

**HIV / AIDS knowledge, attitudes and behaviours of student nurses****Christina Ouzouni<sup>1</sup>, Konstantinos Nakakis<sup>1</sup>***1. Lecturer in Nursing, Technological Educational Institute of Lamia, Greece***ABSTRACT**

**Background:** HIV and AIDS is a matter of concern because the number of cases has increased dramatically over the last ten years. Nursing students need to have appropriate knowledge and attitudes about HIV and AIDS because they are the future health care professionals, therefore will play a key role in prevention of spread and care of people with AIDS.

The aim of the study was to explore the knowledge, behaviours and attitudes about HIV/AIDS of nursing students in Greece.

**Method and Material:** A cross-sectional study was carried out in a nursing school of a Technological Educational Institute in Greece. A sample of 279 (N=279) nursing students agreed to participate in the study, giving a response rate of 77.5%. Data were collected using an anonymous questionnaire comprising four self-administered instruments: (a) the International AIDS questionnaire-Chinese Version (IAQ-C), (b) the source of HIV/AIDS information questionnaire, (c) Sexual behaviours/practices and attitudinal questions about AIDS and (d) demographic questions. Return of a completed questionnaire was considered as consent to participate in the study. Descriptive and inferential statistics were employed for the data analysis using SPSS version 17. The significant level of p value was determined at  $p < 0.05$

**Results:** Overall student nurses had fairly good knowledge about HIV and AIDS as well as a positive attitudes towards AIDS people (M=70.39;SD=18.43; possible range 18-90). A few items however presented contradictory results from the overall score of the knowledge scale. Of the respondents 39.8% believed that mosquitoes can transmit HIV and 38% believed the virus could be transmitted via the toilet seat. 56.2% reported that vaccination can protect them from AIDS. The majority of respondents (76.7%) hadn't been taught about HIV/AIDS. Participants reporting a willingness to care for people with AIDS were significantly more knowledgeable and held more positive attitudes towards people with AIDS (P=0.001). The primary sources of information for the participants were television (80.7%), newspapers/magazines (64.6%) and internet (60%). 94.3% of the respondents stated that they were heterosexual and sexually active. Religious students were found to be less knowledgeable and held less positive attitudes towards people with AIDS when compared to students with no religious conviction (F=2.61; P=0.03).

**Conclusions:** Student nurses' knowledge presented contradictory results which indicated that whilst overall scores confirmed the participants possessed fairly good knowledge, individual knowledge items demonstrated that they lacked some knowledge on the subject. Nursing curriculum programmes of nursing schools need to be restructured to ensure that students gain the necessary accurate knowledge and appropriate attitudes about HIV and AIDS.

**Key words:** HIV, AIDS, knowledge, attitudes, sexual behaviour, student nurses

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## INTRODUCTION

**A**lthough it is considered that nowadays there is adequate knowledge about transmission of HIV, published figures show an increase in the number of HIV positive people and individuals suffering from AIDS<sup>1</sup>. The increase in cases detected might be due to the reduction of information given to the general population<sup>2</sup>. Healthcare professionals including nurses have significant responsibility for providing information about the transmission of HIV and for developing a strategic health programmes to reduce that transmission. Student nurses will have received some information about HIV and AIDS before commencing their undergraduate studies. Through their nursing education and clinical training they should acquire knowledge that will change their attitudes and influence their behaviours

both in the prevention of transmission of the virus, and positive attitudes for effective caring for these patients.

With the continuing increase in the incidence of HIV and AIDS nurses require current knowledge and skills to ensure that they are able to provide high quality, effective care to people living with HIV and AIDS<sup>3,4</sup>.

Nursing students as a subgroup of health care professionals exposed to an occupational risk of HIV infection due to direct contact with blood and bodily fluid during clinical practice, and have been reported to tend to have negative attitudes towards PLHIV<sup>5,6</sup>. There are many factors related to negative PLHIV related attitudes, such as a low knowledge level, and fear of the possibility of becoming infected and death<sup>7</sup>.

Studies carried out in the early nineties showed that nursing students had a low level of knowledge with respect to HIV and AIDS<sup>8,9</sup>. A study carried out in Turkey was found that the majority of nursing students had moderate level of HIV/AIDS knowledge<sup>10</sup>. Lack of knowledge among nursing students found in other studies as well<sup>11,12</sup>. Bektas<sup>10</sup> found that some nursing students were not aware that there was no protection with vaccination. In addition found that there are many misconceptions about how HIV is transmitted e.g using the same toilet or bathroom etc.<sup>10</sup>. This problem also stressed by previous researchers<sup>13,14</sup>.

