

Knowledge, attitude and behavioral determinants of tobacco use among 13-15 year old school children

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Abstract

Background: The epidemic of tobacco use is one of the greatest threats to global health today. Tobacco attributable deaths in India currently range from 800,000 to 900,000 per year. Adolescents are among the most vulnerable group to start tobacco use. Information on tobacco use among the youth is necessary to establish control measures against it. **Objectives:** To assess the knowledge, attitude, and behavioral determinants of tobacco use among high school students (age 13–15 years) in Bangalore. **Materials and Method:** A cross-sectional study was conducted over a period of 3 weeks in the month of September 2012. A structured, pretested questionnaire was administered randomly to 500 high school students in Bangalore to assess the knowledge, attitude, and behavioral determinants of tobacco use. **Results:** Majority of the study population [94.4% (472/500)] believed that smoking is definitely harmful to our health. Also, 39.0% of the participants of age 13 years believed that smoking does not help in socializing and 92.2% of study subjects had negative attitude toward starting the habit. Most of them (83.9%) had a negative perception about smokers that they lack confidence. However, less than 1% of the study population had a habit of smoking at this young age. **Conclusion:** Awareness of the harmful effects of smoking was high among the study population. The study provides insight into the factors to consider while planning adolescent anti-smoking programs in this and similar settings.

Key words: Behavioral determinants, high school children, tobacco

INTRODUCTION

The changing socio-demographic and epidemiological transition in developing countries has brought non-communicable diseases (NCDs) to the forefront of health care delivery system. Research in the past two decades has shown a number of risk factors operating in multiple ways to be major contributing factors for the

emergence of NCDs. Tobacco use is widely recognized as the single most preventable cause of premature death due to these NCDs. Tobacco use has long been known as a detrimental factor for general health.^[1] The role of smoking in the development of lung cancer, chronic obstructive pulmonary disease, and cardiovascular diseases has been established since the middle of the last century.

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World Health Organization estimates that nearly 5.4 million deaths can be attributed to tobacco usage every year. This figure is likely to increase to 20 million deaths by 2030. Furthermore, nearly three-fourths of these deaths will be occurring in low- and middle-income countries of the world. Thus, tobacco use has become one of the major challenges to public health today.^[2]

Tobacco use is typically woven into everyday life, and can be physiologically, psychologically, and socially reinforcing. Many factors, including media depictions and cultural and societal acceptance of tobacco use, combined with tobacco's addictive capacity, are making tobacco usage more prevalent.^[3]

Children in schools are in a period of transition between adolescence and adulthood, where behavior is influenced by accelerated changes affecting biological, emotional, cognitive, and social functions. Students are vulnerable to tobacco addiction.^[4] Unhealthy behaviors developed at this stage may be malleable or consolidated into lifetime patterns.^[5] Moreover, adolescents and young adults of colleges and schools are often targeted by the tobacco industry for marketing.^[4] The risk factors for initiation of smoking in young adults or adolescents are as follows:^[6]

- Low socioeconomic status
- Smoking by parents or guardians and/or lack of parental support or involvement
- Use and approval of tobacco by peers and siblings
- A perception that tobacco use is the norm
- Low academic achievement
- Low self-esteem or self-image
- Lack of skills to resist influences promoting tobacco use
- Exposure to smoking in movies
- Accessibility, availability, and cost
- Aggressive behavior.

Tobacco behavior among youth is an extremely complex area in India.^[1] An estimated 5,500 youth start using tobacco every day in India.^[7] Use of smokeless tobacco, like gutkha (an inexpensive chewing tobacco), is most popular among youth, followed by cigarette and bidi smoking (a hand-rolled, filter-less cigarette).^[8] The prevalence of smoking and tobacco use in India has been inadequately reported. There is an urgent need for youth-focused intervention.

Therefore, the present study was conducted to assess the knowledge, attitude, and behavior determinants of tobacco usage among high school students (13–15 years) in Bangalore.

