Journal of High Institute of Public Health 2020;50(2):80-86.

Original Article

Knowledge and Attitude of Nursing Students about HIV/AIDS in Sohag, Egypt

Rasha A. Ali ¥

Department of Public Health and Community Medicine, Faculty of Medicine, Sohag University, Egypt

Abstract

Background: Egypt is reported to have the fastest growing epidemic of HIV in the Middle East and North Africa Region. Nurses who play a crucial role in delivering health care to persons with HIV/AIDS should be equipped with adequate knowledge about HIV/AIDS, in order to have sense of comfort to enable positive attitude towards such patients.
Objective(s): The aim of this study was to assess knowledge and attitude regarding HIV/AIDS among nursing students in Sohag University.
Methods: Across-sectional study was conducted among 324 randomly selected students of Faculty of Nursing, Sohag University, Egypt during the academic year 2019/2020. A self-administered questionnaire was used for collecting data about socio-demographic characteristics, HIV/AIDS knowledge and attitude of the study participants.
Results: Most of the participants (78.4%)had a good overall knowledge about HIV/AIDS. However, some misconceptions were found as only 12.7% of them knew that HIV/AIDS cannot be prevented by vaccine. About 19% of the respondents mentioned that HIV cannot be transmitted by using toothbrushes. Less than one third were aware that HIV cannot be transmitted by either mosquito bites or by using swimming pools or toilets with infected persons and that persons may be symptoms free for more than 10 years. Concerning attitude, more than half of the students (52.6%) had negative attitude towards HIV/AIDS patients. On conducting logistic regression analysis, male sex and residing in urban areas were significant predictors of good knowledge and positive attitude towards HIV/AIDS, respectively. Information about HIV/AIDs was gained from TV (60.6%) followed by internet (45%), university curriculum (27%), friends (22%) and family (18%)
Conclusion: The studied nursing students had moderately good general knowledge about HIV, but several misconceptions were prevalent among them. However, more than half of them exhibited negative attitude towards HIV/AIDS indicating urgent need for training programs to improve their knowledge and change their attitude towards persons with HIV/AIDS.

Keywords: Attitude, HIV/AIDS, knowledge, nursing students

Available on line at:
jhiphalexu.journals.ekb.eg

Print ISSN: 2357-060
Online ISSN: 2357-061X

¥*Correspondence*:
Email: Rashaali8155@gmail.com

Suggested Citations: Ali RA. Knowledge and attitude of nursing students about HIV/AIDS in Sohag, Egypt. JHIPH. 2020;50(2):80-86.

INTRODUCTION

Since the beginning of its epidemic in 1981, more than 70 million people had been infected with HIV. It was estimated that about 37.9 million people were living with HIV till the end of 2018.[1] Egypt is classified as having low epidemic level of HIV with a prevalence rate less than 0.1%.[2] The estimated number of people living with HIV in Egypt till the end of 2016, is considered relatively low (11,000). However, Egypt is reported to have the fastest growing epidemic in the Middle East and North Africa Region (MENA) by a 76% increase in number of cases between 2010 and 2016.[2,3] More than 62% of HIV infected persons receive antiretroviral therapy.[4] This means that HIV/AIDS is becoming a chronic disease, so, more health care providers especially nurses will encounter HIV-infected individuals throughout their work. In addition, weakness in adherence to infection control protocols in most developing countries pose great risk of HIV infection of the nurses during their daily work.[5]

Nurses play a significant role in the prevention, care, and support of HIV infected patients. Higher levels of knowledge about HIV/AIDS positively influence the nurses' level of self-protection, their level of comfort and are conducive to more positive attitudes towards persons with HIV/AIDS.[6]

Several studies identified discriminating attitude of nurses towards HIV/ AIDS patients.[7-9] Stigmatizing attitudes from healthcare workers against such patients had been reported to be responsible for decreased medication adherence, decreased retention in care, and increased the number of new HIV infections.[10,11]

The current study aimed at assessing the knowledge and attitude regarding HIV/AIDS among students of the Faculty of Nursing, Sohag University, Egypt.

METHODS

A cross-sectional study was conducted in the Faculty of Nursing, Sohag University during the academic year 2019/2020.The sample size was calculated by Epi-Info program based on the following assumptions: Expected percentage of poor knowledge regarding HIV= 30 ± 5%%[12], and 95% confidence level. It was found that the minimum required sample size was 323.