Male and older students were found to be more knowledgeable than female and younger students<sup>9</sup>. Bliwise et al.<sup>15</sup> found that nursing students and first year medical students possessed greater fear of contagion, more negative emotions and professional resistance to care for these people. In contrast, to previous result Halpern et al.'s<sup>16</sup> study found that health care professionals and nursing students did not have fears of HIV/AIDS and did not judge individuals with HIV/AIDS in a negative way.

Previous experience in caring for an AIDS patient was found to increase the level of nurses' knowledge and to reduce the fear of contagion<sup>17</sup>. Knowing

someone with AIDS resulted in a higher knowledge level and less fear of HIV/AIDS<sup>18</sup>. Students who had previous experience in caring for an AIDS patient and had known someone with HIV/AIDS were willing to care for PLHIV<sup>10</sup>.

Student nurses are usually more willing to care for patients who are not diagnosed with AIDS. Particularly students having negative attitude towards care for AIDS patient were worried about putting their family members and other relatives at risk<sup>19</sup>. Nursing students with negative attitudes were less willing to care for people with HIV/AIDS compared to those with positive attitudes<sup>3,20</sup>. Moreover, the higher the knowledge level regarding AIDS, the more positive were the attitudes and the higher was the willingness to care for AIDS patients<sup>19</sup>. Knowing someone with and caring for AIDS was also found to decrease the fear and increase the knowledge level and willingness to care for such a patient<sup>10</sup>. This finding is similar to those reported by previous studies<sup>17,18</sup>. In Bektas<sup>10</sup> study there was a substantial negative attitude towards AIDS and HIV positive patients. Nursing students found unwilling to care for AIDS patients which was linked to the fear of contracting HIV/AIDS which is consistent with earlier studies<sup>17,18,21</sup>. O'

Sullivan found that those who were least willing to care for HIV feared for their personal safety and did not feel adequately prepared to care for PLHIV<sup>22</sup>. Goldenberg & Laschinger<sup>19</sup> did not find any association between nursing student age and their attitudes towards AIDS patients.

People's attitudes towards AIDS may also affect their own sexual behaviours. A minimal concern about contracting HIV together with high sexual activity is associated with a lower level of safer sex practices<sup>11</sup>. Female student nurses practice more safe sex compared to male nurses<sup>23</sup>.

Studies investigated attitudes towards AIDS patients showed that people being afraid of HIV/AIDS had higher homophobia compared to those with less fear of HIV/AIDS<sup>17,24</sup>. Infection of HIV was often considered as a punitive consequence of a promiscuous sex life with nurses and nursing students having little sympathy for homosexuals suffering from AIDS<sup>25</sup>. Lohrmann et al.<sup>11</sup> referring to a German study<sup>26</sup> reported that more experienced nurses did not discriminate between groups of AIDS patients in terms of lifestyles.

Results from Bektas<sup>10</sup> study underline the need to strengthen education on all aspects of HIV/AIDS. To improve nursing students willingness to care for PLHIV,

particular emphasis should be placed on the training of nursing students as skilled nursing staff with humane attitudes towards PLHIV<sup>10</sup>. The educational preparation of nurses has been known to affect the attitudes of the nurses and the effectiveness of the care provided to HIV/AIDS patients<sup>10</sup>.

Namal<sup>27</sup> indicated that the subject of AIDS is not mentioned enough in medical and nursing schools and people with AIDS are simply identified as homosexual. Nurse educators should ensure the education on all aspects of HIV/AIDS is explicitly included in the curriculum and that the teaching reflects the needs of learners.

### **The study**

The purpose of this study was to explore Greek nursing students' knowledge levels and attitudes related to HIV/AIDS.

### **Objectives:**

1. To identify the sources of information that nursing students access in relation to HIV and AIDS.
2. To identify willingness to care for people with AIDS
3. To explore the factors associated with knowledge and attitudes about AIDS among nursing students in Greece.
4. To identify nursing students sexual risk behaviours .

## Methods

### *Study design*

This study utilized a descriptive cross-sectional survey design to collect data from Greek nursing students, using a self-administered questionnaire. The data were collected in January 2009. Study participation was anonymous and voluntary.