MATERIALS AND METHOD

The present cross-sectional study was conducted in Bangalore over a period of 3 weeks in the month of September 2012. Bangalore is the third most populous city in India and the 18th most populous city in the world. The population of Bangalore was estimated to be 9,621,551 in 2011.^[9]

The educational authority in Bangalore, Karnataka has divided the schools of the city into two divisions – Bangalore North and South – for administrative purpose. The present study area belongs to Bangalore North, which comprises both the urban and peri-urban population. In Yelahanka, a total of 159 schools are present, from which 12 schools were selected using simple random technique.

The study population comprised high school students aged 13–15 years (8th, 9th, and 10th standard) from Yelahanka, Bangalore. Students' participation was voluntary and anonymous. A pilot study was conducted on a sample of 100 school-going children selected from one high school. This was done to determine the feasibility of the study, the applicability and accuracy of the questionnaire, and to determine the amount of time required for interview.

The sample size determination was carried out using the formula,

$$N = \frac{Z^2 \times p(1-p)}{E^2}$$

where Z = 95% confidence interval (CI) = 1.96

p = 0.5 (precision)

E = 4.5% = 0.045 (standard error)

$$N = \frac{1.96 \times 1.96 \times 0.5(1-0.5)}{0.045 \times 0.045}$$

$$= 484 \approx 500$$

After conducting the pilot study, the confidence interval (CI) was set at 95% with a margin error of 4.5%.

On the basis of the pilot survey, the sample size was fixed at 500.

The ethical clearance was obtained from the Institutional Review Board (IRB) of Krishnadevaraya

College of Dental Sciences and Hospital, Bangalore. The required official permission to select and collect the relevant data from selected subjects was solicited and obtained from the Principals of the respective schools. Informed consent was obtained from parents/guardians of subjects after explaining the purpose of the study.

The study subjects were interviewed using a structured, pretested, close- and open-ended questionnaire. The participants were interviewed about their experience with tobacco smoking and environmental exposure to tobacco, perception of tobacco smoking, exposure to tobacco advertising in the media, whether they were taught in school about the harmful effects of tobacco use and smoking, attempts to stop smoking, and attitudes toward cessation of smoking. The entire questionnaire was explained to the students and total confidentiality was assured. Study participants were instructed to choose only a single answer to each question. Considering the sensitivity of the topic, the school authorities were requested not to be present in the class during the procedure of filling the questionnaire.

Interviews were scheduled during the working hours of the school to ensure the presence of the children. On an average, 20–30 subjects were interviewed each day. Interview of each individual took approximately 10–15 min.

Statistical analysis

The data were entered into the computer (Microsoft Office, Excel) and were subjected to statistical analysis using the statistical package SPSS version 13. Preliminary descriptive analysis was used to assess the distribution of responses of all the study variables, and the association between dependent and explanatory variables was assessed using χ^2 test (Chi-square test). Statistical significance was set at $P < 0.05$ for the study.

RESULTS

The study population consisted of a total of 500 school-going children of whom 151 (30.2%), 182 (36.4%), and 167 (33.4%) were aged 13, 14, and 15 years, respectively. Among them, 281 (56.2%) were males and 219 (43.8%) were females.

Knowledge about the harmful effects of smoking was good among the study population. Majority of the study population [94.4% (472)] believed that smoking is definitely harmful to our health, of which 30.51% (144), 36.02% (170), and 33.47% (158) were 13,

14, and 15 year olds, respectively. Very less number of participants [4.2% (21)] believed that smoking is not harmful to health. Almost in 60.8% (304) of the study population, family members have discussed about the harmful effects of smoking. A large percentage of the study population (46.4%) thought that smoking does not help either in gaining or losing weight. However, an equal percentage of (44%) of the study participants believed that smoking helps in losing weight. 90.8% (454) of the study population agreed that passive smoking is injurious to health; very less number of participants thought it will not have any harmful effect (2.4%). Sixty-one percent (305) of the students reported having been taught in school about the harmful effects of smoking, whereas 39% were not taught about the harmful effects of smoking. Also, 67% of the participants informed that they had no chapter on the ill effects of smoking in their syllabus [Table 1].

