

Nursing students' attitudes on caring for people living with HIV/AIDS. A European Multicentre Study

Antonio Bonacaro¹, Theodora Stroumpouki², Areti Stavropoulou³, Carmela Triglia⁴, Emanuele Vizilio⁵, Dimitrios Papageorgiou⁶, Ivan Rubbi⁷

¹Department of Nursing, University of Suffolk, Ipswich, UK; ²Department of Nursing, Kingston University, London, UK;

³Department of Nursing, University of West Attica, Athens, Greece; ⁴Orthopedics Ward, Ferrara Hospital, Ferrara, Italy;

⁵Community Centre, Bologna Hospital, Bologna, Italy; ⁶ICU Follow Up Care Lab, University of West Attica, Athens, Greece;

⁷Department of Nursing, University of Bologna, Bologna, Italy

Abstract. *Background and aim:* Caring for people with HIV/AIDS is a challenging issue for nursing students, involving sometimes misconceptions due to different cultural, political and religious views. The aim of this project was to investigate nursing students' attitudes on caring for people with HIV/AIDS. *Methods:* A convenient sample of undergraduate nursing students enrolled in four European universities was recruited. Data were collected by administering the AIDS Attitude Scale (AAS). Statistical analysis included the ANOVA test, the t-test for independent variables, and the Kruskal-Wallis test with a confidence level $P < 0.05$. *Results:* The sample consisted of 594 students of which 162 (27.3%) were English, 246 (41.4%) Italian and 186 (31.3%) Greek. Study findings demonstrated that students' attitudes toward HIV/AIDS patients were relatively positive, although the majority of them indicated fear of contracting HIV through clinical practice. Nursing students' positive feelings for HIV/AIDS patients were also correlated with the strong willingness to take care of them. *Conclusions:* Despite being exposed to different teaching and learning experiences, a significant part of the participants believe that HIV/AIDS make nursing a high-risk profession. Furthermore, students' misconceptions are not limited to clinical practice areas as they expressed concerns in sending their children in a class along with a child affected by AIDS and/or in dining in a restaurant where a chef affected by AIDS works. Students are in general well-disposed towards this patients' population but there is still stigma associated with this condition. A new teaching and learning approach may help redefining students' attitudes and in limiting the negative impact of misconceptions on the quality of nursing care. Further investigation in this area would help in shading light on the reasons why students are still biased in approaching AIDS/HIV patients. The use of a qualitative approach based on semi-structured interviews and/or focus group would be recommended. (www.actabiomedica.it)

Key words: HIV/AIDS, AIDS Attitude Scale, nursing students, attitudes, nursing education.

Introduction

According to the Joint United Nations Program on HIV/AIDS (1), 37.6 million people were living with HIV at the end of 2020 and 35 million have died, since the beginning of the epidemic, 40 years ago (1). Most HIV infections have been reported in low- and middle-income countries, mainly in the African region (2). Despite the lower incidence of HIV in Europe,

Central Asia, and North America, estimated epidemiological data are still concerning since 3.8 million people are supposed to be infected (2). This is attributed to both the lack of diagnostic and treatment options and the incorrect information and implementation of preventive measures.

Caring for people living with HIV (PLWH) is a complex and constantly evolving issue. Risks to public health, stigma and consequent social discrimination

often lead these individuals to isolation (3;4). Health professionals have a crucial role in caring and preventing social isolation and stigmatization for PLWH. Their role as carers and advocates of patients requires specialization, understanding and empathetic attitudes for delivering targeted interventions and quality of care to PLWH (5).

While the attitudes of health professionals towards HIV-infected individuals have been studied in the past, research evidence regarding the attitudes of nursing students towards caring for PLWH is rather limited. Relevant literature indicates that nursing students although had sufficient knowledge on HIV infection, had a negative attitude towards caring for HIV individuals (6; 7) due to misconceptions about the ways that HIV/AIDS can be transmitted and the stigmatizing attitudes towards PLWH (8). Nursing students' negative attitudes may be perceived by PLWH and cause in them reduced medication compliance, lack of selfcare, depression, loss of concentration, inability to deal with their condition and engage fruitfully with the multidisciplinary team (8). Liu et al., (9) in their study conducted in the Pacific Islands, reported high levels of stigma and discrimination among nursing and medical students, regarding the care provided to PLWH.

