



An Explorative Study Comparing the Knowledge of Tobacco Use and Tobacco Cessation Program among School Going Boys and Girls: A Study in Ahmedabad District in Western India

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ABSTRACT

Introduction: Awareness of health risks of tobacco use, and adolescents' behavior are strongly associated with adolescents' knowledge and perceptions towards tobacco use. There are only a few studies being conducted that assess school going boys' and girls' tobacco-related health knowledge, and their awareness related to tobacco control programmes.

Method: A questioner base cross-sectional study with 276 students had been conducted from four different schools (2 private and 2 governments) in Ahmedabad district, Gujarat, India. The results include from the group comparison (hypothesis testing) between the boys and girls.

Results: More than two thirds of boys' and girls' participants agreed tobacco use (also in all forms) is harmful to the body. More than one third boys and one quarter girls believed that media plays an important role in promoting anti-tobacco messages. Around 50 % of the girls preferred strict anti-tobacco laws and policies. More than two thirds of the boys and girls in the study sample had no knowledge of any organizations or programs that assisted individuals to get rid of the tobacco habit.

Conclusion: Promoting school and community-based intervention programs and reviewing of the existing anti-tobacco policies could prove to be beneficial in curbing the tobacco consumption habit in adolescents.

Key-words: Tobacco, knowledge, health, adolescents, Ahmedabad

INTRODUCTION

The World Health Organization (WHO) ¹ predicts that tobacco deaths in India may exceed to 1.5 million individuals annually by 2020. Many of these deaths will occur in the productive years of adult life, because of a habit acquired early in youth.^{2,3}

Definition: Adolescence: It is a transitional period between puberty and adulthood in human development ranging from 11- 18 years. It begins with the onset of physiologically normal puberty and ends with an adult identity and behavior.

Problem area and purpose

Per United Nations International Children Educa-

tion Fund (UNICEF)⁴, India has the largest population of adolescents in the world, being home to 243 million individuals aged 10-19 years (21.4 % of the total Indian population).

Adolescence is a time of gradual yet dramatic transition: socially, physically and psychologically. It is a "preparation period", during which the child develops into an adult⁵. Adolescence is a time of experimentation and risk-taking, and potentially the initiation of substance use like tobacco consumption habit.

Previous studies have shown that tobacco addiction of many adults has been initiated during the adolescence^{6,7}. The prevalence of smoking has

been found to vary between 6.9 % and 22.5 % among the male school and college students in India⁸. Whereas, in the girls is considerably low varying from 0 - 2.3 %⁷. In fact, tobacco use, especially smoking (cigarettes), is a relatively new habit among the female students, noticed only during the last 10-15 year in India⁹.

Tobacco consumption is the foremost cause of the preventable deaths in the world¹⁰. Most tobacco control programs conducted in the past are for school-going adolescents were limited to the provision of knowledge of harmful effects of tobacco on individual health and environment. There is a huge knowledge gap between existing tobacco control programs planned and to what extent their understanding or knowledge about their risks either hinder or promotes their decision to use tobacco or its products perceived by boys and girls.

Also, the anti-tobacco policies are launched without the knowledge of school going boys' and girls' thoughts and adolescent behavior. As the magnitude of the problem is high (especially among the boys) and concerning, to perceive or to understand the knowledge of these school going boys and girls towards the tobacco use and its ill effects on health is essential. Therefore, it is important to increase the body of knowledge based on empirical gathered data within this area.

Aim of the study

The aim of the study is to explore and compare the knowledge of tobacco use and tobacco cessation between school going boys and girls.

MATERIAL AND METHODS

Ethical Approval: The ethical approval for this study was taken from Indian Institute of Public Health - Gandhinagar, IIPH-G).

An exploratory cross-sectional study comprising of 276 school going boys and girls in one urban and one rural area of Ahmedabad was designed for this study.

Data collection procedure

Based on the operational feasibility and logistic reasons Bopal (rural) and Vastrapur (urban) localities in Ahmedabad district were selected for the study. The localities have many schools, which students from Ahmedabad city and nearby villages attend.

