

ORIGINAL PAPER**Effects of Planned HIV/AIDS Education on Attitudes towards AIDS in Beginning Level Nursing Students****Neriman Akansel, PhD, RN**

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Correspondence: Neriman Akansel, PhD, RN, Uludag University School of Health Department of Nursing 16059 Gorukle Campus, Bursa, e-mail:nakansel@uludag.edu.tr**Abstract****Purpose:** The aim of this study is to describe nursing students' knowledge and attitudes towards people with AIDS and determine effects of planned education on perceptions of students towards AIDS.**Sample:** The sample of this study consisted of first year undergraduate nursing students (n=88). Data were collected using a questionnaire; related to socio demographic variables, sources of knowledge about HIV/ AIDS and the ways of AIDS transmission, willingness of students to provide care for patients with AIDS. Attitude Scale (AAS) was used to determine attitudes of students towards AIDS.**Results:** Close to half of the students believed that taking care of AIDS patients makes their job high risk occupation and they also feel angry to homosexuals because they increase the risk of AIDS. Getting infected is one of the biggest fears of nursing students while caring AIDS patients (67%). Although introduction of education did not change nursing students' intentions to give care for AIDS patients, statistical differences were found on students' level of knowledge about AIDS after education ($p < 0.001$).**Conclusion and implications** Findings of this study have strong implications in methods used for AIDS education and need for special and detailed education program on AIDS.**Keywords:** Nursing students, attitude, education, AIDS**Introduction**

HIV infection and AIDS (HIV/AIDS) have emerged as one of the most serious public health problems in the world. HIV/AIDS is responsible for the 1 % of deaths that occur all around the world. It is known that 42 million people got infected with HIV and 27 million people died because of AIDS during the last 20 years. It is expected that deaths from AIDS will reach to 100 million in the next 25 years if effective prevention methods are not used (Çilingiroğlu,

2003). The number of HIV cases increased rapidly since the first AIDS case detected in Turkey in 1985. According to Turkish Health Statistics Bureau, only two cases were documented in the year of 1985. From 1985 to 2005, a total of 2254 cases were reported in Turkey (588 AIDS patients, 1666 HIV infected patients). This number increased to 3175 patients (682 AIDS patients and 2493 HIV infected patients) by the year of June 2008 in (Turkey Turkish Health Statistics Bureau, 2006 and 2009). This tremendous increase in HIV /AIDS patients

shows that the infection spreads silently. Also it comes to the question that these statistics may not show the real number of the patients infected with this deadly disease. It has been reported that ninety percent (90 %) of the HIV infected people live in underdeveloped or developing countries. For this reason Turkey is considered as a country at risk (Cetin, 1993). While numbers of AIDS patients increase tremendously, willingness to give care and treatment to patients with HIV/AIDS is an important personal and professional requirement for health professionals who work with patients with this syndrome (McCann, 1997). It is a well documented fact that knowledge about and attitudes towards AIDS are two crucial factors determining individual experiences with AIDS (Robb et al., 1991; Owens, 1992). In the nursing profession, as well as in other health care professions, there is an ongoing interest in identifying the experiences, attitudes and opinions of the patients and health care professionals (Priest et al., 1995). Numerous studies pointed out that health professionals and health care students have negative feeling towards HIV/AIDS (Halpern et al., 1993; Held, 1993; Horsman & Sheeran, 1995). Nursing students express varying emphatic and avoidance attitudes towards HIV infected patients depending on cause of HIV transmission, many of them have feelings of work related stress and high level of anxiety when caring for those patients (All & Sullivan, 1997; Bruce & Reid 1998; Figarotto et al., 1991; Steward, 1999).

While increase in HIV/AIDS cases all over the world, brings up an importance of education in health care professionals. Since several studies reported that nursing students' feelings of fear are associated with lack of knowledge, improving knowledge about AIDS through education is an important issue Figarotto et al., 1991).