In a relevant study conducted in Greece, nursing students reported high levels of fear regarding HIV transmission (3). However, these students appeared to have positive attitudes towards caring for PLWH, pointing out the need for additional education in order to overcome fear of contagion and negative feelings. Nursing students in Turkey have reported negative attitudes towards PLWH, which may lead to low quality of the care provided and nurses' reluctance to treat individuals with HIV in the hospital (10).

The study of Leyva-Moral et al. (11), described the attitudes of the university nursing faculty toward caring for PLWH from 30 Universities of North and South America, United Kingdom and Spain. It was found that attitudes of the nursing faculty toward caring for HIV individuals were slightly positive to slightly negative depending on the region and country. Lack of knowledge about HIV, religious beliefs and attitudes toward PLHIV influenced by culture were associated with prejudice, stereotype, and discrimination. Similarly, in the study of Pickles et al. (12) it was indicated that culture

is a key factor in shaping a positive or non-positive attitude towards HIV individuals. Suominen et al., (13), argued that Russian nursing students' attitudes were shaped according to the mode of HIV transmission, as students appeared to have negative attitudes towards HIV individuals infected through intravenous drug use or prostitution, while they had positive attitudes for those infected through blood transfusion. These fears, prejudices and misconceptions that can be found among nursing students from different regions of the world can influence their ability and willingness to provide quality and passionate care for PLWH (14; 12; 15). It can also affect the willingness of PLWH to be tested, treated and supported by consultancy services (16).

In the study of Atav et al. (17), that included nursing students from Turkey and United States, it was reported that American students were more aware and had a more positive attitude towards the care of PLWH than Turkish students. Akin et al. (18) argued that although nursing students in Turkey appeared to have insufficient knowledge regarding HIV and conveyed some concerns when dealing with those individuals, they generally held rather positive attitudes towards PLWH. Conversely, participants showed compassionate feelings towards those patients and genuinely liked helping them. In fact, Akansel et al. (19) found out that almost half of the participants considered their profession as a high-risk job, and they expressed negative emotions towards homosexuals as they believed they may increase the risk of spreading the infection in the society. This finding was considered as the cultural product of a male dominant society and the authors stressed that education plays the most important role in shaping attitudes and beliefs.

This agrees with the study conducted by Alan and Eşer (20) in Turkey, aimed to compare the attitudes of 1st and 4th year nursing students towards HIV/AIDS, which demonstrated that nursing students had a negative attitude towards caring for HIV individual, which was attributed to the lack of appropriate education in their undergraduate program. This was also reported by Ali, (7), who demonstrated the need for education in HIV disease management at an undergraduate level. In the same line, Ouzouni and Nakakis (21) who explored the knowledge, behaviors and attitudes about HIV/AIDS of nursing students in Greece, stated that

the participants who reported a willingness to care for PLWH were significantly more knowledgeable and held more positive attitudes towards these people. The authors stressed the need of re-structuring nursing curriculum programs to ensure that nursing students gain the necessary knowledge and appropriate attitudes about HIV and AIDS.

Since, relevant research evidence highlighted that nursing students' negative attitudes, perceptions and fears are associated with lack of knowledge, education about AIDS can develop positive attitudes towards provision of care and enhance positive interactions with PLHIV (22, 23, 25). Nurse educators have the professional duty to develop strategies that can reduce the negative attitudes, create self-awareness and disseminate prevention education in order to reduce personal and social risk to the larger community. Appropriate education may also reduce fear of contagion, stigma and discrimination and promote positive attitudes and behavioural change towards PLWH (25, 26).

It seems that there is a continuous growing interest in exploring the views and attitudes of health professionals and especially of nursing students regarding the provision of care to PLWH. As previously stated, relevant research which conducted in various countries demonstrated some interesting evidence regarding nursing students' attitudes within the HIV care context and offered suggestions for nursing curricula.

This research study designed to address the lack of knowledge and to enlighten areas of further consideration that can contribute to the development of scientific knowledge in the field of HIV care and education in the three European countries.

The results of this study may offer an increased knowledge about perceptions and attitudes of European nursing students caring for PLHIV and enable a compilation of knowledge base for the development of this aspect of nursing through education, thus enabling the student fit for practice as a qualified registrant.