The studied students were selected by a stratified random sampling technique. Students were divided into four strata representing the four grades. From each grade, one or two classes were selected randomly from a list that contained all classes in each grade, based on proportion of the number of students in this grade to the total number of students in the faculty.

A self-administered structured questionnaire that was prepared by the researcher was used for data collection. The questionnaire consisted of three parts. The first part included questions about the socio-demographic characteristics of the students, such as age, sex, type of pre-university education (whether secondary school or nursing institute), residence, maternal and paternal education.

The second part was the HIV/AIDS knowledge questionnaire, which included 35 questions. The first section included 14 questions that tested general knowledge about HIV/ AIDS, while the second section contained 14 questions which tested different routes of transmission of HIV and the third section consisted of 7 questions that tested methods of control and prevention of HIV infection. For each question of the questionnaire participants were instructed to choose one of three answers (yes, no and I do not know). Regarding scoring of the knowledge part, 1 point was given for each correct answer and 0 points for wrong answer or I do not know answer. Scores of each response were then added to obtain a final score ranging between 0–35. Participants whose overall knowledge score was 17 or below were considered as having poor knowledge, while score of 18 or more was considered as good knowledge.

The third part was for assessment of attitude. The AIDS Attitude Scale (AAS) developed by Froman and Owen (1997)[13] was used. It consisted of 10 items designed to assess students' personal attitudes and beliefs towards persons with HIV/ AIDS. Nursing students were asked to identify the degree to which they agreed with each item on a 5-point Likert scale, ranging from 1 (strongly disagree) to 5 (strongly agree). Scores of all responses were added and the mean score was calculated, it ranged between 1–5 and a mean score of 3 or above was considered a positive attitude.

Statistical analysis

The statistical analysis was carried out using SPSS software for Windows (version 22.0). Descriptive statistics was presented as frequencies, percentages, mean and standard deviation. Predictors of HIV/AIDS knowledge and attitude were determined by logistic regression analysis. Statistical difference was considered when p-value was less than 0.05.

Ethical considerations

The current study complied with the International Guidelines for Research Ethics and the principles of Helsinki declaration. The approval for conducting this study was obtained from the Scientific Research Ethics Committee of the Faculty of Medicine, Sohag University. In addition, a written informed consent was obtained from each participant after explaining the purpose of the study to all the participants ensuring confidentiality and anonymity of all the collected data.

RESULTS

Table 1 illustrates the socio-demographic data of the study participants. The age of the studied nursing students ranged between 17 and 26 years (Ẍ ± SD= 20.3 ± 1.3 years).The students were nearly equally distributed between the four grades of the Faculty of Nursing. About two thirds of the study participants were females (64.5%), 78.4% of the students had secondary school pre-university education compared to 21.6% of them who studied in nursing institutes. There was a larger proportion of rural students (65.4%), and 36.4% of the students' father had university education compared to 32.1% of the students' mothers.

Table 1: Socio-demographic characteristics of the studied nursing students in Sohag University, Egypt

Socio-demographic characteristic	Nursing students (n=324)
	No. (%)
Grade	
1st	72 (22.2)
2nd	80 (24.7)
3rd	94 (29.0)
4th	78 (24.1)
Sex	
Male	115 (35.5)
Female	209 (64.5)
Pre-university education	
Secondary school	254 (78.4)
Nursing Institute	70 (21.6)
Residence	
Urban	112 (34.6)
Rural	212 (65.4)
Father's education	
Illiterate	34 (10.5)
Basic education	91 (28.1)
Secondary school	81 (25.0)
University	118 (36.4)
Mother's education	
Illiterate	97 (29.9)
Basic education	70 (21.6)
Secondary school	82 (25.3)
University	75 (23.1)

Figure 1 shows the distribution of nursing students according to their knowledge and attitude regarding HIV/AIDS. Most (78.4%) of the studied subjects had good

overall knowledge about HIV/ AIDS, while 52.6% had a negative attitude towards HIV/AIDS.

As regards knowledge about HIV/AIDS, the overall mean knowledge score was 20.5 ± 5.3 points with a minimum of 5 and a maximum of 30 points. The mean score for knowledge regarding modes of transmission was 8.1 ± 2.73 out of 14 points with a minimum of 1 and a maximum of 13 points (data not shown).