When the study participants were asked about their attitude toward starting the smoking habit, most of them had negative attitude (96.6%). Almost 82.8% (414) of the study population had displayed strong attitude toward banning smoking at all the public places, compared to 10.4% of the participants who were not in favor of banning smoking in public places. Over 40.2% (201) of the study participants were of the opinion that smoking does not help in social acceptance into friend circle, and most of them (36.82%) were aged 14 years, whereas, 20.8% of the population believed that smoking helps in social acceptance into friend circle. Also, 96.8% of the study population, which was predominated by 14 year olds (35.95%), was not ready to accept cigarette from their best friend. Among the study population, 83.8% (419) thought a man who smokes lacks confidence and only 10.4% thought a man who smokes is cool. Similarly, 82.2% participants thought a woman who smokes lacks confidence and only 11.8% of the population thought a woman who smokes is cool [Table 2].

Out of the total study population, only 0.3% (15) participants were smokers. When asked about quitting the smoking habit, 14 year olds showed more interest as compared to others, but their efforts to quit the habit were very less. The smokers received more information about quitting the habit from doctors [Table 3].

DISCUSSION

This study comprehensively assesses the knowledge, attitude, and behavioral determinants of tobacco use among the high school students of Yelahanka, Bangalore.

Table 1: Smoking-related knowledge among different age groups

Variable	13 years (%)	14 years (%)	15 years (%)	Total	P
Smoking is harmful to your health					
Yes	144 (30.5)	170 (36.0)	158 (33.5)	472 (94.4)	
No	4 (19.1)	9 (42.9)	8 (38.1)	21 (4.2)	0.6454
Not sure	3 (42.9)	3 (42.9)	1 (14.3)	7 (1.4)	
Family discussed the harmful effects of tobacco with you					
Yes	90 (29.6)	113 (37.2)	101 (33.2)	304 (60.8)	0.8937
No	61 (31.1)	69 (35.2)	66 (33.7)	196 (39.2)	
Smoking makes you gain or lose weight					
Gain weight	12 (25.0)	17 (35.4)	19 (39.5)	48 (9.6)	0.8462
Lose weight	70 (31.8)	78 (35.4)	72 (32.7)	220 (44.0)	
No difference	69 (29.7)	87 (37.5)	76 (32.8)	232 (46.4)	
Do you think inhaling the smoke from other people's cigarette is harmful to you?					
Yes	135 (29.8)	166 (36.7)	153 (33.7)	454 (90.8)	0.6967
No	3 (25.0)	6 (50.0)	3 (25.0)	12 (2.4)	
Not sure	13 (38.24)	10 (29.4)	11 (32.4)	34 (6.8)	
During the last school year, has any teacher talked in class about the harmful effects of smoking?					
Yes	96 (31.5)	111 (36.3)	98 (32.1)	305 (61.0)	0.6709
No	55 (28.2)	71 (36.4)	69 (35.4)	195 (39.0)	
Was there any chapter on the ill effects of smoking?					
Yes	40 (24.7)	61 (37.7)	61 (37.7)	162 (32.4)	0.1488
No	111 (32.9)	121 (35.8)	106 (31.4)	338 (67.6)	

$P < 0.05$ (significant)