Aim

The aim of this project was to investigate nursing students' attitudes on caring for people with HIV/AIDS. It focuses on the following areas:

- Nursing students' feelings and emotions about caring for people who live with HIV
- Nursing students' professional resistance and choices in relation to people living with HIV
- Significant differences on the incidence of stigma in the four observed academic institutions

Methods

A multicentre cross-sectional study was conducted in four European Higher Education (HE) institutions. The participating HE organisations were: Anglia Ruskin University (United Kingdom), Kingston University London (United Kingdom), University of Bologna (Italy), and University of West Attica (Greece). A convenient sample of undergraduate adult nursing students enrolled in all years of study were invited to participate by email.

Ethical considerations

Prior to responding anonymously to the AIDS Attitudes Scale (AAS) participants were asked to read a participant information sheet and sign an informed consent form (27). Each research team successfully applied for ethical approval in any university involved in the project.

The survey was administered online through Online surveys (formerly BOS) in the UK while in Italy and Greece students were provided with a form which they filled in after their planned sessions. Data collection took place in March 2021 in all universities.

Instruments

The AAS consists of 15 items, and it was validated in English by Froman et al. (28) and subsequently used by Akansel et al. (19) in similar study focusing on the effects of HIV/AIDS educational interventions on 1st year nursing students in Turkey.

Students were asked to indicate to what extent they agreed or disagreed with each of the items on a six-point Likert scale with endpoints labelled 'totally disagree' to 'totally agree' (10). Respondents answered 15 questions with a score from 1 to 6 (1 = totally disagree; 2 = mostly disagree; 3 = partially disagree; 4 = partially agree; 5 = mostly agree; 6 = completely agree)

in a time of 10 minutes. The 15 items are categorised in 3 subscales: fear of contagion, professional resistance and negative emotions. In the study conducted in Turkey, the Cronbach Alpha value for AAS was equal to 0.802.

For the data analysis, a personal database was created at the beginning of the questionnaire so that while the questionnaire remains anonymous, it is possible to have an identikit and subdivision of students by gender, age and year of course.

Data Analysis

Data were collated in a comprehensive excel spreadsheet and then subsequently analysed through SPSS 27. The T-test was performed on independent samples, the ANOVA test was used to estimate variation among groups, and for the variables with more than two factors the Kruskal-Wallis test was employed. Descriptive statistics were used, the mean and standard deviations of the key cardinal variables were calculated with a 95% confidence interval. Multiple comparisons were performed through the Tukey's HSD test (29). The categorical variables were sorted out through the contingency table, and the differences were identified through the Chi-squared test. The internal consistency of the AAS was checked through Cronbach's Alpha test and the sample size adequacy was determined through the Keizer Meyer Olkin (KMO) test (30).

Results

The sample consisted of 594 students of which 162 (27.3%) were English, 246 (41.4%) Italian and 186 (31.3%) Greek. The sample, with significant differences ($p < .0001$) is predominantly represented by 1st year English students with 51.2% ($n = 83$) and by the Italian ones with 39.8% ($n = 98$). The Greek sample is significantly represented by 3rd year students with 32.3% ($n = 60$) and 4th year ones with 52.2% ($n = 97$).

With regards to gender, women are the most represented with 85.4% ($n = 507$) compared to the male one with 14.6% ($n = 87$). The average age of the participants was 25.12 (SD = 8.02) years with a significant difference among the four universities ($P < .0001$).

England has the highest average age (32.29 ± 10.70), followed by Greece (23.45 ± 5.24) and Italy (21.66 ± 3.39). The age classes confirm the difference in the average age of the students of the four universities, 66.7% ($n = 108$) of the English students belong to the $25 \geq 25$ years age class while 21.0% ($n = 39$) of the Greek and 8.9% (22) of the Italian ones are comprised in this age class. The Italian students are significantly younger than others as 40.7% ($n = 100$) of them belong to the 18 - 20 age class and they are equally represented in the 21 - 22 age class (Table 1)

Cronbach's Alpha test showed a good consistency of the investigation tool items ($\alpha = .787$), while the Keizer - Mayer Olkin test proved a satisfactory sample size (KMO = .940), with a Bartlett's test result of $< .0001$.