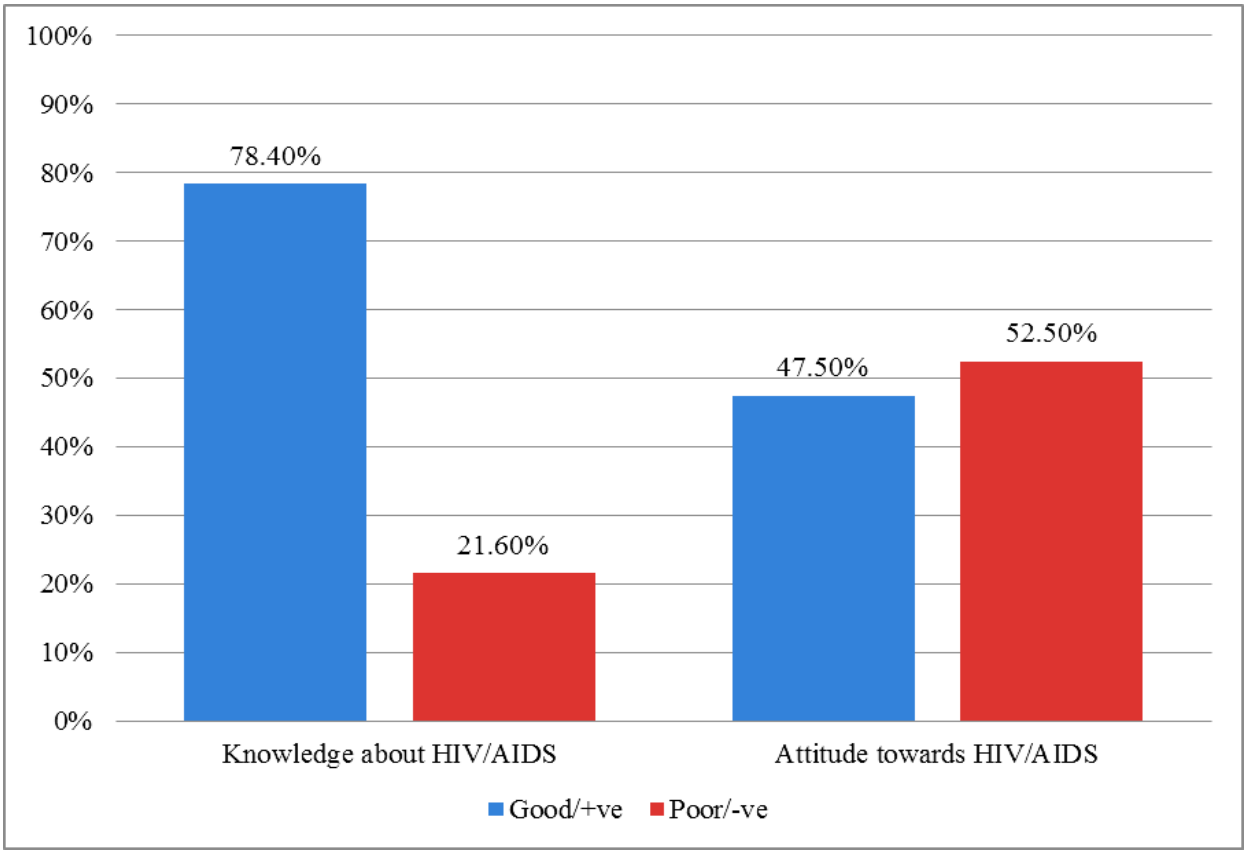

Figure 1: Distribution of the studied nursing students according to their HIV/AIDS knowledge and attitude scores

