

The Effect of Instruction with Visual Materials on Stigma Reduction Regarding Human Immunodeficiency Virus and Acquired Immune Deficiency Syndrome among University Students

Afaf Abdel Malek Mohammed Hussein¹, Asmaa Elsayed Farid Amr²

Community Health Nursing, Faculty of Nursing, Menoufia University, Egypt.

Corresponding Author: Afaf Hussein20@yahoo.com

Abstract

Background: Human immunodeficiency virus (HIV) and Acquired immune deficiency syndrome (AIDS) remains one of the major public health challenges in the world, particularly in low- and middle income countries like Egypt. HIV/AIDS related stigma is a crucial social factors expanding HIV/AIDS prevalence and hindering its prevention and treatment.

Aim: The study was aimed to examine the effect of instruction with visual materials on stigma reduction regarding HIV/AIDS among university students.

Methods: A quasi-experimental design with pre and post-test was utilized.

Sample: Systematic random sample of 200 university students was included.

Setting: The study was carried out at two faculties in El Sadat city, Sadat University.

Tools: two tools were used for data collection. Tool one: Self-administered structured questionnaire which involved socio-demographic data and knowledge of university students regarding HIV/AIDS general knowledge, modes of transmission, misconceptions and modes of prevention. Tool two: HIV/AIDS-related stigma attitude instrument which were used to measure HIV/AIDS related stigma.

Results: The study showed that after instruction with visual materials there was statistically significant improvement in the knowledge of university students' about HIV/AIDS compared to before instruction. Also, there was statistically significant improvement in stigma attitude related HIV/AIDS of university students after instruction with visual materials compared to before instruction. Additionally, there was significant relation between students' total knowledge scores and total stigma scores regarding HIV/AIDS.

Conclusion: The study concluded that instruction with visual materials was succeeded in achieving significant improvements in the students' knowledge and stigma attitude about HIV/AIDS compared to before instruction.

Recommendations: The need for developing and implementing of HIV/AIDS prevention programs to improve awareness of university students and reduce the stigma associated with HIV/AIDS.

Keywords: HIV/AIDS, Instruction with visual materials, Stigma, University Student.

Date of Submission: 11-09-2019

Date of Acceptance: 26-09-2019

I. Introduction

Human immunodeficiency virus and Acquired immune deficiency syndrome remains one of the major public health challenges in the world, particularly in low- and middle income countries like Egypt [1]. Developing countries like Egypt at greater risk for developing HIV/AIDS due to several factors as low per capita income, illiteracy, poor knowledge about routes of transmission, gender discrimination, migration to urban areas, social stigma that might disallow people with risky behaviors from seeking HIV testing or disclosing a positive status, population growth, sociocultural barriers and poor prevention efforts might also contributing to the spread of HIV/AIDS [2]. Nearly one-quarter of Egypt's population of 90 million was young people aged 15-24 years, National AIDS Program (NAP) has noticed an increase in the number of HIV/AIDS infections among young people. In which out of 3,733 young people aged 15-24 years who underwent voluntary counseling and testing in 2013, 13.5% were positive for HIV [3].

Human immunodeficiency virus (HIV) and Acquired immune deficiency syndrome (AIDS) infection is highly stigmatized among Egyptian society. It is apparent to be a result of engaging in unacceptable behaviors such as homosexuality, drug use and extramarital sex [4]. Egypt Demographic and Health Survey (EDHS) 2014 reported that only 50.8% of women who have heard of HIV/AIDS are willing to care for a family member with HIV/AIDS in their own home and only 19.2% would buy fresh vegetables from a shopkeeper who has the AIDS

virus (Ministry of Health and Population, El-Zanaty and Associates, and ICF International 2015). [5]. Attitudes of young people are no more accepting of people living with HIV/AIDS (PLWHIV/AIDS); Survey of Young People in Egypt (SYPE) 2014 showed that 17.1% of young men and women (ages 15–29) are willing to interact with someone living with HIV (e.g., shake hands or ride in a car with them) [6].

Visual aids benefit in keeping discipline in the class since all the students' attention is focused in learning. Also, this interactive session develops cognitive and critical thinking that is important components of the teaching-learning process. Visual materials offer opportunities for effective communication between teacher and students in learning. Traditional verbal instructions can be improper for students. However, use of visual materials provides intrinsic motivation to students by peaking their curiosity and stimulating their interests in the subjects, spreading experience, , constructing learning in sense skill, motivating interest, encouraging participation, aids as a source of information, individualizes instructions, making leaning permanent [7].

1.1. Significance of the study

Human immunodeficiency virus and Acquired immune deficiency syndrome are among the most serious health problems in the world. Since its outbreak in early 1980's, the HIV/AIDS pandemic remains a global health challenge [8]. Globally, an estimated 36.9 million [31.1 million–43.9 million] people were living with HIV and 1.8 million [1.4 million–2.4 million] people became newly infected with HIV while 940 000 [670 000–1.3 million] people died from AIDS-related illnesses and 77.3 million [59.9 million–100 million] people have become infected with HIV since the start of the epidemic and 35.4 million [25.0 million–49.9 million] people have died from AIDS-related illnesses since the start of the epidemic, HIV primarily impacts those in their most productive years; a third of new infections are among young people (ages 15-24), HIV not only affects the health of individuals but also it affects the households, communities, and the development and economic growth of nations [9].

