



A Cross-Sectional Study on Various Determinants of Tobacco Consumption among Undergraduate Students in Rajkot and Morbi Districts, Gujarat, India, 2016

Zalak R Matariya¹, Vaidehi S Gohil¹, Umed V Patel², Rajan H Upadhyay¹

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Author's Affiliation:
¹Resident Doctor; ²Associate Professor, Community Medicine, PDU Government Medical College, Rajkot

Correspondence
Dr. Vaidehi S Gohil
Email: dr.vaidehi.gohil@gmail.com

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INTRODUCTION

Tobacco is the foremost cause of preventable death in the world and India. Cigarettes kill one in two smokers prematurely, half of these deaths occurring during middle age (mean: 35.69 years).¹ By 2020, it is predicted that tobacco will account for 13% of all deaths in India.² The National Survey on Drug Use and Health estimates that each day, over 4,000 people under the age of 18 years try their first cigarette. This amounts to more than 7,30,000 new smokers every year.³

India is the second largest consumer of tobacco in the world, second only to China.⁴ The prevalence of tobacco use among adults (15 years and above) is 35% and the prevalence of overall tobacco use among males is 48% and that among females is

ABSTRACT

Background: Tobacco is the foremost cause of preventable death in the world and India. Cigarettes kill one in two smokers prematurely, half of these deaths occurring during middle age (mean: 35.69 years). The objective was To study various determinants of tobacco consumption among undergraduate students

Methods: A cross-sectional study conducted using self-administered questionnaire among 2000 students during February-March 2016 in 20 colleges of different streams and ratio of male: female was kept 3:1. A self-administered questionnaire was used. Data entry and analysis was done using Microsoft Office Excel 2013 and Epi-Info 7.

Results & Conclusion: Prevalence in male was 11.2% for tobacco consumption but in female the prevalence was 0.0%. Family history was present in 87.3% tobacco consumers and it had statistically significant association with tobacco consumption.

Conclusion: Tobacco consumption is more common among males. Family history, parent's education and type of native are common factors affecting tobacco consumption. Most common influential factor for initiation of tobacco consumption was friends.

Keywords: Tobacco consumption, Prevalence, Determinants, Undergraduate students

20%. Nearly two in five (38%) adults in rural areas and one in four (25%) adults in urban areas use tobacco in some form.⁵

The determinants of tobacco use among youth can be classified into four broad categories like socio-demographic factors, socio-environmental factors, personal factors and behavioral factors.⁶ It is suggested that three factors are associated with young people smoking: peer pressure, following the example of sibling and parents, and employment outside home. If a child's older sibling and both parents smoke, the child is four times as likely to smoke as one with no smoking model in family.⁷

Adolescents are vulnerable age group for development of bad habits. Usually students pass their higher secondary school and choose to study in

colleges but for that they have to opt different locations from their hometown. In colleges, students are residing in hostel or rented house and away from parents and mostly stay with friends. So, they are more likely to develop bad habits during this period. This is one of the reasons to conduct study on Tobacco Consumption and various determinants among Undergraduate students. Once habits are formed, it persists and influences their behavior. So intervention is required at early stage.

METHODS

A cross-sectional study has been carried out by Community Medicine Department, P. D. U. Government Medical College, Rajkot during February-March 2016 in 20 colleges of different streams in Rajkot and Morbi Districts, Gujarat. From website of Saurashtra University, Rajkot list of all colleges of Rajkot and Morbi districts was obtained. At total of 351 colleges were listed out. For ensuring equal coverage, in the next stage, all colleges were divided in two divisions namely private colleges and government colleges. In third stage private and government colleges were grouped in the various streams or courses. In the next stage one college from each stream was randomly selected from both the groups namely government and private and finally 10 Government and 10 private colleges of different streams were selected randomly. Overall sample size was conveniently kept 2000 students from all the 20 colleges, an attempt was made to select average 100 students from each college. On the basis of more prevalence of tobacco consumption among males, it was attempted to keep proportion of male:female participants to 3:1.

Principles of all the colleges were informed well in advance regarding the study and verbal consent was obtained. The investigation team consisted of faculty, resident doctors and Medical Social Workers (MSWs). All investigators of the survey team were trained about proper technique of carrying out the survey beforehand. Before starting the survey, students were well explained regarding the objective of the survey and how to fill the details in the proforma. Verbal consent from the students was taken for participating in the survey. Few students had not responded to some of the questions, so denominator differs in some of the variables.

