Original Research Article

A cross section study on tobacco consumption practice in school going adolescent male of Jamnagar city, Gujarat, India

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ABSTRACT

Background: Tobacco is the second major cause of death in the world. About 5 million people die every year due to tobacco use and this figure may increase to 10 million tobacco related deaths per year by 2020. The most susceptible time for initiating tobacco use in India is during adolescence and early adulthood, ages 15-24 years. Most tobacco users start using tobacco before the age of 18 years, while some start as young as 10 years. Tobacco consumption habit in adolescents is particularly an eye opening situation for any country.
Methods: School based cross section study in school going adolescent male was carried out to find out prevalence of tobacco consumption among them and to identify factors affecting it. Chi-square test was applied as test of significance and p<0.05 was taken as statistically significant.
Results: Prevalence of tobacco consumption in any form of tobacco in school going adolescent male was 54.25%. Prevalence of tobacco consumption was highest in age group of 17 to 19 years (55.29%). Chewing of tobacco in various forms was identified as main form of tobacco consumption by adolescent male. Family problems, social problems, economic problems, problems with friends and addiction in family members or friends were identified as main factors that affected tobacco consumption by school going adolescent male.
Conclusions: It is urgent need of time to address the tobacco consumption by adolescent age group specifically adolescent male. Strengthening of various IEC activities and strict implementation of present laws related to substance abuse. Role of family and society should be identified and practiced for prevention and control of this novel epidemic.

Keywords: Adolescent, Tobacco, Addiction, Prevalence

INTRODUCTION

Tobacco is the leading cause of death in the world. About 5 million people die every year due to tobacco use and this figure may increase to 10 million tobacco related deaths per year by 2020.[1] Out of these, 7 million deaths will occur in the developing countries, mainly China and India.[2,3] Everyday about 80,000 to 100,000 young people start smoking, majority of them in the developing countries.[4] 1000 teenagers who are smokers currently, 500 will eventually die due to tobacco related diseases.[5]

Adolescents comprise a sizeable population– there are 225 million adolescents comprising nearly one-fifth of the total population (22%). Adolescents in the age group 10-14 years contribute more than half of the adolescent population.[6] It was estimated in 1999-2001 that 5,500 adolescents start using tobacco every day in India, joining

the 4 million young people, age below 15 years, who already use tobacco on regular basis.[7,8] Like other developing countries, the most susceptible time for initiating tobacco use in India is during adolescence and early adulthood, ages 15-24 years.[7,9] Most tobacco users start using tobacco before the age of 18 years, while some start as young as 10 years.[7,8] Tobacco consumption habit in adolescents is particularly an eye opening situation for any country.

Tobacco is the single largest preventable cause of death and disability worldwide. India is the world's second largest producer of tobacco. Prevalence of tobacco use in any form, among school going youth (age 13-15 years) in India is 17.5% (range: 2.7%-63%) while smokeless tobacco use was reported by 14.6% (range: 2.0%-55.6%) and current smokers were 8.3% (range: 2.2%-34.5%).[6].

METHODS

Study area

The present cross section study was carried out in adolescent male (age group 11th to 19th years), who were enrolled in various schools of the Jamnagar city, Gujarat.

Study sampling

10 % of total school going adolescent male in Jamnagar city were included in present study. There are total major three different types of school patterns in Gujarat Government schools, Private schools and Grant in aid schools. There were total 68 schools in Jamnagar city. Total number of school going adolescent male were 15998. Representative sample was taken from all three categories of schools. Total sample size 1600 was taken for present study.

Study was conducted among adolescents from all three kind of schools viz. Government, Grant in aid, and Private schools. So, for equal distribution of adolescents in all three schools was done in each category of schools through stratified sampling method. Simple random technique was adopted and five schools from each category taken. Adolescent male of class 6th to 12th were taken from randomly selected school of each category.

Data collection

Data was collected during June 2009 to January 2010. School visits were made with a pre-designed, pre-tested and semi structured questionnaire and the necessary information was collected. Tobacco use definition and criteria were based on standard WHO guidelines. Tobacco consumption was broadly classified into four categories: smoking, chewing, snuffing, and other form of tobacco use.

Data was collected in their native language (students were given choices from English, Guajarati and Hindi languages) Students were introduced and guided about Performa and doubt if any was cleared. Performa was given to fill up various sections except tobacco consumption. Tobacco consumption section was filled up by taking personal interview with maintaining proper privacy and after relaxing and assuring student. Informed consent of parents of adolescents and school authority were taken.