Four schools of these localities had been selected for this study: two private and two public government schools. The intention was to get the participation of ~280 students in all i.e. ~70 students

from each school. After the approval of project, the selected schools were sent a formal request to conduct this study. Permission regarding the research was obtained from the Principal of the respective schools selected under the study. The weekly schedule of the students had been taken into consideration, and necessary adjustment had been made accordingly to make the students available for the study, without disturbing their teaching schedule much. Stratified random sampling was performed. One in five students or one in seven students (from the roll call of the class) were chosen for the study depending on the number of students. The purpose of the study was explained.

A 36-item questionnaire divided into eight major sections written in English and Gujarati (translated from original English version) was used in the study. It was a multiple-choice questionnaire that contained of five questions for identifying the knowledge about tobacco and its effects on health. The section pertaining to knowledge and perception towards cessation of tobacco habit had seven questions originally but in the current investigation, it was reduced into two questions. The questionnaire in its origin also noted information on an elaborate range of factors in the aspects of initiation of tobacco habit, knowledge, and attitude of the adolescents towards the tobacco use.

The original questionnaire was pre-tested to confirm its validity and reliability and it was shown to be acceptable¹¹. The questions were not modified but were reduced in numbers (cut short) to meet the purpose of the study. Few of the questions were combined or eliminated from the previously tested standard questionnaire as adopted by the IIPH-G and Public Health Foundation of India in their previous studies^{12,13} (adopted a combination of Global Youth Tobacco Survey and Global school-based student health survey- GSHS). GSHS is a WHO tool designed to assess the behavioral risk factors and protective factors in the main areas of morbidity and mortality among school going students in different countries¹⁴. Only the section pertaining to the tobacco use was considered in this study. The GYTS is also a tool designed by the WHO comprising of 56 core questions to collect the data on seven main domains¹⁶ (knowledge and attitude towards tobacco use, prevalence, the role of media, access to tobacco products, tobacco related school curriculum, environmental tobacco smoke and cessation of tobacco use).

A questionnaire customized for the study had been distributed among the students. After filling the appropriate sections of questionnaire, the students were asked to drop in these questionnaires (in the ballot box) within the timeframe of 40 minutes. The ballot box method was adopted to gain

the confidence in relation to the confidentiality of the sample (in this case the adolescents: their name, roll number, etc.). This was expected to get us a truthful response to the survey. The questionnaire was intended to be the multi-purpose model instrument with core-standardized questions relating to tobacco consumption habit that can be administered with minimal training and supervision to the target population.

Inclusion criteria: The age group 11 - 18 years was considered for the study.

Response and falling off rates

Wrongly, filled surveys and the forms left completely blank were excluded. Students not present on the day on which the study had been conducted were also excluded from this survey. Inappropriate responses depicting a pattern of half-filled forms were excluded and not considered.

Participation of each of the different stakeholders in the study had been voluntary. Information regarding the study was explained to the participants by the researchers.

Statistical analysis: Data was analyzed by using Statistical Package for the Social Sciences (SPSS) version 18. Descriptive statistics were accomplished for the participants' knowledge. Chisquare

tests were used to compare the categorical variables of interests. E.g. to compare the source knowledge acquired and awareness to cessation program boys' and girls' participants i.e. comparison between the gender through group comparison (hypothesis testing). The statistical significance was set at $P < 0.05$ for the study.

RESULTS

The response rate of the survey was 97.5 %. A total of 276 students were present in the sample, out of which 196 were boys (72%) and 77 were girls (28%) participants. The average age of the participants was 15 years. The most common age was 16 years (approximately 29 % of the sample). The minority of the participants were 11 years and 18 years constituting 4 % and 3.7 % of the sample respectively.

A large percentage of the girls and boys in the study agreed tobacco is harmful to the individual's health whereas 7% of sample believed tobacco use is not harmful to health and 19 % were not sure of the same (Table 1). Similarly, a great majority of girls and boys in the sample considered transitory use of tobacco could be harmful. Over three quarters of the girls' and boys' participants were also aware that there is high prevalence of oral and neck cancers linked to tobacco consumption.