Those students who have once started consuming tobacco anytime in life then continue to consume or stopped consumption, all were included in tobacco consumers. Those students who had not consumed tobacco anytime in life yet were considered as non-consumers. Those students who had stopped consumption of tobacco for minimum 7 days were included in tobacco once quieted.

Survey tool: It was a self-administered questionnaire prepared in English translated to vernacular language (Gujarati) for the easy understanding of the students.

Data entry and analysis: Data entry and analysis was done using Microsoft Office Excel 2013 and Epi-Info 7. Proportions and chi-square test were used for analysis. P value <0.05 was considered significant.

RESULTS

Total 2,000 students of different streams from 20 different colleges were included in the study among them 11.2% male were consuming tobacco products but no female was consuming tobacco. Out of total 158 participants who were consuming tobacco 132 students had positive family history and remaining 20 students didn't have history of tobacco consumption in family ($\chi^2=72.152$, $df=1$, $p<0.01$). Statistically significant difference of tobacco consumption found in the students from the rural area (9.8%) compared to urban area (6.4%). Equal proportion of students from socio-economic class-I and II, and class III and IV were consuming tobacco products. Socio-economic class was not the significant factor which affect tobacco consumption ($\chi^2=0.0001$, $df=1$, $p>0.05$). Education of father ($\chi^2=20.514$, $df=1$, $p<0.01$) and mother ($\chi^2=20.7302$, $df=1$, $p<0.01$) both had significant effect on tobacco consumption). (Table-1)

More students from Government college (9.6%) were consuming tobacco products as compared to private college students (6.8%) but the difference was not statistically significant ($\chi^2=2.855$, $df=1$, $p>0.05$). Significant difference of tobacco consumption was found between students residing at home (7.9%) and students residing in rented house (12.9%), consumption was more in the students residing at rented house. Knowledge regarding the health warning of tobacco consumption didn't have any effect on tobacco consumption. Proportion of the students who were consuming tobacco were 8.3%, 8.7%, 8.0%, and 6.0% from 1st, 2nd, 3rd, and 4th year of study respectively and the difference was not statistically significant ($\chi^2=0.887$, $df=3$, $p>0.05$) (Table-2)

As per table-3, most common reason to initiate tobacco consumption was college environment and friends (44.9%) followed by pleasure and liking for tobacco, stress, advertisement in 31.6%, 13.3% and 5.1% respectively.

Out of 160 students who were consuming tobacco, 54 students had tried to quit tobacco and again restarted consumption. Commonest reason to restart

tobacco products was addictive habit (40.7%) students. (Table-3)

Table-1: Association of tobacco consumption with socio-demographic factors

Variable	Tobacco Consumption		P value	Odd's Ratio (95% CI)
	Yes	No		
Sex of participants (n=1941)				
Male	160 (100.0)	1260 (70.7)	NA	NA
Female	0 (0.0)	521 (29.3)		
Age Group (n=1941)				
≤20 years	102 (63.7)	1276 (71.6)	0.035	0.69 (0.49 – 0.97)
> 20 years	58 (36.3)	505 (28.4)		
Family History (n=1898)				
Present	138 (87.3)	831 (47.8)	<0.001	7.54 (4.67 – 12.17)
Absent	20 (12.7)	909 (52.2)		
Area of residence (n=1832)				
Urban	58 (38.9)	845 (50.2)	0.08	0.63 (0.44 – 0.89)
Rural	91 (61.1)	838 (49.8)		
Socio-economic Status* (n=1742)				
Class I & II	102 (69.4)	1106 (69.3)	0.99	1.00 (0.69 – 1.44)
Class III, IV & V	45 (30.6)	489 (30.7)		
Father's education (n=1892)				
Upto Primary	64 (40.5)	418 (24.1)	<0.001	2.14 (1.53 – 3.00)
Above Primary	94 (59.5)	1316 (75.9)		
Mother's education (n=1883)				
Upto Primary	85 (55.6)	638 (36.9)	<0.001	2.14 (1.53 – 2.98)
Above Primary	68 (44.4)	1092 (63.1)		

*According to Modified Prasad's Classification

Table-2: Distribution of participants according to various determinants affecting tobacco consumption