The average scores of the nursing students for the AAS and total AAS subscales are highlighted in Table 2. The mean of the sum of the Likert scores, with respect to the ranges, shows a total AAS value of 43.3% [$(\sum \text{point Likert} / \text{maximum value of the range}) * 100$] with substantial significant differences. In fact, the parametric calculation shows an average of the sum of the Likert scores of 43.43 ± 8.76 for the Greek students, of 40.09 ± 9.78 for the Italians and 32.30 ± 10.63 for the English ones ($P < .0001$). The same subscales confirm the significantly higher values in Greek students, followed by the Italian ones ($P < .0001$). The multiple comparison through the post hoc Tukey coefficient showed a significant difference among all four universities ($P < .0001$). Considering the lowest value scored in England, this site recorded an MD = -7.787 in comparison to Italy and an MD = -11.128 with Greece. Italy also showed a statistical difference with Greece (MD = -3.341; $P = .001$).

In fear of contagion subscale, 72.0% of Italian sample believe that AIDS makes nursing a high-risk profession, compared to 32.1% of the British and 2.2% of the Greek ones ($P < .0001$). Despite knowing how the virus is transmitted, 52% of Italian students, 48.4% of Greeks and 37.7% of British are still afraid of getting infected ($P = .016$). In question 3, 15.8% of the participants stated that they would not want their children to share the same school with a child with AIDS, while in question 4 only 49.5% of the entire sample would be willing to eat in a restaurant knowing that the

Table 1. Students' demographics.

	UK	Italy	Greece	Total		
	n = 162	n = 246	n = 186	N = 594		
	n(%)				P	
Year of study					<,0001	
1st Year	83(51,2)	98(39,8)	29(15,6)	210(35,4)		
2nd Year	25(15,4)	77(31,3)	--	102(17,2)		
3rd Year	54(33,3)	71(28,9)	60(32,3)	185(31,1)		
Off-course	--	--	97(52,2)	97(16,3)		
Gender					<,0001	
Male	20(12,3)	38(15,4)	29(15,6)	87(14,6)		
Female	142(87,7)	208(84,6)	157(84,4)	507(85,4)		
Age class					<,0001	
18 - 20	31(19,1)	100(40,7)	27(14,5)	158(26,6)		
21 - 22	14(8,6)	100(40,7)	81(43,5)	195(32,8)		
23 - 24	9(5,6)	24(9,8)	39(21,0)	72(12,1)		
25 - ≥ 25	108(66,7)	22(8,9)	39(21,0)	169(28,5)		
	M±SD				F	P
Age	32,29±10,70	21,66±3,39	23,45±5,24	25,12±8,02	132,080	<,0001

chef is suffering from AIDS. Oppositely, in regard to question 5, 39.2% of Greek students against <20% of the English and of the Italian ones, believe that there is a direct relationship between the incidence of the infection and the time spent delivering nursing care to AIDS patients despite full compliance to infection control measures ($P = <, 0001$). Interestingly, moving to the following 2 sub-scales, there are significant differences among the 3 different sub-samples when it

comes to questions 6, 8, 9, 10, 11, 12, 13, 14 and 15 of the AAS. In fact, 30% of Italian and of the Greek students against the 5.6% of the English ones, would prefer to work with patients with a better prognosis rather than AIDS patients. Furthermore, 43.5% of the Greeks versus 26.8% of the Italians and 10.5% of English would not want to look after AIDS patients if they were given the chance. Students also expressed different ideas when they were asked if they would be willing

Table 2. Total AAS and subscales average scores.

	UK	Italy	Greece	Total		
	n = 162	n = 246	n = 186	N = 594		
Internal consistency	$\alpha = ,797$	$\alpha = ,749$	$\alpha = ,725$	$\alpha = ,787$		
Sample size	KMO = ,854	KMO = ,855	KMO = ,834	KMO = ,940		
Scores	M±SD				Range	F
Total AAS	32,30±10,63	40,09 ± 9,78	43,43±8,76	39,01±10,63	15 - 90	59,258
Contagion subscale	13,60±4,63	15,45 ± 3,66	15,83±3,60	15,06±4,030	5 - 30	15,921
Professional resistance subscale	10,77±5,35	15,43 ± 5,14	17,39±5,79	14,77±5,99	6 - 36	67,813
Negative emotions subscale	7,93±2,94	9,21 ± 3,16	10,22±2,05	9,185±2,93	4 - 24	28,779
						P
						<, 0001
						<, 0001
						<, 0001
						<, 0001