Table 2: Smoking-related attitude among different age groups

Variables	13 years (%)	14 years (%)	15 years (%)	Total	P
At any time during the next 12 months, do you think you will smoke?					
Yes	2 (66.7)	0 (0.0)	1 (33.3)	3 (0.6)	0.6107
No	145 (30.0)	176 (36.4)	162 (33.54)	483 (96.6)	
Not sure	4 (28.6)	6 (42.9)	4 (28.6)	14 (2.8)	
Favor banning of smoking in public places					
Yes	118 (28.5)	153 (36.9)	143 (34.5)	414 (82.8)	0.3464
No	22 (42.3)	16 (30.8)	14 (26.9)	52 (10.4)	
Not sure	11 (32.4)	13 (38.2)	10 (29.4)	34 (6.8)	
Smokers have more friends or less friends					
More friends	21 (20.2)	51 (49.0)	32 (30.8)	104 (20.8)	0.0026*
Less friends	75 (38.5)	57 (29.2)	63 (32.3)	195 (39.0)	
Same as non-smokers	69 (29.7)	74 (36.8)	72 (35.8)	201 (40.2)	
If one of your best friend offered you a cigarette, would you smoke?					
Yes	0 (0.0)	2 (66.7)	1 (33.3)	3 (0.6)	0.5364
No	149 (30.8)	174 (35.9)	161 (33.3)	484 (96.8)	
Not sure	2 (15.4)	6 (46.2)	5 (38.5)	13 (2.6)	
When you see a male smoker, what do you think of him?					
Lacks confidence	130 (31.0)	153 (36.5)	136 (32.4)	419 (83.8)	0.1173
Successful	7 (30.4)	12 (52.2)	4 (17.4)	23 (4.6)	
Intelligent	3 (50.0)	1 (16.7)	2 (33.3)	8 (1.6)	
Cool	11 (21.1)	16 (30.7)	25 (48.1)	52 (10.4)	
When you see a woman smoking, what do you think of her?					
Lacks confidence	124 (30.2)	147 (35.8)	140 (34.0)	411 (82.2)	0.8617
Successful	6 (27.3)	9 (40.9)	7 (31.8)	22 (4.4)	
Intelligent	4 (50.0)	3 (37.5)	1 (12.5)	8 (1.6)	
Cool	17 (28.8)	23 (38.2)	19 (32.2)	59 (11.8)	

* $P < 0.05$ (significant)

Table 3: Smoking-related behavioral determinants among different age groups

Variable	13 years (%)	14 years (%)	15 years (%)	Total n=15	P
Want to stop smoking now					
Yes	2 (25.0)	4 (50)	2 (25.0)	8 (53.3)	0.0036*
No	0 (0)	1 (25.0)	3 (75.0)	4 (26.7)	
Not sure	0 (0)	2 (66.7)	1 (33.3)	3 (20.0)	
Tried to stop smoking					
Yes	1 (16.7)	2 (33.3)	3 (50.0)	6 (40.0)	0.7411
No	1 (11.1)	5 (55.6)	3 (33.3)	9 (60.0)	
Received help or advice to stop smoking					
Yes, from a doctor	0 (0)	3 (60.0)	2 (40.0)	5 (33.4)	0.3464
Yes, from a friend	0 (0)	2 (100.0)	0 (0)	2 (13.3)	
Yes, from a family member	1 (50.0)	1 (50.0)	0 (0)	2 (13.3)	
No, I did not receive any help from anyone	1 (16.7)	1 (16.7)	4 (66.7)	6 (40.0)	

*P<0.05 (significant)

Adolescence is a critical time in one's life, and the habits and behavior formed during these years can have a long-lasting impact on the health of the individual. The knowledge, attitude, and behavioral determinants of tobacco use among the youth are important both to assess tobacco as a risk factor and to establish control measures for prevention of these diseases.

Results revealed 94.4% of the study subjects had knowledge about the harmful effects of smoking. Similar results were echoed in the studies conducted by Kuznar-Kaminska *et al.*,^[10] Saji *et al.*,^[11] and Xu *et al.*,^[12] whereas Tsering *et al.*,^[13] Gopikrishna *et al.*,^[14] Biswas,^[15] Odukya *et al.*,^[16] and Multani *et al.*^[17] showed a comparatively lesser knowledge of harmful effects of smoking of 84.6%, 71%, 84.5%, 72.3%, and 71.7%, respectively. This conflict of results could be due to a greater consciousness of the health consequences of addiction among the study participants.

