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Prevalence of areca nut and tobacco use in school-going children in Ahmedabad

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ABSTRACT

Aims: Tobacco and areca-nut use among school children is a serious problem in developing countries. The aim of the study was to determine the prevalence of tobacco and areca nut chewing habit and different characteristics of areca nut chewers among school-going children.

Methods: A questionnaire-based cross-sectional survey asking them to fill a self-administered questionnaire regarding personal habits was conducted across three municipal and six semi-government schools in Ahmedabad city including 3,055 children in 7th–12th standards.

Results: The prevalence of tobacco or areca-nut chewing was 12%. Of them, 5% had a habit of smoking, 6% chewed tobacco, and 89% areca nut. Also, 46% got it near their house, 13% near the school, 11% borrowed, a few stole, and 18% received it from someone. Twenty-five percent initiated habit at an age of <12 years, 43% at 13–15 years, and 32% at 15–17 years. Attitude of consumers after having areca nut was noted as 10% felt relaxed, 13% happy, 14% found it pleasurable, 54% felt nothing, and data for 9% were missing. Feelings of the consumers if they did not consume it were as follows: 5% felt discomfort, 9% restless, 7% had a craving, 71% had nothing, and data for 8% were missing. Fourteen percent found themselves to be more attractive, 19% felt less attractive, and 62% found that consumption doesn't make any difference to their appearance. Nineteen percent had none of their friends having the habit, 56% had some, 12% had most, and 10% had all of their friends having the habit.

Conclusion: Consumption of tobacco is an emerging health problem and there is a need to sensitize everyone toward its ill-effects.

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Prevalence; tobacco; smoking; areca-nut; school-going children; addiction.

Introduction

Tobacco use is a leading cause of preventable deaths world over, more so in the developing countries. It is a major public health concern in almost all countries [1]. In India alone, nearly 1 in 10 adolescents in the age group of 13–15 years have ever smoked cigarettes and almost half of them state that they started to use it before the age of 10 years. Soni and Raut in their study found an overall prevalence of tobacco consumption to be 50% among school-going boys and 23% among girls in Delhi. The students studied were in the age range of 14–19 years. The risk of tobacco use is highest among those who started early and continued its use for a long period. Over one-third of tobacco consumed is in the smokeless form [2]. Delhi is a metro city and, hence, the lifestyle of the people living in Delhi is much different compared to the lifestyle of the people living in other parts of the country. Use of smokeless tobacco (SLT) among children is alarming due to its genotoxic effect and a high addictive nature of nicotine, making it difficult to quit. Areca nut is among the most common addictions following tobacco. It has a fibrogenic, genotoxic, and carcinogenic effect on oral mucosae. It has typical dependence and its adverse effects include oral leukoplakia, submucous fibrosis, and gum diseases [3,4]. Previous studies reported significantly greater risk in users

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of SLT for coronary heart disease and fatal stroke, acute coronary events, hypertension, metabolic syndrome, and atherothrombosis [5].

Schools provide excellent opportunities for integrating oral health, where children may be employed to take control of their own health early in their lives [6].

According to previous studies, there is a need to collect data from schools of different parts of the country to develop anti-tobacco campaigns and take policy decisions [7]. The present cross-sectional study was undertaken to determine the prevalence and age at initiation of tobacco use and areca nut chewing among school children in Ahmedabad.

Materials and Methods

A cross-sectional study was conducted across nine schools: three municipal and six semi-government, in Ahmedabad, Gujarat. 3,055 school-going children studying in the 7th–12th standards and in the age group of 10–19 years were included in this study by convenience sampling in the year 2018. This sample represented around 10% of the total population of school-going adolescents studying in municipal or semi-government schools.

Permission for data collection was sought from the principals of the schools. Oral informed consent of the children included in the study was taken. The health questionnaire about tobacco use was prepared based on a questionnaire from the Global Youth Tobacco Survey (GYTS). No changes were made in questions but some were excluded. Questions pertaining to awareness among the students were excluded from the GYTS questionnaire. Children were explained about how to fill up the questionnaire and to provide authentic information. They were assured that all information would be kept confidential. The questionnaire was provided as a hard copy in English to semi-government school students and was translated to Gujarati for Government school students. The students were asked to fill their questionnaires in their respective classrooms. Students were given a period of 10–15 minutes to fill the forms. The questionnaire included questions as shown in Figure 1.