to be retrained and moved to another area rather than delivering nursing care to HIV/AIDS patients. 33.3% of Italians consider it useful versus 20.4% of Greeks and 6.8% of British. A significant trend is shown by 21.5% of the Greek sample versus <10% of the Italian and of the English respondents towards those categories of patients who are considered at higher risk for developing AIDS. Greek students more than others would not be willing to care for intravenous drug users and homosexuals. Moreover, in regard to question 15, 14.5% of the Greeks against an average of 7.7% in the remaining participants, stated of feeling angry in relation to the risk of AIDS that homosexuals bring to the heterosexual community. The negative emotion subscale findings revealed that, 13.4% of the Italians, 7.0% of the Greeks and 2.5% of the English students, sometimes find it difficult to be sympathetic to AIDS patients. In fact, 13.4% of Italians versus <5% of the

remaining participants, would feel resentful if the most significant part of their workload focused on AIDS patients. Nevertheless, 88.7% of the Greek respondents, 63.0% of the Italians and 51.9% of the English ones often have concerned and gentle feelings towards AIDS patients (Table 3)

Table 4 shows statistically significant differences among English and Greek students in the results of the AAS domains in relation to the year of the study. The AIDS Attitude Scale overall score and the subscales ones are significantly higher in 1st year English students. The multiple comparison has in fact highlighted differences between the 1st and 3rd year in the overall AAS score (MD = 7.002; P = <, 0001), in the contagion subscale (MD = 3.065; P = <, 0001), in the negative emotions subscale (MD = 1.709; P = .002) and, in the professional resistance ones (MD = 2.228; P = <.044). However, the post hoc test did not show

Table 3. AAS level of agreement.

	UK	Italy	Greece	Tot.	P
	% Agree				
Contagion subscale					
1. AIDS makes my job a high-risk occupation	32,1%	72,0%	2,2%	39,2%	<,0001**
2. Despite all I know about how AIDS is transmitted. I'm still afraid of catching it	37,7%	52,0%	48,4%	47,0%	,016*
3. I would not want my child to go to school with a child with AIDS	14,2%	17,9%	14,5%	15,8%	,510
4. I would be willing to eat in a restaurant where I know the chef has AIDS	51,2%	52,4%	44,1%	49,5%	,199
5. Even following strict infection control measure, it is likely that I would become infected with HIV, if I were working with AIDS patients over a long period of time	12,3%	17,1%	39,2%	22,7%	<,0001**
Professional resistance subscale					
6. I would rather work with a better class of people than AIDS patients	5,6%	30,1%	31,5%	23,7%	<,0001**
7. I would prefer to refer persons with AIDS to my professional colleagues	11,7%	10,2%	9,7%	10,4%	,809
8. Given a choice. I would prefer not to work with AIDS patients	10,5%	26,8%	43,5%	27,6%	<,0001**
9. I would consider changing my professional specialty/position if it became necessary to work with AIDS patients	6,8%	33,3%	20,4%	22,1%	<,0001**
10. It is best to train a few specialists who would be responsible for the treatment of AIDS patients	13,4%	69,5%	86,6%	63,3%	<,0001**
11. I don't want those at higher risk for AIDS such as IV drug users and homosexuals, as patients	4,9%	8,9%	21,5%	11,8%	<,0001
Negative emotions subscale					
12. I sometimes find it hard to be sympathetic to AIDS patients	2,5%	13,4%	7,0%	8,4%	<,0001
13. I would feel resentful of AIDS patients accounted for a significant part of my caseload	3,1%	13,4%	3,8%	36,5%	<,0001
14. I often have tender, concerned feelings for people with AIDS	51,9%	63,0%	88,7%	68,0%	<,0001
15. I feel angry about the risk of AIDS which homosexuals have imposed on the straight community	8,0%	7,3%	14,5%	9,8%	,030