Extended efforts should be taken to keep away from new infections between young people from increasing, the estimated number of new HIV infections among adolescents is expected to climb to 270,000 annually by 2025 and three hundred thousand annually by 2030 [10]. Engaging younger people is a key to safeguard their health and addressing the HIV/AIDS epidemic as an entire. Educational institutes are to be held responsibility for improving the young people's knowledge, awareness and reducing HIV/AIDS related stigma [11]. Schools and universities have a responsibility to actively enable more accessible connections and educational program on HIV/AIDS among young adults who are students that prevent transmission of HIV/AIDS and enable the young adults to keep appropriate decisions in regard to keeping far away from getting infected with HIV/AIDS. HIV/AIDS instruction with visual materials can reduce the overall costs of healthcare by preventing costly treatment and complications of infectious illnesses. Nurses are in an excellent position for raising awareness of students about HIV/AIDS modes of transmission and prevention. therefore implementation of instruction with visual materials is still the best mean for combating the disease, and it remains the key to HIV/AIDS prevention, treatment and control, University students represent a dynamic and surprisingly knowledgeable group in the society, and they are expected to play an essential role in limiting the spread of HIV/AIDS and promoting the health education about HIV/AIDS in the country, so this study aimed to assess their knowledge about modes of transmission, misconceptions, preventive and control measures of HIV/AIDS and reduce HIV/AIDS related stigma. [12].

1.2. Aim of the study

The aim of this study was to examine the effect of instruction with visual materials on stigma reduction regarding HIV/AIDS among university students. This aim achieved through these objectives:

- 1- Assessing the student's knowledge and stigma attitude about HIV/AIDS.
- 2- Evaluating the effect of instruction with visual materials on stigma reduction regarding HIV/AIDS among university students.

1.3. Research hypotheses

1. Knowledge of university students' about HIV/AIDS will be improved after receiving instruction with visual materials compared to before instruction.
2. Stigma attitude of university students' towards HIV/AIDS will be improved after receiving instruction with visual materials compared to before instruction .

II. Subjects and Methods

2.1. Research Design

A quasi-experimental design with pre and post-test was utilized to accomplish the aim of this study.

2.2. Research setting:

This study was conducted at two faculties in El Sadat city, Sadat University, including one scientific faculty (veterinary) and one literary faculty (education).

2.3. Sample

Systematic random sample of 200 university students of both sexes from different sectors in both selected literary and scientific faculties who enrolled in the fourth academic years. A multistage random sampling technique was used to select sample: First stage included random selection of 2 faculties including one literary and one scientific faculty out of eight faculties in El Sadat City, Sadat University. Second stage included random selection of one academic year from each faculty. Third stage included random selection of students from the fourth academic years of each selected faculty through using a systematic random sample technique.

Sample size:

In order to calculate the sample size required, Epi website (Open Source Statistics for Public Health) was used. Statistical assumptions: A two sided confidence level of 95% = $(1 - \alpha)$. A power $(1 - \beta)$ or (% chance of detecting) of 80%. Ratio of sample size, unexposed (pre-intervention)/ exposed (post intervention) = 1. % of unexposed with outcome (awareness) = 10%. Results were presented using methods of Kelsey, Fleiss, and Fleiss with a continuity correction (fless w/cc). We used the later method with 93 students from Veterinary medicine Faculty's students, and 93 students from education faculty's students, with a total sample size of 186. We approximate the sample size from every faculty to 100 students to safeguard against losing some participants in post-intervention. Accordingly, our total sample size will be 200 university students.

2.4. Tools of the Study

For collecting the necessary data and achieving the aim of the study two tools were utilized by the researchers which included the following:-

2.4.1. Self-administered structured questionnaire: It was developed by the researchers after reviewing the related literature to assess:

A. Demographic data: It was included student's age, gender, marital status, and residence.

B. Students' knowledge regarding HIV/AIDS which consisted of general knowledge (9 questions), modes of transmission of HIV/AIDS (7 questions), misconceptions about HIV/AIDS transmission (6 questions), and modes of prevention of HIV/AIDS infection (5 questions). There were three possible response options of (yes, no and I don't know) for each item. Each correct statement answered yes be correct answer and no and don't know be incorrect answer. After data collection items were scored as correct answer was given one score while incorrect and don't know answer was given zero. Then the overall knowledge scores were summed from all knowledge questions (0 – 9) for general knowledge, (0-7) for modes of transmission, (0- 6) for misconceptions, (0-5) for modes of prevention) to obtain a total knowledge score for each student therefore ranged from (0- 27 score). Scoring system for students' knowledge about HIV/AIDS was categorized into; poor knowledge (0-9 score), fair knowledge (10-18 score), and good knowledge (19-27 score).

2.4.2. HIV/AIDS-related stigma attitude instrument adapted with modification from (Herek, Capitanio & Widaman, 2002) & (Anne, Stangl, Brady & Fritz, 2012) which were used to measure HIV/AIDS related stigma [13-14]. A 15-item HIV/AIDS related stigma instrument cover items addressing feelings towards, attitudes and interaction with people living with HIV/AIDS. The researchers were asked students to provide responses on a four-point likert scale (disagree, strongly disagree, agree and strongly agree) scored from 1 to 4 respectively. After data collection items were scored as disagree and strongly disagree response was given one score while agree and strongly agree response was given zero except two items I feel sympathetic toward PLWHIV and Pregnant should be required to get tested for HIV to protect unborn baby agree and strongly agree response was given one score while disagree and strongly disagree response was given zero. After that the overall HIV- related stigma attitude scores were summed to obtain a total HIV- related stigma attitude score for each student therefore ranged from (0- 15 score). Scoring System for students' total HIV- related stigma attitude was categorized into; high level of stigma (0-5), moderate level of stigma (6-10), and low level of stigma (11-15).

2.5. Validity and Reliability of Tools

Validity of the questionnaire was assessed using content validity by three experts in community health nursing. The relevancy, clarity, fluency, and simplicity of each component in the questionnaire was examined by the Experts and they found the questionnaire is useful and helpful. Reliability was estimated among 10 University students by using test retest method with two weeks apart between them. Then correlation coefficient

(Cronbach's alpha) of the knowledge questions was calculated between the two scores (Cronbach's alpha was 0.82). In addition, the Cronbach's alpha of the stigma questions was calculated between the two scores (Cronbach's alpha was 0.79). These two Cronbach's alpha values indicate that the questionnaire is reliable to detect the objectives of the study.

