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## PREVALENCE OF TOBACCO USE AMONG 15-18 YEAR OLD SCHOOL STUDENTS IN DASPUR-II BLOCK, PASCHIM MEDINIPUR DISTRICT, WEST BENGAL, INDIA

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### ABSTRACT

**Background:** The consumption of tobacco amongst adolescents is a major health problem, worldwide. It is estimated that 250 million children and adolescents who are alive today would die prematurely because of consumption of tobacco, most of them in the developing countries <sup>1</sup>.

**Objective:** The objective of the study was to examine the prevalence of tobacco use among 15-18 year old school students in rural areas of Paschim Medinipur District, West Bengal, India.

**Research methodology:** This cross-sectional study was conducted in three Government aided high schools of Daspur-II block of Paschim Medinipur district. Total 2859 students of class IX, X, XI and XII were selected and data was collected by questionnaire method.

**Results:** The prevalence of ever tobacco users were 36.4% and current tobacco users were 30.2%. Prevalence was found too much higher in case of male students than female. About 74.3%, 75.4% and 79.5% current tobacco user school students preferred mostly chewable form of tobacco like 'pan masala' with tobacco'; 'gutka' and 'betel leaf with tobacco'.

**Conclusion:** The prevalence of tobacco use among school students is alarming especially among boys. This investigation suggests that immediate action is required to create a supportive environment for the health of young people.

**Keywords:** Prevalence, tobacco use, school students

### INTRODUCTION

The consumption of tobacco is a major cause of health damage, worldwide <sup>2</sup>. Tobacco use in adolescents has been called a "pediatric epidemic" because of increasing level of its use and dire public health implications <sup>3</sup>. It is estimated that 250 million children and adolescents who are alive today would die prematurely because of consumption of tobacco, most of them in the developing countries <sup>1</sup>.

West Bengal is located from latitude 21.7N TO 27.1N and 90 E to 85.5 E longitudes. The total area is 89,000 Sq. Km. The total Population (2001 Census) is 80,221,171 (Male, 41,487,694,

Female, 38,733,477); Urban-21.5% Rural - 72.5%; Literacy rate 69.22% <sup>4</sup>.

West Bengal is known for high prevalence of smoking among males (39.6%) in India <sup>5</sup>. In West Bengal proportion of tobacco related cancer was reported high. Report of Calcutta cancer registry revealed that out of total male cancer 43% were tobacco related while in females it was 12%. The overall age-adjusted incidence rates were 102.1 per 100,000 males and 114.6 per 100,000 female <sup>6</sup>. Smoking (56.4%) emerged as the major risk factors among young (<40 years) patients of ischaemic heart disease and bronchogenic carcinoma patients in West Bengal <sup>6,7</sup>.

In West Bengal, there are about hundred cigarette, *beedi*, *Zarda* and *gutka* establishments. The objective of the study was to examine the prevalence of tobacco use among 15-18 year old school students in Daspur-II Block, Paschim Medinipur District, West Bengal, India

## METHODS

This cross sectional study was done among school students of age 15-18 years old (class IX-XII) in Daspur-II Block of Paschim Medinipur District. The sample population was selected from three different Government aided schools which were located in rural areas of the District. All students of class IX and X were incorporated in this study. The exact age of the students was verified from school records and they were in the age group of 15-18.

### Sample size considerations

The sample size was calculated using the least prevalence of tobacco consumption at 6%<sup>8</sup>. Considering relative precision of 15% to study the prevalence of tobacco the minimum sample size required at 95% confidence level was 2785 students. Therefore the sample size of 2859 was taken in the age group of 15-18. Out of total 2859 male was 50.8% and 49.2% was female. 24.7%, 23.9%, 26.1% and 25.3% were of class IX, X, XI and XII respectively.

