

Original Research Article

Awareness and knowledge of HIV/AIDS in school going children of Surat, Gujarat

Prashant Kariya^{1*}, Kalpita S. Shringarpure², Apurva G. Patel²

¹Department of Pediatrics, Kiran Medical College, Surat, Gujarat, India

²Department of Preventive and Social Medicine, Medical College Baroda, Baroda, Gujarat, India

Received: 12 May 2023

Accepted: 04 July 2023

*Correspondence:

Dr. Prashant Kariya,

E-mail: drprashantkariya@gmail.com

Copyright: © the author(s), publisher and licensee Medip Academy. This is an open-access article distributed under the terms of the Creative Commons Attribution Non-Commercial License, which permits unrestricted non-commercial use, distribution, and reproduction in any medium, provided the original work is properly cited.

ABSTRACT

Background: Adolescents are susceptible to unhealthy practices due to a lack of knowledge and curiosity to try new things. Adolescent age also forms the base for behaviors throughout their lives. This study therefore aimed to understand adolescents' present knowledge and attitude towards HIV/AIDS.

Methods: A questionnaire was created with knowledge and attitude-based questions regarding HIV/AIDS. The questionnaire was embedded in google Forms and was sent via WhatsApp, to collect responses from school going children of age 14 to 18. Ethical permissions and consents were taken and the data collection went on for a week.

Results: 2000 children took part in the study, out of that 732 were males and 1268 were females. The mean score of all the participants was calculated to be 68.52% with a standard deviation of 17.18. There was no statistical significance of gender and the mean score of the participants, whereas statistical significance was found for age-wise distribution of mean score. Participants scored well on basic knowledge-based questions like "causative organism" but failed to do good on little complicated questions like "Route of transmission"

Conclusions : The results from this study can be applied to similar regions of Gujarat and other states as well. This would help in making changes in the education of this age group of children. Such studies also form the base of future studies to evaluate the difference in knowledge of the school going children over a period of time by comparing this data.

Keywords: HIV, AIDS, Adolescence, School-going

INTRODUCTION

Human immunodeficiency virus (HIV) is an RNA virus and is responsible for a deadly disease termed acquired immunodeficiency syndrome (AIDS). When persons get infected with HIV, their immunity to fight against other diseases and organisms decreases gradually causing them to suffer from multiple life-threatening conditions.¹ With 84.2 million cases till 2023, which includes 38.4 million people currently living with HIV and 40.1 million deaths (650000 in 2021), HIV is a major global health issue.²

HIV spreads through multiple routes of transmission, with unsafe sexual practices being the most common pathway.³ Since the beginning of the epidemic, extensive research and studies have been done in this field to better understand the disease and treat the patients. As of now, no curable treatment is available, but with Anti-retroviral treatment (ART), which involves taking a combination of drugs for a lifetime, patients can live their life normally with some precautions. Different regimens are designed for separate groups of people and doses are also adjusted accordingly.⁴ WHO and other organizations have been trying to spread awareness about HIV worldwide, which can help in better screening and spreading healthy practices.⁵

In India, the National AIDS control organisation (NACO) is formed by the Government of India to fight against HIV/AIDS. As per the latest data collected by NACO, the prevalence is 0.21%, which has decreased significantly compared to the start of the epidemic. Gujarat ranks 8th with 1,13,532 people living with HIV and with 2.51 thousand annual new infections.⁶ The integrated efforts put in by NACO have resulted in a decreased incidence and prevalence of HIV. Spreading awareness and screening played a huge role in this act. India ranks first with the world's highest population, and adolescents (age 10-19) form a huge chunk of this location. As per the data published by NACO in 2021, 0.7 lacs people in the age group <15 years and 1.7 lacs people in the 15-24 age group are living with HIV with 15 thousand new infections every year in the 15-24 age group. The average number of deaths is 2.5 thousand and 1.12 thousand in each group respectively.

Adolescence is a transition phase from being a child to becoming an adult. This age group requires the utmost attention of society as it forms the base of their whole adult life and it has a huge stake in the future of India, in terms of economy, literacy, health and development in all aspects of life.⁷ To address the issues faced by 253 million adolescents in India, the Ministry of health and family welfare has launched 'rashtriya kishor swasthya karayakram'(RKSK). HIV is a bigger problem in adolescents due to multiple reasons. HIV transmission through unsafe sexual practices is the most common route of transmission in this age as well. Adolescents are always growing so there have to be multiple adjustments to their dosing on their follow-up. This age group has a higher chance of missing their medicine or not taking medicine due to fear of others seeing it. Many of the patients are unaware of the infections which makes them even harder to treat.⁸

Adolescents are susceptible to unhealthy practices due to a lack of knowledge and curiosity to try new things. Thus, education about sexual health is of great importance to this age group. Adolescent age also forms the base for behaviors throughout their lives. Thus, creating good behaviour practices would help in a better society. A study was conducted earlier on the knowledge and attitude of adolescents based on the Understanding the Lives of adolescents and young adults (UDAYA) project data.⁹ The study focused on two states UP and Bihar but no study is currently available based on data in Gujarat. This study therefore aimed to understand adolescents' present knowledge and attitude regarding HIV/AIDS.

