

# Is there any perceptiveness about the mode of transmission of human immunodeficiency virus/acquired immune deficiency syndrome? An analysis among the adolescent tribal students in Tamil Nadu

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## Abstract

**Background:** Cognizance about human immunodeficiency virus (HIV) and acquired immune deficiency syndrome (AIDS) among the community is still lacking. Seldom studies done in tribal area and to identify the awareness about HIV/AIDS among the adolescent tribal students in Jawadhu hills of Tamil Nadu, with the objectives includes on social, demographical, and knowledge about HIV/AIDS were taken. For primary data, survey method and secondary data from various literatures gathered. **Materials and Methods:** Schedule tribe adolescent students, between the age groups of 13–21 years, from 8<sup>th</sup> to 12<sup>th</sup> standard, exclusively from Vellore and Tiruvannamalai educational districts, were taken, by applying STRATA method. **Results:** A total of 938 students from various tribal schools participated. Amongst them, 507 (54%) were males and 431 (46%) were females. Half of the respondents (50%) agreed that blood transfusion, intravenous drug use, and sharing infected needles are the major modes of transmission. Nearly 35% agreed that HIV/AIDS is transmitted by hugging, tattooing, dirty hands, breastfeeding, kissing on cheeks, shaving at the barber shop, shaking hands with AIDS patients, homosexuality and are food and waterborne. **Conclusions:** Formal HIV/AIDS education should be mandatory in their curriculum, where teachers get an opportunity to deliver the scientific information about HIV/AIDS. To acquire better knowledge about HIV/AIDS, sex education should be included in the mainstream of curriculum with the assistance of educational consultants, professional social workers, and also local non-governmental organizations to conduct further mindfulness camps about the HIV/AIDS.

**Key words:** Acquired immune deficiency syndrome, adolescent tribal students, human immunodeficiency virus, Jawadhu hills, mode of transmission

## INTRODUCTION

Among serious health problems of 21<sup>st</sup> century is acquired immunodeficiency syndrome (AIDS),<sup>[1]</sup> with the fourth epidemic, challenging the Asian region.<sup>[2]</sup> Approximately 2.5 million infected in India living with human immunodeficiency virus (HIV)/AIDS,<sup>[3,4]</sup> ranked third, behind South Africa and Nigeria.<sup>[5]</sup> This epidemic is

more generalized with the burden, being faced by urban, and low education levels, as HIV prevention activities, initially focused on high-risk groups, including intravenous drug users, female sex workers, and truck drivers.<sup>[3,6,7]</sup>

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**Table 1: Demographic characteristics of the sample (n=938)**

Categories	Characteristics	n, Frequency (%)
Schools	Government school	352 (37.5)
	Forest department school	586 (62.5)
Gender	Male	507 (54.1)
	Female	431 (45.9)
Age group (years)	13-15	676 (72.1)
	16-18	244 (26.0)
	19-21	18 (1.9)
Education	VIII standard	192 (20.5)
	IX standard	306 (32.6)
	X standard	230 (24.5)
	Plus one	110 (11.7)
	Plus two	100 (10.7)
Religion	Hindu	682 (72.7)
	Christian	130 (13.9)
	Muslim	126 (13.4)
Family	Nuclear family	519 (55.3)
	Joint family	419 (44.7)
Currently residing	With parents	521 (55.5)
	With relatives	33 (3.5)
	With grandparents	34 (3.6)
	Hostel	350 (37.3)
Father's education	Illiterate	416 (44.3)
	Literate	522 (55.7)
Mother's education	Illiterate	555 (59.2)
	Literate	383 (40.8)

HIV/AIDS has had its greatest shocking impacts in India next to Africa and occurrence of the illness remains in most nations. An obvious precondition for behavior modification is that people should considerate the disease and how infection can be prevented. Several studies carried out in the past to apprehend the susceptibility of Indian society to HIV and other sexually transmitted infections.

