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ORIGINAL ARTICLE

EFFECT OF A POWERPOINT LECTURE VS VIDEO PRESENTATION ON THE KNOWLEDGE AND ATTITUDE ON HIV AMONG GRADE 9 PUBLIC SCHOOL STUDENTS

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The authors declare that the data presented are original material and has not been previously published, accepted or considered for publication elsewhere; that the manuscript has been approved by all authors, and all authors have met the requirements for authorship.

ABSTRACT

Objective: This study aimed to compare the effect of a powerpoint lecture versus video presentation on the knowledge and attitude on HIV among grades 9 students in a public school in Manila.

Methodology: GRADE 9 public school students were randomly assigned into one of two groups, video presentation or PowerPoint presentation. Pre- and post-tests were administered to assess the efficacy of an intervention. Student t-test was used to compare knowledge on HIV/AIDS before and after the intervention, as well as compare the results between the 2 groups. Chi-square was used to compare scores on attitude before and after the intervention, with the level of significance at p=0.05.

Results: Two hundred fourteen students participated in the study, and majority (57%) are females. The mean age of participants is 14.2 years. The difference in scores before and after the intervention was found to be statistically significant ($p<0.001$) with an approximate increase by 16% and 24% after a video and Powerpoint presentation respectively. The difference between post-intervention scores is statistically significant ($p <0.001$; 95% confidence interval) in favor of the PowerPoint presentation.

Conclusions: A PowerPoint lecture is more effective than a video presentation in increasing knowledge and developing positive attitude towards HIV/AIDS.

KEYWORDS:
HIV education, HIV prevention

INTRODUCTION

Adolescents in the 15-24-year age group comprise 29% of newly diagnosed HIV/AIDS cases in the Philippines (1). Data from the HIV/AIDS Registry, 2016 show that the figures have increased by 230% from 2011.In fact, HIV/AIDS is now considered the second most common cause of death among adolescents globally with an estimated 120,000 dying of AIDS-related illnesses.[3]

Adolescents have an increased risk of having sexually transmitted infections, and this may be attributed to the adolescents' early engagement in high risk behaviors. Other reasons which could account for the increase in cases are the lack of knowledge on transmission, such as indiscriminate tattooing and body-piercing.

Due to the increase in HIV/AIDS cases among adolescents, the UNICEF and WHO established the "All in to #End AdolescentAIDS" to accelerate reduction in AIDS-related deaths and infections. By 2020, the program aims to attain zero new HIV infections, zero AIDS-related deaths and zero discrimination. This can be done by maximizing adolescent leadership, mobilization and engagement in social issues, focusing on human rights and equity, and providing sexual and reproductive health education. In the Philippines, the Department of Health (DOH) has launched an HIV/STI prevention program which aims to reduce transmission of HIV and to mitigate its impact at the individual, family and community levels. The program includes strategies and interventions such as peer education and outreach, HIV counseling and testing services and empowerment of communities.

Several studies were done abroad to evaluate the efficacy of an HIV awareness program among school children with positive effects. Awareness and appropriate knowledge play an important role in preventing further the spread of HIV/AIDS among the general population. Understanding the present knowledge and attitude of adolescents can be used to develop and improve existing HIV prevention strategies among Filipino youth. This study aimed to compare the effect of a PowerPoint lecture versus video presentation on the knowledge and attitude on HIV among grades 9 students in a public school in Manila.

METHODOLOGY

Study design: This was a randomized-controlled trial.

Participants: Six sections of Grade 9 students from a public school in Manila were included in the study. Six sections were grouped into 2: Group A - HIV/AIDS awareness video and Group B - didactic lecture.

All participants were asked to answer an HIV knowledge and attitude questionnaire (see Appendix 5), after which cluster randomization was done. Interventions were assigned by use of the random function of Microsoft Excel. The knowledge and attitude scores of the respondents before the intervention served as the control.

Questionnaire: The questionnaire was adopted from the study of Gao *et al* conducted in 2012 in China. The first part focused on the demographic information of respondents. Gender, age, grade level and parents' educational status were included. The second part looked into the knowledge of students on HIV/AIDS as well as their Attitude towards people living with HIV. The questionnaire was validated before the actual conduct of the study.