METHODS

This was a cross-sectional observational study. The study aimed to find out the awareness present in adolescents regarding HIV/AIDS. The questionnaire designed for the study involved knowledge and attitude-based questions

and the class and age of participants were noted. The answers to most of the questions were True/False or Yes/No. The questions were multiple choice type so no descriptive answers were collected. The sample population was children with age 14 to 18 years. Thus, school-going children of Surat City was targeted. Parents were also informed regarding the study via teachers.

After receiving all the ethical permissions, the questionnaire was floated through a Google form into WhatsApp class groups. Data collection commenced on December 1, 2022, and was closed on December 7, 2022. Participants' online implied consent was taken and they were explained that their participation was completely voluntary and no incentives would be provided in lieu of filling out the form. The data collected throughout the week was automatically stored in google drive. After closing data collection, it was imported into Microsoft Excel 2016. The personal information of the participants; and duplicate and half-filled entries were removed. The final data was used for analysis. Tables were formed from the compiled data, which showed the frequency and 95% confidence intervals of the participants who gave a specific answer. These tables were then used for forming the results.

RESULTS

The study received 2000 complete responses during the data collection process. Among them, 732(36.6%) were males and 1268 (63.4%) were females. Age-wise distribution of the study population is shown in (Figure 1). As per the figure, 18-year-old participants were the highest in number forming 47.3% of participants.

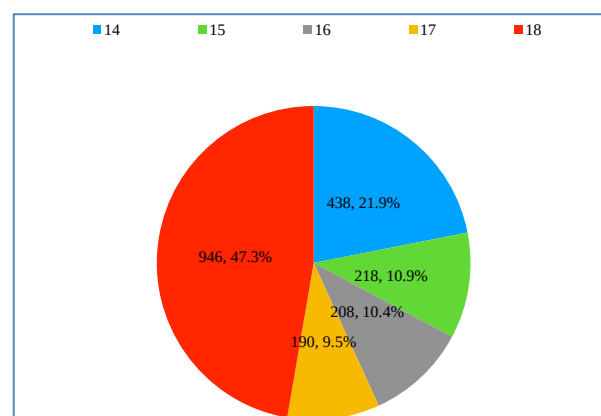


Figure 1: Age wise distribution of respondents.

The mean score related to knowledge of HIV was calculated to be 68.52% with a standard deviation of 17.18. The mean score was analyzed with respect to gender, Mean (SD) 68.73% (17.11) for males and 68.41% (17.23%) for females, but no significant difference was found between males and females ($p=0.68$).

Table 1: Response to knowledge and attitude questions.