The purposes of this study were:

1. To determine knowledge and willingness of students to care for AIDS patients.
2. To ascertain attitudes of undergraduate nursing students towards AIDS.
3. To determine if planned HIV/AIDS education will help to change attitudes of students towards AIDS.

Methods

Design, sample and procedures

The sample of this study consisted of first year undergraduate nursing students who enrolled in nursing program located in northwestern region of Turkey, Bursa. Study was carried out during

September- October 2007. Instruments that were used for data collection were;

1. Questionnaire about socio demographic variables, sources of knowledge about HIV/AIDS and the ways of AIDS transmission, VAS (0-10) Visual Analog Scale was used to determine willingness of students to provide care for patients with AIDS.

2. AIDS Attitudes Scale (AAS) to determine attitudes of nursing students' towards AIDS.

AAS is a 15 item instrument developed for medical and nursing students by Bliwise et. al (1991). Content validity of this instrument was .86 and test reliability was measured as $r = .92$. Level of validity and reliability of the Turkish adaptation of the original AAS was done by Çimen et al. (2005) and found as satisfactorily high. Test re-test reliability was measured as $r = .82$, content validity of this instrument was measured as high as .86.

The AAS yields a total score as well as three subscale scores. AAS scores range 15-90; fear of contagion 5-30; negative feelings 4-24; professional resistance 6-36. High scores indicate negative attitudes towards people with AIDS. Students were asked to indicate the extend to which they agreed or disagreed with each item on a six point Likert scale with end points that were labeled strongly agree and strongly disagree. Second and eighth items were scored backwards.

Ethical Considerations

The approval for the study was obtained from the ethics committee of Uludag University School of Health, Department of Nursing. Also both verbal and written approvals were obtained from nursing students who participated in this study. Nursing students who volunteered to participate in to this study were included only. They received both written and verbal explanation about this study and their privacy also was respected.

Data Collection Procedure

Data were collected in classroom environment and filling out the questionnaires took about 15 minutes for each student. Students names were not sought in this study instead we preferred using aliases to match the questionnaires used (pre-post test) for this study.

Nursing students were asked to complete both a questionnaire prepared for this study and also AAS right before introduction of HIV/AIDS education. Education was given to students by one of the researchers about HIV/AIDS (worldwide prevalence of HIV/AIDS, description

of HIV/AIDS, the ways of HIV transmission and prevention, clinical diagnosis of HIV) by using power point presentation method which lasted two hours. Students were encouraged to ask questions about HIV/AIDS after the education was completed.

Four weeks after the introduction of HIV/AIDS education, nursing students were asked to complete the same questionnaire and AAS. All of the first year nursing students (n=120) were included in this study. After data collection procedure was completed, 88 questionnaires matched pre test questionnaires. Response rate was calculated as 73%.

Statistical Analysis

Data obtained from this study were evaluated using SPSS for windows version (Statistical Package for Social Sciences 11.5 version). Demographic variables of students were given by numbers and percentages. Correlations were used to compare total scores and subscale items. T-test was used to compare differences of students answers related to AIDS before and after education.

Results

Socio demographic characteristics of the nursing students

The study consisted of 88 first year nursing students who enrolled in nursing program. The ages of the nursing students were ranged between 17-24 years (19 ± 1.35). The great majority of the students were females (62.5 %). Almost all of the students were single (98.9 %). Sources of gaining AIDS information were TV and radio (69.3%), newspapers/ journals (50%).

Nursing students' definitions of AIDS, knowledge and intentions to care AIDS patients

Nursing students' definitions of AIDS were given in Table 1. Before the introduction of the AIDS education program; students described AIDS as an immune system (21.6%) and sexually transmitted disease (18.2%). While 9.1% of the students used a description of "*deadly disease*" for AIDS some of the students (11.4 %) were not able to define AIDS. After the education, nursing students who were not able to define AIDS dropped to 2.3%.