Intervention: All the students assigned to Group A were gathered in a room. A research assistant introduced the topic and played the video without interruption. It is a 7-minute HIV awareness video

from the Catholic Bishop's Conference Pastoral – National Secretariat for Social Action and the Philippine Catholic HIV and AIDS Network. Authorized permission for its use was obtained prior to the actual presentation. The video included basic information on HIV, its cause and modes of transmission, as well as prevention of the disease. After the video, the respondents' knowledge and attitude on HIV were evaluated using the self-administered questionnaire.

In another room, students who were assigned to Group B were given a didactic lecture using a PowerPoint presentation. A research assistant gave the lecture using an instructional PowerPoint with permission from the Health Promotion and Communication Service Resource Center of the Department of Health. The respondents' knowledge and attitude on HIV were evaluated again using the self-administered questionnaire. Factual contents on HIV are the same for both the PowerPoint lecture and video presentation to avoid bias.

Outcome measures: Quantitative scores (0-100%) on the written examination were obtained and changes in pre- and post-intervention scores were compared between the 2 groups.

Sample size: In this study, comparison of 2 proportions was employed. A study by Gao et al (2012) showed that the proportion of subjects with increased knowledge and positive attitude after an HIV lecture was 89.68% and 83.93%, respectively; a significant difference of 22.34% and 15.23% as compared to p_0 intervention is acceptable.

The formula was

$$n = \frac{(Z_{\frac{a}{2}} + Z_b)^2 \; x \; [p1(1-p1) + p2\,(1-p2)]}{(p1-p2)^2}$$

Where

n = sample size required in each group

$p1$ = proportion of subjects with correct knowledge or positive attitude after the lecture

$p2$ = proportion of subjects with correct knowledge or positive attitude before the lecture

$p1 - p2$ = clinically significant difference

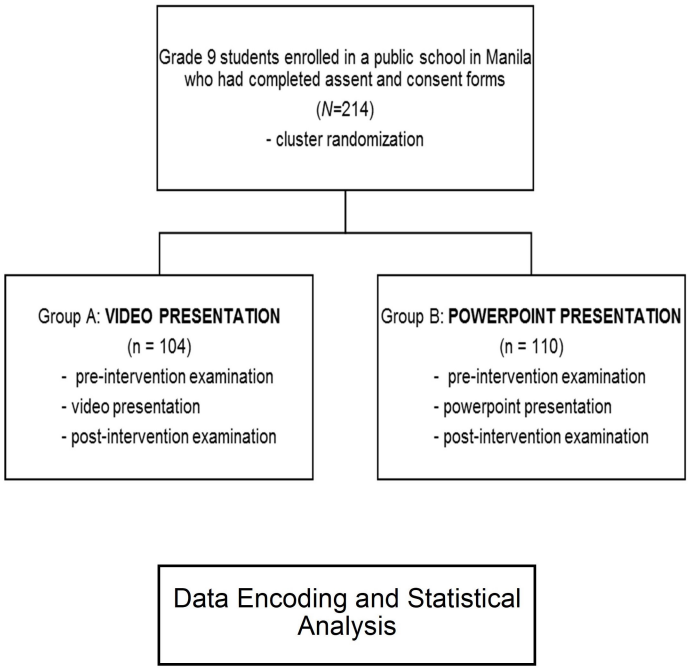
At 5% level of significance, power of 80%, using two-tailed z-test of proportion, the highest computed sample size was 104.

Data analysis:

IBM® SPSS Statistics version 24 software was used in the data analysis. Baseline data were analyzed using descriptive statistics. Normality of HIV scores was assessed using the Kolomogorov-Smirnov test. Student t-test was used to compare HIV/AIDS knowledge awareness and attitude before and after the intervention, and compare the scores between the 2 groups. Chi-square was used to compare the HIV attitude scores before and after the intervention. Significance level was set at 0.05.

Ethical considerations: Ethics approval was obtained prior to the conduct of the study. Permission was also obtained from the regional office of the Department of Education as well as the school principal. A written informed consent and assent were obtained from all parents and students prior to data collection. Participants were free to decline from answering questions that made them feel uncomfortable.

Figure 1. Flow Chart of the Methodology of the Study



RESULTS

Study Population

Two hundred fourteen (214) students participated in the study, 123 of whom (57%) are females. The mean age is 14.27 years. Parents of participants finished college (49.5%) and high school (48.6%) respectively.

Knowledge Sources of HIV/AIDS

Most obtained information on HIV/AIDS through television (87.4%), followed by newspaper (14.4%), and through family (14%), with the school as the least source of information on HIV/AIDS (1.4%).