Variable	N (%)	95% CI
In which year was the Human Immunodeficiency Virus detected?		
1980	160 (08.00)	06.89-09.27
1983	234 (11.70)	10.36-13.18
1986	1493 (74.65)	72.70-76.51
1989	113 (05.65)	04.72-06.75
Are HIV and AIDS the same thing?		
Yes	700 (35)	32.94-37.12
No	1300 (65)	62.88-67.06
AIDS is caused by		
Virus	1681 (84.05)	82.38-85.89
Bacteria	141 (07.05)	06.01-08.26
Fungus	33 (01.65)	01.18-02.31
Any other organism	145 (07.25)	06.19-08.47
Most common route of HIV transmission in INDIA is		
Blood Transfusion	225 (11.25)	09.94-12.71
Infected syringe and needles	265 (13.25)	11.23-15.60
Unsafe sexual practices	1420 (71)	68.97-72.95
Parent to child transfusion	90 (04.50)	03.68-05.50
Which Body Fluid Contains HIV Virus?		
Breastmilk	1222 (61.10)	58.94-63.21
Sweat	88 (04.40)	03.59-05.39
Tears	85 (04.25)	03.45-05.23
Urine	605 (30.25)	28.28-32.30
Is HIV Curable?		
Yes	668 (33.40)	31.37-35.50
No	1322 (66.10)	64.00-68.14
Maybe	10 (0.50)	0.27-0.92
HIV is transmitted by mosquito bite		
Yes	394 (19.72)	18.03-21.52
No	1591 (79.63)	77.81-81.34
Maybe	13 (0.65)	0.38-01.11
Sharing of food with HIV patient cannot transmit HIV, is the statement correct?		
Yes	1271 (63.55)	61.42-65.63
No	729 (36.45)	34.37-38.58
Is there a vaccine available for HIV?		
Yes	510 (25.50)	23.64-27.46
No	1480 (74)	72.03-75.88
Maybe	10 (0.50)	0.27-0.92
HIV is prevalent only in uneducated people, is the statement correct?		
Yes	370 (18.50)	16.86-20.26
No	1630 (81.50)	79.74-83.14
Does an HIV infected mother always transmit HIV to her baby?		
Yes	989 (49.45)	47.26-51.64
No	1011 (50.55)	48.36-52.74
Can HIV spread through air?		
True	528 (26.40)	24.51-28.38
False	1472 (73.60)	71.62-75.49
Can putting a needle infected with a blood of HIV Positive person in seat of a theatre, infect others with HIV?		
Yes	1231 (61.55)	59.40-63.66
No	769 (38.45)	36.34-40.60
Can mixing HIV Virus in cold drink and offering it to someone infect them with HIV?		
True	941 (47.05)	44.87-55.13
False	1059 (52.95)	50.76-55.13

Continued.

Variable	N (%)	95% CI
Can mixing HIV Virus in cold drink and offering it to someone infect them with HIV?		
True	941 (47.05)	44.87-55.13
False	1059 (52.95)	50.76-55.13
If couple is HIV Positive but taking proper treatment, can they prevent HIV in their Child/ren?		
True	1632 (81.60)	79.84-83.24
False	368 (18.40)	16.76-20.16
Does being HIV Positive mean you cannot marry?		
True	473 (23.65)	21.84-25.56
False	1527 (76.35)	74.44-78.16
Does being HIV Positive mean you will die soon?		
Yes	450 (22.50)	20.72-24.38
No	1550 (77.50)	75.62-79.28
Can HIV spread through tooth-brush or Razor?		
Yes	1017 (50.85)	48.66-53.04
No	983 (49.15)	46.94-51.34
HIV Cannot spread through doing swimming in a swimming pool with HIV positive person, is the statement correct?		
Yes	1246 (62.30)	60.15-64.40
No	754 (37.70)	35.60-39.85
Should all Pregnant women be tested for HIV?		
Yes	1712 (85.60)	83.99-87.07
No	281 (14.05)	12.60-15.64
Maybe	07 (0.35)	0.17-0.72

When it was stratified for age, participants with an age of 17 had the highest mean score with a value of 71 (SD=15) among all the ages. This difference was statistically significant ($p<0.001$). The question regarding HIV testing in pregnant women had the highest number of true answers with 85.6% (N=1712) of participants giving correct answers, and the question regarding the causative agent of HIV/AIDS ranked second with 84.05% (N=1681) of participants giving correct answers. The participants performed well on basic knowledge-based questions but the questions regarding the route of transmission received poor performance with some of them having 50 per cent incorrect answers. The knowledge-based questions had a good correct-to-wrong ratio, with most questions having around 80 per cent correct answering participants (Table 1).

DISCUSSION

Several studies have been conducted to assess the knowledge and awareness regarding HIV in the general population. Such studies help form new policies and guidelines that help prevent the spread of the disease. Reforms done by governments all over the world have shown an increased prevalence of awareness about diseases region-wise. Such studies hold higher importance in a developing country like India where there are huge gaps in knowledge and awareness from region to region.^{10,11} A study based on UDAYA data was conducted in two states of India; Uttar Pradesh and Bihar. It was conducted in two waves; the first wave in 2015-16 and the second wave in 2019. The study showed that awareness regarding HIV has increased among adolescents from wave I to wave

II.⁹ There are no longitudinal studies conducted in Gujarat and whichever cross-sectional studies have been performed are on a small basis with the restricted study population. Our study focuses on adolescents in Gujarat. The study tries to involve a larger sample size and gives a picture of one region that can be applied to similar regions all over Gujarat and some other states of India with similar prediction factors.

