

## Original Article

## A cross sectional study to determine the tobacco use pattern among school children in central India

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### ABSTRACT

**Background:** Despite increasing awareness of the harmful effects of tobacco, the use of tobacco in various forms continues to be significant health risk factors amongst children and youth.

**Objective:** 1. To assess the prevalence of tobacco usage among school children of rural area. 2. To study the patterns & various determinants of tobacco use in school children.

**Methods:** Out of 11 schools, 5 were selected randomly from the field practice area of Rural Health Training Centre. A Cross-sectional study was conducted among 409 school children from class VI to class X using a pre-designed & Pre-tested questionnaire to study the factors associated with tobacco use. In the end a health education session was conducted to make all the students aware of health hazards of tobacco.

**Results:** Prevalence of tobacco use among school children was found to be 13.89%. Among the tobacco users smoking was found in 23 (40.3%) and tobacco chewing in the form of gutkha, pan, naaksa, khaini was found in 29 (51%) and mixed use was seen in 5(8.7%).Peer pressure (47%) and Curiosity about products (30%) were cited as the most common reasons for initiation of tobacco use.65.2% children had observed the warning on the gutkha pouch.

**Conclusion:** Prevalence of tobacco use among school children was found to be 13.89%.Mandatory health education sessions against tobacco should be held regularly for all school children.

**Keywords:** Tobacco Use, School Students, Rural, Smoking

### INTRODUCTION

The increasing rate of tobacco consumption in various forms in recent years can be viewed as an emerging epidemic. Use of tobacco is the second major cause of death in the world [1]. Approximately 6 million deaths related to tobacco use occur each year, including 600,000 from second-hand smoke. Adolescents are vulnerable targets for tobacco industry being easily influenced by media channels like Television, cinema, advertisements. If current trends continue, according to the World Health Organization (WHO), by 2030, approximately 8 million persons will die each year from tobacco use, and 80% of those persons reside in low-and middle-income countries [2].

Tobacco chewing is prevalent in all parts of the world and all age groups though it varies in extent. Tobacco smoke contains over 4,000 chemicals, some of which have marked irritant properties and some 60 are known or suspected carcinogens [3]. Harmful substances present in tobacco are nicotine, carbon monoxide and tar. Nicotine causes increased heart rate, blood pressure, raised serum cholesterol, serum triglycerides and free fatty acids. Carbon monoxide combines with hemoglobin and converts it into carboxy hemoglobin and thus reduces oxygen supply to tissues and heart muscles.

Smoking causes an estimated 90% of all lung cancer deaths in men and 80% of all lung cancer deaths in

women. An estimated 90% of all deaths from chronic obstructive lung disease are caused by smoking [4]. Smokeless tobacco contains 28 cancer-causing agents (carcinogens). It increases the risk of developing cancer of the oral cavity.

Nonsmokers who are exposed to second hand smoke at home or at work increase their risk of developing heart disease by 25–30% and lung cancer by 20-30% [5]. Secondhand smoke can cause serious health problems in children. Older children whose parents smoke get sick more often. They get more bronchitis and pneumonia, can trigger an asthma attack in a child. Also get more ear infections [5].

Overall 34.6% of adults use tobacco in India. The overall proportion of male smokers is 24.3% while proportion of female smokers is 2.9% [6]. 40% of tobacco consumed in India is in the smokeless form like Gutkha, Zarda, Pan-masala, etc. ICMR has prepared atlas of cancer in India highlighting mouth, tongue, pharynx and nasopharyngeal cancers all related to tobacco [7]. The present study was conducted with the objectives of assessment of current prevalence of tobacco use among adolescents, to assess knowledge of harmful effects of tobacco as well as to know various factors affecting its use among rural adolescent population of India.

## MATERIAL AND METHODS

A Cross-sectional study was conducted among the school children between the periods of Aug.2012-Nov. 2012. Out of eleven schools, five government schools were selected randomly from the field practice area of Rural Health Training Centre of Tertiary Care Hospital. In each school a day was fixed with prior permission of the school principal. Total students in each class from standards VI to standard X were noted. Total students present on roll were 473, out of which 409 students present at the time of interview were included in the study. A pilot study on 30 students was conducted and relevant changes were made in the questionnaire. A pretested, anonymous, self administered questionnaire in Hindi language was used to collect the information after taking informed consent. The questionnaire contained questions regarding habits of tobacco use, education of parents, age of initiation of tobacco, awareness of health effects of tobacco, etc. At the end, a health education session was conducted with the help of flex banners indicating health hazards, ways to quit tobacco, etc for all the students to increase their

awareness. Data analysis was done with SPSS 16<sup>th</sup> version.