2.6. Pilot Study

A pilot study was carried out on 20 undergraduate students from both literary and scientific faculties to test the applicability, feasibility and clarity of the questions of the study tools, estimate the time needed to complete the tools, and to add or omit questions. Based on the results of the pilot study, required modifications and clarifications of some questions were done and the time to answer the tools was estimated as 20 to 30 minutes. Then the final form of the study tools was developed and used in data collection.

2.7. Ethical Considerations

All the ethical issues were followed by the researchers in conducting the research. Informed consent was obtained from the students who were willing to participate in the study. Full explanation of the purpose and the nature of the study and its importance were done to all university students in the study sample prior to the anonymous interviewing questionnaire. Participation in the study was strictly voluntary. They reassured that any obtained information would be confidential and would only be utilized for the study purpose.

2.8. Data Collection Procedure

- 1- This study was conducted during the period starting from October 2017 to the end of January 2018.
- 2- An official letter was addressed about the purpose of the study from the faculty of nursing, Menoufia University to the dean of each selected faculty, requesting their cooperation and permission to conduct the study. Also, meetings were done with the heads of departments' which were selected in each faculty to explain the aim of the study and methods of data collection to obtain permission for conducting the study.
- 3- Once an official permission was granted and informed consent to proceed with the study, the researchers were initiated data collection from university students who fulfilled these selection criteria two days per week for four months through using self-administered structured questionnaire which included demographic data, knowledge of students about HIV/AIDS and HIV/AIDS related stigma attitude.
- 4- Before distributing the questionnaire, the researchers introduced themselves to the students. Then brief description of the purpose of the study and the type of questionnaire required to fill was explained to the students to gain their cooperation to share in the study. Questionnaires were distributed to the selected participants who agree to participate in the study.
- 5- Data collected were done through interviewing with the students in lecture room to ensure accessibility of the students. The average time taken for completing questionnaires was around 20-30 minutes.
- 6- The collected data used as the baseline assessment (pre - test). The researchers were developed instruction with visual materials aimed to improve student's knowledge and improve stigma attitude towards HIV/AIDS. Educational intervention used in this study included interactive lectures and group discussions using audio-visual aids such as power point presentations, pictures, brochures and posters.
- 7- Visual instructional materials used in this study included videos, power point presentations, pictures and posters and brochures.
- 8- Students taken from each faculty were divided into groups; each group consists of 15-20 students. They were given instruction with visual materials about HIV/AIDS and stigma reduction in lecture room in two sessions and the duration of each session was 50-60 minutes.
- 9- First session which included interactive lectures and group discussions using audio-visual aids such as power point presentations, video, pictures, brochures and posters about general knowledge of HIV/AIDS, modes of transmission, misconceptions, modes of prevention and control measures.
- 10- Second session included interactive lectures and group discussions using audio-visual aids such as power point presentations, pictures, brochures, video and posters about stigma reduction regarding HIV/AIDS that cover content such as definitions, forms, types, causes, and examples of stigma, anti-stigma standards relevant to PLWHIV'S rights, negative consequences of stigma, preventing stigma, services and testing policy, and dealing with stigma and HIV positive persons. Each session followed by a summary of essential points.
- 11- In the last session, each student was given a colored booklet about knowledge of HIV/AIDS and stigma reduction guide prepared by the researchers after reviewing the related literature and written in simple Arabic language supported by illustrative pictures used to facilitate the process of education that introduced to students.

12- At the end of intervention period (two months) post –test was performed by using the same pretest questionnaire.

2.9. Statistical Analysis

Data was coded and transformed into specially designed form to be suitable for computer entry process. Data was entered and analyzed by using SPSS (Statistical Package for Social Science) statistical package version 22. Graphics were done using Excel program. Quantitative data were presented by mean (X) and standard deviation (SD). It was analyzed using student t- test for comparison between two means, and ANOVA (F) test for comparison between more than two means. Qualitative data were presented in the form of frequency distribution tables , number and percentage. It was analyzed by chi-square (χ^2) test. However, if an expected value of any cell in the table was less than 5, Fisher Exact test was used(if the table was 4 cells) , or Likelihood Ratio (LR) test (if the table was more than 4 cells). Level of significance was set as P value <0.05 for all significant tests.

III. Results

Table1. Distribution of demographic data of university students (n=200).

Demographic data	Type of Faculties				Total		P value	
	Education Faculty		Veterinary Faculty		N0.	%		
	N0	%	N0.	%				
Age	18-20 years	7	7	3	3	10	5	X ² =2.8, P=0.24 NS
	21-23 years	85	85	84	84	169	84.5	
	> 23 years	8	8	13	13	21	10.5	
Gender	Female	28	28	76	76	104	52	X ² =46.2, P=0.000 HS
	Male	72	72	24	24	96	48	
Residence	Urban	67	67	80	80	147	73.5	X ² =4.3, P=0.02 Sig.
	Rural	33	33	20	20	53	26.5	
Marital status	Single	94	94	100	100	194	97	Fisher= 0.02 Sig.
	Married	6	6	0	0	6	3	
Total		100	100	100	100	200	100	

NS= not significant HS= high significant sig= significant

Table (1):Shows that 84.5% of the university students aged between 21 to 23 years, 52% of them were females, 73.5% of them lives in urban areas. As regards marital status, 97% of them were single and 3% were married.

Table2: Percent distribution of general knowledge and modes of transmission of HIV/AIDS among university students pre and post intervention (n=200).