### *Sample and research site*

The study population consisted of a convenience sample. A total of 279 Greek student nurses (N=279) of first (1<sup>st</sup>), third (3<sup>rd</sup>), fourth (4<sup>th</sup>) and sixth (6<sup>th</sup>) semester studies participated in the study with 77.5% response rate. Participants were studying general nursing in a nursing school of a Technical Educational Institute which belongs to the higher education system in Greece. The duration of nursing studies was 8 semesters. The researchers approached students in their classrooms and invited them to participate in the study. After explaining the purpose of the study the researchers distributed a self-administered anonymous questionnaire to students who were willing to participate in the study. In addition, the students were reassured that their responses would be confidential and their participation was

voluntary. Moreover, the nursing students were informed that they were free to withdraw from the study at any time. The completed questionnaires in sealed envelopes were collected by researchers in a box within a period of 3 weeks.

### *Instrument*

The questionnaire consisted of four self-administered instruments that took a total of 10 minutes to complete. The instruments of this study were (a) the International AIDS questionnaire-Chinese Version (IAQ-C), (b) the source of HIV/AIDS information questionnaire, (c) Sexual behaviours/practices and attitudinal questions about AIDS and (d) demographic questions.

### *International AIDS Questionnaire - Chinese Version*

The International AIDS Questionnaire – Chinese Version (IAQ-C) was developed and validated by Davis, Tang, Chan, and Noel<sup>28</sup> for use with a Chinese population. It measures four dimensions of HIV and AIDS: transmission myths, awareness—factual knowledge, attitudes and personal risk. Each item was scored on a 5-point likert scale: 1 (strongly agree), 2 (agree), 3 (don't know), 4 (disagree), 5 (strongly disagree). Total scores on the IAQ-C ranged from 18 to 90, and

subscale scores ranged from 7 to 35 for transmission myths, 5 to 25 for attitudes and 3 to 15 for personal risks and factual knowledge. Higher scores indicated positive and accurate views of HIV. Cronbach's coefficient alpha estimated by Davis et al.<sup>28</sup> found  $\alpha=0.76$ . In the present study, the Cronbach's alpha coefficient was  $\alpha=0.76$ . The IAQ-C also examined for validity by a group of experts and had proved that it had face and content validity.

#### *Source of HIV/AIDS Information Questionnaire and sources of Communication*

The questionnaire developed in a previous study<sup>2</sup>. Respondents were asked to declare what sources they use to get information regarding HIV and AIDS. In addition, they asked with whom they would discuss questions about HIV.

#### *Sexual behaviours/practices and attitudinal questions about AIDS*

Participants asked to report their sexual behaviours and practices. The questionnaire incorporated some questions derived from the literature review which were considered essential for the present study. In particular, nursing students asked to respond with

yes or no in attitudinal questions regarding AIDS.

#### *Demographic and personal questions*

Demographic questions were also included with respect to sex, age, semester of studying, nationality, personal status, health perception, religion and religiosity.

A back translation was performed in all translated questionnaires and minor changes were made in order to make sense in Greek language.

#### *Pilot study*

The feasibility and acceptability of the questionnaire was tested in a pilot study of 20 student nurses from semesters which were not involved in the main study. Overall the pilot study showed that no major changes in structure or content of the questionnaire were needed. One item in HIV Knowledge and attitudes questionnaire was modified to be more relevant with the Greek population. In particular, item "Asians are less susceptible to contracting AIDS than Westerners" was modified to "Greeks are less susceptible to contracting AIDS than other nationalities".

#### *Ethical issues*

Students were informed about the purpose and the benefits of carrying out the study and advised that participation was voluntarily, and the questionnaire was anonymous. Students were advised that they could decline to participate or could withdraw at any time without detriment to their studies and were informed that the completion of the questionnaire implied consent to participate in the study.

### *Data analysis*

Descriptive and inferential statistics were used in analyzing the data. Chi-square tests were utilized to identify the relationships between gender and sexual related behaviours. One way analysis of variance was performed to compare the nursing student nurses' level of knowledge and attitudes in relation to some variables. P value was determined at level of  $P < 0.05$ . Statistical analysis was performed using SPSS for windows version 17.

### **Results**

#### *Sample*

A total of 279 nursing students in their 1<sup>st</sup>, 3<sup>rd</sup>, 4<sup>th</sup> and 6<sup>th</sup> semesters participated in the present study. Of the respondents 16.1% (n=45) were male and 83.9% (n=234) were female. Table 1 presents the characteristics of the sample and

