MedCrave
Step into the World of Research
International Journal of Family & Community Medicine

Research Article

Open Access
CrossMark

Prevalence of smoking in the students of English medium private schools in Tripura, India

Abstract

Introduction: Globally, smoking related diseases kill an estimated four million people every year. This number is predicted to rise to a staggering 10 million a year over the next two decades. Smoking leads, indeed, to a higher risk of cardiovascular disease, lung disorders as well as several malignancies, including lung, throat, stomach, and bladder cancers. Early identifying smokers in this group and the associated determinants of smoking behavior can help reduce or stop cigarette consumption. The Objective of this study is to find out prevalence of smoking among adolescents aged 13 to 18 years studying in class 9th to 11th in English medium private schools in Tripura, India.

Materials and methods: A cross sectional descriptive study was carried out during November- December 2021 in faith based English medium private schools of Udaipur and Bishramganj subdivision of Tripura, India. A total of 565 students aged 13 to 18 years participated in this study from four schools.

Results: The number of students participating from class 9th, 10th and 11th standard were 375 (66.4%), 85 (15%) and 105 (18.6%) respectively. The overall prevalence of ever smoker was 24.7% (95% CI 21.3 to 28.4%) among adolescents. The prevalence of ever smokers in male (38.6%) adolescents was more than female (7.7%) and differences between the male and female adolescents were significantly different (p value <0.05).

Conclusion: Around one-fourth of the students studying in class 9th, 10th and 11th standard were ever smoked cigarettes or chewing guthka or pan masala.

Keywords: tobacco, smoking, tobacco consumption among students, adolescents smoking, school children smoking

Volume 6 Issue 5 - 2022

Biplab Jamatia
Associate Professor, School of Health Sciences, Indira Gandhi National Open University, India

Correspondence: Biplab Jamatia, Associate Professor, School of Health Sciences, Indira Gandhi National Open University, New Delhi, MBBS, MD in Community Medicine (AIIMS), PG Diploma in Distance Education, PG Diploma in Bio Ethics, CMCL-FAIMER Fellow, India, Tel 9810201401, Email biplabjamati@gmail.com

Received: October 04, 2022 | **Published:** October 14, 2022

Introduction

Globally, smoking related diseases kill an estimated four million people every year, with this number predicted to rise to a staggering 10 million a year over the next two decades.[1] Worldwide, smoking is a major contributor to the burden of disease, accounting for 6.3% of the total burden.[2] Adolescents (10–19 years) constitute 21% of India's total population, making it to be the largest in the world (1.5 billion adolescents).[3] Adolescents as one of the high-risk groups starting to smoke are a very important age group and special attention should be paid to their behaviors from health policy- and decision-makers.[4] Tobacco is smoked in the form of beedis and cigarettes or by using devices such as hookah, hookli, chhutta, dhumti, or chillum.[5–7] Hookah (a hubble bubble Indian pipe) is an indigenous device, made out of wooden and metallic pipes, used for smoking tobacco. Smoking of cigars and pipes are not common in India, as they are in most western countries.[8] As most smokers begin smoking around the age of 13 years, understanding smoking inequalities in adolescence is an important step to explaining smoking-related mortality across social strata in adulthood.[9] Smoking leads, indeed, to a higher risk of cardiovascular disease, lung disorders as well as several malignancies, including lung, throat, stomach, and bladder cancers.[10] Early identifying smokers in this group and the associated determinants of smoking behavior can help reduce or stop cigarette consumption.[11] The objective of this study is to find out prevalence of smoking among adolescents aged 13 to 18 years studying in class 9th to 11th standard in English medium private schools in Tripura, India.

Materials and methods

A cross sectional descriptive study was carried out during the months of November- December 2021 in four faith based English medium private schools of Udaipur and Bishramganj subdivision of Tripura, India. The schools were selected based on the convenience of researcher/investigator. Out of the four selected schools, three were in rural whereas one was in urban area. Permission for conducting the study was obtained from the school authorities. Consent was obtained from individual students before administering the questionnaire. All the students of class 9th, 10th and 11th standard of the selected schools were included for this study. Sample size was calculated on the basis of the study conducted by the Ganguly S et al in the school students (Prevalence of smoking was 29%).[12] It was calculated as $N= 4pq/r^2 = 4p(1-p)/d^2 = (4 \text{ X } 29 \text{ X } 71) / 4\text{X } 4 = 515$. Where, p is the prevalence of alcohol intake (29%), q is the 1- p and d is precision (corresponding to effect size). The level of confidence usually aimed for is 95%, with most researchers presenting their results with a 95% confidence interval (CI). Indian Adolescent Health Questionnaire developed by Long KNG et al (ref) was used as study instruments to measure the prevalence of smoking/tobacco consumption.[13] Data were entered and analyze in the Epi info (version 7.2.5). The demographic profile like gender, place of residence, education and occupation and consumption of tobacco/smoking like variables were described in percentage (frequency). The chi-square test was used to evaluate statistical significance, and two-sided p value of < 0.05 was considered as statistically significant.