Before the introduction of AIDS education most of the students (83 %) reported their knowledge as inadequate. Statistical differences were found on students' level of knowledge about AIDS ($p < 0.001$).

The students' biggest fear when taking care of the patients with AIDS is, getting infected (67%). Both before (20.5 %) and after the AIDS education (23.9 %) only small percentage of nursing students reported no fear when taking care of patients with AIDS. Nursing students' intentions to give to AIDS patients were questioned by using VAS (0-10). Students' intentions to give care for AIDS patients were 3.9 ± 2.6 before the education this score slightly rose up to 4.2 ± 2.4 after the education was completed. However, no statistical differences were found on students' intentions to give care to AIDS patients after introduction education ($p > 0.05$).

Nursing students' perceptions of the ways AIDS transmission

Before the introduction of AIDS education, most of the students knew that AIDS can be transmitted by unprotected sex (97.7 %) and blood transfusions (94.3%). Majority of the students didn't have knowledge about that AIDS can be transmitted during manicure and pedicure (62.5%), tattooing (64.8%) and breast feeding (87.5%). These percentages slightly increased after introduction of AIDS education (Table 2). Introduction of AIDS education affected students' knowledge of HIV transmission. Statistically significant differences were found before and after the education on nursing students' knowledge that HIV could transmit during delivery ($p < 0.001$) and via breast feeding ($p < 0.001$).

Nursing Students' agreement with items in AAS

Close to half of the students reported "*Taking care of HIV/AIDS patients makes their job high risk occupation*" both before (44.3%, n=39) and after the education (40.9%, n=36). Homosexuals are seen as a high risk for AIDS in the community. Despite their knowledge about how AIDS is transmitted students still afraid of catching AIDS. Both before and after the education some of the students (35.2 %, n=31) would not prefer to work with AIDS patients if they were given chance. Percentages of nursing students in agreement with items in the AIDS attitude scale were given in Table 3.

Statistical differences were found both on AIDS attitudes scale scores ($t=2.13$, $p < 0.05$) and Contagion subscale scores ($t=3.916$, $p < 0.001$) obtained by nursing students in this study (Table 4).

Table 1. The findings on some of the features of the students in relation to HIV/AIDS

	Before the introduction of the HIV/AIDS education		After the introduction of the HIV/AIDS education	
	n	%	n	%
Undergraduate nursing students' definition of AIDS				
No answer	10	11,4	2	2,3
A disease that transmits with blood	12	13,6	10	11,4
A disease which is transmits via sexual contact	16	18,2	5	5,7
A disease which transmits both with blood and sexual contact	11	12,5	21	23,9
A disease which transmits both with air and blood	1	1,1	-	-
Immune system disease	19	21,6	28	31,8
A disease caused by virus	11	12,5	16	18,2
A deadly disease	8	9,1	6	6,8
Undergraduate nursing students' biggest fears while caring HIV/AIDS infected patients				
No fear	18	20,5	21	23,9
Fear of getting infected	59	67,0	59	67,0
Fear of not being able to give appropriate care to patients with HIV/AIDS	9	10,2	5	5,7
Fear of loosing the patient	1	1,1	2	2,3
Fear of being unsuccessful when taking care of HIV/AIDS patients	1	1,1	1	1,1
Undergraduate nursing students' level of AIDS Knowledge				
Adequate	15	17	52	59,1
Inadequate	73	83	36	40,9
Total	88	100	88	100
$t=7.598, df=87, p<0.000$				
Willingness to give nursing care to patients with HIV/AIDS				
	X±SD		X±SD	
	3,9±2,6		4,2±2,4	
$t=-1.163, df=87, p>0.05$				

Table 2. Nursing students' perceptions about the ways AIDS transmission before and after the education