provides information on personal characteristics. Participants ranged in age from 18 to 37 years with a mean age of 20.86 years (SD=2.53). The majority of nursing students were in either their 6<sup>th</sup> (n=94/33.6%) or 1<sup>st</sup> (n=81/29%) semesters, whilst less students were in their 3<sup>rd</sup> (n=57/20.4%) or 4<sup>th</sup> (n=47/17%) semesters. Most of the respondents (n=165/59.1%) stated that they had permanent relationship with a partner, 30.9% (n=86) stated that they hadn't a relationship and fewer stated that they had casual relationships. With respect to respondents' nationality the majority were Greek (n=262/94%), 2.5% (n=7) were Albanian, 1.1% (n=3) were Cypriots and 2.2% (n=7) not stated. Of the participants 16.1% (n=45) rated their health as excellent, 42.7% (n=119) as very good, 33.3% (n=93) as good, 6.8% (n=19) as failing and 1.1% (n=3) as poor. The majority of the respondents (146%/n=52.3) rated themselves as religious or fairly religious (29.4%/n=82) with a proportion of 7.2% (n=20) as not at all religious. In regard to religious preference the majority of nursing students (94.3%/n=263) were Christian and 1.4% (n=4) were Muslim.

### **Knowledge and attitudes about HIV/AIDS**

Table 2 illustrates the data related to knowledge and attitudes about HIV/AIDS amongst Greek Nursing students studying in a Technological Educational Institute in Greece. The mean score of transmission myths subscale was 27.59 (SD=7.02), 12.68 was for facts subscale, (SD=3.19, possible range 7-35) 10.49 was for personal risk subscale (SD=3.29, possible range 3-15) , and 19.63 for attitudes subscale (SD=4.93, possible range 5-25). The total mean score of the questionnaire was 70.39 (SD=18.43).

### ***Transmission myths***

Of the respondents 39.8% believed that HIV can be transmitted through mosquitoes, 38% through toilet seat and 15.4% agreed that HIV could be spread through swimming pools. 12.6% believed that HIV could be contracted through sharing cigarettes, 7.6% through coughing and sneezing, 2.6% through air and 1.8% through hugging an infected person.

### ***Facts***

The majority of participants (95%) believed that the use of condoms could decrease the risk of HIV transmission. 91.4% of the respondents believed that HIV could be spread through infected

semen and 66% that HIV could be transmitted from mother to baby.

### ***Personal risk***

Of the participants 56.2% believed that they could protect themselves against AIDS by being vaccinated for it. 10.8% believed that AIDS only could affect intravenous drug users, prostitutes, and homosexuals, while 10.4% believed that Greeks would less susceptible to contracting AIDS than other nationality.

### ***Attitudes***

Nearly half of the respondents (43.7%) were willing to do volunteer work with AIDS patients. Only 3.2% agreed to move out a family member if they were HIV positive. 15.5% agreed that people with HIV should stay home or in hospital. Of the respondents 7.9% agreed that people with HIV should be kept out of school, while 5.8% agreed that they would end a friendship if their friend had AIDS.

### ***Sources of HIV/AIDS information and sources of communication***

The majority of the participants (80.7%) stated that the main source of information about HIV and AIDS was television (Table 3) newspapers and magazines were sources of information for 64.6% of the participants. A

noticeable percentage (60%) of the respondents reported the internet as a source of information. Nearly half of the respondents (57.9%) reported school teachers in High school or Lyceum as a source of information, 57.5% reported nursing books, 52.9% reported nursing lecturer, 51.8% reported gaining information from a health professional, 45% from a friend, 43.2% from a friend, 19.3% from the radio, as well as 9.6% from a primary school teacher.

With respect to whom to discuss about HIV the majority of respondents (77.5%) reported that they would discuss with a health professional (Table 3). 75.7% said they would discuss the subject with their boyfriend or girlfriend. 68.9% reported that they would discuss with a friend of the same sex, 62.9% with a family member, 55.4% with a friend of the opposite sex, 48.9% with a husband or wife, 38.2% with a school teacher and 13.2% with online chat or email with unknown person.

### ***Respondents' sexual behaviours***

The results of the study showed that the vast majority of the respondents identified themselves as heterosexual (Table 4). Only two male nursing students (n=2/0.7%) reported as homosexual and one female (0.4%) respectively). Of the participants the

majority 80.7 % reported that they had sexual experiences. Of the female nursing students 15.8% (n=44) reported never engaging in sexual activities. 23% of the male respondents reported that had four or more partners in their life and 26.5% of the female reported that they had two or three partners. Only 1.1% of male and 24% of the female reported one partner. 18 of the 45 male participants (6.5% of the total sample) and 24.4% (n=68) of female respondents said that they used a condom every time. Of the respondents 12.6% (males) and 52.8% (females) reported that they drink alcohol sometimes, while 28.8% (female) of the total sample didn't drink at all. As illustrated in table 4 the majority of nursing students did not use drugs at all. Chi-square tests indicated that male respondents reported more homosexual in comparison to female but it was not statistically significant. However, male students had significantly more sexual experiences in relation to female (97.8% vs 78.4%;  $\chi^2 = 10.06$ ,  $df=4$ ,  $P=0.03$ ). In addition, female students reported more relationships with only one partner in their life when compared to males students (29% vs 6.7%;  $\chi^2 = 34.59$ ,  $df = 8$ ,  $P=0.001$ ). Significantly more male students reported the use of condom every time they have intercourse (40% vs 29.4%;  $\chi^2 = 34.91$ ,  $df=8$ ,  $P=0.001$ ).