Results

A total of 565 students participated in this study from four schools. The number of students participating from class 9th, 10th and 11th were 375 (66.4%), 85 (15%) and 105 (18.6%) respectively. There are 308 (54.5%) boys and 257 (45.5%) girls students. Most of the students belong to rural areas (92%) and only 8% students belong to urban areas. Most of the students were staying in hostels (38.8%) and around

one-third of the students were staying in rented houses (30.7%) and in their own house (28.6%) Table 1.

Table 1 Demographic Profile of the Students

Variables	Number	Percentage	95% CI
Gender			
Boys	308	54.50%	50.4 – 58.6%
Girls	257	45.50%	41.4 – 49.6%
Residence			
Rural	520	92%	89.5 - 94%
Urban	45	8%	6 – 10.5%
Class			
Class 9th	375	66.40%	62.4 – 70.1%
Class 10th	85	15%	12.3 – 18.2%
Class 11th	105	18.60%	15.6 - 22%
Age			
13 years	6	1.10%	0.5 – 2.3%
14 years	119	21.20%	18 – 24.8%%
15 years	187	33.30%	29.6 – 37.3%
16 years	125	22.30%	19 – 25.9%
17 years	82	14.60%	11.9 – 17.8%
18 years	42	7.50%	5.4 – 10.7%
Currently Staying			
Hostel	216	38.80%	34.9 – 42.9%
With relative	10	1.80%	0.9 – 3.3%
Rented house	171	30.70%	27.1 – 34.7%
Own house	159	28.60%	25 – 32.5%

The percentage of students who tried a few times to smoke cigarettes or chew guthka or pan masala were 19.4% (95% CI 16.3 – 22.9%). 3.1% (95% CI 1.9 – 4.9) of the students smoke occasionally and 2.2 (95% CI 1.2 – 3.8%) of the students smoke regularly. 2.9% (95% CI 1.8 – 4.7) of the adolescent students smoked cigarettes daily in the past month. And 7.1% (95% CI 5.3 – 9.6) adolescent students smoked cigarettes one to two days in the past month. It was observed that 39.8% (95% CI 35.8 - 44) of adolescent student's close friends ever tried smoking cigarettes or chewed gutka or pan masala. 23.2% (95% CI 19.8 – 27%) of adolescent's father or male guardians were smoking. 76.6% (95% CI 72.8 – 79.9%) of adolescent students think that smoking is harmful for their health. It was observed that 21.2% (95% CI 18 – 24.9%) of adolescents do not think that smoking is harmful for their health. Anti-smoking media messages reached 71.6% (95% CI 65.6 – 75.3%) of the adolescent students in the last month, but it failed to reach 19.4% (95% CI 16.3 – 23.1%) of the adolescent students Table 2.

Table 2 Distribution of status of cigarette and other tobacco use among the adolescent Students

	Number	Percentage	95% CI
Ever smoked cigarettes or chewed guthka or pan masala (n = 551)			
Never	415	75.30%	71.5 – 78.7%
Tried it a few times	107	19.40%	16.3 – 22.9%
Smoke occasionally	17	3.10%	1.9 – 4.9%
Smoke regularly	12	2.20%	1.2 – 3.8%
Number of days smoked cigarettes in the past month (n= 546)			
1 to 2 days	39	7.10%	5.3 – 9.6%
10 or more days	9	1.60%	0.9 – 3.1%
3 to 9 days	6	1.10%	0.5 – 2.4%
Every day	16	2.90%	1.8 – 4.7%
I do not smoke cigarettes	476	87.20%	84.2 – 89.7%
Any of your close friends ever tried smoking cigarettes or chewed gutka or pan masala (n= 547)			
Yes	218	39.80%	35.8 - 44%
No	232	42.40%	38.3 – 46.6%
Unsure	97	17.70%	14.8 – 21.2%
Any of your parents or guardians smoke (n= 526)			
Both	28	5.30%	3.7 – 7.6%
Father or male guardian	122	23.20%	19.8 - 27%
Mother or female guardian	25	4.70%	3.2 – 6.9%
Neither	351	66.70%	62.6 – 70.6%
Do you think smoking is harmful to your health (n=546)			
Yes	418	76.60%	72.8 – 79.9%
No	116	21.20%	18 – 24.9%
Unsure	12	2.20%	1.3 – 3.8%
During the past month, have you seen any anti-smoking media messages? (n= 524)			
Yes	375	71.60%	65.6 – 75.3%
No	102	19.40%	16.3 – 23.1%
Unsure	47	9%	6.8 – 11.7%

