

# Outcome of an Educational Intervention Programme on Tobacco Consumption By Rural Adolescent Males

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## Abstract

This before-and-after type of educational interventional study using convenience sampling was conducted among rural adolescent males to find the prevalence of usage of various forms of tobacco and to determine the outcome of educational intervention on tobacco use among the participants. Using a pre-tested questionnaire, the participants were separately interviewed for about 20-30 minutes. The mean age of participants (n=180) was  $17.80 \pm 1.19$  years. 34.4% had a positive family history of tobacco use. Tobacco consumption by family members significantly increased tobacco use among the adolescents ( $p=0.005$ ). The major factors that influenced tobacco intake were social customs, peer pressure, perception of tobacco use as a “status symbol”. The number of smoked tobacco users in pre-intervention phase was significantly higher ( $p=0.0145$ ), as compared to that in the post-intervention phase. In the pre-intervention phase, *bidi*, followed by cigarette were the commonly used smoked tobacco products while in the post-intervention phase, the commonly used tobacco products were cigarette, followed by *bidi*. Educational intervention resulted in reduction in frequency of tobacco use from 17.2% to 11.1%. Systematic long-term focussed programmes would be necessary for sustaining the beneficial effects of the educational intervention.

**Keywords:** Educational intervention, Rural adolescent males, Tobacco use.

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## INTRODUCTION

Globally, tobacco use is one of the leading preventable causes of morbidity and mortality [1, 2]. Tobacco use usually starts in adolescence and continues into adult life. As compared to non-users, adolescent tobacco users are more likely to use alcohol and illegal drugs. Adolescents and young adults are the frequently targeted potential consumers for the tobacco industry [3, 4]. The risks of tobacco use are highest among those who start early and continue its use for a long period [5]. The early age of initiation emphasizes the urgent need to intervene and protect this vulnerable group from falling prey to this addiction [6]. The most common reasons cited for initiation into tobacco consumption are peer pressure [7-9], parental tobacco habits, and pocket money given to them [6].

Adolescents select their friends based on their own characteristics [10]. A prospective study [11] on the impact of parent and peer influences on smoking onset among adolescents found that while having parents who smoked was a significant predictor of smoking onset in adolescence, having close friends who smoked had a greater impact. A cohort-sequential study

found that both peer and parental influences remained significant but constant with increasing age [12].

A longitudinal study of adolescents in middle and high school in the United States reported that while smoking among parents and peers were associated with adolescent smoking, the influence did not vary with increasing adolescent age [13]. A cross-sectional study of adolescents in the United States found that while parental smoking exerts a constant influence on adolescent smoking behaviour, peer smoking influence decreases during the transition from early adolescence (10-13 years) to middle adolescence (14-17 years) [14].

Studies have demonstrated the association between parental tobacco use [15], peer tobacco use [7], and pro-tobacco marketing [3, 4] on adolescent tobacco consumption. The objective of the present study was to find the prevalence of usage of various forms of tobacco among the study population and determine the outcome of educational intervention on tobacco use among the participants.

## MATERIAL AND METHODS

This educational interventional study using pre-post study design and convenience sampling was conducted in Thane district, Maharashtra state. As per Global Youth Tobacco Survey (GYTS) [16], 12.9% adolescents (13-15 years) in Maharashtra consumed some tobacco product and thus a prevalence rate of 12.9% was assumed. The sample size was calculated by using the formula:  $\text{Sample size (n)} = 4 * (p*q) / d^2$ . With allowable error ( $d=5\%$ ); assumed population proportion ( $p=12.9\%$ );  $q=(100-p) = 87.1\%$ , the calculated sample size was 179.8. After rounding off, a total of 180 adolescent boys were enrolled for the study.

The sampling unit comprised adolescent males (aged 15-20 years) who gave written informed consent. Those suffering from chronic ailments or those who were irregular in attending educational intervention programme were excluded. After obtaining permissions from Institutional Ethics Committee, parents and students were provided with Statements of Disclosure and informed consent and assent letters in the local language. The participants were assured of the confidentiality of the data and were told before the start of interview that they could refuse to answer any of the questions and that interviews could be terminated at their request at any time. These assurances satisfied ethics procedures but were also intended to increase the openness and honesty of their responses. A pre-tested formatted questionnaire was used to collect socio-demographic information and data on self-reported tobacco use. A participant was considered a "tobacco user" if he self-reported consumption of tobacco in any form during one year preceding this study. To reduce disruptions to the routine of the participants, the number of interviews was limited to approximately four per day. A total of 31 participants were interviewed.