In India, scheduled castes and tribes are undergoing extensive social downgrading and hierarchy with respect to all aspects, while other backward classes experienced social relegation to a lesser degree.<sup>[6]</sup> Peer education, in spite of its long history, being applied in health education and especially for HIV prevention started in the 1980s, gaining in popularity in the recent years in health education, encouraging interactions between peers.<sup>[9]</sup> Interventions in the form of peer education about HIV/AIDS prevention are normally based on behavioral theories; design of the intervention is based partly on the theory of diffusion of innovations.<sup>[10]</sup> Innovation can be new information, an attitude, belief, practice, or any other objects that are perceived as new, by the individual or the community and can be diffused to a specific group. Communication of innovation through certain channels among members of a social system (here, the school), the “key role” is played by the opinion leaders (teachers) as “change agents.”

Peer educators play this role by influencing the activities that are organized for their peers, also other relevance in the peer’s environment (family, friends, etc.) through an informal diffusion.<sup>[11]</sup> Forty percent of all new infections worldwide were between 15 and 24 years.<sup>[12]</sup> The United States predicted that more than a million adults and adolescents live with HIV infection at the end of 2006.<sup>[13]</sup> Information on knowledge and risk behaviors related to HIV is important for better understanding and identifying the high-risk populations. Focus of many preventative programs is to increase knowledge about sexual transmission and to overcome misconceptions that may be acting as a deterrent in behavioral change toward safer practices.

## MATERIALS AND METHODS

Descriptive, cross-sectional study conducted among the students of 8<sup>th</sup> to 12<sup>th</sup> standard, in Vellore and Tiruvannamalai districts. Total study population were  $n = 3752$  and using simple, systematic, stratified random selection method, 25% of the respondents selected. Male ([507] 54%) and female students ([431] 46%), who were attended school on that day were taken, by applying stratify simple systematic random selection method. Survey questionnaire consists of knowledge about HIV/AIDS, mode of transmission, and prevention of HIV/AIDS. Cronbach’s alpha ( $\alpha$ ) reliability test measures the bunch of questionnaire about the mode of transmission was 0.724 established. According to Ogbazi and Okpala, reliability coefficient was higher than criteria of 0.60, was acceptable for good instruments.<sup>[14]</sup> Study purpose explained and written consent was obtained. Ethical procedure carried out, and their identification was highly maintained. Descriptive statistics were used to analyze the demographical details, and Pearson’s Chi-square test was used to analyze the association.

## RESULTS

A total of 938 students participated and forest school students constitute more than and nearly three fourth of the students(72.1%) and one-third of the students (72.1%) were between the age group of 13–15 years. Male and female students are almost equal, and nearly 50% of the respondents’ parents were illiterate [Table 1].

Oladejo found that 72.6% of their participants thought that kissing, hugging, and shaking hands are the means by which HIV/AIDS spread.<sup>[15]</sup> Table 2 indicated, more than 50% agreed that blood transfusion, intravenous drug use, and sharing infected needles are the major modes of transmission. Less than 35% agreed that HIV/AIDS being transmitted by hugging, tattooing, dirty hands, breastfeeding, kissing on cheeks, shaving at the barber shop, shaking hands with AIDS patients, homosexuality, and food and waterborne.

A study by Mahat found that moderate level of knowledge among the students' regarding meaning, modes of transmission, and preventative and control measures to HIV/AIDS,<sup>[16]</sup> whereas this study, Table 3 indicated that >64.3% are having average knowledge and the rest of 17.4% are having poor knowledge about the mode of transmission.

Pearson's Chi-square analysis shows the association between gender and various dimensions of knowledge about mode of transmission of HIV/AIDS's variables. In Table 4, the statement 2, 3, 5, 6, 7, 13, and 15 were ( $P < 0.05$ ) statistically significant association between gender and knowledge about mode of transmission of HIV/AIDS variables whereas, the statement 1, 4, 8, 9, 10, 11, 12, 14, and 16 ( $P > 0.05$ ) were statistically shows that there is a nonsignificant association between gender and the knowledge about the mode of transmission of HIV/AIDS variables.

Pearson's Chi-square test for association between gender and overall knowledge [Table 5] about mode of transmission of HIV/AIDS was tested and inferred that there was a statistically significant association between gender and overall knowledge about HIV/AIDS. Chi-square (2) = 25.146,  $P < 0.001$ . Phi ( $\phi$ ) and Cramer's V are both measures of the strength of association of a nominal by nominal relationship and found weak association ( $\phi = 0.164$ ,  $P = 0.000$ ).