Results

A total of 3,273 forms were distributed, of which 218 students kept the forms incomplete. The age range was 11–18 years. The mean age was 15.03 ± 2.83 years. Of the 3,055 students who filled the forms, 3% and 97% were in municipal and semi-government schools, respectively. In participants, 52% of them were boys and 41% of them were girls, as shown in Table 1. The prevalence of tobacco chewing or areca nut chewing among all the participants was 12%. The consumers comprised 23% of the students in municipal schools and 12% of those in semi-government schools, as shown in Table 1. Of them, 5% had the habit of smoking, 6% had the habit of chewing tobacco, and 89% chewed areca nut, as shown in Table 2. When asked about the source of the tobacco, 46% got the tobacco or areca nut near their house, 13% found it near the school, 11% borrowed, a few stole, and 18% received it from someone. The initiation of the habit was at an age of <12 years for 25%, at age of 13–15 years for 43%, and at an age of 15–17 years for 32% of the consumers. The consumers felt relaxed after consumption (10%), happy (13%), or pleasurable (14%). There were 54% consumers who felt nothing and 9% who left the question unanswered. If the consumers did not consume tobacco, they felt discomfort (5%), restless (9%), or they had a craving (7%). Among the consumers, 71% felt nothing when they did not consume tobacco or areca nut and 8% of the data were missing about areca nut consumption. Only 14% consumers found themselves to be more attractive after consuming tobacco or areca nut, 19% felt less attractive, and 62% found that areca nut consumption doesn't make any difference to their appearance. Habits of the friends of children consuming tobacco or areca nut were also taken into consideration and it was found that 19% of children had none of their friends having the habit, 56% had some of their friends, 12% had most of their friends, and 10% had all of their friends having the habit of tobacco or areca nut consumption (Table 3).

Discussion

The results of the study show an overall prevalence of tobacco chewing or areca nut chewing to be 12%. Varying reports are present on the prevalence of use in different states of India, ranging from 1.9% in Delhi to 75% in Mizoram [7–11]. In the present study, 90% of consumers were areca nut users, 5% were smokers, and 5% were tobacco users. Narain et al. [7] in Noida found an 11% (537 of 4,786 students) use of tobacco of any kind with 3.7% exclusive smokers and 2.5% exclusive tobacco chewers. Chawda et al. [6] found an overall prevalence of

QUESTIONNAIRE

Dear Student,

Please do not write your name on this questionnaire, hence nobody will be able to identify who has completed this form, please answer honestly.

STANDARD: AGE : GENDER : PARTICIPANT NO:

SCHOOL:

(1)Do you have the habit of?
(a)Smoking
(b)Tobacco chewing
(c) Sopari (sweet or without sugar)
(d) None

(NOTE: If the answer to Qt. 1 is (d) then directly go to question no 10)

(2) Age of initiation?
(a) < 12 years
(b) 13-15 years
(c) 15-17 years

(3) First packet given by
(a) Friend
(b) Family member
(c) Others

(4) How do you feel when you have it?
(a) Relaxed
(b) Happy
(c) Pleasure
(d) Nothing

(5) How do you feel when you don't have it?
(a) Discomfort
(b) Restless
(c) Craving
(d) Nothing

(6) Do you think smoking cigarette/chewing tobacco or sopari makes one more or less attractive?
(a) More Attractive
(b) Less Attractive
(c) No difference

(7) Do any one of your friends have the habit of Smoking, chewing Tobacco or Sopari?
(a) None of them
(b) Some of them
(c) Most of them
(d) All of them

Figure 1. Questionnaire used to assess the prevalence of tobacco users.

Table 1. Distribution of students in schools.

School	Boys	Girls	Missing data	Total	Total number of students studied
Municipal	61 (60%)	31 (31%)	9 (9%)	101	3,055
Semi-government	1,520 (51%)	1,225 (41%)	209 (8%)	2,954	

betel nut consumption of 22.8% among teenagers in Ahmedabad. These differences in the consumption may be due to the different populations studied and also the different socio-economic conditions that prevail in different states and cities of India. India is a vast country having a huge population. There is diversity among the people living in different parts of the country based on the culture, education, life-style, and economic background. Hence, there is diversity in the tobacco and areca nut usage also. Also, in the present study, only school-going adolescents had been studied, and hence, the population

Table 2. Consumption among the students.

Consumption		Municipal school student (% out of 101)	Semi-government school student (% out of 2,954)	Total (% out of 3,055)
Consumers	Total	24 (24%)	347 (12%)	371 (12%)
	Tobacco	0	20 (6%)	20 (5%)
	Smoking	2 (8%)	18 (5%)	20 (5%)
	Areca nut	22 (92%)	309 (89%)	331 (90%)
Non-consumers		77 (76%)	2,607 (88%)	2,684 (88%)

Table 3. Details regarding consumption.