Frequency and percentage distribution of the correct answers of the nursing students concerning questions on HIV/AIDS are displayed in table 2. Most of the respondents (83.3%) knew that AIDS is an infectious disease, that it is caused by a virus that attacks the immune system(82.4%) and that HIV/AIDS increases body susceptibility to other infections (81.8%). As regards routes of transmission, the vast majority of the respondents were aware that HIV can be transmitted by receiving contaminated blood, by having unprotected sex with an infected person and by sharing needles with infected persons (83.3%, 80.2% and 81.4%, respectively). However, some misconceptions were found as only 10.5% of the studied subjects were aware that persons with HIV/AIDS do not always look ill or tired and 12.7% of them knew that HIV/AIDS cannot be prevented by vaccine. Less than one fifth of the respondents (18.8%) mentioned that HIV cannot be transmitted by using toothbrushes. Only less than one third of respondents were aware that HIV cannot be transmitted by either mosquito bites or by sharing swimming pools or toilets with infected persons and that persons may be symptoms free for more than 10 years (28.7%, 27.8% and 29%, respectively). Data about the response of participants on the different questions of AIDS attitude scale are displayed in table 3. The responses of the studied nursing students reflected negative attitude towards people with HIV/AIDS, as many of the respondents strongly agreed (36.4%) or just agreed (22.7%) that people with HIV/AIDS only have themselves to blame. Most of them strongly agreed (46.3%) or just agreed (35.8%) that persons with HIV/AIDS should be kept in separate rooms on hospital admission. Most of them either strongly agreed (37.7%) or just agreed (39.8%) that they should worry about putting their family and friends at risk of contracting the disease when caring for a person with HIV/AIDS. Also the majority of the respondents strongly agreed (32.7%) or just agreed (42.6%) that healthcare workers are worried about getting the infection from caring for a person with HIV/AIDS in their work environment.

Table 2: Distribution of the studied nursing students according to their correct responses on the HIV/AIDS knowledge questionnaire

Knowledge item	Nursing students (n= 324)	
	No.	(%)
AIDS means acquired immune deficiency syndrome.	273	84.3
AIDS is caused by HIV infection.	239	73.8
AIDS is a genetic disease or can be hereditary.	158	57.1
AIDS is an infectious disease.	270	83.3
AIDS is caused by a virus that attacks the immune system.	267	82.4
AIDS is not present in Egypt.	243	75
AIDS is sexually transmitted disease.	248	76.5
AIDS only affects gay people.	230	71
When one has HIV/AIDS, his/her body becomes more susceptible to other infections.	265	81.8
AIDS affects people who leave an immoral life.	207	63.9
AIDS is not curable but treatment exists to improve quality of life.	200	61.7
AIDS is the most devastating disease in the century.	209	64.5
A person who is infected with HIV may not have AIDS symptoms for 10 or more years.	94	29
An HIV infected person always looks tired and ill.	35	10.5
HIV can be transmitted through receiving infected blood.	270	83.3
HIV can be transmitted through having sex with anybody without using condom.	260	80.2
Using needles or syringe for a patient with AIDS cause the infection.	264	81.4
HIV/AIDS can be transmitted to another person by the use of personal items such as a toothbrush.	61	18.8
HIV/AIDS can be transmitted by shaking hands.	220	67.9
HIV/AIDS can be transmitted by mosquito bite.	93	28.7
HIV/AIDS can be transmitted by eating with infected persons.	186	57.4
A person can be infected with HIV by swimming in the same pool or using the same toilet as an HIV infected person.	90	27.8
Ear-piercing with non-sterile instruments can pose a risk for HIV infection.	181	55.9
HIV can be transmitted through using dentist tools.	233	71.9
HIV can be transmitted through using contaminated razor blades.	240	74.1
HIV can be transmitted through smoking or snorting.	176	54.3
HIV can be transmitted from woman with HIV to her baby during pregnancy, labour.	210	64.8
HIV can be transmitted from woman with HIV to her baby during breast feeding.	110	33.9
It is possible to prevent AIDS by using sterilized syringe every time.	287	88.6
It is possible to prevent AIDS by vaccination.	41	12.7
Using condom would protect from HIV infection.	244	75.3
It is possible to prevent AIDS by not smoking cigarettes.	123	38
It is possible to prevent AIDS by not eating food sold in the street.	120	37
Using combined oral contraceptives would protect from HIV infection.	168	51.9
The most effective way to avoid HIV is to abstain from unprotected sexual intercourse and Having sex only with your faithful partner.	248	76.5
Mean knowledge score ± SD	**20.5 ± 0.3**	

