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Original Research Article

Knowledge regarding HIV/AIDS and its prevention among high school students of Anantnag district, Jammu and Kashmir, India: a pre-experimental study

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ABSTRACT

Background: India has become one of the most populous country in the world, and it would be a disaster if our adolescent children fell into the trap of HIV/AIDS, which not only disrupts the healthcare system of any country but also has an impact on the morals of the people. Therefore, the main aim of the study was to understand the knowledge regarding HIV/AIDS and its prevention among high school children.
Methods: This was a pre-experimental study in which 60 high school students participated. The knowledge was assessed using demographic characteristics and 30-item knowledge questionnaires. SPSS V16.0 was used for the data analysis. Paired t-test, descriptive statistics, and chi-square analysis were used to check the association.
Results: In the study, the majority of the participants, 46 (76.66%), had inadequate knowledge, and only 14 (23.33%) had moderate knowledge regarding HIV/AIDS. The paired "t"-test value was 54.63 at the level of $p<0.0001$, which was significant. We also found multiple associations between gender, qualification of the mother, occupation of the mother, qualification of the father, occupation of the father, type of family, and source of information.
Conclusions: It was observed that there was relatively less knowledge among high school students regarding HIV/AIDS and its prevention. However, after the teaching program, the knowledge improved. Therefore, a multi-dimensional approach should be taken by the school authority to create awareness campaigns for the students.

Keywords: High-school students, HIV/AIDS, Jammu & Kashmir, Knowledge, Pre-experimental study, Prevention

INTRODUCTION

HIV/AIDS is currently one of the most problematic public health challenges of the 21st century, affecting most parts of the world. According to the WHO Since the beginning of the epidemic, 85.6 million people have been infected with the HIV virus, and about 40.4 million people have died of HIV. And recent reports say that globally, around 39 million people will be living with AIDS at the end of 2022. However, the epidemic continues to grow and vary depending on the various regions and countries where the African region is affected the most.[1] In India, it is reported that about 2.40 million people are affected, and the majority of the age group falls between 15 and 49 years old. However, the concentration of AIDS in India is seen primarily in a few states, mainly Andhra Pradesh, Maharashtra, Karnataka, and Tamil Nadu.[2] Currently, AIDS is not limited to adult populations; it has also spread to youngsters attending school. They now belong to a high-risk category and are susceptible to HIV/AIDS, which was almost unheard of just a few decades ago. Research indicates that there is an

increase in the number of youths who are visiting STI clinics, along with those who are HIV positive.[3] An analysis of a prior retrospective cohort study reveals that around 61,000 children in India are living with HIV/AIDS, making up 7% of all new cases of HIV infection.[4] Given that India has the largest number of youths in the world, the numbers are very concerning. According to UNAIDS, around 1.3 million individuals worldwide acquired HIV in 2022, marking a 38% decline in new HIV infections since 2010 and a 59% decline since the peak in 1995.[5] The NACO (National AIDS Control Organization), which was formed by the Government of India to fight against HIV/AIDS, reported that the prevalence is now 0.21%, which has decreased significantly since the start of the epidemic in India, which gives new hope for the future.[6] A previous study reported that India has the highest number of adolescent HIV infections in Southeast Asia, which is really a cause for concern.[7] Adolescence is a transition phase from being a child to becoming an adult. And due to this, they require the utmost care and attention from both parents and society. This is the time the children's like to explore themselves and also develop the curiosity to try new things. Which makes them vulnerable to exposure to AIDS. According to data released by NACO in 2021, there are 0.7 lac people under the age of 15 and 1.7 lac people between the ages of 15 and 24 who are HIV positive, with 15,000 new infections occurring in the latter age group annually. In each category, the average number of deaths is 2500 and 1,12, 000, respectively.[6] Since the beginning of the epidemic, there has been extensive research done to counter HIV/AIDS, but not much progress has been made, and till now there is no curable treatment available in the world. However, with ART (anti-retroviral therapy) treatment, infected patients can extend their life span with some precautionary measures. The HIV/AIDS-infected patients' distribution is different in different states, and among them, Jammu and Kashmir have one of the lowest prevalence's in the country, and the expert says it is a "tickling bomb that can explode anytime."[8] As of March 2023, there were 7169 people with HIV/AIDS living in the Jammu and Kashmir region, and among them, school-age children were also included.[9] Therefore, we need to understand the fact that HIV/AIDS is not curable but treatable, and only healthy practices can prevent spreading HIV/AIDS. Moreover, there were only limited studies done in the Jammu and Kashmir region on HIV/AIDS among adolescents. Therefore, the present study aimed to investigate the knowledge regarding HIV/AIDS among high school students in Anantnag district in Jammu and Kashmir.