Table 1: Knowledge of tobacco use among school going boys and girls

Questions	Yes		No		Not sure		P values
	n (%)	95 % CI	n (%)	95 % CI	n (%)	95 % CI	
Is tobacco use/ habit harmful?							
Total (n=271)	200 (73.8)	(68.1 - 78.9)	20 (7.4)	(4.6 - 11.2)	51 (18.8)	(14.3 - 23.81)	0.880
Boys	142 (73.2)	(66.4 - 79.3)	14 (7.2)	(3.6 - 10.9)	38 (19.6)	(14.2 - 25.9)	
Girls	58 (75.3)	(64.2 - 84.4)	6 (7.8)	(2.9 - 16.2)	13 (16.9)	(9.3 - 27.1)	
Transitory use of tobacco harmful to health?							
Total (n=273)	192 (70.33)	(64.66 - 75.44)	31 (11.36)	(7.6 - 15.1)	50 (18.32)	(13.9 - 23.34)	0.49
Boys	134 (68.4)	(61.4 - 74.8)	23 (11.7)	(7.6 - 17.1)	39 (19.9)	(14.5 - 26.20)	
Girls	58 (75.3)	(64.2 - 84.4)	8 (10.4)	(4.6 - 19.4)	11 (14.3)	(7.4 - 24.1)	
View on prevalence of oral and neck cancers are due to tobacco consumption?							
Total (n=266)	218 (81.95)	(76.88 - 86.11)	9 (3.38)	(1.79 - 6.3)	39 (14.66)	(10.91 - 19.41)	0.12
Boys	150 (79.4)	(72.9 - 84.9)	6 (3.2)	(1.2 - 6.9)	33 (17.7)	(12.5 - 24.0)	
Girls	68 (88.3)	(79.0 - 94.5)	3 (3.9)	(0.08 - 8.2)	6 (7.8)	(1.8 - 13.8)	
Discontinuing tobacco consumption habit will improve individual health?							
Total (n=271)	176 (64.94)	(59.09 - 70.38)	46 (17)	(12.5 - 21.4)	49 (18.01)	(13.5 - 22.7)	0.53
Boys	123 (63.1)	(56.3 - 69.9)	36 (18.5)	(13.3 - 24.6)	36 (18.5)	(13.3 - 24.6)	
Girls	53 (69.7)	(58.1 - 79.8)	10 (13.2)	(5.6 - 20.8)	13 (17.1)	(9.4 - 27.5)	

95 % CI refers to the 95 % confidence interval of the responders in the percentage form

Table 2: Source of knowledge of tobacco use among school going boys and girls

Responders (N): 191	Source of knowledge									
	School education		Media*		Government programs		Family		Combinations of all the above	
	n (%)	95% CI	n (%)	95% CI	n (%)	95% CI	n (%)	95% CI	n (%)	95% CI
Boys	32(24.1)	(17.1-33.2)	55(41.4)	(32.9-50.2)	18(13.5)	(7.7-19.3)	14(10.5)	(5.3-15.7)	14(10.5)	(5.3-15.7)
Girls	32(55.2)	(42.4-68)	14(24.1)	(13.1-35.2)	3(5.2)	(0.00-10.9)	2(3.4)	(0.00-8.9)	7(12.1)	(3.7-20)
P values	0.005		0.005		0.005		0.005		0.005	
Totals	64(33.5)	(26.8-40.2)	69(36.1)	(29.3-42.9)	21(11)	(6.6-15.4)	16(8.4)	(4.4-12.30)	21(11)	(6.6-15.4)

*Advertisements, newspaper, magazines and articles; 95 % CI refers to 95 % confidence interval of the responders in %

When the study participants were asked whether the discontinuation of tobacco habit improves individual's health, more than half of boys and girls agreed to it; however around 17 % disagreed and 18 % were not sure of the same.

Table 2 indicates more than one third of the boys and around a quarter of the girls allude that media (in all forms) plays an important role as a source of knowledge of tobacco use among the population especially in relation to the tobacco use followed by school education as responded by 24 % of the boys and 55 % as per the girls (p = 0.05).

When asked about information on the government programs and organizations in promoting the tobacco cessation habit (table 3), a large majority did not have knowledge of the same i.e. around 60 % boys and 77 % girls in the study were not aware of any tobacco cessation programs being organized by the government or the NGO's (p = 0.05).