About 40.2% of the study participants thought that smoking does not help in socializing, which is almost similar to the findings of Saji *et al.*^[11] In contrast, the study by Mpabulungi *et al.*^[18] showed that smokers had more friends than those who did not smoke (35.6%).

Most of the study participants had negative perceptions about smokers, which was that they lacked confidence. The results were in accordance with the studies conducted by Mpabulungi *et al.*^[18] Their negative attitude toward smoking might be due to observance of local customs in which smoking is not considered an acceptable behavior.

About 46.4% of the study subjects thought that smoking does not help in gaining or losing weight. Similar results were echoed in the study conducted by Xu *et al.*^[12] In

contrast, the study conducted by Mpabulungi *et al.*^[18] reported that 67.4% of the study participants thought that smoking makes one lose weight. This finding suggests that an approach that increases knowledge is needed with particular emphasis on the short- and long-term effects of smoking.

About 90.8% (454) of the study population agreed that passive smoking is injurious to health. This was in agreement with the findings of Gopikrishna *et al.*,^[14] Mpabulungi *et al.*,^[18] and Xu *et al.*^[12] Knowledge on the health effects of tobacco products may have contributed to this phenomenon.

Around 82.8% supported ban on smoking in public places (such as hotels, taxis, schools, markets, and playgrounds). Similar results were reported by Mpabulungi *et al.*^[18] and Odukya *et al.*^[16]

A large percentage reported being taught about the ill effects of smoking in school (61.0%) and by family members (60.8%). Therefore, family and school teachers are primarily responsible for imparting knowledge regarding smoking, and these findings are similar to those of a study conducted by Tsering *et al.*^[13]

A majority of the users reported that they had not tried to stop smoking, which is in accordance with the report of Multani *et al.*^[17] In contrast, studies by Tsering *et al.*,^[13] Fida *et al.*,^[19] and Mpabulungi *et al.*^[18] reported that users had tried to stop smoking in the past.

Around 53.3% of cigarette users expressed the desire to quit the habit. This revealed that all users held a positive attitude toward quitting. Therefore, motivation on the part of family, friends, and close ones could help them to come out of this. There is a need to follow-up this age group to determine the trends of tobacco use, in order

to adjust targeted tobacco prevention strategies. These results are similar to the studies by Tsering *et al.*,^[13] Fida *et al.*,^[19] and Multani *et al.*^[17] In contrast, the study conducted by Mpabulungi *et al.*^[18] reported that higher percentage of cigarette users (77.9%) expressed their desire to quit the habit. However, a study by Gopikrishna *et al.*^[14] reported a lesser percentage (34%) of the study participants expressing their desire to quit smoking.

There were certain limitations of this study. Firstly, the findings of the present study cannot be generalized to the entire population, as it is conducted on a small sample. Secondly, the surveys usually do not reveal the real behavior of the respondents, as people tend to answer more according to the social norm than according to the actual situation, i.e. social desirability bias. Thus, results of the present study should be interpreted with caution. Lastly, as with any cross-sectional data, causality cannot be inferred from the observed associations in the current study.

CONCLUSION

Awareness of the harmful effects of smoking was high among the study population. They had a negative attitude toward smoking. However, less than 1% of the study population had the habit of cigarette smoking at this young age. The study provides useful insights into the factors to be considered in planning adolescent anti-smoking programs in this and similar settings. School-based awareness programs followed by cessation initiatives utilizing peer pressure should be carried out, so that the students can resist pressure to tobacco use. Such smoking prevention programs may focus on modifying the attitudes toward smoking and providing a cigarette-free environment in and around the school campus.

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Conflicts of interest

There are no conflicts of interest.

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