SD, standard deviation

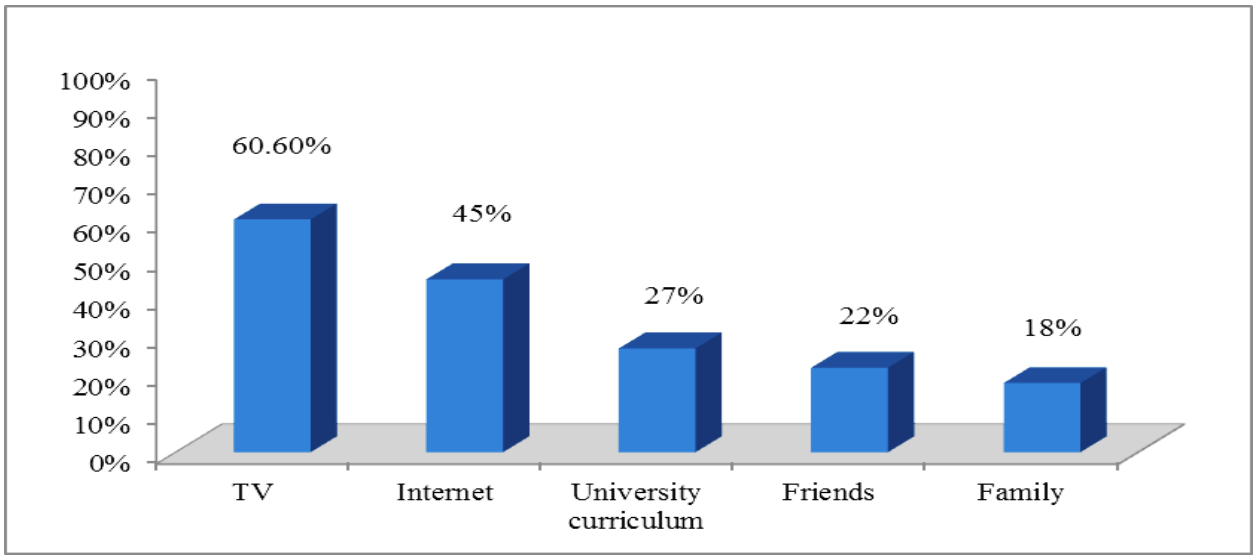

Figure 2: Sources of knowledge for HIV/AIDS among the studied nursing students in Sohag University, Egypt

On the other hand, most participants strongly agreed or just agreed that patients with HIV/AIDS have the right to the same quality of care as any other patients (47.2% and 28.1%, respectively), the importance of working with them in a caring manner (62.3% and 25.6%, respectively) and that patients with HIV/AIDS should be treated with the same respect as any other patient (59.6% and 28.7%, respectively). The majority of the respondents strongly agreed (34.3%) or just agreed (49.1%) on having sympathy with HIV misery. However, nearly equal percentage generally agreed (41.6%) and disagreed (40.5%) regarding keeping confidentiality, even if it puts other people at risk of contracting the disease.

Table 3: Distribution of the studied nursing students according to their responses on attitude questionnaire

HIV/ AIDS attitude items	Nursing students (n= 324)				
	Strongly disagree	Disagree	Neither	Agree	Strongly agree
	No. (%)	No. (%)	No. (%)	No. (%)	No. (%)
Most people with HIV/AIDS only have themselves to blame.	9 (2.8)	33 (10.2)	84 (25.9)	80 (22.7)	118 (36.4)
When admitted to hospital, patients who are HIV-positive should not be put in rooms with other patients.	3 (0.9)	20 (6.3)	35 (10.8)	116 (35.8)	150 (46.3)
When caring for a person with HIV/AIDS, you need to worry about putting your family and friends at risk of contracting the disease.	6 (1.9)	29 (9.0)	38 (11.7)	129 (39.8)	122 (37.7)
Patients with HIV/AIDS have the right to the same quality of care as any other patient.	13 (4.0)	25 (7.7)	42 (13.0)	91 (28.1)	153 (47.2)
It is especially important to work with patients with HIV/AIDS in a caring manner.	5 (1.5)	6 (1.9)	28 (8.6)	83 (25.6)	202 (62.3)
Patients with HIV/AIDS should be treated with the same respect as any other patient.	1 (0.3)	7 (2.2)	30 (9.3)	93 (28.7)	193 (59.6)
Healthcare workers are worried about getting HIV/AIDS from caring for a person with HIV/AIDS in their work environment.	13 (4.0)	30 (9.3)	37 (11.4)	138 (42.6)	106 (32.7)
Health care workers are sympathetic towards the misery that people with HIV/AIDS experience.	9 (2.8)	11 (3.4)	34 (10.5)	159 (49.1)	111 (34.3)
Nurses have little sympathy for people who get HIV/AIDS from sexual promiscuity.	18 (6.5)	50 (15.4)	88 (27.2)	92 (28.4)	76 (23.5)
All patients with HIV/AIDS are entitled to confidentiality, even if it puts other people at risk of contracting the disease.	62 (19.1)	76 (23.5)	55 (17.0)	53 (16.4)	78 (24.1)
AIDS attitude score (mean ± SD)	**3.06 ± 0.3**				