The ways for transmission of AIDS	Before-education				After-education				Probability
	Agree		Disagree		Agree		Disagree		
	n	%	n	%	n	%	n	%	
Unprotected sexual intercourse (True)	86	97,7	2	2,3	88	100	-	-	t=-1.422 df=87, p>0.05
Blood transfusion (True)	83	94,3	5	5,7	88	100	-	-	t=-2,289 df=87, p<0.05
Sharing needles with someone who has HIV among drug users (True)	81	92	7	8	85	96,6	3	3,4	t=-1,269,df=87, p>0.05
During pedicure and manicure (True)	33	37,5	55	62,5	27	30,7	61	69,3	t=1.422, df=87, p>0.05
During tattooing (True)	31	35,2	57	64,8	36	40,9	52	59,1	t=-1,092 df=87, p>0.05
During delivery from mother to child (True)	51	58,0	37	42,0	73	83	15	17	t=-4,097, df=87, p<0.000
With breast feeding from HIV infected mother to child (True)	11	12,5	77	87,5	38	43,2	50	56,8	t=-5,194, df=87, p<0.000
Sharing plates, forks or glasses with someone who has HIV(False)	5	5,7	83	94,3	2	2,3	86	97,3	t=1.752, df=87,p>0.05
Sharing toothbrush with someone who has HIV/AIDS (True)	22	25	66	75	20	22,7	68	77,3	t=0.489, df=87, p>0.05
Sharing shaving razors with someone who has HIV/AIDS (True)	53	60,2	35	39,8	65	73,9	23	26,1	t=-2.417, df=87, p<0.05
Using public restrooms (False)	6	6,8	82	93,2	3	3,4	85	96,6	t=1.136, df=87, p>0.05
Social contact (eg. shaking hands, touching or kissing on the cheek with someone who has HIV/AIDS) (False)	2	2,3	86	97,7	3	3,4	85	96,6	T=-0.445, df=87,p>0.05

Table 3. Percentages of nursing students in agreement with items from the AIDS attitude scale

Items	Pre-education				Post-education				Total	
	Agree n	Disagree %	Agree n	Disagree %	Agree n	Disagree %	Agree n	Disagree %	n	%
Contagion Subscale										
1. I would not want my child to go to school with a child with AIDS.	31	35.2	57	64.8	12	13.6	76	86.4	88	100
2. I would be willing to eat in a restaurant where I know the chef has AIDS.	62	70.5	26	29.5	52	59.1	36	40.9	88	100
3. AIDS makes my job a high risk occupation.	39	44.3	49	55.7	36	40.9	52	59.1	88	100
4. Despite all I know about how AIDS is transmitted, I'm still afraid of catching it.	55	62.5	33	37.5	52	59.1	36	40.9	88	100
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 time.	33	37.5	55	62.5	16	18.2	72	81.8	88	100
Negative Emotions Subscale										
6. I would feel resentful if AIDS patients accounted for a significant part of my caseload.	29	33.0	59	67.0	23	26.1	65	73.9	88	100
7. I feel angry about the risk of AIDS which homosexuals have imposed on the straight community.	61	69.3	27	30.3	53	60.2	35	39.8	88	100
8. I often have tender, concerned feelings for people with AIDS	52	59.1	36	40.9	47	53.4	41	46.6	88	100
9. I sometimes find it hard to be sympathetic to AIDS patient.	34	38.6	54	61.4	29	33.0	59	67.0	88	100
Professional Resistance Subscale										
10. Given a choice, I would prefer not to work with AIDS patients.	31	35.2	57	64.8	31	35.2	57	64.8	88	100
11. It is best to train a few specialists who would be responsible for the treatment of AIDS patients.	22	25.0	66	75.0	25	28.4	63	71.6	88	100
12. I would prefer to refer persons with AIDS to my Professional colleagues.	9	10.2	79	89.8	8	9.1	80	90.9	88	100
13. I would consider changing my professional specialty/position if it became necessary to work with AIDS patients	16	18.2	72	81.8	12	13.6	76	86.4	88	100
14. I would rather work with a better class of people than AIDS patients.	20	22.7	68	77.3	9	10.2	79	89.8	88	100
15. I don't want those at higher risk for AIDS such as IV drug users and homosexuals, as patients.	29	33.0	59	67.0	30	34.1	58	59.1	88	100

Table 4. Comparison of nursing students' scores obtained from AAS before and after the education.