METHODS

Study design and population

A high-school-based pre-experimental study with a one-group pre-test and post-test design was adopted on government high school students at Tailwani, Anantnag district, in the years 2022-2023, and a total of 60 students have participated in the study. Ethical committee approval was obtained from the institutional ethical committee member and also from the government school principal before the data collection.

Study setting

Jammu and Kashmir (also known as paradise on earth) is the union territory of India. The study was done at the government high school in Tailwani, which is situated in the Anantnag district of J&K.

Sample size and sampling procedures

Total 60 high school students were included in the study using simple random sampling techniques with a probability sampling approach. The students who were willing to participate and understood English or Urdu were included in the study, whereas those who had not given their consent and were unwilling to participate were excluded from the study.

Data collection instrument

The data collection instruments were developed by the investigator, and the instruments were divided into two sections. Section A included demographic variables such as age, gender, mothers' education, mothers' occupation, fathers' education, fathers' occupation, socio-economic status, type of family, and source of information. Section B included 30 questions in the areas of general knowledge, causes and transmission, cell involvement, signs and symptoms, and diagnosis and treatment. Therefore, a total score of 30 was allotted.

Data collection technique

The formal permission was taken from the concerned authority of the government high school in Tailwani, Anantnag, and also from the institutional committee. The information was gathered between August 1st and September 5th, 2023. The participants were requested to fill out the form, which includes questionnaires with a consent form attached. The school principal and teachers were also present to maintain discipline while filling out the questionnaires, and the students were also instructed not to use any materials for reference purposes and not to discuss with other students to find out the correct answer. Around 30 minutes were taken for each participant to complete the questionnaires.

Data quality control

A pilot study was done in another government school in Anantnag district, which was far from the original test site, and 10% of the total participants were taken to ensure that the selected questionnaires were clear and easily understood by the school children, and based on the pilot study results, further modifications were made.

Data analysis

SPSS version 20.0 was used for the data analysis. The descriptive statistics were presented with the mean, standard deviation, frequency, and percentage. The data were analyzed using a paired t-test. Further, to check the association, chi-square analysis was used.

RESULTS

A total of 60 high school students have participated in this study. Among the participants, the majority, 35 (58.33%), were female and were 13 years old, 20 (33.44%). With regards to the education of fathers and mothers, the majority of the mothers, 26 (43.33%), had an elementary level of education, whereas the fathers, 35 (58.33%), had a graduation or above level of education. In terms of occupation, a majority of 36 (60%) of the mothers were unemployed. However, the majority of the fathers, 39 (65%), were employed and belonged to middle-class families, 44 (73.33%). Furthermore, the majority of the participants, 31 (51.67%), were staying in a joint family, and the main source of information regarding HIV/AIDS was television or radio 24 (40%) (Table 1).

Table 1: Description of socio-demographic variables of high-school students (N=60).

Demographic variables	Categories	Frequency (f)	Percentage
Age in years	12	10	16.66
	13	20	33.44
	14	15	25
	15	15	25
Gender	Male	25	41.66
	Female	35	58.33
Education of the mother	Elementary	26	43.33
	High school	16	26.67
	Higher secondary	6	10
	Graduation and above	12	20
	Illiterate	-	-
Occupation of the mother	Employed	18	30
	Unemployed	36	60
	Self – employed	6	10
	Daily wage earner	-	-
Education of the father	Elementary	4	6.6
	High school	13	21
	Higher secondary	8	13.3
	Graduation and above	35	58.33
	Illiterate	-	-
Occupation of the father	Employed	39	65
	Unemployed	-	-
	Self – employed	19	31
	Daily wage earner	2	3.33
Socio – economic status	Lower class	16	26.66
	Middle class	44	73.33
	Upper class	-	-
Type of family	Nuclear family	29	48.33
	Joint family	31	51.67
	Extended family	0	0
Source of information	Social media	14	23.33
	Television/ radio	24	40
	Newspapers/magazines/news letters	11	18.33
	Family and friends	11	18.33