Table 4 shows close to 50 % girls and 30 % boys in the sample preferred strengthening of the anti-tobacco laws and policies in curbing the escalating tobacco use among themselves whereas about one third boys and girls emphasized on the promoting education and awareness on tobacco and its ill effects on health (p = 0.05).

Table 3: Knowledge of tobacco cessation programs among school going boys and girls

Responders (N) = 273	Any organisations involved in tobacco cessation programs			
	Yes		No	
	n (%)	95% CI	n (%)	95% CI
Boys	79 (40.3)	(33.4 - 47.5)	117 (59.7)	(52.5 - 66.6)
Girls	18 (23.4)	(14.5 - 34.4)	59 (76.6)	(65.6 - 85.5)
Total	97 (35.5)	(29.9 -41.5)	176 (65.5)	(58.5 -70.1)

P value 0.05; 95 % CI refers to the 95 % confidence interval of the responders in the percentage form

Table 4: Tobacco cessation measures as preferred by the school going boys and girls

Responders (n: 203)	Preferred Tobacco cessation measures									
	Education and awareness		Strict laws*		Less academic stress		Peer pressure		Made availability Difficulty	
	n (%)	95% CI	n (%)	95% CI	n (%)	95% CI	n (%)	95% CI	n (%)	95% CI
Boys	57(38.5)	(30.6-46.9)	45(30.4)	(23.1-38.5)	9(6.1)	(2.2-9.)	13(8.8)	(4.2-13.3)	24(16.2)	(10.3-22.2)
Girls	17(30.9)	(18.7-43.1)	28(50.9)	(37.7-64.1)	2(3.6)	(0.00-8.6)	2(3.6)	(0.0-8.6)	6(10.9)	(2.7-19.1)
Total	74(36.5)	(29.8-43.1)	73(36)	(29.4-42.6)	11(5.4)	(2.3-8.5)	15(7.4)	(3.8-11.0)	30(14.8)	(9.9-19.7)

95 % CI refers to the 95 % confidence interval of the responders in the percentage form

* High penalty and prohibition on use

DISCUSSION

It has been observed from this study that the schools going boys and girls have awareness towards the harmful effects of tobacco use. Slightly higher percentage of girls than boys in this study reported tobacco use is harmful but the difference did not reach significance. Similar findings were also observed in the United Arab Emirates (UAE)¹⁵, 90 % girls and 80 % boys who never smoked think smoking is harmful to their health. Likewise, a study in India observed, over three quarters of the boys and one third of the girls in the study agreed that tobacco use is injurious to health and can cause addiction¹⁶. Even though a large number of boys and girls believed that the transitory or occasional use or temporarily habit of tobacco is harmful, more girls than boys participants believed the same, but the differences were not significant. Similarly, in this study, a vast majority of responder agreed prevalence of oral and neck cancers is due to consumption of tobacco, a slight more percentage of girls than boys agreed the same however the difference did not reach significance. Comparable results have been observed in studies from Saudi Arabia ¹⁷ and India ¹⁸, which also indicated that the majority of boys and girls

have knowledge about the ill effects of tobacco use on health. Both boys and girls in this study considered discontinuing the tobacco habit will improve individual health. Although the difference did not reach the significance it was observed that a slightly more proportion of girls than boys had the similar opinion unlike a study conducted in Jaipur¹⁹ where more percentage of boys than girls considered quitting to smoke beneficial.

Majority of the boys in the current study believed they had acquired knowledge of the tobacco habit and its hazards on health from media (television, newspaper, billboards, etc.) whereas more than half the girls says it's by school learning and from the government organized awareness programs and activities. On the contrary, the GYTS study in Trinidad and Tobago²⁰ observed that 80.3 % of the adolescent participants had seen pro-tobacco messages in newspapers and magazines within the 30 days immediately preceding the survey. Whereas the studies in UAE¹⁹ showed that approximately 75 % of girls and boys saw anti-tobacco messages in the media in the past 30 days. The same UAE¹⁹ study reported less than half students (both boys and girls) acquired the information on tobacco hazards in school as observed by the current study.

