Tobacco Use Among School Going Children

Abstract

**Background:** Despite increasing awareness of harmful effects of tobacco, its use in various forms continues to be significant health risk factors among children. **Aim:** To assess the prevalence, pattern, and age of initiation of tobacco consumption, various factors influencing the habit of tobacco consumption, correlation between the educational status of children and their habit of tobacco consumption, and evaluation of any tobacco-induced oral lesion among 8–14 years of school going children in Central Delhi zone. **Methods and Materials:** Total sample of 500 students aged 8–14 years from two schools in Central Delhi were studied using a structured, close ended, prevalidated questionnaire after taking prior permission and inform consent from the school authority. In the end, intraoral examination was done and health educational session was conducted to make students aware of health hazards of tobacco products. **Results:** Prevalence of tobacco consumption among students was 16.4%. Out of total 82 tobacco users, 89% were male, whereas 11% were female. Smokeless tobacco consumption was predominant with Gutka being most preferred. Mean age of initiation of smoking form of tobacco was 9.57 ± 1.13 year, whereas for smokeless form, it was 9.25 ± 1.16 years. Friends (78.04%) were most common influencing factors, followed by family member (12.2%) and media (9.7%). **Conclusion:** The rate of tobacco use was high, considering very young age group of this study. Consumption of tobacco among children is an emerging health problem in Central Delhi zone. Mandatory health education sessions against tobacco should be held regularly for students, teachers, and parents.

**Keywords:** Prevalence, risk factors, smokeless tobacco, smoking, tobacco use

Introduction

Tobacco use is a major health and social problem worldwide and it is reaching pandemic levels in children. Tobacco was estimated to account for over three million annual deaths globally in 1990. Today, this figure has risen to about four million annual deaths, resulting in about 11,000 deaths everyday.[1] It is estimated that in India, 5,500 children start consuming tobacco every day, joining the four million young people under the age of 15, who are already using tobacco regularly.[2]

The Global Youth Tobacco Survey (GYTS) (2000–2004) reported the prevalence of ever use of tobacco in any form to be 25.1%, with current cigarette smoking being 17.5% and current use of smokeless tobacco to be 14.6% in the age group of 13–15 year.[3] According to GYTS in 2006 and 2009, about 14% (13.7% in 2006 and 14.6% in 2009) of students aged 13–15 year reported using tobacco either smoking or smokeless tobacco.[4] Every year, more than 932,600 of its people are killed by tobacco-caused disease. Still, more than 625,000 children (10 to 14 year old) and 103,614,000 adults (15 + years old) continue to use tobacco each day. According to a survey done by American Cancer Society in India (2015), 0.64% boys and 0.33% girls are using tobacco daily.[5] Complacency in the face of the tobacco epidemic insulates the tobacco industry in India and ensures that tobacco’s death toll will grow every year.

The early age of initiation underscores the urgent need to intervene and protect this vulnerable age group from falling prey to this addiction. There are only a few studies on prevalence and initiation of smoking and smokeless tobacco use among school students in Delhi. Hence, this study has been undertaken in Central Delhi with the following objectives: 1) prevalence of tobacco consumption; 2) various forms of tobacco consumption; 3) age of initiation of tobacco consumption; 4) various factors influencing the habit of tobacco consumption; and 5) correlation of the...
educational status of students and their habit of tobacco consumption.

Method

A cross-sectional observational study was conducted in two schools of Central Delhi, after obtaining prior approval from the Institutional Ethical Committee. A total sample size of 500 children in the age group 8–14 years were selected for this study. The formula used for calculating the sample size was as follows: Sample size = \( \frac{4pq}{d^2} \), where \( p \) denotes prevalence, \( q = (1 − p) \), and \( d \) denotes precision, considering 95% confidence level and ±0.5 precision. Information regarding use of smoking and smokeless tobacco among students were ascertained using a questionnaire that was derived from the GYTS-based questionnaire and questionnaire used in the study done by Rattan, Mohanty, and Goyal (2014).\(^6\) The procedure and purpose of the study were explained to the school principal and then permission and written informed consent were obtained. Interview of each student of a class was conducted and answers given by them were recorded using the questionnaire. Intraoral examination was done for all the students who participated in the study. Data analysis was performed using the Statistical Package for the Social Science-21 (SPSS-21).