Similarly, male respondents reported that they consumed alcohol and drugs more often than the female respondents (2.2% vs 1.3%  $\chi^2 = 281.89$ ,  $df=6$ ,  $P=0.001$ ).

### ***Factors associated with attitudes towards HIV/AIDS***

Female respondents and older students were found to be more knowledgeable with more positive attitudes about AIDS when compared to male students. However the difference was not statistically significant. Moreover, there were no significant differences in knowledge and attitudes in relation to semesters of study. One way analysis of variance revealed that respondents who reported themselves as not at all religious were found to be more knowledgeable regarding HIV and AIDS ( $F=2.61$ ;  $P=0.03$ ) and they maintained significantly more positive attitudes than those reporting religious beliefs ( $F=2.61$ ;  $P=0.03$ ).

Nursing students also asked if they would continue to have contact with a relative or a friend who told them that they had AIDS. Results found that the majority of respondents would continue having contact with a relative ( $F=26.580$ ;  $P=0.001$ ) or a friend ( $F=7.834$ ;  $P=0.001$ ) as before. In addition, these respondents held more

positive attitudes towards people with AIDS with a statistical significant difference compared to participants reported that they wouldn't continue having contact with relative or friend with AIDS.

Participants were also asked if in clinical training they knew that a patient was HIV positive would they provide care for them (Fig. 1). The majority reported that they would provide care (76.1%). Nearly one fourth of respondents reported that they would avoid the patient (22.80%) and 1.10% stated that they wouldn't provide care for AIDS patient. A Chi-square test showed that respondents willing to care for patients with HIV or AIDS had significantly better knowledge about measures to take when caring for AIDS patient (68.1% vs 67.7%;  $\chi^2 = 283,203$ ,  $df = 4$ ,  $P=0.001$ ) In contrast, participants reporting that they would avoid caring for the particular patient, stated that they didn't know the measures to take for AIDS patients (32.3% vs 31.9%;  $\chi^2 = 283,203$ ,  $df = 6$   $P=0.001$ ).

Respondents were also asked additional attitudinal questions about AIDS (Table 6). Of the participants 91.8% reported that having AIDS was not something to be ashamed of. However, the majority (93.9%) believed that people with AIDS are not accepted by other people. Nearly

two third (67%) of the respondents reported that they were informed about the measures to take in order to care for AIDS patients. However, 76.7% of the respondents reported that they hadn't been taught anything about AIDS during their nursing training.

## Discussion

The results of the present study showed that participants had fairly good knowledge about HIV and AIDS. However, taking into consideration that the target population of the present study was nursing students, their knowledge on HIV/AIDS was inaccurate and insufficient for future health care professionals. Surprisingly, nearly half of the respondents believed that HIV could be contracted through mosquitoes, one third through toilet seat and a small proportion through swimming pool. In addition, more than half of the nursing students believed that they could protect themselves against AIDS by being vaccinated for it. Studies carried out illustrate similar findings with the present study and concluded that nursing students had low level of knowledge about HIV and AIDS<sup>2,8,9,10,13,14</sup>. The present study conducted in nursing students indicates a limited knowledge about HIV and AIDS and it would be expected that they

would hold accurate and sufficient knowledge by the sixth semester of their studies. Nevertheless, there was no difference found between the knowledge and attitudes of nursing students in different semesters. In contrast Bliwise et al.'s<sup>15</sup> study carried out in nursing and medical students found a fear of contagion, negative emotions and professional resistance in 1<sup>st</sup> year students. This means that they had not gain any knowledge on the subject by the time of their entry into. This can be confirmed in the current study by participants' responses when they were asked if they had been taught about AIDS during their nursing training, the vast majority reported that they hadn't been taught how to care a patient with AIDS. With respect to participants attitudes towards people with AIDS the results showed that the majority of students held a positive attitude towards these people, confirming the findings of Halpern et al's<sup>16</sup> study in which they concluded that student nurses didn't have a fear of HIV/AIDS and did not judge individuals with HIV/AIDS in a negative way. In the present study, nearly half of the nursing students reported their willing to do volunteer work with AIDS patients. An addition element of favourable attitudes was the respondents' report in an independent