HIV/AIDS Knowledge Situation before and after Intervention

In the video group pre-intervention (see table 3), more than 75% knew that AIDS is caused by a virus, that it is an infectious disease, and that it can be prevented. Majority (95%) identified unprotected sex as a mode of transmission of HIV/AIDS. However less than a quarter (<75%) believed that shaving/tattooing/ear piercing using unsterilized tools and breastfeeding can transmit the disease.

Table 1. Socio-demographic characteristics of study participants

	N = 214	%
Gender		
Males	91	42.5
Females	123	57.5
Age (years)		
13	12	5.6
14	130	60.7
15	59	27.6
16	12	5.6
Father's Education		
Elementary	11	5.2
Graduate	97	45.3
High School	106	49.5
graduate		
College Graduate		
Mother's Education		
Elementary	10	4.7
Graduate	104	48.6
High School	100	46.7
graduate		
College Graduate		

Table 2. Source of Information on HIV/AIDS

	N = 214	%
Television	187	87.4
Friend	25	11.7
Newspaper	31	14.4
Family	30	14.0
Radio	21	9.8
School	3	1.4

Table 3. Percentage and comparison of HIV/AIDS knowledge before and after intervention

	Video					PowerPoint				
	Before		**After**		P-value	**Before**		**After**		P-value
	N	%	N	%		N	%	N	%	
Basic Medical Knowledge										
Is AIDS caused by a virus	81	78.64	96	91.43	0.002	85	77.27	103	93.64	0.005
A person can be known infected from its appearance	56	54.37	70	66.67	0.069	77	70.00	106	96.36	0.001
AIDS is an infectious disease	88	85.44	95	90.48	0.0001	104	94.55	102	92.73	0.580
AIDS can be cured	53	51.46	69	65.71	0.036	84	76.36	106	96.36	0.000
AIDS can be prevented	96	93.20	99	94.29	0.009	106	96.36	108	98.18	0.443
Transmission Knowledge										
AIDS can be transmitted through										
Blood transfusion	76	73.79	99	94.29	**0.046**	104	94.55	110	100.0	0.291
Sharing needle with an infected person	85	82.52	98	93.33	**0.023**	103	93.64	110	100.0	**0.014**
Shaving/tattooing/getting ear pierce with unsterilized tools	64	62.14	72	68.57	**0.000**	83	75.45	86	78.18	0.631
An infected pregnant to her unborn person	88	85.44	102	97.14	**0.034**	104	94.55	106	96.36	0.517
Having unprotected sex with an infected person	98	95.15	104	99.05	**0.000**	104	94.55	110	100.0	**0.029**
Breastfeeding	60	58.25	97	92.38	**0.034**	75	68.18	98	89.09	**0.000**
AIDS cannot be transmitted through										
Hugging/kissing/shaking hands with an infected person	40	38.83	89	84.76	0.0001	49	44.55	102	92.73	**<.05**
Sharing toilet seats/swimming pool with an infected person	51	49.51	100	95.24	0.004	64	58.18	106	96.36	**<.05**
Sharing cups/dinner set/bedding/tools with an infected person	51	49.51	93	88.57	0.0002	52	47.27	98	89.09	**<.05**
Mosquito bites	51	49.51	73	69.52	0.005	71	64.55	105	95.45	**0.000**
Studying in the same classroom with an infected person	36	34.95	82	78.10	0.036	61	55.45	108	98.18	**<.05**
Coughing	53	51.46	91	86.67	0.0004	68	61.82	106	96.36	**<.05**

For the Powerpoint group, more than 75% of the subjects answered the items correctly except for breastfeeding as a mode of transmission of the disease.

Almost half of participants believed that HIV/AIDS can be transmitted through casual contact with people with HIV/AIDS, by sharing utensils or sharing swimming pools and through mosquito bites.

Post-intervention, both groups had a statistically significant increase in scores.

Figure 2 shows the pre- and post-intervention scores of each group with mean pre-intervention scores of 68% and 70% for the video and PowerPoint groups, respectively.

Table 4 shows that there was no significant difference in the pre-intervention scores between the groups (p=0.128). The mean scores after the intervention were 85% and 94% respectively, with a difference of 9% favoring the PowerPoint presentation.