Results

The sociodemographic details of all the school going children who were included in the study are given in Table 1. The mean age of the students who participated in the study was 11.61 ± 1.74 years [Table 1].

The prevalence of tobacco consumption among the students in this study was found to be 16.4%. Out of the total 500 students, 82 students were ever tobacco users, whereas 9 students were current tobacco users. Among these 82 ever tobacco users, 73 (89%) were males and 9 (11%) were females. All nine current tobacco users were male. Out of the total 82 ever tobacco users, seven (8.5%) students had tried smokeless forms of tobacco, whereas 75 (91.5%) students had used smoking forms. Table 2 shows the various forms of tobacco used by the school students.

The mean age of initiation of smoking form of tobacco consumption was reported to be 12.14 ± 1.34 years of age, whereas that of the smokeless tobacco was found to be 12.05 ± 1.71 years of age. It was reported that 31 (37.8%) students initiated consumption of tobacco at the age of 8 years. This study showed that two students of 8 years of age were ever tobacco users, whereas there were 26 (31.7%) students of 14 years of age who were ever tobacco users. It was observed from this study that ever tobacco use was seen in younger children also; however, number of ever tobacco users increased with age.

It was reported that some of the family members of 299 (59.8%) students used tobacco. Among these family members, parents of 188 (37.6%) students, siblings of 17 (3.4%) students, grandparents of 26 (5.2%) students, and other relatives of 68 (13.6%) students used tobacco. There was statistically significant correlation between the use of tobacco products by close friends and family members and

| Table 1: Sociodemographic data of study participants |
|-----------------------------------------------|
| **Age (year)** | **No. of students** |
| 8              | 18 (3.6%) |
| 9              | 32 (6.4%) |
| 10             | 61 (12.2%) |
| 11             | 81 (16.2%) |
| 12             | 115 (23.0%) |
| 13             | 66 (13.2%) |
| 14             | 127 (25.4%) |

| **Gender** | **No. of students** |
|------------|---------------------|
| Female     | 154 (30.8%)         |
| Male       | 346 (69.2%)         |

| **Education of parents** | **No. of students** |
|--------------------------|---------------------|
| Attended Primary School  | 115 (23.0%) 55 (11.0%) |
| Attended Secondary School| 182 (36.4%) 239 (47.8%) |
| Attended High School     | 81 (16.2%) 102 (20.4%) |
| Graduation and above     | 19 (3.8%) 35 (7.0%) |
| Don’t know               | 103 (20.6%) 69 (13.8%) |

| **Occupation of father** | **No. of students** |
|--------------------------|---------------------|
| Unemployed               | 12 (2.4%)          |
| Professional Job         | 54 (10.8%)         |
| Self-employed            | 270 (54.0%)        |
| Service                  | 64 (12.8%)         |
| Unskilled worker         | 100 (20.0%)        |

| **Occupation of mother** | **No. of students** |
|--------------------------|---------------------|
| Housewife                | 456 (91.2%)         |
| Professional Job         | 10 (2.0%)           |
| Self-employed            | 11 (2.2%)           |
| Unskilled worker         | 23 (4.6%)           |

| Table 2: Frequency and percentage of students according to the use of various smoking and smokeless forms of the tobacco |
|-------------------------------------------------------------------------------------------------------------------|
| **Ever use of any form of tobacco** | **No. of students** | **Percentage** |
|-------------------------------------|---------------------|----------------|
| Bidi                                | 6                   | 7.3            |
| Cigarette                           | 1                   | 1.2            |
| Gutka                               | 44                  | 53.7           |
| Paan                                | 11                  | 13.4           |
| Khaani                              | 7                   | 8.5            |
| Mawa                                | 6                   | 7.3            |
| Supari                              | 1                   | 1.2            |
| Surti                               | 6                   | 7.3            |
| Total                               | 82                  | 100.0          |
ever use of these tobacco products by students \((P < 0.05)\). Various factors influencing the school students to start using tobacco products are shown in Table 3.