The percentage of cigarette smoking among boys students (38.6%) is more as compared to the girls students (7.7%), and the difference of the percentage is statistically significant ($p < 0.001$). The percentage of cigarette smoking among adolescent students residing in rural areas (25.7%) is more as compared to the students residing in urban areas (13.3%), and the difference of the percentage is statistically significant ($p < 0.001$). The percentage of cigarette smoking is highest among students of class 11th (37.1%) and followed by students of class 10th (26.9%), and subsequently students of class 9th standard (20.6%). The difference of the percentage of smoking among different class is statistically significant ($p < 0.001$) Table 3.

Table 3 Sociodemographic correlates of adolescent cigarette smokers in Tripura, India

Variables	Number	Cigarate Smoking (%)	Significance
Gender			
Boys	303	117 (38.6%)	$\chi 2$*=70.3, P=0.0001
Girls	248	19 (7.7%)	
Residence			
Rural	520	130 (25.7%)	$\chi 2$=3.4, P= 0.04
Urban	45	6 (13.3%)	
Class			
Class 9th	368	76 (20.6%)	$\chi 2$= 12.8, P=0.001
Class 10th	78	21 (26.9%)	
Class 11th	105	39 (37.1%)	
Age			
13 years	6	0	$\chi 2$= 59.4, P=0.0001
14 years	117	17 (14.5%)	
15 years	179	25 (14%)	
16 years	121	46 (38%)	
17 years	82	23 (28%)	
18 years	42	25 (59.5%)	

Citation: Jamatia B. Prevalence of smoking in the students of English medium private schools in Tripura, India. *Int J Fam Commun Med.* 2022;6(5):280–283. DOI: 10.15406/ijfcm.2022.06.00290

Table Continued...

Variables	Number	Cigarate Smoking (%)	Significance
Currently Staying			
Hostel	216	68 (31.5%)	$\chi2$= 11.7, P = 0.008
With relative	10	2 (20%)	
Rented house	160	37 (23.1%)	
Own house	159	26 (16.7%)	

* $\chi2$ = Chi-square

The percentage of cigarette smoking is highest among the students of the 18 years age group (59.5%), which is the eldest among the study population. It is followed by the students of 16 years (38%) and students of 17 years (28%). The percentage of cigarette smoking among the students of aged 16 – 18 years is more than the students of 14 – 15 years (around 14%). The difference of the percentage of smoking among different age groups is statistically significant ($p < 0.001$). It was observed that the percentage of smoking cigarette among students staying in hostels (31.5%) is highest followed by the students staying in rented houses (23.1%), and subsequently students staying with relative's houses (20%). The percentage of smoking cigarette is lowest among students staying in their own house (16.7%). The difference of the percentage of smoking among the students staying in different places is statistically significant ($p < 0.05$).

Discussion

As per this current study the prevalence of ever smoked cigarettes or chewed guthka or pan masala among the adolescent students were 24.7%. This prevalence of smoking was less as compared to the prevalence of smoking (29.6%) among students of 15-19 years in six co-educational high schools in Kolkata, West Bengal reported by the Ganguly S et al.[12] and the adolescents of 10 – 19 years age group of the village Alia, Bada, Vijarakhi and Theba, Jamnagar, Gujrat; who were addicted with one or other type of tobacco chewing (33.1%) as reported by Makwana et al.[14] However, the prevalence of smoking of the current study group was much more than the overall prevalence of tobacco use (5.5%) among adolescents in ten randomly selected schools in the Kannur district of Kerala state, India as reported by Muttappallymyalil J et at.[15] and 3.8% of the adolescents (11 – 17 years) were current cigarette smokers as reported by Kishun et al.[16]

Among adolescents who belong to the category of ever smoker, 74.1% of them think that smoking is harmful for health, but 20.7% adolescents do not think that smoking is harmful for health. 72.2% of the adolescents who smoke admitted that they have observed anti-smoking messages in electronic or print media within the last one month, but 23.3% among the smokers does not observe any anti-smoking messages in electronic or print media.