This study also confirmed print and electronic media are a valuable source of knowledge and health information on tobacco use. Mass media efforts are viewed as particularly appropriate for reaching youth, who are often heavily exposed to, and greatly influenced by mainstream media messages²¹. In this study, very few believed to have acquired knowledge from the family discussions and education. A recent study in India substantiated that adolescents are receptive towards tobacco advertising, and promotions and are more likely to initiate tobacco use under the influence of advertisement strategies²². Bollywood movies could influence the behavior and attitude of the teens and lead to the initiation of the habit²³. In one study,²⁴ conducted in Mumbai in 1999 among 300 college students, 40 % admitted to being influenced by advertisements and said that sports and film personalities (for boys), and stylish lifestyles (for girls) were the most influential factors in trying out tobacco and by-products. Considering that the prime source of tobacco awareness and knowledge among this adolescent sample is media, strict policies/laws should be formulated and implemented to avoid any promotion of tobacco products that could influence the initiation of the tobacco use in any form. Notices and write-ups in the newspaper column, advertisements showing tobacco hazards on health should be highly emphasized.

Around three quarters girls and around two thirds boys in the study confirmed that they were not aware of or had any knowledge of any organizations or programs which assisted individuals in getting rid of the habit. This gives an indication that the impacts of tobacco control programs are minimal, or at least not very popular⁴⁶⁸. No information (previous data) was available for comparing the given findings of the study. Cessation help should be made popular at the school level for better outreach.

A study conducted by Fynn²⁵ and colleagues, combining traditional school-based prevention efforts, with a mass media campaign increases the prevention program effectiveness.

When adolescents are asked about their choice of tobacco control measures to reduce their increasing tobacco use, more than one thirds of boys suggested to focus on education and awareness on the tobacco use and its' ill effects on health. But the studies suggest that tobacco prevention using school-based curricula alone have generally been ineffective²⁵. More than half girls and one third of boys' participants preferred imposing strict laws, high penalty, and prohibition of the tobacco use in private and public places. Very few participants preferred making access and availability of tobacco

and tobacco products difficult. Again, not much data comparing tobacco control measures adopted by the girls and boys in different studies was found.

Limitations

The cross-sectional nature of the data did not allow assessing the trends in tobacco consumption over time, or with age. Longitudinal studies are required to clarify the direction of causality²⁶. This type of study cannot be utilized to establish cause-effect relationships as only considered the school going children, hence eliminating a large group of school drop-out adolescents. The tobacco habit as practiced and mentioned in the questionnaire could differ from actual adolescent behavioral pattern adopted or followed by the child (under reporting or improper reporting). This could be to avoid punishments or present a favorable impression to the study²⁶. A different methodological approach could have been utilized in this study to get additional data and have a more complete picture of the knowledge, perceptions towards tobacco use and awareness they have towards tobacco cessation programs.

CLINICAL IMPLICATION & CONCLUSION

This study gives an overview of the knowledge of school going boys and girls towards tobacco use in Western India. The study also did not find an extensive variation or significant difference between the genders compared in all aspects (in relation to all the variables of tobacco use.) It shows that school going girls and boys have awareness regarding the ill-effects of tobacco on individuals' health. It was also observed from this study that most school going boys and girls are limited to attributing knowledge about harmful effects of tobacco use, but not in relation to ongoing tobacco cessation programs as majority of the girls and boys were not aware of the same. Also, media in all forms is the primary source of imparting knowledge and ill effects of tobacco. The girls emphasized on the strict implementation of the tobacco control laws as major steps towards tobacco cessation measures whereas the boys suggested creating more awareness about ill effects of tobacco. Surveillance and evaluation to improve knowledge about the best practices in tobacco control and awareness of ill effects of tobacco use, nicotine dependence should be worked on.

Longitudinal study with larger sample is needed to confirm the findings of this data. This study has implications to put greater efforts for research and practices like school or community based pro-

grams focusing on building self-esteem, since most of the early adopters try experimenting due to emotional distress (pregnancy, low performance in studies, etc.)^{21,25,26}. Also, there is a need for comprehensive tobacco programs to address the full range of factors that influence youth tobacco use, such as tobacco-free policies, active parent and community involvement, school-based programs, and cessation services promoted through mass media.

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