Table 2 depicts the frequency and percentage distribution of pre- and post-test knowledge among high school students regarding HIV/AIDS and its management. The result shows that the majority of the participants, 46 (76.66%), had inadequate knowledge and only 14 (23.33%) had moderate knowledge regarding HIV/AIDS. However, after the implementation of the structured teaching program, the post-test results show a majority of 55 (91.6%) of the participants have adequate knowledge and 5 (8.4%) of the participants have moderate knowledge. Therefore, it shows that the teaching program for the high school students was found to be effective. A

paired "t" test was done to determine the significance of pre- and post-test knowledge regarding HIV/AIDS and its management. The table shows that there is an improvement in knowledge after the post-test score, where out of the maximum score of 60, the mean score was found to be 14.96 with a mean percentage of 24.93, the standard deviation was 0.56, and the "t"-test value was 54.63 at the level of p<0.0001 (Table 3). Table 4 depicts the association of post-test knowledge scores with their selected demographic variables. The result shows that the association between gender ($\chi2$ = 11.92), qualification of mother ($\chi2$ = 6.63), occupation of mother ($\chi2$ = 6.999), qualification of father ($\chi2$ = 21.542), occupation of father ($\chi2$ = 17.49), type of family ($\chi2$ = 9.599), and source of information ($\chi2$ = 20.36) was found to be statistically significant. Whereas age and socio-economic status were found to be insignificant.

Table 2: Frequency and percentage distribution of pre and post-test knowledge among high school students regarding HIV/AIDS and its management (n=60).

Level of knowledge	Pre - test		Post - test	
	Frequency (f)	Percentage (%)	Frequency (f)	Percentage (%)
Inadequate knowledge (<50%)	46	76.66	-	-
Moderate knowledge (50-75%)	14	23.33	5	8.4
Adequate knowledge (>75%)	-	-	55	91.6
Total	60	100	60	100

Table 3: Paired "t" test analysis for the significance of pre and post-test knowledge regarding HIV/AIDS and its management (n=60).

Variable (knowledge)	Paired t-test difference				P value	t-test value
	Max. score	Mean	Mean %	SD		
Pre – test	60	7.7	12.833	1.1874	p<0.0001	54.63*
Post - test	60	22.66	37.77	1.7474		
Enhancement		14.96	24.93	0.56		

Note: *- Denotes significant (p<0.0001) for df =118

Table 4: Association of post-test level of knowledge scores with selected demographic variables (n= 60).

Demographic variables	Categories	Knowledge level					χ^2- value	P value
		Very Poor	Poor	Average	Good	Very Good		
Age	12 years	0	3	2	4	1	5.8 df = 12 NS	p>0.05
	13 years	2	4	6	3	5		
	14 years	1	3	4	3	4		
	15 years	2	4	3	2	4		
Gender	Male	2	5	7	5	6	11.92 df = 4 S	p<0.05
	Female	11	12	8	3	1		
Qualification of the mother	Elementary	5	3	8	6	4	6.63 df = 12 S	p<0.05
	High school	2	3	2	4	5		
	Higher secondary	3	1	2	4	2		
	Graduation and above	3	1	2	4	2		
	Illiterate	0	0	0	0	0		
Occupation of the mother	Employed	3	2	4	5	4	6.999 df = 8 S	p<0.05
	Unemployed	10	6	6	8	6		
	Self employed	0	0	2	1	3		
	Daily wage earner	0	0	0	0	0		
Qualification of the father	Elementary	1	0	2	1	0	21.542 df = 12 S	p<0.05
	High school	5	2	1	2	3		
	Higher secondary	1	1	3	1	2		
	Graduation and above	5	6	8	6	10		
	Illiterate	0	0	0	0	0		
Occupation of the father	employed	4	5	7	12	11	17.49 df = 8 S	p<0.05
	unemployed	8	6	3	1	1		
	Self - employed	0	1	0	0	1		
	Daily wage earner	0	0	0	0	0		
Socio-economic	Lower class	2	3	4	3	4	0.596 df = 4	p>0.05
	Middle class	8	7	8	9	12		

Continued.

status	Upper class	0	0	0	0	0	NS	
Type of family	Nuclear family	8	7	6	2	6	9.599 df = 4 S	p<0.05
	Joint family	12	6	6	7	0		
	Extended family	0	0	0	0	0		
Source of information	Social media	2	3	2	4	3	20.36 df = 12 S	p<0.05
	Television/radio	6	4	4	7	3		
	Newspaper/magazines/news letters	0	3	2	2	1		
	Family and friends	4	2	2	2	1		

Note: S-Significant at 5% level (i.e. p<0.05), NS-Not significant at 5% level (i.e. p>0.05).