Male sex was a significant predictor of good knowledge about HIV/AIDS and urban residence was a significant predictor of positive attitude towards HIV/AIDS. No significant association was found between knowledge and attitude of the studied students towards HIV/AIDS. Sources of knowledge for HIV/AIDS among nursing students are displayed in figure 2. Information about HIV/AIDs was gained from TV (60.6%), followed by the internet (45%), university curricula (27%) and friends (22%). Family represented the least frequent source of knowledge among the studied participants (18%) (Table 4).

Table 4: Predictors of good knowledge and positive attitude towards HIV/AIDS among nursing students of Sohag University, Egypt

Predictor	OR (95% C.I.)	*p* value
Good Knowledge		
Grade	1.371(0.77- 0.2.42)	0.2
Sex	2.24 (1.09- 4.62)	0.001*
Pre-university education	1.79(0.98- 3.26)	0.05
Residence	0.8 (0.46- 1.38)	0.4
Father's education	0.84 (0.41- 1.72)	0.6
Mother's education	1.78 (0.85- 3.7)	0.1
Positive Attitude		
Grade	1.19 (0.62- 2.27)	0.5
Sex	0.85 (0.53- 1.34)	0.4
Pre university education	1.23 (0.72- 2.09)	0.4
Residence	0.53 (0.33- 0.84)	0.008*
Father's education	0.76 (0.42- 1.35)	0.3
Mother's education	0.93 (0.5- 1.71)	0.3
knowledge	1.06 (0.82- 1.8)	0.8

* Significant (p <0.05)
OR, odds ration; C.I., confidence interval

DISCUSSION

Undergraduate nursing students should be equipped with sufficient knowledge about HIV/AIDS in order to develop well trained nursing staff strictly adherent to the infection control measures and at the same time compassionate towards these patients. Many previous studies assessed nursing students' knowledge and attitude towards HIV/AIDS in many developing and developed countries.[7-10] In Egypt, as far as we know, only one study was conducted by Taher et al., assessed knowledge and attitude of the nursing satff of Kasr El Aini Teaching Hospital and of the first grade Nursing Institute students regarding HIV.[14]

The current results demonstrated that the nursing students exhibited good overall knowledge about HIV/AIDS. The overall mean knowledge score was 20.5 ± 5.3 points, and most of the respondent (78.4%) had good level of knowledge. These results were comparable to results found by Taher et al.,[14] Akin et al., in Turkey[15] and Souminen et al., in three Baltic Sea countries.[16] In respect to general knowledge of the nature of HIV/AIDS, only 10% of the participants were aware that persons with HIV/AIDS do not always look ill or tired. This finding was lower than what reported by Wong et al., in Malaysia and Ayranci in Turkey, who reported that 28.7% and 39.2% of the studied nursing students thought that persons with HIV/AIDS could be recognized by appearance.[17,18] This fact necessitates the development of educational interventions that correct such misconception before graduation and patients contact. Otherwise, students will be at high risk of getting the infection form apparently healthy patients.

Previous literature[15,19,20] supported our findings that the majority of the participants (more than 80%) were aware that HIV/AIDS can be transmitted by using infected syringes, blood transfusion and sexual intercourse. On the other hand, these results were lower that what was reported by Suominen et al.,[21] and Mahesh and Vaishali[22], as more than 90% of the participants knew the correct modes of HIV transmission.

In contrast to previous studies,[19,21,22] the present study participants had many misconceptions regarding the modes of HIV/AIDS transmission. Such misconceptions were also found among Assiut University students,[12] among Turkish nursing students[15] and among students at Yemen health institutes.[23] Our results were better than those of the study conducted by Goel at al.,[24] who reported that only 1.1 % and 2.1% of the nursing students were aware of the fact that HIV could not spread by urine and mosquito bites, respectively. The above observation needs attention from Faculty of Nursing authorities regarding the necessity of providing full knowledge to the nursing students.