attitudinal question that they would continue to maintain contact with a relative or a friend knowing that they had AIDS. Notwithstanding, respondents surprisingly reported contradictory beliefs in some attitudinal items of the "HIV/AIDS knowledge questionnaire. For instance though the score of the subscale "attitudes" indicated favourable attitudes and in some items respondents reports implied sympathy, a small proportion reported that people with HIV should be kept out of school. Moreover, people with HIV should stay home or in hospital. In addition, though the majority reported that they would care for a patient with AIDS, an important proportion of the participants reported that they would avoid caring for that patient, while a very small percentage reported that they wouldn't provide care at all which causes a major professional concern. Similar contradictory results were found in a study carried out in college students<sup>2,10</sup>. The researchers named those results as "dichotomous beliefs" and justified them because of the lack of knowledge and understanding about HIV<sup>2</sup>. This explanation can be adopted in the present study considering that respondents reported that they hadn't received adequate training about AIDS. Furthermore, those who reported limited

knowledge on HIV and AIDS protections were cautious to provide care for AIDS patients. In contrast, participants who were knowledgeable about HIV and AIDS issues were willing to provide care for AIDS patients. It is obvious that knowledge gives professional confidence to nursing students and competency to manage AIDS patients.

The vast majority of the respondents reported television, newspapers/magazines and internet as primary sources of information with respect to HIV and AIDS. Nearly half of the nursing students reported high/lyceum school teacher, nursing books, lectures in nursing school and health professionals as sources of information. Similar sources of information were found in college students but different information sources would be anticipated for nursing students. Nursing students should be expected to get information mostly from the nursing school and health care professionals during their clinical training allocation rather than from mass media or the internet. It should be stressed that even though participants got information mostly from television and internet there is still lack of knowledge on HIV and AIDS. This result illustrates the current situation in society. The AIDS campaign has been

restricted over the past few years and the information provided in television or internet is limited<sup>2,10</sup>. This is reflected in the results of the present study. It worth stressing that although the incidence of HIV positive cases and AIDS has been increasing dramatically, the social message given to people is that the AIDS problem has been resolved or at worst it is under control, this inaccurate message arises from the provision of insufficient information. Moreover there is disproportion between the increasing rate of HIV positive people, AIDS and the limited information provided for the prevention of transmission of the HIV virus.

The majority of nursing students were more likely to discuss HIV related issues with health professionals, boyfriend/girlfriend, friend of the same sex and family member. It would appear that studying nursing encourages participants to search out credible professional advice to discuss HIV related problems. The results also illustrate the HIV/AIDS is more acceptable as respondents were not hesitant to discuss HIV related issues with their boyfriend/girlfriend, with a friend of the same sex or even with a family member. The acceptance of HIV positive people and people with AIDS is successfully illustrated by almost all

participants' response that it is not a matter of shame for someone to have AIDS.

The majority of nursing students were heterosexual and sexually active. From the forms of their sexual experiences it is obvious that the majority didn't perform risky sexual practices in term of HIV contamination. Male nursing students held more multiple relations during their life, a finding echoed by other studies<sup>10</sup>. The vast majority of male respondents used a condom almost every time they had intercourse. An important proportion of female students also reported the use of condom during intercourse. It is self-evident that the use of condom during intercourse has double benefit. Condom provides protection from HIV and sexual transmitted diseases as well as provides contraception. Therefore, it is not an indication of the use solely for contagious of HIV. The use of alcohol and drug it is not a problem for the participants of the present study as it seems of the result that they use sometimes alcohol and hardly ever drugs.

With respect to gender older female respondents were found to be more knowledgeable with more positive attitudes towards AIDS compared to male nursing students though that

difference was not significant. In contrast another study found male and older students to be more knowledgeable than female<sup>9</sup>. Goldenberg and Lascinger<sup>19</sup> did not find any association between nursing students' age and attitudes towards AIDS patients. Another influential factor determining attitudes towards HIV and AIDS was found to be the level of religiosity. Interestingly, nursing students who reported no religious belief had more knowledge on HIV and AIDS issues and held more favourable attitudes towards people with AIDS. It seems that religiosity might consider HIV and AIDS issues as a taboo which restricts individuals from being adequately informed and unaccepting.

#### **Limitations of the study**

This survey used a non-random sample of one Technological Educational Institute in Greece. The high response rate could have been influenced by the knowledge, attitudes and behaviours of nursing students in that nursing school. Therefore the results of the present study could not be generalized to other groups of nursing students. Future studies could include a larger, randomised sample from a more geographically diverse nursing students

from other nursing schools around Greece.

