

# Effectiveness of educational intervention on the knowledge about acquired immunodeficiency syndrome among school students

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## Abstract

**Introduction:** About 35% of all reported AIDS cases in India occur among youths in the age group of 15-24 years, which signifies that the youngsters are highly susceptible and the majority get infected through unprotected sex. The objective of the study was to assess the effectiveness of an educational intervention on the knowledge about acquired immunodeficiency syndrome (AIDS) among school going students.

**Material and methods:** The study employed a quasi-experimental, single group pre- and post-test design. A total of 60 school students were selected by using a purposive sampling technique. A structured knowledge questionnaire was administered before and after an educational intervention. The data were analysed using SPSS version 16.

**Results:** The study included 60 students and their mean age was 16. There was a significant improvement ( $p = 0.001$ ) in the level of knowledge on acquired immunodeficiency syndrome among the students after the educational intervention. There was a significant association found between the level of knowledge and the place of living, the year of their study and the sources of information.

**Conclusions:** Educational interventions are very useful in teaching the students and creating awareness on AIDS, reduce the incidence and global burden of AIDS.

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**Key words:** acquired immunodeficiency syndrome, schools, students, teaching, HIV.

## Introduction

HIV is an abbreviation for the 'human immunodeficiency virus' that belongs to a retrovirus group, where it reproduces within a host cell and comprises a part of the immune system [1]. The HIV weakens the immune system. As the virus damages the immune cells, the infected persons slowly become immunodeficient and acquired immunodeficiency syndrome

(AIDS) develops. The immune function is measured by the CD4 cells count. Due to immunodeficiency, an individual is more susceptible to a range of infections and illnesses that healthy people can resist [2].

AIDS remains a worldwide public health problem, and until now it has claimed more than 35 million lives. In 2015, 1.1 million (940 000-1.3 million) people deceased from HIV-related causes globally. There were about 36.7 (34.0-39.8)

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million people living with AIDS at the end of 2015 and 2.1 (1.8-2.4) million people were newly infected with the HIV in 2015. About 54% of people know their HIV status. In 2014, approximately 150 million children and adults in 129 low- and middle-income countries received HIV testing services [2].

In 2014, about 2.0 million adolescents in the age group between 10 and 19 lived with AIDS worldwide. Adolescents account for about 5 percent of all people living with AIDS and about 12 percent of the new adult HIV infections. AIDS is the leading cause of death among adolescents (10-19) in Africa and the second leading cause of death among adolescents globally. AIDS-related deaths among the youngsters have tripled since 2000, while the death rate is decreasing among all other age groups, which can be largely attributed to a generation of children infected with perinatally acquired HIV and growing into adolescence without access to life-saving interventions [3].

About half of the youngsters (15-19) are living with HIV in the following six countries: South Africa, Nigeria, Kenya, India, Mozambique and Tanzania. Every hour, 26 adolescents (15-19) were newly infected with HIV in 2014 (220,000 in total). However, the HIV remains a global issue when it comes to prevention among adolescents. If the current trends continue, hundreds of thousands more will become HIV-positive in the coming years [3].

India has more than 22.8% of adolescents in the 10-19 age group; HIV can be a challenging intimidation in terms of both incidence and prevalence. Even though the importance of young adults in the HIV epidemic is highlighted, the prevention research is very limited. Adolescence is the second decade of life where myriad changes take place in both physical and psychological development. In this phase, young people (10-19 years) present high-risk behaviours and experimentation that includes early sexual activity due to hormonal changes, peer pressure, violence, trafficking and substance abuse. Besides, there is a lack of knowledge about AIDS, unreliability of healthcare services, lack of education and life skills and early marriage have increased their susceptibility to AIDS [4].

Schools are the target place to disseminate information and education on AIDS, thus the school education is described as a 'social vaccine' and it can be a powerful tool in creating awareness and prevention of AIDS. The school students are powerful weapons in controlling AIDS and spread the right amount of information which helps them to equip against this still incurable killer disease [5]. Hence, we decided to conduct a research study that evaluates the effectiveness of the educational intervention on the knowledge about AIDS among the school students, considering the results that can be replicated through a mass school education programme in order to reduce the incidence and prevalence towards AIDS-free nation.