Knowledge items and subcategories:	Percentage of correct answer		P value
	Pre intervention (n=200) %	Post intervention (n=200) %	
I-General knowledge about HIV and AIDS,			
1. Persons with HIV can be asymptomatic but still infectious	23	80	P=0.000 HS
2. Length of time from the diagnosis of HIV / AIDs until a symptom is 10years.	25	77	P=0.000 HS
3. HIV attacks the immune system.	25.5	78	P=0.000 HS
4. A person can be known infected from appearance.	26	82	P=0.000 HS
5. Can anyone die from AIDS.	30	78	P=0.000 HS
6. HIV/AIDS cannot be completely cured.	34	78.5	P=0.000 HS
7. HIV/AIDS is a serious disease.	28	83	P=0.000 HS
8. There is no an effective drug available to treat HIV/AIDs.	27.5	82	P=0.000 HS
9. There is no vaccine available to prevent HIV/ AIDS.	23.5	83.5	P=0.000 HS
II-Modes of transmission knowledge about HIV and AIDS:			
10. Sharing injection needle or syringe of an infected person can be infected.	30.5	86	P=0.000 HS
11. HIV/AIDS can be transmitted by blood transfusion.	31	89	P=0.000 HS

12.	Sharing razor blade with an infected person.	29	86	P=0.000 HS
13.	HIV can be transmitted from mother to fetus	17	83	P=0.000 HS
14.	Breast milk can transmit HIV/AIDS.	22	82.5	P=0.000 HS
15.	Having unprotected sex with infected person.	29	80	P=0.000 HS
16.	Use of illegal drugs by injection or drug injecting through drug addicts.	28	82.5	P=0.000 HS

HS= high significant

Table (2): Shows that after instruction with visual materials, there was statistically significant improvement in students' general knowledge about HIV/AIDS ($P < 0.05$), from 23% to 83.5% regarding the knowledge that HIV/AIDS is a serious disease increased from 28% to 83%, while the knowledge that anyone can die from AIDS, improved from 30% to 78%, also knowledge that there is no vaccine available to prevent HIV/AIDS increased from 23.5% to 83.5%. Additionally, this table demonstrates that after instruction with visual materials, there was statistically significant improvement in students' knowledge about HIV/AIDS modes of transmission ($P < 0.05$), from 17% to 89% regarding the knowledge of HIV/AIDS modes of transmission by sharing injection needle or syringe of an infected person and blood transfusion increased from 30.5% to 86% and 31% to 89% respectively, while the knowledge of the use of illegal drugs or drug addicts and mother to fetus transmission increased from 28% to 82.5% and 17% to 83% respectively. There was a highly significant difference between pre intervention percentages' of correct answer and post intervention percentages' of correct answer for each item of general knowledge and modes of transmission knowledge about HIV/AIDS among university students ($P = 0.000$).

Table 3: Percent distribution of misconceptions regarding HIV/AIDS transmission and modes of prevention of HIV/AIDS among university students pre and post intervention (n=200).

Knowledge items and subcategories:	Percentage of correct answer		P value
	Pre intervention (n=200) %	Post intervention (n=200) %	
III- Misconceptions regarding HIV/AIDS transmission:			
17. Kissing, hugging and shaking hands with infected person.	29	78.5	P=0.000 HS
18. Sharing public toilet and swimming pool with an infected person.	21	81	P=0.000 HS
19. Sharing food utensils of an infected person.	12	77.5	P=0.000 HS
20. Mosquitoes and flees bites can transmit HIV.	21	81	P=0.000 HS
21. Coughing and sneezing can transmit HIV.	20	79.5	P=0.000 HS
22. Study in the same classroom with an infected person.	16	78	P=0.000 HS
IV- Knowledge on modes of prevention of HIV/AIDS:			
23. Avoiding un protected sex.	30	81.5	P=0.000 HS
24. Test blood and blood product before transferring to another person.	32	83	P=0.000 HS
25. Proper condom use.	21	81	P=0.000 HS
26. Avoiding contact with any used needles or syringes and razor blades.	27.5	82	P=0.000 HS
27. Pre-marital examination.	27.5	81.5	P=0.000 HS

HS=high significant

Table (3): Reveals that after instruction with visual materials, there was statistically significant improvement in students' knowledge regarding misconceptions about HIV/AIDS transmission ($P = 0.000$), from 12% to 81% regarding misconceptions about HIV/AIDS transmission through kissing, hugging & shaking hands with infected person, sharing food utensils with infected person and mosquitoes & flees transmission improved from 29% to 78.5%, 12% to 77.5%, and 21% to 81% respectively. Additionally, this table shows that after instruction with visual materials, there was statistically significant improvement in students' knowledge about HIV/AIDS modes of prevention ($P < 0.05$), from 21% to 83% regarding the knowledge that condoms being one of the preventive modes of HIV/AIDS and avoiding sharing any used needles or syringes & razor blades improved from 21% to 81% and 27.5% to 82% respectively. There was a highly significant difference between pre intervention percentages' of correct answer and post intervention percentages' of correct answer for each

item of knowledge about misconceptions and modes of prevention about HIV /AIDS among university students.

Table 4: percent distribution of HIV/AIDS related stigma attitude among university students pre and post intervention (n=200).