Scale and Subscales	AIDS Attitude Scale Scores		Analyses Results	
	Pre-education X±SD	Post-education X±SD	t p	
AIDS Attitude Scale	46,2±13,1	43,4±12,2	2,13 ,036*	
Subscales	Contagion Subscale	17,8±5,4	15,6±5,3	3,916 ,000**
	Negative Emotion Subscale	13,7±5,0	13,3±4,0	0,728 ,469
	Professional Resistance Subscale	14,5±6,4	14,4±5,9	0,262 ,794

*p<0.05 **p<0.001

Discussion

AIDS is an important public health problem because of the complex, emotional, behavioral and psychosocial complications that accompany the physical illness. The only way to combat this disease is by prevention and through education. Half of our students reported gaining knowledge about HIV/AIDS from courses taken during high school education. However the results obtained before the HIV /AIDS education shows that education given during high school were not sufficient to shape students attitudes towards HIV /AIDS. Most of the nursing students reported TV, radio and printed materials as a source of their AIDS knowledge. This result is similar to studies done on this subject where associate degree nursing students and medical students mostly reported their source of knowledge about HIV /AIDS was TV and media (Elbaş & Şenol ,1998; Ekuklu et al., 2004; Ekuklu& Tokuc,2009). Similar results were also found in Serlo & Aavarianne's (1999) study where they found most information concerning HIV/AIDS had been gained from TV and newspapers. Results of these different studies show the role of the media in health education but it is important to know that there might be either some false or incomplete information in education programs

given in media. It is expected to see nursing students showing books, relevant literature and up to date printed materials as a source of their knowledge. Not knowing these risks, brings up the importance to focus on education of nursing students. In our study some of the students have insufficient knowledge about AIDS and the ways of transmitting the virus (before education: 83%; after education: 40.9%).

This result is similar to some other studies related to this topic. Studies done on nursing and medical students; only small percentage of students reported their knowledge as adequate (Elbaş& Şenol, 1998; Ekuklu et al., 2004). Similarly working nurses (78.6%) and physicians (61.3%) also reported their knowledge about HIV/AIDS as inadequate (Zencir et al., 1998). While blood transfusions and sexual intercourse are the most known ways for HIV/AIDS transmission, tattoing, breast feeding and during delivery are the lees known ways. According to study of Elbaş & Şenol (1998), nursing students reported that blood transfusion (97.2%), sexual contact (97.2%), sharing needles (92.1%) are reported as common ways for HIV/AIDS transmission. In this study even their numbers are few, before the introduction of AIDS education, some of the students did not know that AIDS could be transmitted by blood /blood products

(5.7 %) or by sexual intercourse (2.3 %). After introduction of the AIDS education all of the students reported that AIDS can be transmitted both through sexual contact and by blood/ blood products. Most of the students (87.5%) did not have knowledge about that HIV could be transmitted through breast milk and during delivery (before education). This result is similar to one study done on medical students, where it was reported that students have insufficient knowledge about breast milk as a way of HIV/AIDS transmission (Ekuklu et al., 2004; Ekuklu & Tokuc, 2009). Although introduction of AIDS education increased students' knowledge regarding transmission of AIDS (eg. breast milk, during delivery of child) having insufficient knowledge about AIDS can affect willingness to give nursing care to patients with AIDS. In some studies, correlation between knowledge and attitudes was found to be statistically significant. Having been asked to care for patients with HIV/AIDS before was associated with higher level of willingness to care for these patients (Lohrmann et al. 2000; Uwakwe, 2000; Azaiza & Ben -Ari, 2002; Peate et al., 2002; Suominen et al., 2009). Clinical experience and better knowledge are associated with more positive attitudes and diminish personal concerns about treating AIDS patients (Tesch et al., 1990; Figarotto et al., 1991).