We found that 52.6% of the nursing students had negative attitude towards persons with HIV/AIDS. Negative attitude of nurses towards HIV/AIDS had been reported in many studies. Hassan and Wahsheh, found that the Jordanian nurses expressed overwhelming fear of patients who tested positive for HIV/AIDS, and the majority refused to provide care to them.[25] Moreover, Taher et al.,[14] and Ayranci[18] reported the presence of negative attitude among nurses towards HIV/AIDS patients despite having good knowledge about the disease. Furthermore, Al-Rabeei et al., reported that students at Yemen health institutes stated that HIV-infected persons needed to be punished (65.5%) and isolated (41.0%). However, 86.8% were willing to care for an HIV-infected person.[23] This confusion between having negative attitude towards persons with HIV/AIDS and admitting their rights of receiving good quality of care was also observed in the current results.

The present study showed that male sex was a predictor of good knowledge about HIV/AID, which was in agreement with Akin et al.[15]

In line with Akin et al.,[15] HIV/AIDS attitude scores were not significantly associated with age, sex, grade, paternal and maternal education although those living in urban areas were found to have more positive attitude towards HIV/AIDS than those living in rural areas.

No significant association was found between knowledge and attitude of the studied students regarding HIV/AIDS. These results were in accordance with those reported by Akin et al.,[15] and Maharashtra and Vaishali.[22] This means that the knowledge and attitude of nursing students are built independently and emphasizes focusing attention of the Faculty authorities on building better nurse to patients relationships that is based on developing confident skillful nurse that can deal and cope with HIV patients. Today variant sources for knowledge about HIV/AIDS are available, so every person can easily access such knowledge. Observations of the present study were supported by results of many studies in Egypt and other countries.[12,14,18,25] These studies revealed that television and the internet were the main sources of knowledge about HIV/AIDS. On the other hand, Akin et al.,[15] found that Turkish nursing students listed school courses, magazines and the internet as the most common sources of information about HIV/AIDS. TV has always played prominent effect in raising awareness of various health issues, including HIV, hence these findings are not surprising but indicate the urgent need to incorporate more HIV related information in nursing students curricula to reduce misconceptions

CONCLUSION AND RECOMMENDATIONS

The current study revealed that nursing students had moderately good level of knowledge about HIV/AIDS, but they still had many misconceptions, especially regarding the modes of transmission of the disease. Moreover, more than half of them had negative attitude towards persons with HIV/ AIDS. TV was the source of information for about 60% of the studied nursing students, internet for 45%, while university curriculum was only for 27% of them. That necessitates presence of an educational curriculum focusing on routes of transmission and how to

reduce the risk of infection and capable to achieve behavioral and attitudinal change towards HIV/AIDS patients.

CONFLICT OF INTEREST

The authors have no conflict of interest to declare.