HIV/AIDS related stigma items:	Percentage of agree &strongly agree		P value
	Pre intervention (n=200) %	Post intervention (n=200) %	
1. I'd be ashamed if someone in my family had HIV/AIDS.	73.5	56	P=0.04 Sig.
2. PLWHIV/AIDS are to be blamed for bringing the disease to the community.	69	63.5	P=0.000 HS
3. I feel sympathetic toward PLWHIV/AIDS.	21	34	P=0.08 NS
4. I feel angry toward PLWHIV.	69.5	56.5	P=0.000 HS
5. I feel afraid of PLWHIV/AIDS.	74.5	59	P=0.000 HS
6. People would not marry HIV/AIDS infected people.	96	95	P=0.72 NS
7. PLWHIV/AIDS should be legally separated from others to protect public.	65.5	51.5	P=0.04 Sig.
8. Names of PLWHIV/AIDS should made public so others can avoid them.	65.5	48.5	P=0.04 Sig.
9. Pregnant should be required to get tested for HIV/AIDS to protect unborn baby	80	91.5	P=0.01 Sig.
10. PLWHIV/AIDS should not have the same rights to education and employment.	59.5	51	P=0.20 NS
11. People who got HIV/AIDS through sex or drug use have gotten what they deserve.	91	99	P=0.05 Sig.
12. Uncomfortable if my child attend school where one of student living with HIV/AIDS.	70.5	57	P=0.01 Sig.
13. Uncomfortable shopping at local grocery store if owner living with HIV/AIDS.	76	62.5	P=0.01 Sig.
14. Uncomfortable working in an office where one of my coworkers living with HIV/AIDS.	84.5	68.5	P=0.000 HS
15. Uncomfortable going to a doctor known living with HIV/AIDS.	86.5	82.5	P=0.42 NS

NS= not significant

HS= high significant

sig= significant

Table (4):Demonstrates that after instruction with visual materials , there was statistically significant improvement in students' stigmaattituderelated HIV/AIDSfrom 96% to 34% regarding the attitude that it would be shameful if someone in their family had HIV/AIDSdecreased from 73.5%to 56%, while the attitude that PLWHIV/AIDS are to be blamed for bringing the disease to the community decreased from 69% to 63.5%, except the item “I feel sympathetic toward PLWHIV/AIDS.” Which did not show this significant difference (P>0.05), regarding the attitude that PLWHIV/AIDS should be legally separated from others to protect public decreased from 65.5% to 51.5%, while the attitude that pregnant should be required to get tested for HIV/AIDS to protect unborn baby increased from 80% to 91.5%, except the item“People would not marry HIV/AIDS infected people” and “PLWHIV/AIDS should not have the same rights to education and employment”. Which did not show this significant difference (P>0.05), regarding the attitude that uncomfortable working in an officewhere PLWHIV/AIDS decreased from 84.5% to68.5%, except the item “Un comfortable going to a doctor known living with HIV/AIDS”.Which did not show this significant difference (P>0.05).

Table 5: Distribution of total HIV/AIDS knowledge scores of university students pre and post intervention (n=200).

Knowledge items	Pre intervention		Post intervention		P2
	N0.	%	N0.	%	
General Knowledge about HIV/AIDS.					
Poor(0-4)	135	62.5	0	0	0.000 HS
Good(5-9)	75	37.5	200	100	
Knowledge about modes of transmission of HIV/AIDS.					
Poor(0-3)	138	69	26	13	0.000 HS
Good(4-7)	62	31	174	87	

Misconception knowledge about HIV/AIDS.					
No misconception (0-3)	57	28.5	200	100	0.000 HS
Yes misconception (4-6)	143	71.5	0	0	
Knowledge about modes of prevention of HIV/AIDS.					
Poor (0-2)	142	71	6	3	0.000 HS
Good (3-5)	58	29	194	97	
Total knowledge HIV/AIDS scores					
Poor knowledge(0-9)	134	67	15	7.5	0.000 HS
Fair knowledge(10-18)	37	18.5	21	10.5	
Good knowledge(19-27)	29	14.5	164	82	
Total	200	100	200	100	

HS= High significant

Table (5):Shows that after instruction with visual materials , there was statistically significant improvement in the total HIV/AIDS knowledge scores in different knowledge items including general knowledge, modes of transmission, misconception and modes of prevention of HIV/AIDS in post intervention compared to pre intervention among university students, (p<0.000) . In addition, after instruction with visual materials , good knowledge responses increased from 29 % pre intervention to 82% post intervention, poor knowledge responses decreased from 67% pre intervention to 7.5% post intervention among university students.

Figure 1: Distribution of total HIV/AIDS stigma attitude scores of university students pre and post instruction with visual materials (n=200).

