussion:

Early in the HIV/AIDs health crises, several studies revealed patterns of reluctance to care for persons with HIV/AIDs among nursing students (Earl & Penney, 2003). These findings were of great concern, because it is very likely at some time nurses will be caring for people with AIDs. Students in the present study were quite knowledgeable about the basic facts regarding AIDs and the ways in which HIV is transmitted. This finding was consistent

with the studies of Lohrmann et al., 2000, Abolfotouh, 1995 and Bektas & Kulakac, 2007). However, there were many misconceptions about how HIV is transmitted, e.g. shaking hands, using the same toilet or bathroom, etc. This problem was also addressed by previous investigators such as Tavocas et al.(2004), Bektas & Kulakac (2007), Badahdah & Sayem (2010). Some of the Saudi nursing students were not aware that there was no cure for HIV/AIDs with medication or vaccine. However, this finding was in agreement with that of Turkish nursing students (Bektas & Kulakac, 2007). Perhaps the students were not educated enough about HIV to be able to distinguish between antiretroviral therapy and a cure for AIDS (Badahdah & Sayem, 2010).

Negative attitudes towards PLWA can interfere with the quality of nursing care and can cause stress to nurses and patients alike (Earl & Penney, 2003, Martin & Bedimo, 2000) In the present study, there was a substantial negative attitude towards AIDs and HIV-positive patients. This finding was in agreement with the UK (Earl & Penney, 2003) and the Turkish studies (Bektas & Kulakac, 2007). Yet, this finding was not consistent with the findings of Halpern et al.(1993) study, where nursing students did not have fears of HIV/AIDs, and did not judge individuals with HIV/AIDs in a negative way as stated by Lohrmann et al.(2000). In the present study, despite relatively high levels of knowledge about AIDs and its modes of transmission, levels of fear about the disease and prejudicial attitudes towards AIDs and AIDs patients remain. Levels of fear were very high as shown by the students' desire to identify and quarantine AIDs patients in clinical and societal settings. The majority of students agreed that AIDs patients should be isolated from other patients, and should not share the room with other non-infected patients. This tendency may be motivated by the students' perception that AIDS is a punishment from God. Studies from around the world and from the EMR region have shown similar attitudes (Kopelman, 2002, Ayranci, 2005,

Montazeri, 2004, Tebourski & Ben Alaya, 2004).

One of the structural factors that has been the target of HIV prevention efforts is stigma (Heijnders & Van Der Meij 2006). The findings of previous studies reported that the stigmatization from nursing students was the mode of transmission of AIDs virus, where students were most stigmatizing towards those who contracted the disease through injecting drugs and sexual transmission, and least stigmatizing towards those who contracted the virus through maternal and blood transmission (Earl & Penney, 2003). Saudi Arabia is a Muslim country with conservative cultural values where premarital sex is prohibited and female virginity is the rule. Students in the present study saw AIDs as a punitive consequence of a promiscuous sex life. This explains the finding of a low overall attitude toward PLWA. The majority of students reported that AIDs is a threat to health workers and that AIDs sufferers should be considered as victims of the society. Moreover, some of students reported that PLWA deserve what has happened to them.

The matter of choice in treating AIDs patients remains a knotty and sensitive issue; care-givers are often portrayed as fearful, ill-informed and discriminatory in their treatment of AIDs patients (Uwakwe, 2000). In the p[resent study , almost all students agreed that all patients should be treated irrespective of their HIV status, although one-half of all students agreed that treating PLWA puts health workers at high risk.

It is clear that many rural nursing students have had limited experience with HIV/AIDs patients, and have rarely had opportunities to discuss their feelings about the disease. Also, students attitudes about caring for HIV/AIDs patients have not changed over the past decade (Earl & Penney, 2003). In the present study , no significant difference was detected between students of rural and those of urban origin, in terms of knowledge on and attitude towards the disease. In a Turkish study,

nursing students who were sexually active had a significantly higher knowledge-level compared to those who were sexually inactive (Bektas & Kulakac, 2007). However, the Saudi population is generally known as a conservative community that observes Islamic rules, irrespective of the origin of the individual. However, previous information was a significant predictor of the overall knowledge, even after adjusting for the possible confounders. However this was not the case for attitude. The primary source of information about HIV/AIDs for students was their university education. The second most common source was the media, constituting TV and radio. This finding was similar to that reported on Turkish nursing students (Bektas & Kulakac, 2007).

It would be a safe assumption to assert that the relationship between knowledge and attitude among students would appear to have followed a similar pattern to that observed within the general public (Uwakwe, 2000). In Turkish study, as the knowledge score increased, willingness to care for PLWA also increased significantly (Bektas & Kulakac, 2007). However, in the present study, knowledge score showed no significant association with any of the attitude categories.

It is important to examine whether nursing education has an impact on the willingness of students to care for AIDs patients and on potential determinants of such willingness (Jemmott et al. 1992). While Uwakwe (2000) reported that willingness to provide care was greater among students with greater nursing education, others showed that students with more undergraduate nursing education were higher in homophobia (Jemmott et al. 1992). In the present study, there was a significant association between academic year and overall knowledge score, with the first year students showing significantly lower score, a finding that was in agreement with the findings on Turkish students (Bektas & Kulakac, 2007), where the total knowledge score rose significantly with increasing grade..

However, after adjustment for all potential variables, the association did not remain significant.

The educational preparation of nurses providing care to persons with HIV/AIDs has been known to affect the attitude of the nurses and the effectiveness of the care provided to people with AIDs (Earl & Penney, 2003). In the present study, stream I students, who received nursing education as their main and only college education, showed significantly higher score of attitude to care of patients with AIDs and attitude to precautionary measures as well as significantly higher overall attitude to AIDs. Moreover, after adjusting for potential confounders, the unwillingness to care for patients with HIV was associated only with having never been taught nursing education as their primary high education.

Conclusion

In conclusion, and considering the sample as a whole, nursing students in the present study were quite knowledgeable about the basic facts regarding AIDs and the ways in which HIV is transmitted. The chief areas of weakness concerned misconceptions about the transmission of HIV through casual contact and exposure to saliva of infected persons. AIDs education efforts aimed at nursing students should place greater emphasis on correcting these kinds of misconceptions.

General attitudes toward PLWA were negative and the students' homophobia level was high. The best weapon against fear and ignorance is education. The entire curriculum must be examined to clarify how the care of individuals with any infectious disease is addressed. It has been reported that nursing students taking a training course about AIDs significantly increased knowledge and developed more positive beliefs about individuals with HIV (Carney et al. 1999). Special emphasis should be on the value that such patients be treated humanely.

Unwillingness to care for patients with HIV was associated only with having never been taught nursing education as the primary high education. Selection of students of stream II for whom nursing education is not the primary high education should be looked at.

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