## RESULTS

**Table 1: socio demographic data of study participants**

Socio-demographic character	Frequency N=409
<b>Age</b>	
10-12year	84 (21%)
13-15 year	256 (63%)
16-18 year	69 (16%)
<b>Sex</b>	
Male	286(70%)
Female	123(30%)
<b>Education of the mother</b>	
Illiterate	165(41%)
Primary	115(28%)
Secondary	110(27%)
Above secondary	29 (04%)
<b>Education of the father</b>	
Illiterate	47(11%)
Primary	122(30%)
Secondary	216(53%)
Above secondary	24(6%)
<b>Occupation of mother</b>	
House-job	246(60%)
Farming/labourer	146(36%)
Service	17 (04%)
<b>Occupation of father</b>	
House-job	9(2%)
Farming /labourer	314(77%)
Service	86(21%)

Table 1 shows that among majority of study population, 256 (63%) comprised of students aged 13-15 years. 286 (70%) were male & 123 (30%) were female participants. Mothers of 165 (41%) students were illiterate and majority fathers i.e. 216 (53%) were educated up to secondary class. Nearly 246 (60%) mothers were housewives and 314 (77%) fathers were farmers or labourers by occupation. The study was conducted among students of government schools who share a common socio-economic background.

Overall prevalence of tobacco use was found to be 57 out of 409 (13.8%). Among tobacco users 47 (11.5%) were males and 10 (2.4 %) were females. 71 (17.4%) students had ever tasted tobacco in their life. Most of them, 66.7% have initiated tobacco use between the age 10-13 year.

**Table 2: Pattern of tobacco use among school students**

Pattern of tobacco use	Frequency
<b>Prevalence –</b>	<b>N=409</b>
<b>Tobacco users</b>	57 (13.8%)
<b>Tobacco-nonusers</b>	352 (86 %)
<b>Ever tasted</b>	71 (17.4%)
<b>Sex-wise distribution</b>	<b>N= 57</b>
<b>Male</b>	47(82.5%)
<b>Female</b>	10(17.5%)
<b>Age of initiation</b>	<b>N=57</b>
<b>&lt;10year</b>	07(12.3%)
<b>≥ 10-13 year</b>	38(66.7%)
<b>&gt;13year</b>	12(21%)
<b>Various forms of tobacco –</b>	<b>N=57</b>
<b>smokeless</b>	29(51%)
<b>Smoking</b>	23(40%)
<b>Mixed(smoking &amp; smokeless)</b>	05(09%)
<b>Frequency of tobacco use</b>	<b>N=57</b>
<b>Daily</b>	16(28%)
<b>&lt; 3times/week</b>	37(65%)
<b>&gt;3times/week</b>	04(07%)
<b>Quantity</b>	<b>N=57</b>
<b>1-5units</b>	31(54%)
<b>&gt;5units</b>	26(46%)
<b>Expenses</b>	<b>N=57</b>
<b>&lt;10Rs./day</b>	28(49%)
<b>&gt;10-20Rs./day</b>	17(30%)
<b>&gt;20Rs./day</b>	12(21%)

Table 2 shows the pattern of tobacco use among the participants who were tobacco users. Majority of the students, 29 (51%) used smokeless form of tobacco and 23 (40%) used tobacco in smoking form. Nearly 37 (65%) students were eating tobacco less than 3 times in a week and 16 (28 %) were daily users of tobacco. Most of students 31(54%) were eating 1-5 units of tobacco while 26 (46%) were eating more

than 5 units. Nearly 50% students were spending < 10 Rs./day, while 30% were spending 10-20Rs.per day on tobacco.

**Table 3 Determinants of tobacco use**

Determinants	Tobacco users N=57	Tobacco non-users N=352	Chi-square value	Inference
<b>Age (in yrs)</b>				
<b>10-12</b>	08	76	1.7	P=0.4 P>0.05
<b>13-15</b>	38	218		
<b>16-18</b>	11	58		
<b>Gender</b>				
<b>Male</b>	47	240	4.1	P=0.03 P< 0.05*
<b>Female</b>	10	112		
<b>Parent/Family member is tobacco user</b>				
<b>Yes</b>	38	163	8.1	P=0.004 P < 0.05*
<b>No</b>	19	189		
<b>Friend is a tobacco user</b>				
<b>Yes</b>	31	239	3.9	P=0.04 P < 0.05*
<b>No</b>	26	113		
<b>Noticed health warning on pouch</b>				
<b>Yes</b>	33	217	0.29	P=.58 P > 0.05
<b>No</b>	24	135		