FUNDING

No funding sources

REFERENCES

1. UNAIDS [internet]. 2019: UNAIDS data. Fact Sheet. Global HIV Statistics, December 2019. Available from: http://www.unaids.org/sites/default/files/media
2. UNICEF [internet]. Children and AIDS: Statistical update, December 2017. Available from: http://www.childrenandaids.org.
3. World Health Organization [internet]. Data and statistics. HIV Country profile, Egypt, 2018. Available from: http://www.who.int/hiv/data.2018.
4. Petersen Z, Myers B, Hout MC, Plüddemann A, Parry C. Availability of HIV prevention and treatment services for people who inject drugs: findings from 21countries. Harm Reduction Journal. 2013; https://doi.org/10.1186/1477-7517-10-13
5. Ehlers VJ. Challenges nurses face in coping with the HIV/AIDS pandemic in Africa. International Journal of Nursing Studies. 2006; 43(6): 657–62.
6. Lohrmann C, Välimäki M, Suominen T, Muinonen U, Dassen T, Peate I. German nursing students' knowledge of and attitudes to HIV and AIDS: two decades after the first AIDS cases. Journal of Advanced Nursing. 2000; 31(3): 696–703.
7. Parajulee S, Selvaraj V. Knowledge of nursing students towards HIV/AIDS in Nepal. Journal of College of Medical Sciences-Nepal. 2012; 8(4): 27-33
8. Haroun D, El Saleh O, Wood L, Mechli R, Al Marzouqi N, Anouti S. Assessing Knowledge of, and Attitudes to, HIV/AIDS among University Students in the United Arab Emirates. PLoS ONE. 2016; 11(2): e0149920. doi:10.1371/journal.
9. Delobelle P, Rawlinson JL, Ntuli S, Malatsi I, Decock R, Depoorter AM. HIV/AIDS knowledge, attitudes, practices and perceptions of rural nurses in South Africa. Journal of Advanced Nursing. 2009; 65(5):1061–73.
10. Katz IT, Ryu AE, Onuegbu G, Psaros C, Weiser SD, Bangsberg DR, et al. Impact of HIV-related stigma on treatment adherence: Systematic review and meta-analysis. Journal of the International AIDS Society. 2013; 16(2) doi: 10.7448/AS.16.3.18644.
11. Sweeney SM, Vanable PA. The association of HIV-related stigma to HIV medication adherence: A systematic review and synthesis of the literature. AIDS Behaviour. 2016; 20(1):29–50.
12. Abd El Aty MA, Aziz MM. Knowledge about HIV/AIDS and Its Determinants among Assiut University students, Egypt. The Egyptian Journal of Community Medicine. 2019; 37(3):62-72.
13. Froman RD, Owen SV. Further validation of the AIDS attitude scale.Research in Nursing and Health. 1997; 20(2): 161–67.
14. Taher M, Abdelhai R. Nurses'knowledge, perceptions, and attitudes towards HIV/AIDS: Effects of a health education intervention on two nursing groups in Cairo University, Egypt. Journal of Public Health and Epidemiology. 2011; 3(4):144-54.
15. Akin S, Mendi B, Mendi O, Durna Z. Turkish nursing students' knowledge of and attitudes towards. Journal of Clinical Nursing. 2013; 22: 3361–71.
16. Suominen T, Koponen N, Mockiene V, Raid U, Istomina N, Vanska M, etal. Nurses Knowledge and attitudes to HIV/AIDS-- an international comparison between Finland, Estonia and Lithuania. International Journal of Nursing Practice. 2010; 16(2):138-47.
17. Wong L, Chin CL, Low W, Jaafar N. HIV/AIDS-related knowledge among Malaysian young adults: Findings from a nationwide survey. The Medscape Journal of Medicine. 2008; 10(6): 148-52.
18. Ayranci U. AIDS knowledge and attitudes in a Turkish population: an pidemiological study. BMC Public Health. 2005; https://doi.org/10.1186/1471-2458-5-95
19. Reddy A, Bommireddy VS, Pachava S,Chandu VC, Yaddanapalli SC, Lodagala A. HIV knowledge, attitude,and practices among nursing students in Guntur city. Nite University Journal of Health Science 2018;7 (3):162-67.
20. Kamath N. Awareness on epidemiological factors of HIV/AIDS among nursing students in selected institutions in Dakshina Kannada. Nite University Journal of Health Science. 2016; 6(2):20-3.
21. Suominen T, Laakkonen L, Lioznov D, Polukova M, Nikolaenko S, Lipiäinen L et al. Russian nursing students' knowledge level and attitudes in the context of human immunodeficiency virus (HIV)– adescriptive study. BMC Nursing journal. 2015; 14(1): 14:21
22. Mahesh B, Vaishali R. Assess the knowledge and attitude of nursing students towards HIV/AIDS. Indian Journal of Scientific Research. 2013; 4 (1) : 69-74
23. Al-Rabeei NA, Dallak AM, Al-Awadi FG. Knowledge, attitude andbeliefs towards HIV/AIDS among students of health institutes in Sana'acity. Eastern Mediterranean Health Journal. 2012; 18 (3): 221–6.
24. Goel NK, Bansal R, Pathak R, Sharma HK, Aggarwal M, Luthra SC. Knowledge and awareness of nursing students about HIV/AIDS. Journal of Health and Population: Perspectives and Issues. 2010; 33(1):55-60.
25. Hassan ZM, Wahsheh MA. Knowledge and attitudes of Jordanian nurses towards patients with HIV/AIDS: findings from a nationwide survey. Issues in Mental Health Nursing . 2011; 32 (12): 774–84.