One-way analysis of variance results revealed a significant difference between the age groups of the respondents ( $F = 11.026$ ,  $P \leq 0.05$ ). The *post hoc* test also indicated that age groups between the 13–15 and 19–21 years have a significant difference [Table 6].

## DISCUSSION

Students are conscious of HIV/AIDS through various

**Table 2: Knowledge variables about the mode of transmission of human immunodeficiency virus/acquired immune deficiency syndrome sample (n=938)**

Mode of Transmission of HIV/AIDS through	Label	Gender		Overall, Frequency (%)
		Male, Frequency (%)	Female, Frequency (%)	
Hugging	Disagreed	361 (71.2)	289 (67.1)	650 (69.3)
	Agreed	146 (28.8)	142 (32.9)	288 (30.7)
Coughing	Disagreed	298 (58.8)	189 (43.9)	487 (51.9)
	Agreed	209 (41.2)	242 (56.1)	451 (48.1)
Sneezing	Disagreed	317 (62.5)	208 (48.3)	525 (56.0)
	Agreed	190 (37.5)	223 (51.7)	413 (44.0)
Tattooing	Disagreed	357 (70.4)	302 (70.1)	659 (70.3)
	Agreed	150 (29.6)	129 (29.9)	279 (29.7)
Foodborne	Disagreed	372 (73.4)	277 (64.3)	649 (69.2)
	Agreed	135 (26.6)	154 (35.7)	289 (30.8)
Waterborne	Disagreed	356 (70.2)	241 (55.9)	597 (63.6)
	Agreed	151 (29.8)	190 (44.1)	341 (36.4)
Dirty hands	Disagreed	350 (69.0)	224 (52.0)	574 (61.2)
	Agreed	157 (31.0)	207 (48.0)	364 (38.8)
Breast feeding	Disagreed	345 (68.0)	272 (63.1)	617 (65.8)
	Agreed	162 (32.0)	159 (36.9)	321 (34.2)
Kissing on cheeks	Disagreed	363 (71.6)	282 (65.4)	645 (68.8)
	Agreed	144 (28.4)	149 (34.6)	293 (31.2)
Treatment taken from dentist	Disagreed	391 (77.1)	329 (76.3)	720 (76.8)
	Agreed	116 (22.9)	102 (23.7)	218 (23.2)
Shaving at barber shop	Disagreed	325 (64.1)	265 (61.5)	590 (62.9)
	Agreed	182 (35.9)	166 (38.5)	348 (37.1)
Blood transfusion	Disagreed	209 (41.2)	152 (35.3)	361 (38.5)
	Agreed	298 (58.8)	279 (64.7)	577 (61.5)
Intravenous drug users	Disagreed	258 (50.9)	171 (39.7)	429 (45.7)
	Agreed	249 (49.1)	260 (60.3)	509 (54.3)
Sharing injection needles	Disagreed	302 (59.6)	291 (67.5)	345 (36.8)
	Agreed	366 (72.2)	284 (65.9)	593 (63.2)
Shaking hands with AIDS patients	Disagreed	366 (72.2)	284 (65.9)	650 (69.3)
	Agreed	141 (27.8)	147 (34.1)	288 (30.7)
Homosexuality	Disagreed	351 (69.2)	295 (68.4)	646 (68.9)
	Agreed	156 (30.8)	136 (31.6)	292 (31.1)

HIV=Human immunodeficiency virus; AIDS=Acquired immune deficiency syndrome

**Table 3: Overall levels of knowledge about the mode of transmission of human immunodeficiency virus/acquired immune deficiency syndrome**

Gender	Overall knowledge about of the mode transmission of HIV/AIDS			Total, frequency (%)
	Poor, frequency (%)	Average, frequency (%)	Good, frequency (%)	
Male	73 (14.4)	313 (61.7)	121 (23.9)	507 (100.0)
Female	90 (20.9)	290 (67.3)	51 (11.8)	431 (100.0)
Total	163 (17.4)	603 (64.3)	172 (18.3)	938 (100.0)

Mean score=50.76; SD=8.726. SD=Standard deviation; HIV=Human immunodeficiency virus; AIDS=Acquired immune deficiency syndrome

**Table 4: Association between knowledge about the mode of transmission of human immunodeficiency virus/acquired immune deficiency syndrome’s variables and gender**