Data analysis

Epi Info Version 3.2.2 was used for data entry and analysis. Chi square test was used as test of significance. P<0.05 for two tailed test was considered statistically significant.

RESULTS

Prevalence of tobacco consumption in any form of tobacco in school going adolescent male was 54.25%. Prevalence of tobacco consumption was highest in age group of 17 to 19 years (55.29%) followed by 14 to 16 years age group (53.60%) and 11-13 years age group(53.33%). Prevalence of tobacco consumption was highest in adolescents studying in grant in aid schools (45.39%) followed by adolescents studying in government schools (32.95%) and private schools (21.66%). Education of mother also play important role in habit formation of tobacco among adolescents. Tobacco consumption was less common (51.23%) in adolescents of literate women compare to adolescents of illiterate women (63.87%). It was found statistically significant (p<0.01). Working status of mother plays crucial part in development of their children. Adolescents of working mothers were more prone to tobacco consumption in compare to adolescents whose mothers were housewives. The difference related to working status of mother and tobacco consumption by their adolescents was statistically significant (p<0.001).

In our study it was noted that adolescent generally aspire for tobacco consumption from their parents or any family member. Prevalence of tobacco consumption was higher in adolescents of family having any tobacco consuming member (81.91%). Family problems led the adolescents to use tobacco. Prevalence of tobacco consumption was significantly higher (64.78%) in adolescents coming from families where family problems were very common. Chewing form of tobacco consumption was the most common form (83.41%) followed by smoking form (58.29%) and followed by other forms like tobacco with lime or beetle nut (20.28%) while snuffing form was least practiced (1.27%) by adolescents. Tobacco consumption by any family members of adolescents was most influential factor (91.24%) followed by electronic media (77.41%), influenced by friends (61.40%), print media (24.30%) and other sources 2.99%).

Table 1: Demographic profile of adolescent male and relationship with tobacco consumption.

Variables	Addiction				Total	χ^2
	Yes		No			
	No	%	No	%		
Age						
11-13	224	53.33	196	46.67	420	$\chi2$=0.526
14-16	268	53.60	232	46.40	500	df=4
17-19	376`	55.29	304	44.71	680	p=0.97
Socio economic class						
Class I	110	46.22	128	53.78	238	
Class II	114	55.33	92	44.67	206	$\chi2$=8.04
Class III	194	57.40	144	42.60	338	df=8
Class IV	208	55.91	164	44.09	372	p=0.42
Class V	242	54.26	204	45.74	446	
Education of mother						
Literate	624	51.23	594	48.77	1218	$\chi2$=18.22
Illiterate	244	63.87	138	36.13	382	df=1, p<0.01
Working status of mother						
Housewife	576	48.08	622	51.92	1198	$\chi2$=72.14
Working woman	292	72.63	110	27.37	402	df=1, p<0.001
Education of father						
Illiterate	82	60.29	54	39.71	136	
Primary	164	48.52	174	51.48	338	$\chi2$=24.10
Secondary	206	52.42	187	47.58	393	df=8
Higher secondary	298	61.95	183	38.05	481	p<0.05
Graduates and higher	118	46.83	134	53.17	252	

Table 2: Factors affecting tobacco consumption in school going adolescent male.

Variables	Tobacco consumption				Total	Test of significance
	Yes		No			
	No	%	No	%		
Family problems						
Yes	412	64.78	224	35.22	636	$\chi2$=46.45
No	456	47.30	508	52.70	964	df=1, p<0.001
Social problems						
Yes	432	53.27	379	46.73	811	$\chi2$=0.56
No	436	55.26	353	44.74	789	df=1, p=0.45
Economic problems						
Yes	628	66.88	311	33.12	939	$\chi2$=144.84
No	240	36.30	421	63.70	661	df=1, p<0.001
Problems with friends						
Yes	563	60.34	370	39.66	933	$\chi2$=32.89
No	305	45.73	362	54.27	667	df=1, p<0.001
Addiction in family or friends						
Yes	806	81.91	178	18.09	984	$\chi2$=784.99
No	62	10.06	554	89.94	616	df=1, p<0.001
Feel that habit is bad						
Yes	771	53.80	662	46.20	1433	$\chi2$=0.93
No	97	58.08	70	41.92	167	df=1, p=0.33

Table 3: Distribution of adolescent male according to type of consumption of tobacco.