Modified B.G. Prasad classification (2016) was used to determine the socio-economic status. The data were collected, compiled, tabulated and then analyzed using Microsoft Excel 2013 and Open Epi Software Version 2.3. The difference of proportions between qualitative variables was tested using Pearson Chi-square test. The 95% confidence interval was depicted as:  $[\text{Mean} - 1.96 * \text{Standard Error}]$  to  $[\text{Mean} + 1.96 * \text{Standard Error}]$ .

## RESULTS AND DISCUSSION

The World Health Organization has defined "adolescence" as being between the ages of 10-19 years, encompassing the entire continuum of the transition from childhood to adulthood. Cultural beliefs and social norms have a strong association with the use of tobacco and with their significant variation in different societies for tobacco consumption. Tobacco use in India is unique because of the wide availability of a variety of tobacco products that include smoked, chewing tobacco and tobacco products for applying, such as, tobacco containing tooth powder and tooth paste [17, 18].

### Demographics

180 participants were included in the study. Their mean age was  $17.80 \pm 1.19$  years (95% CI: 17.63 - 17.97 years). The majority (54.4%) of participants were in the age group of 17-18 years. 56 (31.1%) were between 19 and 20 years and 26 (14.5%) were between 15 and 16 years. 71.7% participants belonged to nuclear families, 19.4% to joint or extended families, 6.1% to third generation families and 2.8% to broken families. Majority (55.6%) of the participants belonged to lower middle class, 24.4% to lower class and 14.4% to middle class. Only 5.6% belonged to upper and upper middle class as per Modified Prasad classification, 2016. The present study has identified significant association between tobacco consumption and increasing age. The results of this study were consistent with findings of studies conducted in Gujarat [19, 20] and from Kut city in Iraq [21]. A majority (55.6%) of the participants belonged to lower middle class followed by lower class (24.4%) as per Modified Prasad classification, 2016.

### Tobacco Consumption

In the pre-intervention stage (31 tobacco users), the majority comprised users of smoked tobacco. In the post-intervention stage (20 tobacco users), the majority comprised users of smokeless tobacco. The difference in prevalence of bidi smoking in pre- and post- intervention phases was statistically significant ( $p=0.0064$ ). The difference in prevalence of other types of tobacco consumption incidence was not statistically significant (Table-1).

The number of smoked tobacco users in pre-intervention phase was significantly higher ( $p=0.0145$ ), when compared with that in the post-intervention phase. In the post-intervention phase, the users of smokeless form of tobacco increased and the use of both smoked & smokeless of tobacco decreased but the differences were non-significant ( $p=0.3334$  and  $p=0.2530$ , respectively) (Table-1).

**Table-1: Types of tobacco used**

Types of tobacco used	Pre-intervention (n=31)	Post-intervention (n=20)	p value
<i>Smoked tobacco (ST)</i>	19 (61.3)	07 (35.0)	0.0145*
Bidi	12 (38.7)	02 (10.0)	0.0064*
Cigarette	07 (22.6)	05 (25.0)	0.5571
<i>Smokeless tobacco (SLT)</i>	07 (22.6)	11 (55.0)	0.3334
Gutkha	02 (06.5)	04 (20.0)	0.4103
Paan + Tobacco + Lime	02 (06.5)	03 (15.0)	0.6525
Quid	02 (06.5)	02 (10.0)	1.0
Others (Nas / Mishri)	01 (03.2)	02 (10.0)	0.5621
<i>Both ST &amp; SLT</i>	05 (16.1)	02 (10.0)	0.2530
Bidi + Quid	04 (12.9)	01 (05.0)	0.1769
Cigarette + Quid	01 (03.2)	01 (05.0)	1.0