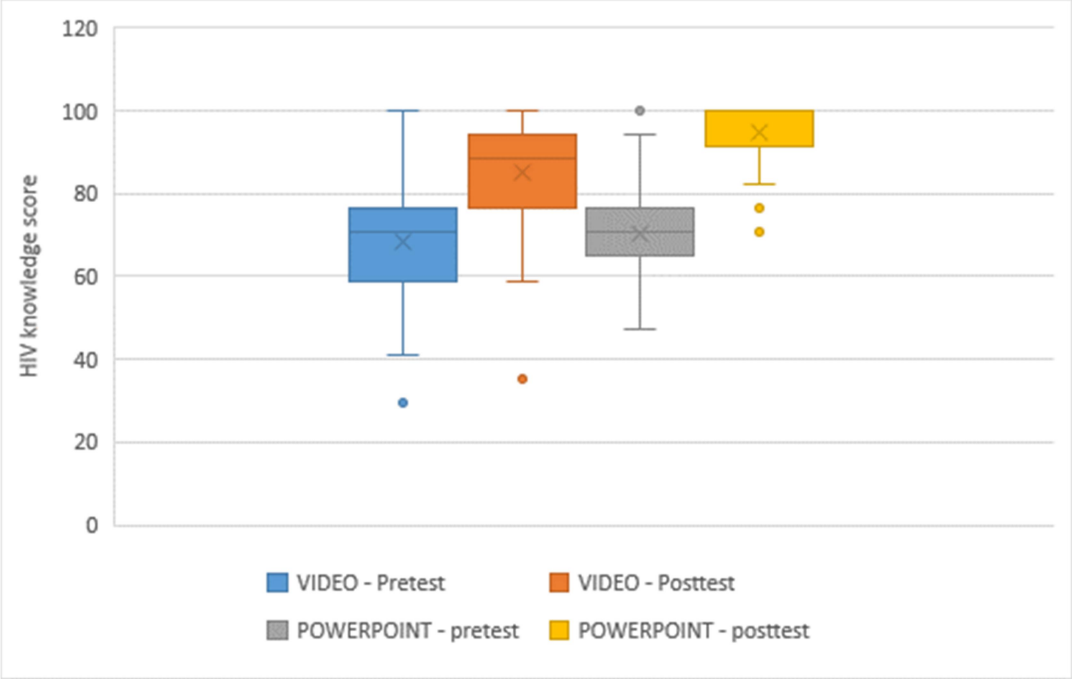


Figure 2. Box plot of HIV knowledge scores grouped per intervention
The x represents the median and the boxes represent the range of scores. Dots represent outlying scores.

The difference in scores before and after the video presentation was statistically significant ($p < 0.001$) with an approximate increase by 16% after the intervention. A similar finding was seen in the PowerPoint group ($p < 0.001$) with an increase by 24%. Comparing the 2 interventions, the difference in post-intervention scores was statistically significant ($p < 0.001$; 95% confidence interval) favoring the PowerPoint group.

Table 4. Comparison of HIV/AIDS knowledge scores before and after intervention.

	Mean Diff	Std. deviation	Std. error mean	95% confidence interval of the difference		T	df	Sig. (2-tailed)
				Lower	Upper			
Video pretest – Powerpoint pretest	-2.74348	18.65510	1.78683	-6.28529	.79834	-1.535	108	.128
Video pretest – posttest	-16.61893	17.33307	1.66788	-19.92530	-13.31256	-9.964	107	**.000**
Powerpoint pretest – posttest	-24.19245	13.37878	1.25857	-26.68614	-21.69875	-19.222	112	**.000**
Video posttest – Powerpoint posttest	-9.25926	12.14886	1.16902	-11.57671	-6.94180	-7.920	107	**.000**

Attitude towards People Living with HIV/AIDS

Table 5 shows that even before the intervention, majority of participants (91% in the video group and 94% in the video group) said that they would like to help people living with HIV/AIDS. This further increased to 99% and 96% respectively after the intervention. Most of the students (92% in the video group and 94% % in the PowerPoint group) would like to take care of their classmates/families if they were infected with HIV. After the intervention, the rate increased up to 99% and 96%, respectively.

Majority of students believed that HIV/AIDS should be included in the curriculum. As for participation in HIV/AIDS awareness programs, 86 students (83.5%) in the video group and 99 students (90%) in the PowerPoint group wanted to be involved in such activities. This increased to 96.2% and 93.6% respectively, after the intervention. Both interventions had statistically significant changes on attitude towards people living with HIV.