### Data collection

Data was collected by pre-tested anonymous self-administered questionnaires (prepared in Bengali language) in the classroom by investigators. Since these were young children the investigator clarified as: Ever Tobacco Users were those who had used any tobacco products in his/her lifetime even once. Current Tobacco Users were those who used any tobacco products any time in the last 30 days. Never Tobacco Users were those who have never used any form of tobacco. A verbal permission from relevant school authorities was taken before initiating the study. Informed oral consent was taken from all the participants. All participants were reassured

about their anonymity during the administration of the questionnaire. Tobacco consumption was broadly classified into different categories: smoking, chewing and more than one form of tobacco use. Tobacco smoking includes cigarettes, *beedis*. Smokeless tobacco use includes *Gutka*, *Khaini* and *Zarda*<sup>9,10</sup> (Appendix).

All students were Hindu in religion.

### Data analysis

Data was managed on an excel spread sheet. Statistical analyses were done.

## RESULTS

In the present study, a total of 2859 school students (Male: 50.8%, Female: 49.2%) studying in Government aided schools in Daspur-II block of District Paschim Medinipur (**Table-1**). Students were of three different schools and all the school were of co-educational school. Out of total 2859 students 38.57% were Ever Tobacco Users of which 80.4% were male and 19.6% were of female. 32% of the total study subjects were Current Tobacco Users and of which 79.4% were male and 20.6% of female (**Table-2**).

The packaged chewable form of tobacco like '*pan masala with tobacco*' and '*gutka*' and '*betel leaf with tobacco*' were the most preferred form of tobacco consumed by students. Amongst current users, nearly 74.3% (Male: 85.5%, Female: 14.5%) students consumed '*pan masala with tobacco*' whereas, 75.4% (Male: 92.8%, Female: 7.2%) of the students consumed tobacco as '*gutka*'. About 55.1% (Male: 100%, Female: 0.0%) of the current users also smoked in the form of cigarette followed by 55.2% (Male: 100%, female: 0.0%). Students consumed tobacco in other forms was also very high which were shown in the **Table-3**. Most surprisingly about 64.1% (Male: 86%, Female: 13.7%) students consumed tobacco in more than one form.

## DISCUSSION

No data is available from a representative district level sample of tobacco use among students aged 15-18. In an attempt to delineate the scenario this study focused on a representative school going population in Paschim Medinipur district, West Bengal, India to find the prevalence of tobacco use.

Global Youth Tobacco Survey showed current use of any tobacco product ranging from 62.8% to 3.3% with current cigarette smoking 39.6% to less than 1%<sup>11</sup>. The prevalence of tobacco consumption in the present study was in the range of the global survey because our study shows that 29.3% male and 0.07% of the total study subjects were ever tobacco users and 24% male, 0.07% female were current tobacco users.

The prevalence of current user of tobacco with smoke at 55.1% and the smokeless tobacco at 79.5% in the present study are not similar to study conducted in Patna at 5.1% and 86.2%<sup>8</sup> in the age group 13-15. This difference perhaps due to age difference of the study subjects. For this same reason this study results are higher than GYTS survey conducted in Bihar<sup>12</sup>, where the prevalence of smokeless tobacco was reported as 55.5% (Boys: 57.6%, Girls: 49.2%). However in the national level<sup>13</sup> the smokeless tobacco use was reported as only 14.6%.

The prevalence of current smoking of cigarette was found to be 55.1% followed by smoking *beedi* 55.2%. These results are similar as those found in GYTS survey conducted in Assam<sup>14</sup>, in which the prevalence of smoking cigarette was reported as 60.1%. Use of tobacco in multiple forms amongst current users was observed in 64.1% of the students which is higher than the study from Patna (Bihar) reported (5.0%) but it had a lower age group of 10-12 year<sup>15</sup>.

The majority of tobacco chewers in the present study reported chewing tobacco in different forms as *pan masala* with tobacco (74.3%), *gutka* (75.4%) and betel leaf with tobacco (79.5%) confirming the countrywide trend of increasing

*gutka* use and an increase in oral cancer incidence in our country<sup>8,16,17,18</sup>. Majority of the tobacco products are available in the market and the current users freely purchase them from the store, shop or from street vendors and were not refused by the shopkeepers or sellers because of their minor age<sup>19</sup>.