Among all the 82 ever tobacco users, 13 (15.9%) used these tobacco products alone, whereas 69 (84.1%) used them with peers. Majority of the students (47.6%) used tobacco outside school premises followed by public places, such as bus, market, and street (14.6%), at friend’s place (13.4%), at home (12.2%), and inside school premises (8.5%). Statistically significant correlation was reported between the use of tobacco products by students alone or with peers and the place where they have tobacco most often \((P < 0.05)\). It was observed that home was the most preferred place to use tobacco for the students who used it alone, whereas with peers they used tobacco outside school premises. It was observed that 41 (50%) of the tobacco user had purchased tobacco products from shop or street vendor themselves and most of the students (51%) were not denied by any vendors for buying tobacco products because of their minor age.

Out of the total 82 students who used tobacco, parents of 59 (72%) students were unaware of their children’s tobacco consumption habit, whereas parents of 6 (7.3%) students were aware of this. It was reported that 484 (96.8%) students had knowledge about tobacco, whereas 16 (3.2%) students did not know about tobacco. Questions were asked whether the students were aware of the health hazards caused due to tobacco; majority (98.8%) of the students answered in affirmative. Statistically significant correlation was observed between the students’ knowledge regarding harmful effects of tobacco on health and anti-tobacco messages they have obtained from media \((P < 0.05)\). In this study, 74.6% of the students reported that they had a program or discussion in their school that told them about bad effects of tobacco. Out of the total 82 students who ever used tobacco, 79 (96.3%) had tried quitting use of tobacco products, whereas 3 (3.7%) students had not tried it ever. Statistically significant correlation was observed between students’ knowledge regarding harmful effects of tobacco on health and their tobacco quitting. More students tried quitting tobacco habit if their school conducted programs or discussions related to bad effects of tobacco \((P < 0.05)\). Intraoral examination revealed that none of the tobacco user had any tobacco-related mucosal lesions.

### Discussion

Most children begin using tobacco at an early age. This early initiation of substance abuse is usually associated with a poor prognosis.\(^7\) Hence, this study focused on the lower age group of 8–14 years in order to assess the prevalence and pattern of tobacco consumption and its influencing factors associated with this age group. The prevalence of tobacco consumption among students in this study was found to be 16.4%. This was slightly lower than the prevalence of tobacco consumption reported by Thakor and Prajapati \((2014)^8\) among 5–19 years of school children in Gujarat where the prevalence was 18.6%. Studies done by Rattan et al. \((2014)^6\) in Haryana and Narain et al. \((2011)^9\) in Noida reported lower prevalence of tobacco use, 5.1% and 11.2%, respectively.

This study showed higher prevalence of tobacco use among boys compared with girls. Similar results were shown by studies conducted by Thakor and Prajapati \((2014)^8\) and Narain et al. \((2011)^9\) who also reported that the prevalence of tobacco use was more among boys than girls. Various studies have reported that the proportion of tobacco users is higher among males than females, as males in Indian culture enjoy higher level of freedom regarding their individual behaviors than females, both from the family and society.\(^{9,13}\)

The prevalence of smokeless tobacco use was reported to be more than smoking form among school going children in this study. Similar results were shown by Makwana et al. \((2007)^{11,14}\) which reported smokeless tobacco (66.23%) as the most preferred form of tobacco use than smoking form (14.6%). Similarly, studies done by Jakhar et al. \((2015)^{13}\) and Rattan et al. \((2014)^6\) showed higher incidence of smokeless tobacco use. These trends indicate that smokeless tobacco use is increasing among the younger population. Children were using paan masala or Gutka as mouth freshener or as processed betel nut without knowing the ingredients and their hazards.\(^{10}\) The major factors that persist to encourage children to use smokeless form of tobacco are its low price, ease of purchase or production, and the widely held misconception that it has medicinal value for improvement in tooth ache, headache, and stomach ache.\(^{16}\) According to GYTS survey conducted in Bihar, the prevalence of smokeless tobacco use was reported as 55.6% (boys: 57.6%, girls: 49.2%).\(^{17}\) The higher prevalence of smokeless forms of tobacco use among girls may be explained by the fact that in India, paan chewing is socially acceptable, even among women.\(^{13}\)