DISCUSSION

This study showed that majority of students obtained information on HIV/AIDS from the media (television and newspaper), similar to the study done in Kosovo (2). This is also consistent with findings of the Young Adult Fertility and Sexuality Survey 2013 (YAFS) where mass media played a significant role on HIV awareness. Although the study by Tan *et al* showed that mass media tended to have negative effects on HIV education due to propagation of misconceptions on the disease, media remains to be an important source of information on HIV (3). It is thus important to monitor how HIV is being portrayed in these sources to ensure that HIV education programs address serious emerging misconceptions about the disease.

In the Philippines, a study by Gao *et al* showed that a minority obtained information on HIV/AIDS through school and from friends and relatives, as parents are thought to have difficulty in speaking openly about the disease (4). In contrast, several

Table 5. Percentage and comparison of HIV/AIDS knowledge before and after intervention

	Video					PowerPoint					
	Before		**After**		P-value	**Before**		**After**		P-value	
	N	%	N	%		N	%	N	%		
HIV											
Would you like to help a person with HIV/AIDS	94	91.26	103	98.10	**0.0004**	104	94.55	105	95.45	0.096	0.446
Would you like to take care of your family or classmate with HIV/AIDS	95	92.23	104	99.05	**0.002**	104	94.55	106	96.36	0.517	0.369
School should include HIV/AIDS in their curriculum	89	86.41	97	92.38	**0.007**	101	91.82	100	90.91	0.809	0.696
Would you like to participate in HIV/AIDS health information campaign	86	83.50	101	96.19	**0.005**	99	90.00	103	93.64	0.325	0.395

Students relied on the health department through physicians as a source of information on HIV/AIDS. These were likewise noted in this study with the family (14%), and the school as the least source of information on HIV/AIDS (1.4%).

Even before the intervention, students were aware of the causes, transmission, and prevention of HIV/AIDS but some misconceptions were noted. Most knew that HIV/AIDS can be transmitted through unprotected sex, blood transfusion/sharing needles with an infected person and having more than one sexual partner. Although not representative of the youth population, the baseline scores obtained of 68% and 70% for the video and PowerPoint groups respectively were similar with findings from YAFS 2013 where a low percentage of Filipino youth was found to have comprehensive knowledge on AIDS. A significant number of students believed that it can be transmitted by sharing utensils, food and toilet seats with an HIV-infected person, or through mosquito bites. The said results were similar with the findings from YAFS 2013.

These findings also echo the results of Gao where majority of secondary school students knew that AIDS is infectious, and can be transmitted through unprotected sex, blood

transfusion/sharing needles with an infected person, and having more than one sexual partner but can be prevented (4).

There is a small percentage of respondents who believed that it can be transmitted by sharing utensils, food, through fomites such as toilet seats, or through mosquito bites. As to treatment of HIV/AIDS, only a small number of students knew that there is no cure for HIV/AIDS (4).

Different strategies are used in HIV/AIDS awareness programs in schools. Borgia *et al* (2005) showed that peer-led interventions caused an improvement on knowledge of HIV, but teachers still play an important role on HIV awareness among high school students.[11] Majority believed that schools must improve their curriculum about HIV/AIDS (5). In this study, majority of students believed that HIV/AIDS should be included in the curriculum.

Both interventions had a statistically significant increase in pre- and post-intervention scores on HIV knowledge among the students, with the PowerPoint presentation producing a greater increase. This is in contrast with those of Calderon *et al* where an educational HIV/AIDS video was found to be more effective in conveying knowledge on HIV among high-risk groups (6). These were also contrary to the findings of Schreiber *et al.* (2010) which showed no significant difference between pre- and post-intervention scores after giving live lectures and video presentations (7). Our study showed that although more convenient as a teaching tool, the subjects found video presentations to be less engaging and were less likely to be finished.

Students relied on the health department through physicians as a source of information on HIV/AIDS. These were likewise noted in this study with the family (14%), and the school as the least source of information on HIV/AIDS (1.4%).

CONCLUSION

A PowerPoint lecture was more effective than a video presentation in increasing the knowledge and promoting a positive attitude towards HIV/AIDS among grade 9 public school students in Manila.

RECOMMENDATION

A 6-month follow-up study is suggested to evaluate long-term changes on the knowledge of participants. Prevalence of high-risk behaviors must be included as a measure of efficacy of the intervention.

A larger sample size to include all secondary school students, and even out-of-school youth is also suggested in future studies.

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