There is a common belief expressed in other studies that health care professionals should have the right to choose whether to provide care and treatment, and that care and treatment must be provided voluntarily. On the other hand, in these studies when it came to questions about providing or withholding care and treatment, only a small minority actually refused to provide care and treatment (Kerr & Horrocks, 1990; Lewis & Montgomery, 1992; Røndahl et al., 2003). Røndahl et al. (2003) reported 26 % of the students would consider refraining from caring for HIV infected patients, while another study showed that working nurses (19.3 %) would consider leaving the job because of contracting HIV/AIDS (Juan et al., 2004). Isolating AIDS patients are considered as another solution by some of the health care workers (nurses and physicians) (Zencir et al. 1998). One of the recent studies done on this topic showed that despite nurses' higher knowledge related HIV, 77.3% of the participants reported that they avoid therapeutic contact with blood borne infected patients (Kagan et al., 2009). Results of our study also showed similar results to those studies

done previously. Only a small percentage of students reported no fear when taking care of patients with AIDS both before (20.5 %) and after the education (23.9 %). Close to half of the students reported "*Taking care of HIV/AIDS patients makes their job high risk occupation*". These results showed that even planned education did not affect students' willingness to take care of the HIV infected patients. However a study done by Uwakwe (2000) reported that introduction of planned education slightly increased nurses' intentions to work with AIDS patients if they were given a choice. Also the majority of the students approved the idea of "*Educating limited number of the specialists who would only treat AIDS patients*". Ethically all of the health care professionals and nurses are expected to take care of all kinds of patients without any discrimination. While the average scores indicating the fear of getting infected is significantly high among other indicators no differences were found between the scores of negative feelings and professional resistance in our study. It is important to teach nursing students the ways of protecting themselves while working with these patients, improve their knowledge about AIDS.

In Turkey when first HIV case was detected, the most common way of getting HIV, reported as homosexual risk behavior by media. However the number of heterosexual infections has increased (52%), and only a few (3%) have become infected from blood products. Over all 31% of the HIV/AIDS cases still remain as unknown causes (Çilingiroğlu, 2003). This study also identified that the students did not want to treat the people having high risk of being AIDS such as IV drug users and homosexuals and they were against homosexuals because they increase the AIDS risk in the society.

Research findings show that most of the negative attitudes for homosexuality can be explained by the cultural effects of the surrounding society. When the effect of the culture on the attitudes towards homosexuality is analyzed, it is seen that negative judgments are widespread in male dominant societies and social prejudices against the disease are wide spread. However it has been reported that there is a need to be nonjudgmental and willing to accept differences in homosexuals and who inject drugs. These experiences help reduce the distinction between self and patients from marginalized group (McCann, 1997). There is a need for some educational programs based on schools in order to reduce social prejudices

especially young people in Turkey. The basic aim of these programs must be gaining dynamism to the young people about protection from the disease by stressing that there is no risk of getting infected as a result of daily social activities. According to one research findings, changing attitudes and behaviors towards AIDS patients is hard even after education Toker & Küçükyılmaz, 2001). However statistically significant differences were found between AAS scores of the students before and after the HIV/AIDS education. Because it hard to change attitudes completely at once, it is clear that all students who enroll in health education and especially nursing students who provide patient care should receive adequate education on AIDS. A theoretically perfect knowledge should create positive changes on attitudes and behaviors of students. However increase in theoretical knowledge is not sufficient without any practice. The students should be educated to apply realistic knowledge they gained in their professional life. This study showed that first year nursing students needed a special and detailed education program on HIV /AIDS. It is also clear that the nation wide struggle against HIV /AIDS may be negatively affected if these students who will provide health education to society and health care in the future are not educated properly. The students who do not have sufficient knowledge will not able to present proper attitudes towards HIV/AIDS. The lack of knowledge on the side of nursing students on HIV/AIDS will cause them to underestimate the importance of the problem and to present negative attitudes towards the people who have the disease. Increasing knowledge level which is supported by proper attitudes and behaviors will strengthen the practices in the future in terms of public health.