DISCUSSION

A lot of research has been done regarding HIV/AIDS all around the world. However, a limited number of research was done among high school students. This study highlights the knowledge regarding HIV/AIDS and its prevention among high school students in the Jammu and Kashmir region of India. Our study shows that the majority of the participants, 46 (76.66%), had inadequate knowledge, and only 14 (23.33%) of the participants had moderate knowledge regarding HIV/AIDS. However, after the implementation of the structured teaching program, the post-test results show a majority of 55 (91.6%) of the participants have adequate knowledge, and only 5 (8.4%) of the participants have moderate knowledge. This finding is consistent with the studies done in China, and India.[10,11]

However, our result was inconsistent with the studies done in India, Kuwait, Kenya, Bangladesh, Cameroon, Ghana, Nigeria and Ethiopia.[3,12-18] The study results show that most of the students have a moderate to high level of knowledge. This discrepancy could be due to the fact that in our study only one high school was selected and the sample size was smaller compared to the previous studies. Also, the study was done in one of the most backward sections of Jammu and Kashmir, where, due to the geographical and political instability, most of the students could not go to school and have access to the internet or any other social media.

We also found multiple associations between knowledge level and demographic variables that were statistically significant, such as gender ($\chi2 = 11.92$), qualification of mother ($\chi2 = 6.63$), occupation of mother ($\chi2 = 6.999$), qualification of father ($\chi2 = 21.542$), occupation of father ($\chi2 = 17.49$), type of family ($\chi2 = 9.599$), and source of information ($\chi2 = 20.36$). Whereas we did not find any significance in age or socio-economic status. A study done in Bangladesh found similar associations between age ($\chi2 = 18.90$**, df = 4), gender ($\chi2 = 4.36$**, df = 1), type of school ($\chi2 = 9.16$**, df = 2), household income (V = 0.77*), father literacy ($\chi2 = 9.48$**, df = 3), mother literacy ($\chi2 = 12.91$***, df = 5), and watching television ($\chi2 = 16.21$***, df = 7).[14] Another study done in Ghana found that poor knowledge regarding HIV/AIDS can be associated with religion; they found that being Muslim (aOR = 1.51 and 1.93; CI 1.19–1.91; p = 0.00) and fathers' education (aOR = 1.93; CI 1.71–2.18; p = 0.00) are associated with poor knowledge.[16] And the results were consistent with our study. However, some studies done in India, and Cameroon did not find any significant association.[6,15] This difference could be due to geographical variation, societal knowledge, social culture, and previous knowledge regarding HIV/AIDS through social media, friends, or teachers.

It is said that proper knowledge will have a significant impact on behavioral change. And one of the problems with societal norms is that HIV/AIDS is considered taboo in most parts of the world, and no one would want to share or talk about it openly. Therefore, the knowledge will be buried in a conservative society.[17] In today's world, information plays a vital role in improving knowledge and changing behavior. Therefore, parents' information, government involvement in HIV/AIDS awareness, social media, teaching institutions, and civil society groups have a pivotal role in giving the best knowledge possible to school-going children regarding HIV/AIDS. Also, in our view, parents' knowledge and awareness are very important to satisfy the curiosity of adolescent children. Such an initiative will definitely help shape the shape of HIV/AIDS transmission in India and also in Jammu and Kashmir. The authors hope this research could be an eye-opener to understanding the knowledge about HIV/AIDS among school-going children in the Kashmir region, and more research is needed in this area to identify the problems that can be corrected in the future.

Limitation

This study has few limitations. The study was conducted at one high school, which led to a smaller sample size. Therefore, the result of the study cannot be generalized to a larger population.

CONCLUSION

Even if the data shows that there has been a decline in the cases of HIV/AIDS in recent years, all the states must take appropriate action towards educating the masses, especially children. Therefore, sex education in high school also plays a pivotal role in improving knowledge about sexual health and diseases among children. Compared to other states, Jammu and Kashmir has fewer cases. Therefore, necessary steps should be taken beforehand to avoid further transmission. The result of

the study can be taken as a reference for future research in the region and also to educate people. A large-scale study can also be conducted to produce more evidence about HIV/AIDS among high school students.

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