Variable	Tobacco Consumption		P value	Odd's Ratio (95% CI)
	Yes	No		
Type of college (n=1941)				
Government	96 (60.0)	899 (50.5)	0.02	1.47 (1.05 – 2.04)
Private	64 (40.0)	882 (49.5)		
Current Place of residence (n=1251)				
Hostel	83 (76.1)	966 (84.6)	0.02	0.58 (0.36 – 0.92)
Relative's Home	26 (23.9)	176 (15.4)		
Knowledge regarding health warning (n=1892)				
Present	141 (91.6)	1624 (93.4)	0.37	0.76 (0.41 – 1.38)
Absent	13 (8.4)	114 (6.6)		
Year of study (n=1941)				
1 st Year	64 (40.0)	711 (39.9)	0.82	NA
2 nd Year	59 (36.9)	619 (34.8)		
3 rd Year	31 (19.4)	357 (20.0)		
4 th Year	06 (3.7)	94 (5.3)		

Table-3: Influential reasons for initiation and re-starting consumption of tobacco products

Reasons	Students (%)
For initiation of tobacco consumption (n=98)*	
College environment and friends	44 (44.9)
Pleasure and liking	31 (31.6)
Stress	13 (13.3)
Advertisement	5 (5.1)
Family members	3 (3.1)
Experiment	2 (2)
Commonest reason to restart tobacco once quitted (n=54)*	
Addictive Habit	22 (40.7)
Stress reduction	16 (29.6)
Friend	12 (22.2)
Self liking	4 (7.4)

Both questions were open ended questions and multiple responses were allowed

The table-4 shows the results of binary logistic regression to evaluate whether individual predictors of interest were significantly associated with the outcome of interest: tobacco consumption.

Students with age group <20 and with positive family history were associated with increased probability of tobacco consumption and it was statistically significant.

This indicates that instead of single factor, presence of multiple factors were associated with tobacco consumption. However, the result should be inter-

preted with caution as it could have been affected by the missing values of the data.

Table-4: Logistic regression model* for various determinants affecting tobacco consumption

Variable in the equation	aOR@	CI	P value
Government College	1.18	0.83-1.68	0.35
<20 year Age	0.68	0.47-0.97	0.03
Rural native	1.28	0.89-1.8	0.16
Positive family history	6.50	3.93-10.77	0.00

*Binary logistic regression model was used. Dependent variable was tobacco consumption. Independent variables were type of college, age group, type of native and family history; @Adjusted Odds Ratio

DISCUSSION

This is the study which examined association between various socio-demographic and other variables like type of college, place of residence etc. affecting tobacco consumption.

Prevalence of ever smoker was 15.4% in the study conducted in Delhi by Kumar V et al⁸ and prevalence of current tobacco user was 13.2% in the similar study of Sharma R et al⁹ In the National Global Youth Tobacco Survey conducted in 2004 in India, the prevalence of ever tobacco use was found to be 25.1% whereas current tobacco use was found to be 17.5%.¹⁰ More males were consuming tobacco as compared to females in other studies regarding tobacco consumption conducted in Nepal,¹⁰ Chennai, Delhi & Karachi,¹² Pune¹³ and Delhi.⁸

Statistically significant higher consumption of tobacco was found in the students having family history of tobacco consumption; Kelkar DK et al¹⁴ had stated same findings that positive family history is associated with initiation of tobacco consumption [OR=11.07 (95 % CI: 7.71-15.9)]. Tobacco use by family members is likely to influence adolescents who are more likely to perceive tobacco use as a positive and acceptable behavior.^{8,15} Type of college and knowledge regarding health warning had no association with tobacco consumption. Similar findings were found in other studies of Bhaskar RK et al¹¹ and Gururaj G et al¹³ In present study students from rural area were consuming more tobacco as compared to urban area but in study conducted in Karnataka proportion currently using tobacco was greater in transitional Karnataka (10.1%) and was twice that of rural (4.7%) population.¹³

Commonest reasons for initiation of tobacco consumption were friends and mental stress. Others study had also similar finding.¹⁵ In the study of Hemagiri K et al¹⁶ parents and friends were com-

mon reason for starting tobacco consumption. Almost equal proportion of tobacco consumption was found in all the socio-economic class students.^{8,15} In present study in multivariate analysis it observed that age group <20 was negatively associated with tobacco consumption, so as age increases rate of tobacco consumption was increased and similar finding was observed in other studies.^{16,17} In the study conducted in Eastern Nepal tobacco use was associated with late adolescence (OR: 1.64; 95% CI 1.17-2.28).¹⁸

In present study, it was observed that reasons for restarting tobacco consumption were addictive habit (40.7%) and belief of stress reduction by tobacco (29.6%). In a cross-sectional survey on a quitting attempt, common reason behind unwillingness to quit smoking was addictive habit (60%).¹⁹

RECOMMENDATIONS

Parents having addiction of tobacco should be motivated to educate and aware their children to keep them away from tobacco consumption. Awareness activities should be conducted frequently in educational institutes and more focus should be given in rural area.