Objectives of the study were: 1) to assess the level of knowledge on AIDS among the school students, 2) to evaluate the effectiveness of the educational intervention on the knowledge regarding AIDS, 3) to find out the association between the level of knowledge with selected socio-demographic variables.

## Material and methods

The research design used was a quasi-experimental single group, pre- and post-test design. The sample of the study consisted of 60 students attending the Government Secondary High School (11<sup>th</sup> and 12<sup>th</sup> grade) in Bangalore, Fort, Karnataka, India. A purposive sampling technique was utilized to select the samples and the following inclusion criteria were applied: school students, students aged between 15 and 19 years and those who were willing to participate were included in the study.

In this study, 40 structured knowledge questionnaires were prepared and validated with a panel of experts and the reliability of the tool was checked by using split-half test. Spearman Brown's prophecy formula was applied to determine the reliability. The reliability of the tool was found to be 0.76 revealing that the tool was reliable. Aspects of the questionnaire addressed the issues related to the basic terminologies of HIV/AIDS, risk factors, misconceptions about HIV transmission, modes of HIV transmission, infection and prevention of AIDS.

This research study is fit into the guidelines and the procedures followed were in accordance with the Helsinki Declaration of 1975. Prior to the administration of the knowledge questionnaire, the permission was obtained from the school authorities (No. GCN/02) concerned. Most study participants did not exceed the limit of the legal age to give the informed consent, and due to this, the assent was taken from the class teachers concerned.

The pre-test knowledge was assessed using the structured knowledge questionnaire and the educational intervention was implemented on the knowledge regarding the AIDS. Awareness was created by explaining the global statistics and the burden of AIDS among adolescents followed by AIDS education, which includes infection, risk behaviours, modes of transmission and prevention, testing and screening. The method of teaching was by lecture and discussion using PowerPoint and the session lasted for about an hour. At the end of the session, the students were allowed to raise their doubts and necessary information was given to them.

One week after the educational intervention a post-test was administered to the same group of students. The knowledge level was categorized as less than 50% of the score was regarded as inadequate, 51-75% as moderate knowledge and above 75% score was taken as adequate knowledge on AIDS. The collected data were analysed using descriptive and inferential statistics. The Statistical Package for Social Sciences (SPSS) version 16 was utilized for the analysis.

## Results

The total number of participants was 60 male students. Out of this 48.3% (29) were 16-year-olds and 53.3% were studying in 12th grade and 46.6% in 11th grade. The majority of them (68.3%, 41) belonged to Hindu religion, and 31 (51.6%) were from the rural area, and 29 (48.3%) from the urban. Most of the parents, 55% (fathers) and 80%

**Table 1.** Socio-demographic characteristics of senior secondary school students ( $n = 60$ )

Variables	Frequency (n)	Percentage (%)
Age (years)		
16	29	48.3
17	24	40
18	05	8.3
19	02	3.3
Gender		
Male	60	100
Class/grade		
11 <sup>th</sup>	28	46.6
12 <sup>th</sup>	32	53.3
Religion		
Hindu	41	68.3
Muslim	19	31.6
Place of residence		
Urban	29	48.3
Rural	31	51.6
Source of information		
School education	30	50
Books	22	36.6
Media	08	13.3
Parents' educational status		
Father		
Non formal	33	55
Formal	27	45
Mother		
Non formal	48	80
Formal	12	20
Monthly family income		
Rs. 1000-10000	22	36.6
Rs. 11000-20000	24	40
Rs. 21000-30000	14	23.3

**Table 2.** Knowledge level on HIV/AIDS among senior secondary school students ( $n = 60$ )

Knowledge level	Pre-test		Post-test	
	Frequency	Percentage	Frequency	Percentage
Inadequate (< 50%)	32	53.33	0	0.0
Moderate (51-75%)	28	46.7	24	40
Adequate (> 75%)	0	0.0	36	60

(mothers) did not have any educational background and the family income of 40% of them was between Rs. 11,000 and Rs. 20,000. The details of the socio-demographic variables of the students are summarized in Table 1.