Study Limitations

Even though the findings cannot be generalized because of the small sample size, this study showed that planned education can increase nursing students' knowledge about HIV/AIDS.

Conclusion

AIDS has emerged as one of the most serious public health problems in world. Intensive, interactive HIV/AIDS professional educations can contribute to the national educational effort by increasing knowledge and improving attitudes

towards and willingness to provide nursing care for patients with HIV/AIDS.

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References

- All C& Sullivan L.(1997). The effects of an HIV/AIDS educational program on the anxiety levels of the students. *Journal of Advanced Nursing*, 26, 798-803.
- Azaiza F & Ben –Ari AT. (2002). Knowledge and attitudes towards AIDS: A comparison between Arab and Jewish professionals living in Israel. *International Journal of Social Welfare*,11, 311-339.
- Bliwise NG, Grade M, Irish TM & Ficarotto TJ. (1991). Measuring medical and nursing students attitudes about AIDS. *Health Psychology*,10,289-295.
- Bruce KE & Reid BC.(1998). Assessing the construct validity of the AIDS attitudes scale. *AIDS Education Prevention*, 10, 75-89.
- Çetin E.(1993). [HIV /AIDS in Turkey, on December 1993]. *AIDS Savaşım Bülteni*. 8(3),5. (in Turkish)
- Çilingiroğlu N. (2003). [HIV/AIDS and Economy: one step forward, two steps backwards]. *Türk HIV/AIDS Dergisi (Turkish HIV/AIDS Journal)*, 6(3), 79-85. (in Turkish).
- Çimen B, Bahar Z, Öztürk C & Bektaş M.(2005). [Content and construct validity of the AIDS attitudes scale]. *Zonguldak Sağlık Yüksekokulu Sağlık Eğitim Araştırma Dergisi*, 1(1), 1-11. (in Turkish).
- Ekuklu G, Eskiocak M, Tuğrul H, Gül H & Saltık A.(2004). [Knowledge and attitudes of medical students studying in Trakya University and change of it since 1996].*Türk HIV/AIDS Tıp Dergisi*, 11-16. (in Turkish).
- Ekuklu G, Tokuc B. (2009). [Trakya üniversitesi Tıp Fakültesi Knowledge on and Attitudes toward HIV/AIDS Among Medical Students of the Trakya University Medical Faculty]. *Türkiye Klinikleri J Med Sci*, 29(6),1598-604
- Elbaş NÖ, Şenol S.(1998). [Knowledge level of Vocational Health School Students' regarding HIV/AIDS] *Journal of HIV/AIDS*, 1(2),74-80. (in Turkish).
- Figarotto TJ, Grade M & Zegans LS. (1991). Occupational and personal risk estimates for HIV contagion among incoming graduate nursing students. *J Assoc Nurses AIDS Care*, 2, 5-11.
- Halpern C, Rodrigue JR, Boggs SR & Greene AF. (1993). Attitudes towards individuals with HIV: a comparison of medical staff, nurses and students. *AIDS Patient Care*,7, 275- 279.
- Held SL.(1993). The effects of health education program on knowledge and attitudes of physical therapy class. *Physical Therapy*, 73 (3), 156-164.
- Horsman JM & Sheeran P.(1995). Health care workers and HIV/AIDS: a critical review of the literature. *Social Science Med*, 41(11),1535-1567.
- Juan CW, MiBiol RS, Wu FS, Wu CJ, Chang YJ, Chao C.(2004). The attitudes, concerns, gloving practices and knowledge levels of nurses in a Taiwanese hospital regarding AIDS and HIV. *International Journal of Nursing Practice*. 10, 32-38.
- Kagan I, Ovidia KL, Kanetti T.(2009). Perceived knowledge of blood borne pathogens and avoidance of contact with infected patients. *Journal of Nursing Scholarship*, 41(1), 13.