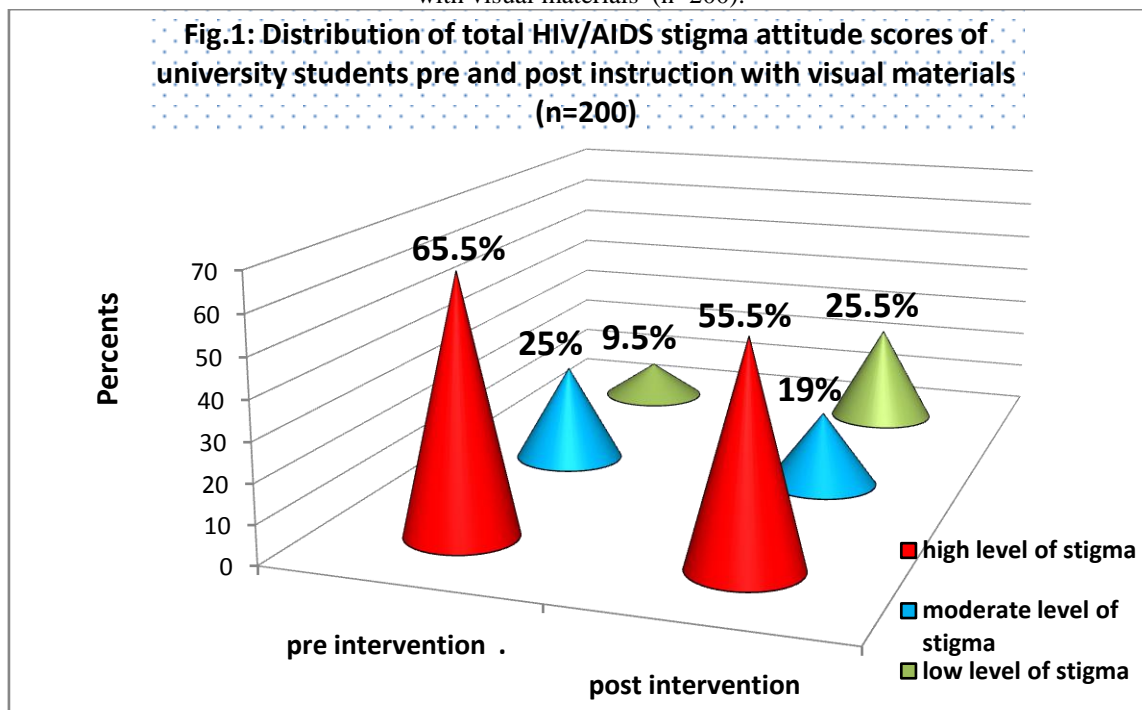


Figure 1: Demonstrates that after instruction with visual materials , there was a highly statistically significant improvement in the level of the total HIV/AIDS stigma attitude scores in post intervention compared to pre intervention among university students, (P<0.05). Also this table reveals that after instruction with visual materials , low level of stigma attitude responses increased from 9.5 % pre intervention to 25.5% post intervention among university students. On the other hand, both the high level of stigma attitude as well as moderate level of stigma attitude decreased from 65.5% to 55.5% and from 25% to 19% respectively among university students.

Table 6: Relationship between total HIV/AIDS knowledge scores and total HIV/AIDS stigma attitude scores of university students after instruction with visual materials (n=200).

Post total HIV stigma attitude scores	Post total knowledge scores						Total	P value	
	poor knowledge		Fair knowledge		Good Knowledge.				
	N0.	%	N0.	%	N0.	%	N0.		%
high level of stigma (0-5)	15	100	19	90.5	77	47	111	55.5	LR=27.9, P=0.000HS
moderate level of stigma (6-10)	0	0	2	9.5	36	22	38	19	
low level of stigma(11-15)	0	0	0	0	51	31	51	25.5	
Total	15	100	21	100	164	100	200	100	

LR= Likelihood Ratio HS= high significant

Table (7): Shows that after instruction with visual materials , there was significant relationships between total HIV/AIDS knowledge scores and total HIV/AIDS stigma attitude scores among university students (P<0.05). However, the students who had poor or fair knowledge about HIV/AIDS they had high level of stigma attitude towards HIV/AIDS, while the students who had good knowledge they had low level of stigma attitude towards HIV/AIDS in post intervention.

IV. Discussion

Knowledge and attitudes concerning HIV/AIDS is one of the corner stones in the fighting against the disease. Youths are most vulnerable to infection because they engage in risky behaviors due to insufficient knowledge [15].

Concerning general knowledge about HIV/AIDS the current study revealed that after instruction with visual materials , there was statistically significant improvement in students' general knowledge about HIV/AIDS. Additionally, after the instruction with visual materials , there was statistically significant improvement in students' knowledge about HIV/AIDS modes of transmission. This finding was in consistent with Xiao-Ping Liu et al., (2015) [16] they conducted an intervention study on “effect of an HIV/AIDS tailored health education program in Western, China”. They found that after tailored health education program, participants demonstrated significant improvement in HIV/AIDS knowledge.

In relation to misconceptions about HIV/AIDS transmission the current study revealed that after instruction with visual materials , there was statistically significant improvement in students' knowledge regarding misconceptions about HIV /AIDS transmission, in relation to transmission through kissing, hugging & shaking hands with infected person and sharing food utensils with infected person. Additionally, There was statistically significant improvement in students' knowledge about HIV/AIDS modes of prevention, in relation to knowledge that condoms being one of the preventive modes of HIV/AIDS and avoiding sharing any used needles or syringes & razor blades improved from around one third to majority among university students after the instruction with visual materials. This finding was in agreement with Mohammed, Osman, Mohamed & Ahmed, (2015) [17] they studied the “effect of AIDS peer health education on knowledge, attitudes, and practices of secondary school students in Khartoum, Sudan”. they found that the practice of students after the intervention program has changed from seventy percent to eighty three percent about shaking hands with an HIV/AIDS infected person and from around eighty five percent to eighty seven percent about sharing food with an HIV/AIDS infected person. Additionally, this finding was in agreement with Madhusudan & Murthy & Suresha & Imran and Shwetha (2014) [18]. they studied “impact of instruction with visual materials in improvement of knowledge and attitude towards HIV/AIDS among rural college students, Bangalore Karnataka”. They found that after instruction with visual materials awareness regarding HIV/AIDS modes of prevention in relation to using condom during sexual intercourse and using new sterile syringes was improved among boys and girls. Those results may be contributed to prove the best effect of using visual materials instructions

Concerning HIV/AIDS related stigma attitude the current study demonstrated that after instruction with visual materials , there was statistically significant improvement in students' stigma attitude related HIV/AIDS regarding the attitude that it would be shameful if someone in their family had HIV/AIDS decreased from around three quarters to more than half, while the attitude that PLWHIV/AIDS are to be blamed for bringing the disease to the community decreased from sixty nine percent to sixty three percent, except the item “I feel sympathetic toward PLWHIV/AIDS.” Which did not show this significant difference). Additionally, the attitude that

PLWHIV/AIDS should be legally separated from others to protect public decreased from sixty five percent to fifty one percent , while the attitude that pregnant should be required to get tested for HIV/AIDS to protect unborn baby increased from eighty percent to ninety one percent, except the item “People would not marry HIV/AIDS infected people” and “PLWHIV/AIDS should not have the same rights to education and employment”. Which did not show this significant difference).Also, the attitude that uncomfortable working in an office where PLWHIV/AIDS decreased from eighty four percent to sixty eight percent, except the item “Un comfortable going to a doctor known living with HIV/AIDS”.Which did not show this significant difference (P=0.42). This finding was consistent with Madhusudan et al., (2014) [18] They found that overall sixty percent of study subjects responded that AIDS patients cause harm to the society which was reduced to thirty two percent post instruction with visual materials . Attitude towards showing sympathy to HIV/ AIDS patients was increased from seventy seven percent to eighty three percent in girls where as in boys it was increased from seventy two percent to seventy five percent. Overall attitude regarding sitting next to HIV/AIDS patients and allowing them to attend public functions was increased from seventy three percent to eighty two percent and seventy five percent to eighty eight percent pre and post instruction with visual materials respectively which is statistically significant finding ($p < 0.01$). Indeed, this actually reflect that instruction with visual materials considered one of the best teaching strategies..