Level of knowledge about the Mode of transmission HIV/AIDS	Gender (male and female)	
	Chi-square	Cramer’s V values
	$\chi^2$	df
1 - Hugging	1.886***	1 (NS)
2 - Coughing	20.790*	1 (S)
3 - Sneezing	19.236*	1 (S)
4 - Tattooing	0.13***	1 (NS)
5 - Foodborne	9.057**	1 (S)
6 - Waterborne	20.590*	1 (S)
7 - Dirty hands	28.556*	1 (S)
8 - Breast feeding	2.524***	1 (NS)
9 - Kissing on cheeks	4.127***	1 (NS)
10 - Treatment at a dentist	0.81***	1 (NS)
11 - Shaving at barber	0.684***	1 (NS)
12 - Blood transfusion	3.491***	1 (NS)
13 - Intravenous drug users	11.801**	1 (S)
14 - Sharing injection needles	6.334***	1 (NS)
15 - Shaking hands with AIDS patients	4.340**	1 (S)
16 - Homosexuality	0.67***	1 (NS)

$H_0$ =No association between the gender on the various dimensions of knowledge regarding the mode of transmission. \*\*\* $P \geq 0.05$ ; \* $P < 0.05$  (Significant at 5% level; \*\* $P < 0.001$  (significant at 0.1% level). S=Significant; NS=Nonsignificant; HIV=Human immunodeficiency virus; AIDS=Acquired immune deficiency syndrome

sources; yet, outcome of the study established that overall the level of knowledge was average, and female students are far better than the male students. In depth, accurate knowledge on various aspects of the mode of transmission of HIV/AIDS is lacking. A study done in Southwest Nigeria found that adolescents have a high acquaintance on HIV/AIDS; however, most adolescents have misconceptions about the cure of AIDS.<sup>[17]</sup> Significant gender difference in broad spectrum about HIV/AIDS’s knowledge, females being more knowledgeable than males was noticed. Suggestions were made to educate with intervention programs to increase the level of knowledge and awareness of HIV/AIDS.

Surprising to note that [Table 2] more than half of the students agreed that the HIV/AIDS transmitting through coughing, sneezing, blood transfusion, sharing injection needles, and intravenous drug use. However, one-third of

the students agreed that transmission through, hugging, food or waterborne, dirty hands, breastfeeding, kissing on the cheeks, shaving at the barber shop, shaking hands of AIDS patients, and homosexuality. Knowledge levels about HIV/AIDS were indicated [Table 3] that more than 64.3% are having average knowledge, which requires awareness program.

In Table 4, seven variables, such as HIV/AIDS transmitted through shaking hands with AIDS patients, sneezing, dirty hands, intravenous drug usage, coughing, foodborne or waterborne were less than the hypothetical values of 0.05, indicated that there is a significant difference between genders and knowledge regarding the means of transmission of HIV/AIDS.

To find out the overall significance of the knowledge about the mode of transmission, both boys and girls were compared, statistical significant differences were found in most sources of information of HIV/AIDS were shown in Table 5. It is evident that more than 50% of the students (64.3%) are having an average knowledge and female students are slightly higher than the male.

## CONCLUSIONS

In spite of various modalities of awareness programs, introduce through media, accurate knowledge, and awareness about transmission of HIV/AIDS is not established among the adolescent tribal students. Mindfulness program on HIV/AIDS should be need based and focused, and this will facilitate in helping the adolescents to eliminate the incorrect impression and stigmas. Adolescent period is a crucial period of transition, misinterpretation and improper recognition any issues, which in turn, brings in adversity and tragedy to their life. Awareness acquisition with correct information will help the adolescents to shape their life much more gainfully. The outcome requires a formal HIV/AIDS subject, incorporated into curriculum, where teachers get an opportunity to deliver the scientific information about HIV/AIDS.

Adequate knowledge eliminates experimental tendencies and removes the gap between right and wrong among the adolescents. Suggestion to inclusion of local social work students, public health disciplines, local communities, and the guidance of their class teachers, misconception about the mode of transmission of HIV/AIDS can be rectified.