A number of motives for adolescent cigarette use have been identified including coping (e.g., "to help me forget my worries"), conformity (e.g., "to fit in with the group I like"), social (e.g., "to be sociable"), and enhancement motives (e.g., "because I like the feeling;").[17] Coping motives may be particularly important to consider during adolescence, given their links to problematic smoking behavior. For example, among early stage smokers, daily smokers report higher coping motives for cigarette smoking than occasional smokers.[18] Students with tobacco use had higher rates of smoking have been found in the group with severe psychological distress in comparison to people without distress. Smoking has also been correlated with suicidal ideation and suicidal attempts.[19]

The present study observed that 2.9% (95% CI 1.8 – 4.7%) students smoke cigarette every day. The same was found in study conducted by Mathur P et al where it was observed that prevalence of current daily use of tobacco among adolescents (aged 15 – 17 years) was 3.1% (95% CI: 2.0% to 4.7%).[20] Jaisoorya et at observed that the overall lifetime prevalence of tobacco use among the adolescent aged 12 to 19 years in Kerala, India was 6.9 per cent (12.5% males and 1.2% females). The prevalence of tobacco use increased from 3.1 % at 12-13 year to 15.1 % at 18-19 year. The prevalence was higher among students from urban backgrounds, lower socio-economic status and those with part-time jobs.[21]

The prevalence of smoking cigarette among boys students is more than girl students. And the difference in two groups were statistically significant (p value <0.05). Muttappallymyalil J et al observed that the overall the prevalence of tobacco use among among boys was 12% and none of the girls were tobacco users. Association between father's and friend's tobacco habits were observed.[15] The same was observed in the study conducted by Kapoor S K et al and it was reported that the prevalence of tobacco use among the school and college going adolescents of Haryana, were 160 (14.2%) male and 6 (2.3%) female students reported to have smoked at any time in the past. The prevalence of current smoking (defined as smoked in the last one week) was only 7.1%.[22] Kishun et at also observed that prevalence of cigarate smoking among the boys students (5%) aged 11 – 17 years is more than the girls students (2.6%).[16]

A global study of adult tobacco smoking in 48 low- and middle income countries from 2002 to 2004 showed that an overall prevalence of current smoking was higher in middle-income countries compared to the low income countries (male: 40.7% vs. 36.1% and female: 13.2% vs. 6.2%).[23] A study in the United States of America (USA) showed that current cigarette use increased by educational level and age: cigarette use among grade 12 students was about 2.5 times that of grade 8 students, while the Odds Ratio (OR) of current cigarette use was 1.59 for students aged 14 years and above as compared to those aged 13 years and younger.[24] It was observed that the prevalence of smoking among the ever smoker was more in case of the adolescents whose father or male guardian smoke (25.2%) compared to the mother or female guardian smoke (5.3%), and the difference is significant (P value <0.05). The association between cigarette smoking and sociodemographic factors has been reported in various studies in respect of adults as well as adolescents both.[23,25,26] A limitation of this study is the use of self-reported survey, which may have resulted in reporting bias.

Conclusion

Around one-fourth of the adolescents were ever smoked cigarettes or chewed guthka or pan masala. This prevalence among this school going adolescents is very high. All parents must play the role of "anti-smoking role model". This study highlights the urgent need for a larger study including all government and private schools as well as adolescents out of the schools in the particular geographical areas to address the needful interventions to reduce the ill effects of smoking and tobacco.

Acknowledgments

We sincerely thank all students who have given their valuable feedback for this study. We also thank to school administrations for their consent and cooperation.

Financial support and sponsorship

Nil.

Conflicts of interest

There are no conflict of interest.