It was observed in this study that 31 (37.8%) students started tobacco use at the age of 8 years. Kotwal et al. \((2005)^{18}\) in their study in two schools of Delhi found that almost 42% of tobacco users started before the age of 12 years. GYTS survey conducted in Orissa showed that about 30% of the tobacco user consumed tobacco for the first time at the age of 10 year or earlier.\(^{19}\) In the study

| Table 3: Various influencing factors among school students |
|---------------------------------------------|
| Factors which influenced students to start using tobacco products | Frequency \((n)=82\) |
| Friends | 64 (78.04%) |
| Family | 10 (12.2%) |
| Media such as, TV, radio, Internet, newspaper, etc. | 8 (9.7%) |
conduct by Rattan et al. (2014) among 8- to 15-year school children in rural Haryana observed that age of initiation of tobacco use was <10 years of age in 0.9% of tobacco user, whereas the rest (4.2%) started after 10 years. This early initiation of tobacco use can be due to the peer pressure, curiosity, enjoyment, experimental nature of the young children, and to overcome boredom. Parents and relatives find it easy to ask children to buy tobacco for them. This brings children much closer to tobacco products and inspires them to use tobacco products.

In this study, most of the tobacco users reported that friends and family members were the biggest influencing factor for the initiation of tobacco consumption habit. Studies done by Sahasrabuddhe et al. (2014), Singh et al. (2005), Shrutithi et al. (2013), and Jakhar et al. (2015) reported tobacco usage within their family especially by father and among friends. Bonding with friends is an important part of adolescent development. The impact of peers on regular smoking is greater than that of the parents and siblings. Peer pressure is a social institution that modifies child behavior by making them indulge in risky behavior such as smoking at an early age. In Asian culture, the relatively authoritarian parenting style and prevailing submissive adolescent mindset are important factors in influencing children. Family members influence teen perceptions of the positive and negative consequences of smoking, model how to smoke, and create an impression that it is normative to smoke. Media advertisements influence the children’s perception and initiation of tobacco use. Advertisements project tobacco use in congenial surroundings or associate the brand name with idolized role model, which legitimizes the habit in young minds and projects the use of tobacco as being socially acceptable.

In this study, majority of the students (47.6%) reported that they used tobacco outside school premises. Studies done by Jakhar et al. (2015) and Singh et al. (2007) reported that public places were the most common places followed by schools and homes. Tobacco products are easily available in shops present outside schools and in public places. Students preferred to buy tobacco products from vendors at public places away from their homes to avoid being caught by their parents. In the studies conducted by Sinha et al. (2007) in Bihar and Singh et al. (2003) in Delhi reported that majority of the current users could freely purchase tobacco products from the stores, shops, or street vendors. Majority of the children did not have any difficulty in buying tobacco products despite their young age, indicating that laws restricting access to minors were not enforced strictly. This study reported that out of total 82 ever tobacco users, 79 (96.3%) of them had tried quitting use of tobacco. Majority of the ever tobacco users who tried quitting use of tobacco had used these products due to curiosity and experimental nature. But most of them did not like the taste of these products so never tried to use these products again. Shrutithi et al. (2013) showed that among all the current smokers, 43.2% had tried to quit smoking and 50% of those currently using smokeless tobacco had tried to quit within the past 1 year. As the school going students who participated in this study were of younger age group, the duration of tobacco consumption was short. Therefore, none of them showed any tobacco-related mucosal lesions. The rate of tobacco use was high, considering the very young age group of our sample. Majority of the tobacco users in this study were experimental users. So, if they are not informed about the harmful effects of tobacco products now, they will convert into regular tobacco users in the future and become addicts, which will place a high disease burden on the society. More such studies with larger samples and in various regions of the country should be conducted in order to build comprehensive database for future policy decisions on anti-tobacco campaigns.

Limitations of this study

1. The sample size does not represent the entire Delhi region. All schools could not be studied and a larger sample size is required.
2. As the children were interviewed, some of them might have lied and fabricated the responses. There is no way to check that.

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Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form the patient (s) has/have given his/her/their consent for his/her/their images and other clinical information to be reported in the journal. The patients understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

Ethical approval

The study was approved by the institutional ethics committee.

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Conflicts of interest

There are no conflicts of interest.

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