There are several factors affecting the level of awareness regarding HIV/AIDS in a population which include age, education, socioeconomic class, region, availability of mass media, etc.^{12,13} India being a developing country, there would be a substantial difference in all these factors from region to region.² It is difficult to compare such studies as there is no standard questionnaire to use for such purposes. Similar to the UDAYA study, our study also showed higher awareness in the male part of the population but there was no statistical significance.⁹ Unlike these studies, some studies done in other countries have suggested statistically significant differences in the prevalence of awareness gender-wise. These results were attributed to higher education opportunities for the male part of the population. They also suggest men have higher exposure to mass media and there are higher chances of men being involved in the discussion regarding sexual aspects of life compared to women.

After gender, age is also an important predictor of knowledge. Most studies support that the increase in age is directly proportional to adolescents' knowledge. They attribute this to the curriculum they're being taught, and access to the internet and other mass media. As elder young

adults are more prone to the disease they're targeted more, leading to higher awareness among them compared to their younger counterparts. The UDAYA study also supported the age hypothesis. However, the present study, the students with age 17 performed highest in the questionnaire. This result could also be by chance, as some of the students who knew more about HIV happened to be 17-year-olds.^{14,15} All the studies and even other factors point to education being a very important factor in deciding awareness about anything. Education is given more importance in the fight against HIV/AIDS as school-going children and young adolescents are still forming their beliefs and the prevalence of the disease is incredibly low, thus instilling good practices in them would lead to a population which has higher knowledge and awareness.¹⁶ As our study population includes school-going children, it is expected that they are receiving a basic level of education in their science classes. This helps us to determine the effectiveness of present education systems and we can suggest necessary changes. However, it would create a bias if we were to apply the same results to other regions and thus, we should refrain from doing that. One study done in a rural setting in the Saurashtra region of Gujarat showed lower awareness in that population compared to our study, which suggests that education plays an important role in creating understanding about a disease. Studies conducted on awareness of other diseases in such rural settings also showed low awareness compared to its urban counterpart. This difference in results supports the education hypothesis; it also indicates the importance of other factors like the availability of the internet and socioeconomic class.¹⁷

In our study, we have not collected information about the socioeconomic class of the students, but even if we had gathered the information, almost everyone would be coming from a similar background as the study population is from private school-going children. The difference in socioeconomic class can be appreciated when a large varying population is involved in a study.¹⁸⁻²⁰ Other factors that can be considered are exposure to mass media, the kind of family environment, and parents' knowledge about the condition.²¹⁻²⁴ Some children are allowed access to the Internet and other devices earlier than other children from the same age group, which helps them to have higher exposure to knowledge. HIV is considered taboo and is not discussed openly in most households in India. Families that are open to such discussions, tend to have kids with higher knowledge about such subjects. Parents' awareness also plays an important role, as educated parents would be able to pass on the correct information and they would also address the curiosities of their children which is very important in the growing age group. In our study where everyone is receiving the same education and comes from almost similar social class, such factors help in differentiating the population and justifying the difference in awareness.

Limitations

There are several limitations and strengths to the study. The study helps to understand the role of education and other factors in creating awareness about HIV/AIDS in adolescents. The results from this study can be compared to other future studies performed similarly. As the sample population of the study is very narrow, the results shall not be used for other populations. The questionnaire was online and was filled out without any supervision, so there could be some bias in the answers given by the students. The study is cross-sectional and so the results cannot be compared after any intervention done in the same population. Overall, this study forms a base for many future studies which would help society in taking the right steps for battling against HIV/AIDS and its unawareness.

CONCLUSION

The results from this study can be applied to similar regions of Gujarat and other states as well. This would help in making changes in the education of this age group of children. Such studies also form the base of future studies to evaluate the difference in knowledge of the school going children over a period of time by comparing this data.

Funding: No funding sources

Conflict of interest: None declared

Ethical approval: The study was approved by the Institutional Ethics Committee

REFERENCES

1. Rahman MM, Kabir M, Shahidullah M. Adolescent knowledge and awareness about AIDS/HIV and factors affecting them in Bangladesh. *J Ayub Med Coll Abbottabad*. 2009;21(3):3-6.
2. Boah M, Yeboah D, Kpordoxah MR, Adokiya MN. Frequency of exposure to the media is associated with levels of HIV-related knowledge and stigmatising attitudes among adults in Ghana. *Afr J AIDS Res*. 2022;21(1):49-57.
3. HIV. Available at: <https://www.hiv.gov/federal-response/pepfar-global-aids/global-hiv-aids-organizations>. Accessed on 20 April 2023.
4. HIV. Available at: <https://www.who.int/data/gho/data/themes/hiv-aids>. Accessed on 20 April 2023.
5. HIV and Children and Adolescents. Available at: <https://hivinfo.nih.gov/understanding-hiv/fact-sheets/hiv-and-children-and-adolescents>. Accessed on 20 April 2023.
6. HIV Facts and Figures. Available at: <https://naco.gov.in/hiv-facts-figures>. Accessed on 20 April 2023.
7. HIV Information and Youth. Available at: https://www.cdc.gov/healthyyouth/youth_hiv/hiv-information-and-youth.htm. Accessed on 20 April 2023.
8. HIV Statistics - Global and Regional Trends - UNICEF DATA. Available at: <https://data.unicef.org/topic/>