#### **Conclusions**

Despite the acknowledged limitations the results of the present study have important implications for nursing in Greece. It is necessary for nursing schools to revise their nursing curricula to ensure that specific up to date information on HIV and AIDS is provided to nursing students. Accurate sources of HIV information are imperative to help future health care professionals prevent the spread of HIV. In addition nursing students need to be taught strategies involved in the prevention of HIV spread in the general population. Though participants of the present study displayed positive attitudes towards people with AIDS, more accurate knowledge on HIV contamination could demystify possible misunderstandings which lead to people with AIDS becoming stigmatised. The results of the present study also showed that student nurses are sexually active, with male nurses reporting multiple sexual partners, but do not always without practicing safe sex through use of condoms. Therefore, future research should include perceptions about the condom use and what factors relate to the consistent use of it during sexual

activities. Moreover, health care professionals involved with nursing students during their clinical allocation have to provide practice based education and examples in respect of the measures needs to be taken to protect health care professionals from HIV contagion.

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**ANNEX**

**Table 1.** Frequency distribution of demographic and personal variables

CHARACTERISTICS	N / %
<b>Sex:</b>	
Male	45 (16.1%)
female	234 (83.9%)
<b>Age:</b>	
18 years	37 (13.2%)
19 years	41 (14.7%)
20 years	48 (17.2%)
21 years	57 (20.4%)
22 years	36 (12.9%)
23 years – 37 years	39 (14.2%)
Unknown	21 (7.4%)
<b>Semester:</b>	
1 <sup>st</sup>	81 (29%)
3 <sup>rd</sup>	57 (20.4%)
4 <sup>th</sup>	47 (17%)
6 <sup>th</sup>	94 (33.6%)
<b>Personal status:</b>	
Permanent relationship	165 (59.1)
Casual relationships	28 (10%)
No relationship	86 (30.9%)
<b>Nationality:</b>	
Greek	262 (94.2%)
Albanian	7 (2.5%)
Cypriot	3 (1.1%)
Not stated	7 (2.2%)
<b>Health perception:</b>	
Poor	3 (1.1%)
Fair	19 (6.8%)
Good	93 (33.3)
Very good	119 (42.7%)
Excellent	45 (16.1%)
<b>Religion:</b>	
Christian	263 (94.3%)
Muslim	4 (1.4%)
None	8 (2.9%)
Other	4 (1.4%)
<b>Religiosity:</b>	
Not at all religious	20 (7.2%)
Fairly religious	82 (29.4%)
Religious	146 (52.3%)
Very religious	31 (11.1%)

Table 2. HIV/AIDS Knowledge and Attitudes (N=279)

INTERNATIONAL AIDS QUESTIONNAIRE-CHINESE VERSION	MEAN (SD)*	AGREE
<b>Transmission myths</b>	<b>27.59 (7.02)</b>	<b>Possible Range 7-35</b>
1. HIV can be spread through coughing and sneezing	4.40 (0.92)	7.6%
2. AIDS can be contracted through sharing cigarettes	4.05 (1.06)	12.6%
3. HIV/AIDS can be spread through hugging an infected person	4.71 (0.68)	1.8%
4. HIV can be transmitted through the air	4.67 (0.67)	2.6%
5. HIV can be spread through swimming pools	3.67 (1.10)	15.4%
6. HIV can be contracted through toilet seats	3.05 (1.29)	38%
7. Mosquitoes can transmit HIV	3.04 (1.30)	39.8%
<b>Facts</b>	<b>12.68 (3.19)</b>	<b>Possible range 3-15</b>
8. Condoms will decrease the risk of HIV transmission	4.53 (0.76)	95%
9. HIV can be transmitted from mother to baby	3.62 (1.63)	66%
10. HIV is spread through infected semen	5.53 (0.79)	91.4%
<b>Personal risk</b>	<b>10.49 (3.29)</b>	<b>Possible range 3-15</b>
11. Greeks are less susceptible to contracting AIDS than other nationalities	3.90 (1.03)	10.4%
12. AIDS only affects intravenous drug users, prostitutes, and homosexuals	4.23 (1.09)	10.8%
13. You can protect yourself against AIDS by being vaccinated for it	2.36 (1.17)	56.2%
<b>Attitudes</b>	<b>19.63 (4.93)</b>	<b>Possible range 5-25</b>
14. People with HIV should be kept out of school	4.22 (0.94)	7.9%
15. I would end my friendship if my friend had AIDS	4.14 (1.00)	5.8%
16. I am willing to do volunteer work with AIDS patients	2.81 (1.08)	43.7%
17. If a family member contracts HIV he/she should move out	4.49 (0.80)	3.2%
18. People with HIV should stay home or in hospital	3.97 (1.11)	15.5%
<b>TOTAL SCORE</b>	<b>70.39 (18.43)</b>	<b>18-90</b>