- Kerr C & Horrocks M. (1990). Knowledge, values, attitudes and behavioral intent of Nova Scotia nurses towards AIDS and patients with AIDS. *Canadian Journal of Public Health*, 81,125-128.
- Lewis J & Montgomery K. (1992). Primary care physicians' refusal to care for patients infected with the human immunodeficiency virus. *Western Journal of Medicine*, 156 (1), 36-38.
- Lohrmann C, Valimaki M, Suominen T, Muinonen U, Dassen T & Peate I. (2000). German nursing students' knowledge of and attitudes to HIV and AIDS: two decades after first AIDS cases. *Journal of Advanced Nursing*, 31(3),696-703.
- McCann T. (1997). Willingness to provide care and treatment for patients with HIV/AIDS. *Journal of Advanced Nursing*, 25, 1033-1039.
- Owens S.(1992). Comfort and willingness of social work students to provide services to AIDS patients. *Journal of Teaching in Social Work*, 6(2),99-113
- Peate I, Suominen T, Valimaki M,Lohrmann C & Muinonen U.(2002). HIV/AIDS and its impact on student nurses. *Nurse Education Today*, 22: 492-501.
- Priest J, McColl E, Thomas L, Bond S.(1995). Developing and refining a new measurement tool. *Nurse Researcher*, 2(4), 449-465.
- Robb H, Beltran ED, Katz D & Foxman B. (1991). Socio-demographic factors associated with AIDS knowledge in a random sample of University students. *Public Health Nursing*, 8, 113-118.
- Röndahl G, Innala S & Carlsson M. (2003). Nursing staff and nursing students' attitudes towards HIV infected and homosexual HIV infected patients in Sweden and the wish to refrain from nursing. *Journal of Advanced Nursing*, 41(5), 454-461.
- Serlo KL & Aavarianne H.(1999). Attitudes of university students towards HIV/AIDS. *Journal of Advanced Nursing*, 29(2), 463-470.
- Steward D.(1999). The attitudes and attributions of student nurses: do they alter according to persons' diagnosis or sexuality and what is the effect of nurse training? *Journal of Advanced Nursing*, 30, 740-748.
- Suominen T, Koponen N, Staniuliene V, Istomina N, Aro I, Kisper-Hint IR, Vanska M, Valimaki M. (2009). Nursing Students' attitudes towards HIV/AIDS patients in Finland, Estonia and Lithuania. *Scandinavian Journal of Caring Sciences*, 23, 282-289.
- Tesch BJ, Simpson DE & Kirby BD. (1990). Medical and nursing students' attitudes about AIDS issues. *Academy Med*, 65, 467-469.
- Toker OS, Küçükyılmaz Ü. (2001). [Evaluation of HIV / AIDS Knowledge Level of the Students of Ege University Ödemiş Health School Before and After Education]. *Ege Tıp Dergisi*, 40(2), 91-97. (in Turkish). Turkish Health Statistics Bureau, available at www.saglik.gov.tr, October 2006, October 2009.
- Uwakwe CBU. (2000).Systematized HIV/AIDS education for student nurses at the University of Ibadan, Nigeria: impact of knowledge, attitudes and compliance with universal precautions. *Journal of Advanced Nursing*, 32(2), 416-424.
- Zencir G, Zencir M, Orhan N & Yalçın AN. (1998). [Determination of AIDS knowledge and attitudes in nurses and physicians working in Pamukkale University Medical Hospital]. *AIDS Dergisi*, 6(10), 22. (in Turkish)