The level of knowledge among the school students revealed that, in the pre-test, 53.3% of the students had an inadequate knowledge level on AIDS whereas in the post-test, 60% of the students had adequate knowledge after the educational intervention (Table 2).

The post-test (mean 34.18, SD 4.8) knowledge score was significantly higher than the pre-test knowledge score on AIDS (mean 21.88, SD 5.5), after administering the educational intervention and there was a statistically significant ( $t = 13.05$ ) increase in the level of knowledge among the school students (Table 3). There was an association with the level of knowledge and the year of study ( $p = 0.003$ ), the place of living ( $p = 0.005$ ) and the source of information ( $p = 0.002$ ) (Table 4).

## Discussion

The present study shows that there was a significant change found between the pre-test (mean 21.88, SD 5.5) and the post-test (mean 34.18, SD 4.8) knowledge scores regarding AIDS among the senior secondary school students after the educational intervention. A similar quasi-experimental study was conducted in Akwa Ibom State, Nigeria, to examine the effects of AIDS preventive health education among the students towards AIDS prevention. The results of the study indicated a significant effect of intervention on the students' knowledge towards the preventive measures [6].

Another study was conducted to evaluate the impact of school-based AIDS education for adolescents. The results of the study revealed that only 50% of the students were aware that AIDS was sexually transmitted, but after the educational intervention, 95% identified that HIV/AIDS is sexually transmitted [7].

Another similar study was conducted in Wuhan, China, on the effectiveness of school-based education on HIV/AIDS knowledge, attitude and behaviour among secondary school students; the results have shown that the students had misconceptions about certain modes of HIV transmission, and after the educational intervention, all the students had a significant improvement in knowledge and attitude ( $p < 0.05$ ) [8].

In the present study, the demographic characteristics like the year of studying, place of residence and source of information are found to have a high significant association with the pre-test knowledge scores. A similar study was conducted to determine the knowledge regarding the prevention of HIV infection especially with reference to the demographic variables among the middle class high school students in New Delhi, India. They found the increasing age, low socioeconomic status and rural residence were the important factors influencing the knowledge [9].

The respondents of the study group were 16-19 years old and most of their source of information was the school education (63.3%); they had only some information on HIV/

**Table 3.** Pre- and post-test knowledge on HIV/AIDS among senior secondary school students (n = 60)

	Mean	SD	Minimum score	Maximum score	Paired t-test	P value
<b>Pre-test</b>	21.88	5.5	15	30	13.05***	0.0001
<b>Post-test</b>	34.18	4.8	20	34		

Note: \*\*\* Significant at P<0.005

**Table 4.** Association between post-test knowledge score and socio-demographic variables (n = 60)

Demographic variables	Knowledge level				X <sup>2</sup> value	P value		
	Moderate		Adequate					
	n	%	n	%				
<b>Year of studying</b>								
11 <sup>th</sup> grade	18	64.2	10	35.7	12.9***	0.0003		
12 <sup>th</sup> grade	6	18.7	26	81.2				
<b>Place of residence</b>								
Urban	5	17.2	24	82.7	12.1***	0.0005		
Rural	19	61.2	12	38.7				
<b>Source of information</b>								
School education	22	57.8	16	42.1	13.82***	0.0002		
Books	02	9.09	20	90.9				

\*\*\*Significant at p < 0.005

AIDS and their socioeconomic background was not sound and they lived in the rural areas (31%). Most of their parents did not have any education to create awareness among their children, these might be some of the reasons behind a relatively lower knowledge before the educational intervention and after the intervention there was a significant increase in the respondents' knowledge. All the respondents indicate that there is a need of awareness program on HIV/AIDS.

## Conclusions

The educational intervention programs are found to be very effective in improving the knowledge. The adolescents' educational programs are useful in preventing the incidence and prevalence of AIDS. The results of the present study are positive and statistically significant in terms of knowledge gain after administering the educational intervention. Therefore, this article concludes that a range of educational methods is very effective in preparing the future generations to break the chain of AIDS and create a healthy nation.

## Conflict of interest

The authors declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

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