References

1. Arora V, Gupta N, Gupta P, et al. Cigarette smoking behavior and associated psychosocial determinants among school going adolescents in Panchkula, India. *J Indian Assoc Public Health Dent*. 2017;15(1):27–31.
2. Lim SS, Vos T, Flaxman AD, et al. A comparative risk assessment of burden of disease and injury attributable to 67 risk factors and risk factor clusters in 21 regions, 1990–2010: a systematic analysis for the Global Burden of Disease Study 2010. *The Lancet*. 2012;380(9859):2224–2260.
3. Dandona L, Dandona R, Kumar GA, et al. Nations within a nation: variations in epidemiological transition across the states of India, 1990–2016 in the Global Burden of Disease Study. *The Lancet*. 2017;390(10111):2437–2460.
4. Dearden KA, Crookston BT, De La Cruz NG, et al. Teens in trouble: cigarette use and risky behaviors among private, high school students in La Paz, Bolivia. *Rev Panam Salud Publica*. 2007;22(3).
5. Gupta PC. Survey of sociodemographic characteristics of tobacco use among 99,598 individuals in Bombay, India using handheld computers. *Tobacco Control*. 1996;5(2):114–120.
6. Gupta PC, Sinor PN, Bhonsle RB, et al. Oral submucous fibrosis in India: a new epidemic? *Natl Med J India*. 1998;11(3):113–116.
7. Bhonsle RB, Murti PR, Gupta PC, et al. Reverse dhumti smoking in Goa: an epidemiologic study of 5449 villagers for oral precancerous lesions. *Indian J Cancer*. 1976;13(4):301–305.
8. Chadda R, Sengupta S. Tobacco use by Indian adolescents. *Tob Induced Dis*. 2003;1(2):111.
9. Goodman E. The role of socioeconomic status gradients in explaining differences in US adolescents' health. *Am J Public Health*. 1999;89(10):1522–1528.
10. Jacob L, Freyn M, Kalder M, et al. Impact of tobacco smoking on the risk of developing 25 different cancers in the UK: a retrospective study of 422,010 patients followed for up to 30 years. *Oncotarget*. 2018;9(25):17420–17429.
11. White HR, Violette N, Metzger L, et al. Adolescent risk factors for late-onset smoking among African American young men. *Nicotine & Tobacco Res*. 2007;9(1):153–161.
12. Ganguly S, Pal S, Chatterjee S, Bagchi N. A study on smoking and associated psychosocial factors among adolescent students in Kolkata, India. *Indian J Public Health*. 2014;58(1):50.
13. Long KNG, Long PM, Pinto S, et al. Development and validation of the Indian Adolescent Health Questionnaire. *Journal of Tropical Pediatrics*. 2013;59(3):231–242.
14. Makwana NR, Shah VR, Yadav S. A study on prevalence of smoking and tobacco chewing among adolescents in rural areas of Jamnagar district, Gujarat state. *JMSR*. 2007;1(1):1–3.
15. Muttappallymyalil J, Divakaran B, Thomas T, et al. Prevalence of Tobacco Use Among Adolescents in North Kerala, India. *Asian Pacific Journal of Cancer Prevention*. 2012;13(11):5371–5374.
16. Kishun J, Kumar A, Singh U. Correlates of Cigarette Smoking Among Adolescents in India. *Indian J Community Med*. 2021;46(3):389–395.
17. Comeau N, Stewart SH, Loba P. The relations of trait anxiety, anxiety sensitivity, and sensation seeking to adolescents' motivations for alcohol, cigarette, and marijuana use. *Addict Behav*. 2001;26(6):803–825.
18. Mathew AR, Wahlquist AE, Garrett-Mayer E, et al. Affective motives for smoking among early stage smokers. *Nicotine Tob Res*. 2014;16(10):1387–1393.
19. Couwenbergh C, van den Brink W, Zwart K, et al. Comorbid psychopathology in adolescents and young adults treated for substance use disorders: A review. *Eur Child Adolesc Psychiatry*. 2006;15(6):319–328.
20. Mathur P, Kulothungan V, Leburu S, et al. Baseline risk factor prevalence among adolescents aged 15–17 years old: findings from National Non-communicable Disease Monitoring Survey (NNMS) of India. *BMJ Open*. 2021;11(6):e044066.
21. Jaisoorya T, Beena K, Beena M, et al. Prevalence & correlates of tobacco use among adolescents in Kerala, India. *Indian J Med Res*. 2016;144(5):704.
22. Kapoor SK, Anand K, Kumar G. Prevalence of tobacco use among school and college going adolescents of Haryana. *Indian J Pediatr*. 1995;62(4):461–466.
23. Hosseinpoor AR, Parker LA, Tursan d'Espaignet E, et al. Social Determinants of Smoking in Low- and Middle-Income Countries: Results from the World Health Survey. *PLoS ONE*. 2011;6(5):e20331.
24. Cavazos-Rehg PA, Krauss MJ, Sowles SJ, et al. Multiple Levels of Influence That Impact Youth Tobacco Use. *tobacco reg sci*. 2016;2(2):106–122.
25. Sinha DN, Suliankatchi RA, Amarchand R, Krishnan A. Prevalence and Sociodemographic Determinants of Any Tobacco Use and Dual Use in Six Countries of the WHO South-East Asia Region: Findings from the Demographic and Health Surveys. *NICTOB*. 2016;18(5):750–756.
26. Kusumawardani N, Tarigan I, Suparmi, Schlotheuber A. Socio-economic, demographic and geographic correlates of cigarette smoking among Indonesian adolescents: results from the 2013 Indonesian Basic Health Research (RISKESDAS) survey. *Global Health Action*. 2018;11(sup1):54–62.