Table 4. Comparison among demographic characteristics

Demographic characteristic	Total AAS	Contagion subscale	Negative emotions subscale	Professional resistance	Total AAS	Contagion subscale	Negative emotions subscale	Professional resistance	Total AAS	Contagion subscale	Negative emotions subscale	Professional resistance
	Mean ± SD				Mean ± SD				Mean ± SD			
Grade												
1	34,93±12,09	14,88±4,88	8,54±3,50	11,51±6,01	39,82±10,28	15,81±3,97	9,08±3,01	14,93±5,29	38,90±8,64	14,86±3,04	9,97±2,12	14,07±5,84
2	33,04±7,29	13,20±3,62	8,28±1,81	11,56±4,51	39,64±8,33	15,44±3,33	8,78±3,08	15,42±4,37				
3	27,93±7,91	11,81±4,05	6,83±2,01	9,28±4,28	40,96±10,59	14,95±3,54	9,85±3,40	16,15±5,67	45,02±8,99	16,35±3,52	10,15±2,01	18,52±5,69
4	--	--	--	--	--	--	--	--	43,80±8,29	15,79±3,76	10,33±2,07	17,68±5,52
	KW = 14,973 KW = 12,445 KW = 10,229 KW = 7,494 KW = ,665 KW = 2,199 KW = 4,813 KW = 1,800 KW = 9,674 KW = 4,713 KW = 1,335 KW = 12,200											
	Df = 2				Df = 2				Df = 2			
	P = ,001**				P = ,002**				P = ,024*			
	P = ,006**				P = ,707				P = ,090			
	P = ,008*				P = ,407				P = ,095			
	P = ,513				P = ,002**							
Age												
≤18 - 20	31,61±7,65	13,94±3,83	7,55±2,17	10,13±4,10	41,17±9,90	16,03±3,77	9,26±3,18	15,88±5,11	64,30±8,75	19,59±3,22	17,81±2,14	26,89±5,84
21 - 22	36,71±18,70	13,93±5,56	10,21±5,45	12,57±8,21	39,20±9,31	15,24±3,69	9,09±3,00	14,87±4,90	61,04±8,29	18,85±3,69	17,98±1,93	24,21±5,51
23 - 24	31,78±10,28	15,11±5,53	6,89±1,61	9,78±4,81	40,25±10,93	14,71±3,26	9,42±3,28	16,13±6,16	61,90±8,87	19,69±3,58	17,54±2,10	24,67±5,97
25 - ≥ 25	31,97±10,02	13,33±4,66	7,83±2,67	10,81±5,27	39,05±10,21	14,55±3,23	9,27±3,79	15,23±5,28	60,46±9,55	19,03±3,70	17,62±2,23	23,82±5,95
	F = ,887				F = ,778				F = ,804			
	F = ,512				F = ,765				F = ,092			
	F = ,675				P = ,515				P = ,964			
	P = ,016*				P = ,508				P = ,492			
	P = ,449				P = ,311				P = ,599			
	P = ,151											
Sex												
Female	32,43±10,85	13,53±4,52	8,04±3,03	10,87±5,48	39,80±9,27	15,42±3,53	9,05±2,93	15,32±5,02	61,90±8,81	19,03±3,48	17,92±2,06	24,96±5,78
Male	31,40±9,11	14,10±5,44	7,20±2,16	10,10±4,35	41,68±12,22	15,58±4,34	10,05±4,16	16,05±5,83	59,76±8,45	19,03±4,17	17,07±1,90	22,76±5,55
	t = -,404				t = -,598				t = 1,093			
	t = ,516				t = ,241				t = 1,799			
	P = ,237				P = ,551				P = ,275			
	P = ,607				P = ,810				P = ,073			
	P = ,687				P = ,422				P = ,218			
	P = ,060				P = ,041				P = ,060			

any difference between the 1st and 2nd year and between the 2nd and 3rd year. On the contrary, the Kruskal Wallis test proved alternative hypotheses in the AIDS Attitude Scale ($P = .008$) and in the professional resistance subscale ($P = .002$) in Greek students. In this case, 3rd year and 4th year show significant differences compared to 1st year ones. In fact, the Tukey's honestly significant difference (HSD) test scored an MD = 6,120 ($P = .005$) between 3rd and 1st year students and an MD = 4,908 ($P = .020$) between the 4th and 1st year ones in the total AAS. Similarly, in the professional resistance subscale results comparison, 1st year and 3rd year students' records show an MD = 4.448 ($P = .002$) and the 4th year ones an MD = 3.611 ($P = .008$).