Type of consumption of tobacco	Government school N=286		Grant in aid Schools N= 394		Private schools N=188		Total N=868	
	Yes*	%	Yes*	%	Yes*	%	Yes*	%
Smoking	164	57.34	226	57.36	116	61.70	506	58.29
Chewing	272	95.10	298	75.63	154	81.91	724	83.41
Snuffing	4	1.40	6	1.52	01	0.53	11	1.27
Other form	44	15.38	60	15.23	72	38.30	176	20.28

*Multiple responses.

Table 4: Distribution of adolescent male according to influential factors for initiating tobacco consumption.

Influenced by	No* of adolescents using tobacco N= 868	Percentage (%)
Print media	211	24.30
Electronic media	672	77.41
Friends	533	61.40
Family member	792	91.24
Others	26	2.99

*Multiple response.

DISCUSSION

Tobacco consumption in various forms is common worldwide. Various morbidity and mortality are related with tobacco consumption. Tobacco is one of the causes of death in the world. India is emerging as one of the leading country for tobacco related deaths. Tobacco consumption is common in all age groups and gender. Adolescent age group is more vulnerable for addiction of tobacco. Burden of tobacco related morbidity and mortality in adolescent age group is rising in India. Prevention is the best measure to halt this novel epidemic. It was estimated in 1999-2001 that 5,500 adolescents started using tobacco every day in India, joining the 4 million young people, age below 15 years, who already use tobacco on regular basis.[7,8] Like other developing countries, the most susceptible time for initiating tobacco use in India is during adolescence and early adulthood, ages 15-24 years.[7,9] So it is urgent need of time to identify factors responsible for tobacco consumption and to prevent it very early. Present study was carried out to identify factors affecting consumption of tobacco in various forms by adolescent male.

Present study reflects that more than half of the school going adolescent male were consuming tobacco in any form. Prevalence of tobacco consumption in any form of tobacco in school going adolescent male was 54.25%. Prevalence of tobacco consumption by adolescent male was higher than other studies carried out in India.[10-12] in present study only male adolescents were selected as they were highly vulnerable population for any form of addiction. Adolescent age group is highly energetic and also subjected to various hormonal changes and stress factors. Prevalence of tobacco consumption was highest in age group of 17 to 19 years (55.29%) followed by 14 to 16 years age group (53.60%) and 11-13 years age

group (53.33%). Similar findings were reported by World Health Statistics, W.H.O. reports that use of tobacco among 13–15 years of adolescents of both sexes was found to be 17.5% in the year 2004 in India.[10] In the study of Makwana et al prevalence of tobacco chewing was 28.41% in age group of 10- 13 years, 33.56% in 14-16 years and 36.26% in age group of 17-19 years.[11] It reflects pattern that as age raises prevalence tobacco consumption in any form rose. As late adolescent age group is highly vulnerable because of thinking that academic performance in these standards become key for future career.

According to centers for disease control and prevention (CDC) journal, morbidity and mortality weekly report, nearly 2 in 10 students aged 13–15 years reported currently using cigarettes and/or some other form of tobacco with no significant difference between cigarette smoking (8.9%) and use of other tobacco products (11.2%) MMWR highlighted that in 2000 and 2003, approximately 4 of 10 students aged 13–15 in the Philippines reported ever smoking cigarettes (i.e., even one or two puffs); 42.8% in 2000 and 41.9% in 2003.[12,13] According to youth risk behavior surveillance system (2003), shows that 58.4% adolescents in standard 9-12 were never smoked, 26.9% were current/occasional smokers (1 cigarette in 15 days) and 9.7% were frequent daily smokers.[14]

Role of family in development of adolescent is very important particularly education and occupation of mother play crucial role in habit formation of tobacco among adolescents. In present study mother was the main care taker in family. Tobacco consumption was less common (51.23%) in adolescents of literate women compare to adolescents of illiterate women (63.87%). It was found statistically significant (p<0.01). Adolescents of working mothers were more prone to tobacco

consumption in compare to adolescents whose mothers were housewives. The difference related to working status of mother and tobacco consumption by their adolescents was statistically significant (p<0.001).