Figures in brackets indicate percentages; \* Statistically significant

The minimum age of initiation of the tobacco consumption was 4 years. In 45.2% of participants, initiation of the tobacco consumption was during 5-10 years of age, followed by 35.5% at the age of 11-15 years. Though participants gave multiple responses, the factors that influenced tobacco intake were social customs (41.9%), peer pressure (32.3%), presumption of tobacco use as a “status symbol” (25.8%). Other factors that contributed to initiation of tobacco consumption were abdominal pain relief and increased concentration on work. 62 (34.4%) of the 180 participants had a positive family history of tobacco use. The consumption of tobacco in the family members significantly increased the tobacco use among the adolescents (Pearson Chi-Square value = 12.860;  $p=0.005$ ). Many (45.2%) of the participants reported starting tobacco use when they were 5-10 years of age while 35.5% started tobacco use at the age of 11-15 years. The initiation of chewing tobacco / *gutkha* at 10 years or earlier has been reported by several researchers [22, 23]. A study from Delhi reported that 5.4% of the school children in the lower income group consumed tobacco products. 23 34.4% reported positive family history of tobacco use and the consumption of tobacco in the family members significantly increased the tobacco use among the adolescents. An Indian study reported that parents and/or siblings of 54.3% children used tobacco products. 15 Parents significantly constitute a role model and tobacco use at home is indicative of the prevalent social acceptance of tobacco use. Family influences are strongly responsible for shaping the personality of an individual and for having a lasting impression on the individuals’ behaviour. The transmission of tobacco use from family members to adolescents has been documented by other studies [23-25].

Peer pressure was the important reason for the initiation of tobacco use in the present study, which is consistent the results reported by another study [26] conducted in North India. It is very difficult to prevent the effect of peer pressure in adolescents, who favour living in friend-circles [27]. Peer pressure may vary from insistence and persuasion to forced initiation [28]. The other reasons for tobacco initiation include

experimentation, curiosity, for perceived social status, for passing time, and use a stress-buster in case of family or personal problems. “Addiction” was the most common reason for the continuation of tobacco use [28]. A study [6] conducted at Noida, near Delhi, reported that the most common reasons cited for children to start using tobacco were peer pressure, parental tobacco habits, and pocket money given to them. A Bangladesh-based study [29] reported that tobacco use was initiated by peer pressure (40.7%), imitation (37.3%), to relieve tension (7.6%) and without reason (14.4%).

17.2% of adolescents were tobacco users in the pre-intervention phase, which is lower than that reported by other Indian researchers [22, 30, 31]. According to the Global Youth Tobacco Survey, prevalence rate of smokeless tobacco among boys varies from 5.8% in Bangladesh to 14.1% in India; for girls, it varies from 2.7% in Myanmar to 6.0% in India [32]. During pre-intervention phase, *bidi*, followed by cigarette were the common smoked tobacco products used while during post-intervention phase, the commonest tobacco products used were cigarette, followed by *bidi* (Table-1). This finding is consistent with that of a study conducted in Delhi [33].

### Outcome of Educational Intervention

In the pre-intervention stage, there were 31 tobacco users. 11 (35.48%) participants quit using tobacco in the post-intervention stage, while 20 (64.52%) remained addicted to tobacco. At the commencement of the study, the proportion of tobacco users (out of 180 study participants) increased with increasing age. This association between age and tobacco consumption was found to be statistically significant ( $p<0.0001$ ). After educational intervention, the proportion of tobacco users (out of 180 study participants) also increased with increasing age. But this association between age and tobacco consumption was found to be statistically non-significant ( $p=0.355$ ). The prevalence of tobacco use reduced from 17.22% to 11.11% after educational intervention. Similar findings have been reported by other researchers [34, 35].

### Limitations of This Study

This study, based on convenience sampling, was restricted to one location and relied on self-reported tobacco use. Due to social desirability bias, some tobacco users may not have self-reported their tobacco use. Therefore, the findings of the study cannot be generalized to larger populations. Recall bias cannot be ruled out since some information was obtained on the basis of recall of past behaviour. Other aspects of the participants' lifestyle (curricular and extra-curricular activities) were not studied.

### CONCLUSION

The majority of 180 participants (mean age: 17.80 ± 1.19 years) belonged to lower middle socio-economic class and nuclear families. Their self-reported initiation into tobacco use was when they were between 5 and 10 years of age. There was a significant association between tobacco consumption and increasing age. The exposure of the habit of tobacco use in adolescent was influenced by social customs, parental tobacco use, peer pressure, better feeling, status symbol and perceived ability to concentrate on work. Commonest tobacco practice was found to be smoked tobacco in pre-intervention phase while in post-intervention phase smokeless tobacco was more common. Educational intervention resulted in reduction in prevalence of tobacco use from 17.2% to 11.1%. Systematic long-term focussed programmes would be necessary for sustaining the beneficial effects of the educational intervention.

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