In the Italian student's population, there are no statistically significant differences in relation to the results of the AAS domains compared to the year of the study, however 3rd year students show a more negative attitude (41.19 ± 10.03). In the fear of contagion subscale results, 1st year students scored highly (15.85 ± 3.78), while 3rd year ones expressed major concerns in the professional resistance (16.27 ± 5.50) and in the negative emotions subscales (9.88 ± 3.24). Parametric calculations did not show substantial statistical differences in regard to age classes and gender in the whole student population.

Discussion

The aim of this study was to investigate nursing students' attitudes towards patients affected by HIV/AIDS in three European countries. Nursing students in Italy, UK and Greece are exposed to significant teaching and learning experiences focusing on HIV/AIDS while attending both theoretical modules and clinical placement. As they represent the next generation of health care professionals, it is imperative for student nurses to develop an appropriate knowledge while they become more aware of their attitudes, values and fears in regard to PLWH. Participating in this study provided students with opportunities to self-reflect on their knowledge and abilities to deliver nursing care to this population and become more aware of any preconception that may negatively impact their professional performance.

The results of this study demonstrated that the attitudes of student nurses toward PLWH in these three European countries were relatively positive. Surprisingly, Italian nursing students are more concerned about the risk they are exposed to when they look after those patients. In fact, 72% of the Italian participants consider caring for HIV/AIDS patients as a high-risk occupation, while 32.1% of their British colleagues and only 2.2% of the Greek students expressed the view that HIV/AIDS makes their job a high-risk occupation. The low percentage of the Greek participants in this study is in contrast with the findings of another study conducted in Greece in 2011, which demonstrated that 40% of the Greek undergraduate nursing students were very afraid of providing care to people with HIV depending on factors, such as fear of contagion and appropriate education (3).

However, despite their knowledge about how AIDS is transmitted, all participants were still afraid of catching it. The findings of a relevant study which was conducted at a university in Istanbul and at a university in Upstate (New York), comparing Turkish and American undergraduate nursing students' attitudes toward individuals who live with HIV/AIDS, showed that the fear of contagion was the major factor in their negative attitudes toward PLWH, with the American students exhibiting greater fear than the Turkish participants (17). According to Nazik et al. (10) nurse students' negative attitudes appear to have been shaped by lack of knowledge, personal values, and perceived risk of contracting HIV/AIDS from patients. In the same vein, Lui et al., (9) stated that although medical and nursing students appeared to have high levels of HIV knowledge and positive attitude towards HIV patients, they demonstrated negative attitudes and unacceptable practices probably due to fear. Most of the students however, seemed that they were not much concerned of being contaminated outside of their working place, in terms of social life and daily activities. Previous research though has indicated that contact with patients during clinical practice may increase the fear of contagion among students, impeding thus the levels of disease tolerance (31).

The scores for the professional resistance subscale were impressively low, indicating positive attitudes towards the care of people living with HIV/AIDS as well as their intention to remain in the profession. Although

the scores related to their preferences for training specialists and referring HIV/AIDS patients were higher than the other scores in this subscale, it could not be considered as reluctance to caring for AIDS patients, since the score indicating their resistance to caring for HIV/AIDS patients was very low. Similar studies support the above statement by discussing the importance of systematic education, the involvement of training specialist and the development of highly skilled professionals in HIV care (3, 7, 10, 17, 20). Leyva-Moral et al., (11), demonstrated mainly positive attitudes to the care of HIV individuals among nursing students and faculty although some fears and misconceptions mainly concerning fear of infection and beliefs about transmission routes were indicated. Similarly, in the study of Álvarez-Serrano et al (32), nurse students' attitudes toward people with HIV/AIDS were relatively positive and appear to be improved following the first academic year. Although, research evidence demonstrates that nurse students generally have positive attitudes towards caring for HIV individual, culture, strong religious beliefs, strong ideological charge, and knowledge deficiencies about HIV may cause some negative attitudes that knowledge and experiences are not enough to modify (32).

The scores for the third subscale, which is related to the negative emotions towards homosexuals and HIV/AIDS patients, demonstrated that students in all researched sites had positive and tender feelings and attitudes for people with AIDS. These tender and concerned feelings are in alignment with the professional values of a future registered nurse and well highlighted in previous studies (12, 32, 33). Only few of them felt resentful of AIDS patients or angry about the risk of AIDS which homosexuals have imposed on the straight community. In this study, nursing students' positive emotions are also correlated with the low scores of the professional resistance subscale, that strongly indicates their willingness to take care of people living with HIV/AIDS. These positive attitudes may be further enhanced if nursing curricula improved, and nurse teachers feel more confident to discuss sensitive issues related to HIV/AIDS (34).