Concerning total HIV/AIDS knowledge scores the current study revealed that after instruction with visual materials , there was statistical significant improvement in the total HIV/AIDS knowledge scores in different knowledge items including general knowledge, modes of transmission, misconception and modes of prevention of HIV/AIDS in post intervention compared to pre intervention among university students,. In addition, after instruction with visual materials , good knowledge responses increased from around one third pre intervention to majority post intervention, poor knowledge responses decreased from sixty seven percent pre intervention to seven percent post intervention among university students. This finding was consistent with Rai & Adhikari & Bajracharya (2016) [19] they studied “effect of instruction with visual materials on knowledge regarding HIV/AIDS among nursing assistant students of Shree Birendra hospital, Nepal”. They found that the knowledge level of respondents after the instruction with visual materials significantly increased. Before instruction with visual materials , out of the total respondents forty eight percent respondents had performed the low scoring on knowledge and fifty two percent performed high scoring on knowledge. After the intervention, 0.8 % respondents had performed low scoring on knowledge and ninety nine percent scored high on knowledge with χ^2 ($p = 0.000$). Additionally, this finding was consistent with Gohel & Singh & Pathak (2016) [20] they studied “impact of instruction with visual materials on knowledge and perceptions of college students towards HIV/AIDS in Anand”. They found that HIV/AIDS knowledge score improved significantly after the instruction with visual materials Which reflects, Instruction with visual materials has been shown to be a valuable tool in improving knowledge.

In relation to total HIV/AIDS stigma attitude scores the current study revealed that that after instruction with visual materials , there was a highly statistical significant improvement in the level of the total HIV/AIDS stigma attitude scores in post intervention compared to pre intervention among university students. This finding was in agreement with Nanayakkara & Eun-Ok Choi (2018) [21] they studied “effectiveness of AIDS education program on nursing students’ AIDS knowledge and AIDS attitudes in Sri Lanka”. They found that AIDS attitudes of the experimental group improved significantly after the intervention when compared to its pre intervention attitudes as well as when compared to the control group. Additionally, this finding was consistent with Gao et al., (2012) [22] they studied effectiveness of school- based education on HIV/AIDS knowledge , attitude, and behavior among secondary school students in Wuhan, China. They found that 10-40% of students had negative attitude toward HIV/AIDS, which it decreased 21% after education.

In relation to relationship between total HIV/AIDS knowledge scores and total HIV/AIDS stigma attitude scores the current study revealed that after instruction with visual materials , there was significant relationships between total HIV/AIDS knowledge scores and total HIV/AIDS stigma attitude scores among university students. However, the students who had poor or fair knowledge about HIV/AIDS they had high level of stigma towards HIV/AIDS, while the students who had good knowledge they had low level of stigma towards HIV/AIDS in post intervention. This finding was consistent with Nubed & Akoachere (2016) [15] they studied “knowledge, attitudes and practices regarding HIV/AIDS among senior secondary school students in Fako Division, South West Region, Cameroon”. They found a positive significant relationship between knowledge and attitude. This showed that respondents with medium and high levels of knowledge were likely to have proportionately positive attitudes than those with low level of knowledge. So, it is approved that, instruction with visual materials is an effective teaching strategies in improving learners’ knowledge.

V. Conclusion

Based on the findings of this study, it was concluded that, there was statistically significant improvement in the knowledge of university students' about HIV/AIDS after instruction with visual materials

compared to before instruction. There was statistically significant improvement in stigma attitude of university students' about HIV/AIDS after instruction with visual materials compared to before instruction. Additionally, there was significant relationships between total HIV/AIDS knowledge scores and total HIV/AIDS stigma attitude scores among university students.

VI. Recommendation

Based on the results of this study, the following recommendations were suggested:

- Raising public awareness about HIV/AIDS and its modes of transmission, modes of prevention and correct misconceptions about the disease. This would lead to reduce the stigma attitude associated with HIV/AIDS and reduce barriers to HIV/AIDS prevention, testing, care and treatment.
- youth organizations, universities, and ministries of education and health should be collaborated to implement comprehensive preventive programs about HIV/AIDS and establish anti-stigma policies and guidelines in schools and universities.
- premarital examination that is required by the law should be advanced to include counseling of prospective couples about HIV/AIDS transmission and prevention.