**Table 5: Association between overall general knowledge about the mode of transmission of human immunodeficiency virus/acquired immune deficiency syndrome variables and gender**

Gender	Overall general knowledge about of the mode transmission of HIV/AIDS			Total frequency (%)	$\chi^2$
	Poor frequency (%)	Average frequency (%)	Good frequency (%)		
Male	73 (14.4)	313 (61.7)	121 (23.9)	507 (100.0)	$(P<0.001)$ ; $\chi^2=25.146$ ; df=2
Female	90 (20.9)	290 (67.3)	51 (11.8)	431 (100.0)	
Total	163 (17.4)	603 (64.3)	172 (18.3)	938 (100.0)	

$H_0$ =There is no association between genders in overall knowledge about the mode of transmission of HIV/AIDS. HIV=Human immunodeficiency virus; AIDS=Acquired immune deficiency syndrome

**Table 6: Analysis of variance-difference between the age groups of the respondents and overall various dimensions of knowledge about the mode of transmission of human immunodeficiency virus/acquired immune deficiency syndrome**

Age groups (yrs)	Mean	SD	One way ANOVA				
			Source of Variance	SS	Df	MS	Statistical Inference
13-15	49.96	8.526	Between Groups	1643.896	2	821.948	$F=11.026^{**}$
16-18	52.64	9.010					
19-21	55.17	7.294	Within Groups	69702.684	935	74.548	

\*\*Significant at 0.1% level ( $P<0.001$ ). SS=Sum of Square; SD=Standard deviation; MS=Mean of square

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**REFERENCES**

1. Ungan M, Yaman H. AIDS knowledge and educational needs of technical university students in Turkey. *Patient Educ Couns* 2003;51:163-7.
2. Rao PJ, Mboi N, Phoolcharoen W, Sarkar S, Crael M. AIDS in Asia amid competing priorities: A review of national responses to HIV. *AIDS* 2010;24 Suppl 3:S41-8.
3. NACO. Annual Report 2008-2009, National AIDS Control Organization. New Delhi; 2011.
4. UNAIDS. AIDS Epidemic Update 2007, Joint United Nations Programme on HIV/AIDS. UNAIDS & WHO; 2007.
5. Cohen J. HIV/AIDS. India slashes estimate of HIV-infected people. *Science* 2007;317:179-81.
6. Kumarasamy N, Venkatesh KK, Mayer KH, Freedberg K. Financial burden of health services for people with HIV/AIDS in India. *Indian*

7. Perkins JM, Khan KT, Subramanian SV. Patterns and distribution of HIV among adult men and women in India. *PLoS One* 2009;4:e5648.
8. Subramanian SV, Nandy S, Irving M, Gordon D, Lambert H, Davey Smith G, *et al.* The mortality divide in India: The differential contributions of gender, caste, and standard of living across the life course. *Am J Public Health* 2006;96:818-25.
9. Merakou K, Kourea-Kremastinou J. Peer education in HIV prevention: An evaluation in schools. *Eur J Public Health* 2006;16:128-32.
10. Rogers EM. Diffusion of Innovations. 3<sup>rd</sup> ed. New York: The Free Press, a Division of Macmillan Publishing Co., Inc.; 1962. p. 163-201.
11. Oldenburg B, Glanz K. Diffusion of innovations. In: Karen Glanz, Barbara K. Rimer, Viswanath K (eds). *Health Behavior and Health Education- Theory, Research, and Practice*. Jossey- Bass. 4<sup>th</sup> ed. San Francisco, CA: 2008. p. 313-30.
12. UNFPA. HIV Interventions for Young People in the Education Sector. New York; 2008.
13. Centers for Disease Control and Prevention. HIV/AIDS Surveillance Report 2006. Vol. 18. Atlanta: U.S.; 2008.
14. Ogbazi J, Okpala J. *Writing Research Report: Guide for Researchers in Education, the Social Sciences and Humanities*. Enugu: Press Time Ltd.; 1994.
15. Oladepo O, Brieger WR. AIDS knowledge, attitude and behaviour patterns among university students in Ibadan, Nigeria. *Afr J Med Sci* 1994;23:119-25.
16. Mahat G, Scoloveno MA. HIV/AIDS knowledge, attitudes and beliefs among nepalese adolescents. *J Adv Nurs* 2006;53:583-90.
17. Odu BK, Bimbola Kemi Odu and Florence Foluso Akanle Knowledge of HIV/AIDS and sexual behaviour among the youths in South West Nigeria. *Int J Trop Med* 2008;3:79-84.