The need of systematic education and training related to HIV context was underscored in various studies aiming at assessing nurse students' attitudes towards

caring for HIV individuals (3, 9-11, 7, 23, 22, 25). Therefore, it was very well emphasised that the need for education regarding all aspects of HIV care should be included in nursing curricula for reducing students' fears and increase their willingness to provide care to people living with HIV (35; 36; 13). Education reflecting the needs of the learners and exposure students to clinical care of HIV patients are recommended as part of a curriculum that emphasize on the vulnerability of HIV people and their protection (10, 9). Specific training on HIV in nursing that can eliminate knowledge deficits and experiential learning is also recommended (35, 11). Such training may reduce the fear of being infected, stigma and discrimination and achieve behavioural and attitudinal change towards HIV/AIDS individuals (7, 25, 26). Emphasis was also placed upon peer education that might help in improving students' knowledge and attitudes in societies with divergent profiles, even in those where discussing issues of HIV/AIDS is considered a taboo (23). Mashallahi et al., (24) state that providing appropriate education and training for nurses can have positive outcomes in terms of nurse and patients' satisfaction. Improving nurses' attitudes, emotions and self-confidence through education may lead to provision of high-quality care for people living with HIV.

Conclusions

The aim of this study was to investigate nursing students' attitudes towards patients affected by HIV/AIDS in four European universities.

All students, no matter which sub-sample they belonged to, were exposed to different learning and teaching experiences focusing on the care of HIV/AIDS patients.

Nevertheless, the majority of the Italian participants still consider nursing as a high-risk profession because of this condition.

Furthermore, students seemed to be relatively biased towards patients affected by HIV/AIDS in out of hospital situations as highlighted above; examples may range from not wanting to send their children in a class along with a child affected by AIDS and/or avoiding a restaurant where a chef affected by the same condition works.

Additionally, almost 40% of the Greek population

thought that there is a clear cause-effect between the time spent in caring for HIV/AIDS patients and the incidence of the infection.

According to our findings, in particular Greek respondents, proved to be more reluctant in caring for intravenous drug users and homosexuals. However, this trend needs to be explored more in depth as it contradicts with students' willingness to have concerned and gentle feelings towards HIV/AIDS.

Despite students are in general well-disposed towards this patients' population there is still stigma associated with this condition. A new multidisciplinary teaching and learning approach may help redefining students' beliefs and attitudes in this area and in limiting the negative impact of misconceptions on the quality of nursing care.

Some limitations may have had a negative impact on findings generalisability. Firstly, the sample consisted predominantly of female nursing students (85.4%) and therefore, the study results are limited with regard to male nursing students' attitudes and perceptions on caring for PLWH. Secondly, the employed convenient sample, and the non-representation of 2nd year Greek students may have had a negative impact on findings generalisability.

Moreover, knowledge, attitudes, and feelings were investigated by distributing a cross-sectional survey that might have been subject to different interpretations due to respondents' cultural and/or training differences.

Furthermore, the use of a self-administered questionnaire for Greece and Italy may result in participants responding to what they believe is a desirable image. However, this potential bias was minimised through the anonymous data collection and statistical analysis.

Therefore, despite these limitations, this study has important implications for nursing practise, education, and research. The results highlighted positive attitudes and beliefs among nursing students towards PLWH in accordance with professional core values and ethos.

Further investigation in this area would help in shading light on the reasons why students are still biased in approaching HIV/AIDS patients. The use of a qualitative approach based on semi-structured interviews and/or focus group would be recommended.

Conflict of interest: Each author declares that he or she has no commercial associations (e.g. consultancies, stock ownership, eq-

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Correspondence:

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Antonio Bonacaro PhD, RN, MSc

School of Health and Sports Sciences

University of Suffolk, Waterfront Building

19 Neptune Quay, Ipswich IP4 1QJ, United Kingdom

Phone: +44(0)7548723301

E-mail: a.bonacaro@uos.ac.uk