\*P < 0.05 is significant

**Figure 1: Reasons for initiation of tobacco use**

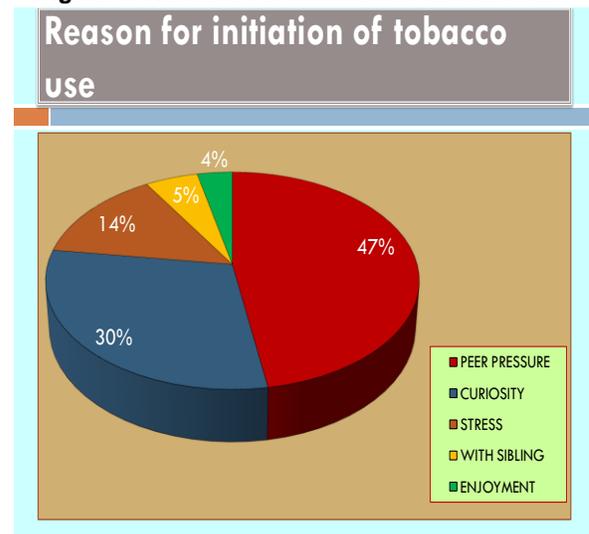


Figure 1 shows the reasons given by students for initiation of tobacco. 47% students mentioned peer pressure. Other reasons included curiosity (30%), stress (14%), enjoyment (4%) and siblings (5%). Questions were asked whether the students were aware of the health hazards caused due to tobacco,

250(61.1%) answered in affirmative. The multiple responses included oral cancer (52%), lung cancer (40%), ulcers (23%) and others like acidity, infection, discoloration of teeth (32%). 267(65.2%) students had noticed the health warning labels on the tobacco pouches, although no significant association was found between noticing warning labels and non consumption of tobacco use (chi square value 0.15  $P>0.05$ ). Tobacco use is associated significantly with male gender and when parent or a friend or both are tobacco users. (Table 3)

## DISCUSSION

This study was conducted at the rural field practice area of a medical college in Central India. The prevalence of tobacco use among the school children was found out to be 13.89%. In a similar study by Raj Narain et al [8], the prevalence was found to be 11.2 percent which is similar to the findings of our study. The prevalence ranges from 2.1 percent in a study by V. Singh [9] to 33.12 percent in a study conducted by N Makwana [10].

In our study out of 57 regular tobacco users, 47(16.3%) and 10(8.1%) were boys and girls respectively. The gender wise distribution of tobacco use in other studies is comparable to our study [8-11]. The prevalence among girls is significantly lower than the boys. The findings are in confirmation with the GYTS data that has shown that boys aged 13 to 15 were only 2-3 times more likely to smoke than girls [12].

In our study 17% students had tried tobacco products (ever tasted) at least once. A study done by Thekdi et al at Surendranagar also showed similar results [13]. 78% of children initiated tobacco use by the age of 13 years out of which 12% had started it before 10 years. Among Indian studies the mean age of initiation of tobacco use has been found to vary from 8 to 15 years. The majority of tobacco users worldwide have reportedly first tried tobacco prior to age 18. Every 2 years, CDC analyzes data from the national Youth Risk Behavior Survey (YRBS) to evaluate trends in cigarette use among high school students in the United States. It showed that high School Students who were Current Smokeless Tobacco Users was found to be 8.9% & who smoked one or more cigarettes in the previous month was found to be 19.5%. Percentage of high school students who smoked one or more cigarettes in the previous month was 14%. Among high school students 46.3% reported ever having smoked cigarettes, For current

cigarette use, the prevalence was 19.5% with prevalence in male 19.8% and 19.1% in females [14].

GYTS survey shows that 26.4% participants had one or more parents who smoke [12]. In our study 49% participants had one or more parents who were tobacco users. The difference can be attributed to rural settings. Majority of parents especially father was working as farm labourer. As seen in our study the tobacco use pattern is among school children is influenced by the habits of parents and friends. A study by Rahul Sharma et al also came up with similar findings [15].

## CONCLUSION

The findings in the study suggest that tobacco use is common among school students and is initiated at a very early age. Tobacco use is comparatively high in boys but is not restricted to them. Regular health education sessions for adopting healthier life styles are the need of the hour. Tobacco cessation program should be started for those who have already got the habit. This study enrolled participants from the government schools, more research would be required to involve the private schools and school drop outs to get the complete picture. We conclude that in spite of the ban on tobacco products, tobacco use remains a common habit among school children.

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