In our study female tobacco users were very low this is perhaps they conceal their tobacco use behaviour because in rural India tobacco used by female is not an accepted norm.

## CONCLUSION

The present study was conducted in three different Government aided schools in Daspur II Block, Paschim Medinipur with a sample of 2859 students. The relatively high prevalence of tobacco use in rural school indicates that tobacco consumption in an emerging and increasing health problem for school going children. This investigation suggests that tobacco use prevention and control measures are warranted and should be started very early preferably at primary school level. Social relations and personal relations of the students may play a protective role. Government has to implement anti-tobacco policy strictly and schools, parents and teachers should involve in this program. Different NGO's have to come forward to raise the public awareness.

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**APPENDIX: Definitions of various tobacco habits and products**<sup>9,10</sup>

Habits	
Pan masala With tobacco	It is a manufactured smokeless tobacco product (MSTP), a mixture of areca areca nut, less amount of tobacco and some condiments, marketed in different flavours in colourful pouches.
Gutka	Gutka is a manufactured smokeless tobacco product (MSTP), a mixture of areca nut, tobacco and some condiments, marketed in different flavours in colourful pouches.
Cigarette	Cigarette smoking is the second most popular smoking form of tobacco used in India. The prevalence varies greatly among different geographic areas and subgroups such as rural-urban.
Betel Leaf with tobacco	It is a chewable from. Processed tobacco are chewed with betel leaf, areca nut and a small amount of lime.
Beedi	Beedi is a cheap smoking stick, handmade by rolling a dried, rectangular piece of temburni leaf ( <i>Diospyros melanaxylon</i> ) with 0.15-0.25 g of sun-dried, flaked tobacco filled into a conical shape and the roll is secured with a thread. The length of a beedi varies from 4.0-7.5 cm. Beedis are commercially available in small packets.
Khaini	Khaini consists of roasted tobacco flakes mixed with slaked lime. This mixture is prepared by the user keeping the ingredients on the left palm and rubbing it with the right. The prepared pinch is kept in the lower labial or buccal sulcus. Its use is common in eastern India.
Zarda	Zarda is hygienically processed & packed chewing tobacco.

**Table 1: Class wise distribution of students**

Class	Male	Female	Total
IX	341 (48.1)	366 (51.9)	707 (24.7)
X	347 (50.7)	338 (49.3)	685 (23.9)
XI	385 (51.9)	358 (48.1)	743 (26.1)
XII	379 (52.5)	345 (47.5)	724 (25.3)
<b>Total</b>	1452 (50.8)	1407 (49.2)	2859

Figure in parenthesis denote percentages

**Table: 2 Percentage of Ever and Current tobacco users (N=2859)**

Ever Tobacco Users		Current Tobacco Users	
Sex	Nos (%)	Sex	Nos (%)
Male	837 (80.4)	Male	685 (79.4)
Female	204 (19.6)	Female	178 (20.6)
Total	1041 (36.4)	Total	863 (30.2)

Figure in parenthesis denote percentages

**Table 3: Distribution According to the Consumption of Different forms of Tobacco (N=863)**

Forms of Tobacco	CURRENT USERS		
	MALE	FEMALE	TOTAL
Pan masala with tobacco	548 (85.5)	93 (14.5)	641 (74.3)
Gutka	604 (92.8)	47 (7.2)	651 (75.4)
Cigarette	480 (100)	0 (0.0)	480 (55.1)
Betel leaf with tobacco	604 (88.0)	82 (12.0)	686 (79.5)
khaini	440 (100)	0 (0.0)	440 (51.0)
Beedi	477 (100)	0 (0.0)	477 (55.2)
zarda	204 (80.6)	49 (19.4)	253 (29.3)
Multiple forms	477 (86.3)	76 (13.7)	553 (64.1)

Figure in parenthesis denote percentages.