References

- [1]. Ebied , E, M,EL.(2014) Factors Contributing To HIV/AIDS – Related Stigma and Discrimination Attitude in Egypt: Suggested Stigma Reduction Guide for Nurses in Family Health Centers. Journal of Education and Practice ISSN 2222-1735 (Paper). ISSN 2222-288X (Online) Vol.5, No.24, 2014.
- [2]. Othman ,S,M (2015) Knowledge About HIV/AIDS Among High School Students in Erbil City/Iraq Global Journal of Health Science; Vol. 7, No. 1; 2015 Published by Canadian Center of Science and Education doi:10.5539/gjhs.v7n1p16 URL: <http://dx.doi.org/10.5539/gjhs.v7n1p16> www.ccsenet.org/gjhs G.
- [3]. National AIDS Program (NAP). (2014) Global AIDS Response Progress Report. Cairo: NAP. 2015. National HIV Programme Situation and Gap Analysis Egypt. Cairo: NAP.
- [4]. Abdel-Tawab, N., D. Oraby, S. Saher, and S. Ismail.(2016) “Understanding HIV-Related Vulnerabilities and Stigma Among Egyptian Youth,” Cairo: Population Council – Egypt Office
- [5]. Ministry of Health and Population [Egypt], El-Zanaty and Associates [Egypt], and ICF International. (2015). Egypt Demographic and Health Survey 2014. Cairo and Rockville, MD:Ministry of Health and Population and ICF International.
- [6]. Ismail S., N. Abdel-Tawab and L. Sheira. (2015).” Marriage and Family Formation Trends among Youth in Egypt” In: Rania Roushy and Maia Sieverding (eds) Panel Survey of Young People in Egypt (SYPE) 2014. Generating Evidence for policy, programs and research. Cairo: Population Council.
- [7]. Ashaver, D., Igyuve, S., (2013): The use of audio-visual materials in the teaching and learning processes in Colleges of Education in Benue State-Nigeria. IOSR Journal of Research & Method in Education (IOSR-JRME) Volume 1, Issue 6 PP 44-55.
- [8]. Zaini, R,G (2016) A Study on Knowledge and Awareness of Male Students of the College of Applied Medical Science at Taif University. J AIDS Clin Res 7: 574. doi:10.4172/2155-6113.1000574.
- [9]. UNAIDS. Global AIDS Update (2017) UNAIDS. AIDS info website; accessed July 2017, available at: <http://aidsinfo.unaids.org/>. UNAIDS. Core Epidemiology Slides; June 2017. UNAIDS. Fact Sheet 2017; July 2017..”Country Factsheets: EGYPT 2016.
- [10]. UNICEF(2016): „Seventh Stocktaking Report on Children & AIDS,” <https://data.unicef.org/resources/every-child-end-aids-seventh-stocktaking-report-2016/>
- [11]. Idele, P., et al (2014): 'Epidemiology of HIV and AIDS among Adolescents: Current Status, Inequities, and Data Gaps'.
- [12]. Hamed, L,A & Mohamed, N,A and Edison,S,J , (2018) Effect of Educational Guidelines on Knowledge of AIDS and its Preventive Practice among Non-medical Undergraduate University Students IOSR Journal of Nursing and Health Science (IOSR-JNHS) e-ISSN: 2320–1959.p- ISSN: 2320–1940 Volume 7, Issue 5 Ver. III (Sep.-Oct. 2018), PP 28-34 www.iosrjournals.org
- [13]. Herek GM, Capitatio JP, Widaman KF (2002) HIV-related stigma and knowledge in the United States: prevalence and trends, 1991–1999. Am J Public Health 92: 371-377.
- [14]. Anne L. Stangl, Brady, L, and Fritz, K.(2012) .International Center for Research on Women, strive tackling the drivers of HIV/AIDS Measuring HIV stigma and discrimination, S&D technical brief, Washington, DC,USA.
- [15]. Nubed,c,k&Akoachere, J,T,K (2016). Knowledge, attitudes and practices regarding HIV/AIDS among senior secondary school students in Fako Division, South West Region, Cameroon. BMC Public Health (2016) 16:847, DOI 10.1186/s12889-016-3516-9
- [16]. Xiao-Ping Liu& Wan-Xia Yao&Shu-MinZhao&Rui-Jun Wang& Ming Yao&Hua Fang& Di-Mao Wang & Cong Yao (2015) Effect of an HIV/AIDS tailored health education program in Western China: An intervention study , Journal of Nursing Education and Practice 2015, Vol. 5, No. 10 DOI: 10.5430/jnep.v5n10p16 URL: <http://dx.doi.org/10.5430/jnep.v5n10p16> www.sciedu.ca/jnep.
- [17]. Mohammed, M,H, Osman, O, B , Mohamed, M,A, and Ahmed, W,A . (2015). The Effect of AIDS Peer Health Education on Knowledge, Attitudes, and Practices of Secondary School Students in Khartoum, Sudan. AIMS Public Health, 2 (4): 718-726.
- [18]. Madhusudan, M, Murthy,M,T,S, Suresha,D,S, Imran,M,&Shwetha, N.(2014) impact of educational intervention in improvement of knowledge and attitude towards HIV/AIDS among rural college students, Bangalore Karnataka. International Journal of Basic and Applied Medical Sciences ISSN: 2277-2103 (Online) An Open Access, Online International Journal Available at <http://www.cibtech.org/jms.htm> 2014 Vol. 4 (1) January-April, pp.244-250/Madhusudan et al.
- [19]. Rai,P, Adhikari,A, &Bajracharya,M (2016): Effect of Educational Intervention on Knowledge Regarding HIV/AIDS among Nursing Assistant Students of Shree Birendra Hospital, Nepal MJSBH Vol 15 Issue 1 Jan- Jun 2016
- [20]. Gohel, M,K&Singh,U, S, Pathak, A (2016) impact of educational intervention on knowledge and perceptions of college students towards HIV/AIDS in Anand. National Journal of Community Medicine,Volume 7 Issue 9 Sept 2016. Open Access Journal | www.njcmindia.org pISSN 0976 3325 | eISSN 2229 6816.
- [21]. Nanayakkara G N and Eun-Ok Choi (2018): Effectiveness of AIDS education program on nursing students” AIDS knowledge and AIDS attitudes in Sri Lanka. Journal of Nursing Education and Practice, Vol. 8, No. 6. Available from: <http://jnep.sciedupress.com>

- [22]. Gao X, Wu Y, Zhang Y, Zhang N, Tang J, Qiu J, et al. (2012): Effectiveness of School-based Education on HIV/AIDS Knowledge, Attitude, and Behavior among Secondary School Students in Wuhan, China. PLoS ONE 7(9): e44881. <https://doi.org/10.1371/journal.pone.0044881>.