Adolescent age group is highly turbulent age group due to various changes in body and surrounding environment. Any disturbance of deviation in families, social level economical stress or differences and problems with friends become triggering factors for initiating consumption of any substance. Tobacco is most commonly and freely available with less expenditure. Most of adolescents preferred to consume tobacco in any form compare to other substances which were expensive or not easily available. In present study family problems, social problems, economic stress or problems with friend led the adolescents to use tobacco. Prevalence of tobacco consumption was significantly higher (66.88%) in adolescents coming from families where economic problems were very common followed by adolescent having family problems (64.78%), problems with friends or near one (60.34%) and social problems (53.27%). Addiction of any forms of tobacco in family played very important role in initiating tobacco consumption in adolescent male. In present study most of adolescents who consumed any form of tobacco (81.91%) accepted that they developed habit of consuming tobacco from nearest family members. It was very easy availability and adolescent found nothing any bad in consuming tobacco as their family member also consuming tobacco. Chewing form of tobacco consumption was the most common form (83.41%) followed by smoking form (58.29%) and followed by other forms like tobacco with lime or beetle nut (20.28%) while snuffing form was least practiced (1.27%) by adolescents. Tobacco consumption by any family members of adolescents was most influential factor (91.24%) followed by electronic media (77.41%), influenced by friends (61.40%), print media (24.30%) and other sources 2.99%). Similar findings were reported in the study of Makwana et al main inducing factor for being addict was friends (61.69%) followed by hobby (14.30%), influenced by parents (11.03%), sibling (7.79%) and personality symbol (5.19%).[11] In the study of Tsering it was noted that influence of peer groups (urban= 61.5% and rural= 69.3%) had been seen to be the most important source of initiating substance use but the likelihood of family member using any substance also influenced initiation of smoking by young children.[15] Livaudais have reported that having friends who were smokers at baseline was associated with eventually becoming a smoker among Latino adolescents in the United States.[16.] Sinha et al reported that more tobacco users reported that all or most of their friends smoked (26.2% vs. 4.6%) grades or chewed grades (31.6% vs.3.6%).[17]

CONCLUSION

It is urgent need of time to address the tobacco consumption by adolescent age group specifically adolescent male. Strengthening of various IEC activities and strict implementation of present laws related to substance abuse. Prevalence of tobacco consumption in adolescent male is just tip of iceberg but actual situational analysis should be at large scale to identify and address the factors affecting it. Role of family and society should be emphasized for prevention and control of this novel epidemic.

REFERENCES

1. World Health Organization (WHO). Tobacco Free Initiative. Available at: http://www.who.int/tobacco/en/. Accessed on 8 December 2009.
2. World Health Organization; Making a difference. World Health Report, 1999. Geneva: World Health Organization, 1999.
3. Gupta PC, Ball K. India: Tobacco tragedy. Lancet. 1990;335:594-5.
4. Jha P, Chaloupka FJ. Curbing the Epidemic: Governments and the Economics of Tobacco Control. Washington D.C., The World Bank, 1999.
5. Peto R. Smoking and death: the past 40 years and the next 40. British Med J. 1994;309(6959):937-9.
6. Reddy KS, Gupta PC. Report on Tobacco Control in India. Ministry of Health and Family Welfare, New Delhi, Government of India, 2004.
7. Patel DR. Smoking and Children. Indian J Pediatr. 1999;66:817-24.
8. Rudman A. India Inhales, 2000. Available at URL: http://www.unaff.org/2001/f-india.html. Accessed on 10th December 2009.
9. National Sample Survey Organization (NSS). A note on consumption of tobacco in India, NSS 50th round (1993-1994). Sarvekshana: J National Sample Survey Organization. 1998;21:69-100.
10. World Health Statistics. World Health Organization; Risk Factors. 2007: 49
11. 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. J Med Sci Res. 2007;1:47-9.
12. Morbidity and Mortality Weekly Reports (MMWRs). Tobacco Use Among Students Aged 13–15 Years Philippines, 2000 and 2003. 2005: 54.
13. Morbidity and Mortality Weekly Reports (MMWRs). Use of Cigarettes and Other Tobacco

Products Among Students Aged 13–15 Years—Worldwide, 1999–2005. 2006; 55.

14. Brener N, Kann L, Shanklin S, Kinchen S, Eaton D, Hawkins J, et al. Methodology of the Youth Risk Behavior Surveillance System—2013. Morbidity and Mortality Weekly Report: Recommendations and Reports. 2013;62(1):1-20.

15. Tsering D, Pal R. Role of family and peers in initiation and continuation of substance use. Indian J Psychol Med. 2009;31:30-4.

16. Livaudais JC, Napoles-Springer A, Stewart S, Kaplan CP. Understanding Latino adolescent risk behaviors: parental and peer influences. Ethn Dis. 2007;17:298-304.

17. Sinha DN, Gupta PC, Pednekar M. Tobacco use among students in Bihar. Indian J Public Health. 2004;48:111–7.