- hiv/aids/global-regional-trends/. Accessed on 20 April 2023.
9. HIV Transmission. Available at: <https://www.cdc.gov/hiv/basics/transmission.html>. Accessed on 20 April 2023.
10. HIV Treatment: The Basics. Available at: <https://hivinfo.nih.gov/understanding-hiv/fact-sheets/hiv-treatment-basics>. Accessed on 20 April 2023.
11. Igulot P, Magadi MA. Socioeconomic Status and Vulnerability to HIV Infection in Uganda: Evidence from Multilevel Modelling of AIDS Indicator Survey Data. *AIDS Res Treat*. 2018;2018:7812146.
12. Keating J, Meekers D, Adewuyi A. Assessing effects of a media campaign on HIV/AIDS awareness and prevention in Nigeria: results from the vision Project. *BMC Public Health*. 2006;6:123.
13. Kobeissi L, El Kak FH, Khawaja M, Khoshnood K. HIV/AIDS-related knowledge and its association with socioeconomic status among women: results of Lebanese Survey for Family Health (PAPFAM) 2004. *Asia Pac J Public Health*. 2015;27(2):NP734-45.
14. Adolescent Health. Available at: <https://nhm.gov.in/index1.php?lang=1&level=2&sublinkid=818&lid=221>. Accessed on 20 April 2023.
15. Naif HM. Pathogenesis of HIV Infection. *Infect Dis Rep*. 2013;5(1):e6.
16. Patsani P, Parida J, Panda A, Jena S, Behera SS, Pradhan A, et al. Knowledge, beliefs and practices towards HIV/AIDS among adolescents in India: A scoping review protocol. *PLoS One*. 2023;18(2):e0280985.
17. Pinder-Butler S, Frankson MA, Hanna-Mahase C, Roberts R. HIV/AIDS knowledge and sexual behaviour among junior high school students in New Providence, Bahamas. *West Indian Med J*. 2013;62(4):318-22.
18. Ramirez JR, Crano WD, Quist R, Burgoon M, Alvaro EM, Grandpre J. Effects of fatalism and family communication on HIV/AIDS awareness variations in Native American and Anglo parents and children. *AIDS Educ Prev*. 2002;14(1):29-40.
19. Srivastava S, Chauhan S, Patel R, Kumar P. A study of awareness on HIV/AIDS among adolescents: A Longitudinal Study on UDAYA data. *Sci Rep*. 2021;11(1):22841.
20. Tesfaye G, Dessie Y, Berhane Y, Assefa N, Semahegn A, Canavan CR, Fawzi WW. HIV/AIDS awareness and testing practices among adolescents in eastern Ethiopia. *Trop Med Int Health*. 2020;25(1):111-8.
21. Teshale AB, Tessema ZT, Alem AZ, Yeshaw Y, Liyew AM, Alamneh TS, et al. Knowledge about mother to child transmission of HIV/AIDS, its prevention and associated factors among reproductive-age women in sub-Saharan Africa: Evidence from 33 countries recent Demographic and Health Surveys. *PLoS One*. 2021;16(6):e0253164.
22. Upadhyay M, Lata K, Yadav TC, Mahendru R, Siwach S, Lakra P. Knowledge, Attitude and Perception of HIV/Aids Among Antenatal Women and its Correlation with their Socio-Demographic Profile: Study from a Tertiary Care Centre of Northern India. *J Obstet Gynaecol India*. 2021;71(5):488-94.
23. Meeting the Challenge: The World Bank and HIV/AIDS. Available at: <https://www.worldbank.org/en/results/2013/04/03/hiv-aids-sector-results-profile>. Accessed on 20 February 2023.
24. Yadav SB, Makwana NR, Vadera BN, Dhaduk KM, Gandha KM. Awareness of HIV/AIDS among rural youth in India: a community based cross-sectional study. *J Infect Dev Ctries*. 2011;5(10):711-6.

Cite this article as: Kariya P, Shringarpure KS, Patel AG. Awareness and knowledge of HIV/AIDS in school going children of Surat, Gujarat. *Int J Community Med Public Health* 2023;10:2821-6.