		No. of consumers	% of consumers
Age of initiation	<12 years	88	24
	13–15 years	157	42
	15–17 years	114	31
Introduction to habit	Friend	237	64
	Family member	9	2
	Others	80	22
Feeling after consuming tobacco or areca nut	Relaxed	36	10
	Happy	47	13
	Pleasure	53	14
	Nothing	200	54
	Missing	35	9
Feeling when not able to consume	Discomfort	18	5
	Restless	32	9
	Craving	25	7
	Nothing	263	71
	Missing	33	8
Feeling about their appearance	More attractive	51	14
	Less attractive	70	19
	No difference	229	62
Having friends with habits	None	69	19
	Some	207	56
	Most	44	12
	All	37	10

of adolescents who are not school going were not taken into consideration. Thus, the current study presents a lower prevalence of consumption when comparing data to a general population of teenagers [6].

The present study found that 20% of the boys were consumers as opposed to 2% of girls being consumers. A study in Kerala (2012) showed a prevalence of 5.5% users of tobacco among adolescents; 12% of the boys and none of the girls were consumers [12]. A study by Soni and Raut (2013, NCT, Delhi) showed the prevalence of consumption to be 50.2% among boys and 23.3% among girls [2]. Another study by Dere et al. [13] (Gandhinagar) showed a 33% use in boys and a 22% use in girls of areca nut with 13% using Gutka (with tobacco). The consumption in the female population is lower than that in the male population.

In the present study, more of the municipality school students (25%) than semi-government school students (12%) indulged in the habit. This difference may be attributed to the socioeconomic

condition of the students, which was concluded by Sarfaraz et al. Children of semi-government school are expected to have a better sense of oral health and hygiene than the children of uneducated and underprivileged squatter or the students of municipality schools of poor socioeconomic areas [14].

In the present study, 25% of the students started to use it before the age of 12 years, 43% between the age of 13–15 years, and 32% at the age of 15–17 years. According to Soni and Raut, students who started this habit at an early age (10–15 years) consume it regularly and they found that only few students initiated at the age of 17 or more because by this age most of them were already regular users. Thus, as their age increases, the chance of regular use is high, so it shows lesser the age of initiation, higher are the chances of children to become regular users. Therefore, anti-tobacco programs should focus on early aged students so that they can be made aware of the ill effects of addiction before the onset of initiation [2]. A study in Gujarat by Dere et al. [13] estimated that the beginning age of chewing was conservatively 11 years corresponding to fifth grade, unfortunately, there were some participants who started the usage at about 7 years, showing a downward drift in the age of initiation, which is a matter of serious concern. According to Nitin et al. [3], the age of initiation of the habit was 13 years. Narain et al. [7] also suggested that nearly 70%–80%, ≤15 years initiated the habit of tobacco before the age of 11 years. Initiation at an early age significantly increases the risk of cancer in the future.

Forty-six percent of children bought it from shops near the house, 13% from shops near the school, and 11% borrowed from someone, and 18% of them eat when offered by someone. A higher percentage (59%) of children bought the product by themselves from shops either near the house or school, the sale of these products to children below the age of at least 18 years should be prohibited in an attempt to reduce their use among children. Fifty-six percent of consumers had some friends and 22% had most or all friends with such habits. Oswal [15] found a strong association between tobacco use by adolescents and having pocket money and close friends being tobacco users. Kabir et al. [16] also concluded that use of tobacco among friends, the experience of seeing others smoking at home or other places, and exposure to advertisements and promotions of tobacco products were associated with higher likelihood of adolescent tobacco use.

As far as the school-going children are concerned, the easy language lessons about areca nut, Gutka, and tobacco hazards and signs and symptoms of oral submucous fibrosis and oral cancer, with pictures, can be incorporated in the academic syllabus of secondary classes. Some themes or slogans can be fabricated to encourage the young generation to boycott areca nut and its products. Poster competitions, speeches, and other similar activities can be arranged for school-going children to increase the knowledge and awareness about areca nut hazards. These simple and easily achievable measures could be effective in reducing the high prevalence of areca nut chewing habit among school going children [14]. A general increase in awareness is also important as the students tend to obtain such products from neighbors, family members, or friends. It is important to explain the ill effects of tobacco consumption to the family members and society members also.

Limitations

- The population included was only municipal and semi-government school-going adolescents.

Future Studies

- Studies about the prevalence in the consumption of tobacco and areca-nut in private schools to be done.

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