REFERENCES

1. Ministry of Health and Family Welfare, Govt. of India. Report on Tobacco Control in India. New Delhi, India: November 2004. P2. Available on: http://www.who.int/fctc/66/reporting/Annex6_Report_on_Tobacco_Control_in_India_2004.pdf Accessed on: 25th April 2016
2. Kumar S. India steps up anti-tobacco measures. *Lancet* September 2000;356 (9235):p1089.
3. Shaik B, Tepoju M. A cross-sectional community based study on the prevalence of tobacco smoking (considering only cigarette and hookah smoking) among the urban youth. *AP J Psychol Med* 2013; 14(2):164-70.
4. World Health Organization. WHO Report on the Global Tobacco Epidemic, 2008: The MPOWER Package. Geneva: World Health Organization; 2008.
5. Ministry of Health and Family Welfare, Govt. of India. Global Adult Tobacco Survey India 2009-10. New Delhi, India; 2010.p25. Available on: <http://mohfw.nic.in/WriteReadData/1892s/1455618937GATS%20India.pdf>. Accessed on: 30th March 2016
6. Perry Cheryl L. Creating Health Behavior Change. How to Develop Community Wide Programmes for Youth. Thousand Oaks, CA; SAGE Publications, 1999.
7. K Park. Park's Textbook of Preventive and Social Medicine. 23rd Ed. M/s Jabalpur: Banarsidas Bhanot publishers; 2015. P831.
8. Kumar V, Talwar R, Roy N, Raut D, Singh S. Psychosocial determinants of tobacco use among school going adolescents in Delhi, India. *Journal of addiction*. 2014 Nov 6;2014.
9. Sharma R, Grover V, Chaturvedi S. Tobacco use among adolescent students and the influence of role models. *Indian Journal of Community Medicine*. April 2010, 35;2:272-275.

10. Ministry of Health and Family Welfare, Govt. of India. Report on Tobacco Control in India. New Delhi, India; 2004. p61. Available on: www.who.int/tobacco/.../global_adult_tobacco_survey_bangladesh_report_2009.pdf Accessed on: 25th March 2016
11. Bhaskar RK, Sah MN, Gaurav K, Bhaskar SC, Singh R, Yadav MK, Ojha S. Prevalence and correlates of tobacco use among adolescents in the schools of Kalaiya, Nepal: a cross-sectional questionnaire based study. *Tobacco induced diseases*. 2016 Mar 31;14(1):11.
12. Berg CJ, Ajay VS, Ali MK, Kondal D, Khan HM, Shivashankar R, Pradeepa R, Mohan D, Fatmi Z, Kadir MM, Tandon N. A cross-sectional study of the prevalence and correlates of tobacco Use in Chennai, Delhi, and Karachi: data from the CARRS study. *BMC public health*. 2015 May 11;15(1):483
13. Gururaj G, Girish N. Tobacco use amongst children in Karnataka. *The Indian Journal of Pediatrics*. 2007 Dec 1;74(12):1095-8.
14. Kelkar DS, Patwardhan M, Joshi VD. Prevalence and causalities of tobacco consumption (TC) among adolescents: a cross sectional study at Pune. *The Journal of the Association of Physicians of India*. 2013 Mar;61(3):174-8.
15. Patel J, Mubashir A, Shruti M, Maheswar DM. Prevalence of Tobacco Consumption and Its Contributing Factors among Students of a Private Medical College in Belgaum: A Cross Sectional Study. *Ethiopian Journal of Health Sciences*. 2016;26(3):209-16.
16. Hemagiri K, Vinay M, Muralidhar M. Prevalence, risk factors, attitude on tobacco use and knowledge on hazards among adolescents in Karnataka, India. *J. Indian Assoc. Child Adolesc. Ment. Health* 2011; 7 (2): 23-39.
17. Tyas SL, Pederson LL. Psychosocial factors related to adolescent smoking: a critical review of the literature. *Tobacco control*. 1998 Dec 1;7(4):409-20.
18. Pradhan PM, Niraula SR, Ghimire A, Singh SB, Pokharel PK. Tobacco use and associated factors among adolescent students in Dharan, Eastern Nepal: a cross-sectional questionnaire survey. *BMJ open*. 2013 Jan 1;3(2):e002123.
19. Pradhan PM, Marahatta K. Cross-Sectional Survey on Quitting Attempts among Adolescent Smokers in Dharan, Eastern Nepal. *Journal of Addiction*. 2016 Sep 22;2016.