\*Standard Deviation

**Table 3. Sources of HIV Information and Sources of Communication**

SOURCES OF INFORMATION	EXTRACTION OF INFORMATION IN PERCENTAGES
Television	80.7%
Internet	60.0%
Primary School teacher	9.6%
High/lyceum school teacher	57.9%
Lecturer in Nursing School	52.9%
Newspapers/Magazines	64.6%
Friends	45.0%
Radio	19.3%
Family member	43.2%
Health professional	51.8%
Nursing Books	57.5%
<b>WITH WHOM TO DISCUSS HIV</b>	
Friend of the same sex	68.9%
Family member	62.9%
Friend of the opposite sex	55.4%
Girlfriend/boyfriend	75.7%
Schoolteacher	38.2%
Health Professional	77.5%
Online chat or e-mail with unknown person	13.2%
Husband/wife	48.9%

Table 4. HIV/AIDS related behaviours

<b>Sexual orientation</b> <i>Heterosexual</i> <i>Homosexual</i> <i>Bisexual</i>	<b>Male</b> n=43 (15.4%) n=2 (0.7%) -	<b>Female</b> n=220 (78.9%) n=1 (0.4%) n=2 (0.7%)
<b>Sexual experiences</b>  Not responded	<b>Yes / Male</b> n=44 (15.8%)  <b>No / Male</b> n=1 (0.4%) -	<b>Yes / Female</b> n= 181 (64.9%)  <b>No / Female</b> n=44 (15.8%) n=9 (3.1%)
<b>Types of sexual experiences</b> <i>Vaginal, anal, and oral</i> <i>Vaginal and oral, no anal</i> <i>Vaginal and masturbation</i> <i>Only masturbation</i> <i>None</i> <i>Not responded</i>	<b>Male</b> n=23 (8.2%) n=17 (6.1%) n=2 (0.7%) n=1 (0.4%) n=2 (0.8%) -	<b>Female</b> n=55 (19.7%) n=105 (37.6%) n=6 (2.2%) n=3 (1.1%) n=46 (16.5%) n=19 (6.7%)
<b>Numbers of sexual partners to date</b> <i>One</i> <i>Two or three</i> <i>Four or more</i> <i>Many partners</i> <i>Not responding</i>	<b>Male</b> n=3 (1.1%) n=10 (3.6%) n=23 (8.2%) n=8 (2.9%) n=1 (0.3%)	<b>Female</b> n= 67 (24%) n=74 (26.5%) n=48 (17.2%) n=15 (5.4%) n=30 (9.6%)
<b>Frequency of condom use during intercourse</b> <i>Every time</i> <i>Almost every time</i> <i>Sometimes</i> <i>Never</i> <i>Not responding</i>	<b>Male</b> n=18 (6.5%) n=16 (5.7%) n=7 (2.5%) n=4 (1.4%) -	<b>Female</b> n=68 (24.4%) n=62 (22.2%) n=59 (21.1%) n=16 (5.7%) n= 29 (10.5)
<b>Alcohol use</b> <i>Every day</i> <i>Sometimes</i> <i>Not at all</i> <i>Not responding</i>	<b>Male</b> n=1 (0.4%) n=35 (12.6%) n=9 (3.2%) -	<b>Female</b> n=3 (1.1%) n=147 (52.8%) n=81 (28.8%) n=3 (1.1%)
<b>Use of drugs</b> <i>Every day</i> <i>Sometimes</i> <i>Not at all</i> <i>Not responding</i>	<b>Male</b> n=1 (0.4%) n=9 (3.2%) n=35 (12.5%) -	<b>Female</b> n=3 (1.1%) n=8 (2.9%) n=220 (78.8%) n=3 (1.1%)

**Table 6.** Attitudinal questions about AIDS

AIDS ATTITUDINAL QUESTIONS	YES	%	NO	%
Is It shame for someone to have AIDS?	n=23	8.2%	n=256	91.8%
Are people with AIDS accepted by other individuals?	n= 17	6.1%	n=262	93.9%
Are you informed about the measures to take in order to care for AIDS patients?	n=187	67%	n= 92	33%
Have you been taught in your nursing training how to care for AIDS patients?	n= 65	23.3%	N=214	76.7%

**Fig. 1.** Willing to care for AIDS patients

