

Awareness regarding secondhand smoke and its related legislation (cigarettes and other tobacco products act) among school-going adolescents in district Kullu of Himachal Pradesh, India

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ABSTRACT

Background: The consumption of tobacco causes maximum health damage, worldwide. Secondhand smoke (SHS) exposure is associated with serious health problems, especially in adolescents. The “cigarettes and other tobacco products act (COTPA)” has been formulated by GOI to reign in this epidemic. Hence, the present study was undertaken to assess the awareness on SHS and its related legislation COTPA. **Material and Methods:** The present study was a descriptive school-based cross-sectional study conducted among students (13-19 years) studying in classes 8-12th carried out in Kullu district. Multistage cluster random design and probability proportional to size sampling methodology was adopted. A sample of 900 students both from rural and urban areas studying in 10 government and private senior secondary schools was selected. An anonymous, pretested, self-administered questionnaire was used to collect relevant information. Proportions, percentages, and odd's ratio were calculated for relevant variables. **Results:** Around 35.1% were exposed to SHS at home. Nearly, 71.1% perceived it to be harmful for health, among which it was highest (46.9%) for cancer followed by respiratory disease (39.7%). Overall awareness about COTPA was 29.8%. Participants who were studying in private schools (odds ratio [OR] 2.15, 95% confidence interval [CI]: 1.08-4.26), whose fathers were highly educated (OR 2.20, CI: 1.15-4.21), whose mothers were highly educated (OR 2.31, 95% CI: 1.56-4.61), whose friends smoked (OR 1.84, 95% CI: 1.03-3.29), and who were themselves smokers (OR 5.60, 95% CI: 2.78-11.29), all were more likely to have good awareness of COTPA. **Conclusion:** There was high knowledge about deleterious effects of self and SHS among the participants. The findings however reveal a subpar level of knowledge regarding COTPA. Concerted efforts should be made to increase the awareness of COTPA focusing on adolescents involving all the stakeholders.

Key words: Awareness, cigarettes and other tobacco products act, tobacco, secondhand smoke, adolescents, Himachal Pradesh

INTRODUCTION

Tobacco use is the single most preventable cause of premature death in the world.^[1] Mortalities associated with tobacco are very high, making it a disease of public health importance.^[2] According to the World Health Organization, tobacco kills more people annually than AIDS, alcohol, other addictions (drugs), and accidents put together. Tobacco contributes to 5 million deaths per year globally. Moreover, this figure is expected to rise to 10 million tobacco deaths annually by 2025.^[3]

India has more than 300 million smokers and about 5500 youth initiate the use of tobacco every day.^[4,5] One-fifth of all worldwide deaths attributed to tobacco occur in India; more than a million people die every year due to tobacco consumption and 12 million people fall ill due to tobacco use each year.^[3]

In addition, tobacco smoke also affects the health of nonsmokers by exposure to secondhand smoke (SHS).^[3-5] It is now unequivocally

established that exposure to SHS is as harmful as active smoking and its exposure is associated with serious health problems like cancers, respiratory illnesses and heart disease especially in children and adolescents. There are more than 1 billion smokers globally, who can potentially expose all others to SHS.^[6] Globally, every year, exposure to SHS causes over 600,000 premature deaths worldwide.^[7]

India has a high prevalence of exposure to SHS. According to the global adult tobacco survey for India, about 29.9% adults of age ≥ 15 years are exposed to SHS in workplaces, 52.3% at home, and 29% at public places. In Himachal Pradesh, these figures are 17.8%, 84.3%, and 33.3%, respectively.^[8]

India was one of the first few countries that ratified the FCTC. The Government of India formulated “the cigarettes and other tobacco products act (COTPA)” on May 18, 2003. In 2004, the rules regarding COTPA provisions were notified. As per the act, smoking is prohibited in all public places, ban is placed on

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advertisements of tobacco products, and prohibition of sale of tobacco products to minors and within 100 yards of educational institutions.^[9] With respect to protecting the public from SHS, the emphasis, globally, has been on the enforcement of appropriate legislation.^[10]

In recent past, Kullu district of Himachal Pradesh has regularly been in media headlines for extensive tobacco abuse. However, no published data on SHS in school-going adolescents were found and also not many studies had been done on awareness regarding COTPA. Hence, the present study was undertaken among adults in Kullu district with an aim to find the prevalence of SHS, perception about its related health problems and the awareness regarding COTPA.

MATERIALS AND METHODS

The present study was a descriptive school-based cross-sectional study conducted among students studying in classes 8-12th carried out in Kullu district, after being approved by the Institutional Ethics Committee of Indira Gandhi Medical College Shimla (HP). The study was carried out in the months June-July 2016.

The study population consisted of rural and urban school-going adolescents of 13-19 years of age studying in classes 8-12th in senior secondary schools of this district, who were willing to participate.

Considering the prevalence^[9] of SHS^[9] to be 33% and precision to be $\pm 10\%$ at 95% confidence interval (CI) using the formula $(1.96)^2 pq/L^2$, where, p = Prevalence of SHS, $q = 100 - p$, and L = precision, the sample size estimated was 893 after taking into account 10% of noncompliance rate. Taking the round off, 900 study individuals were included for study purpose.

Multistage stratified cluster sampling was used to draw representative sample of study population from the study area.

- First stage: Out of four administrative blocks of district Kullu, one block was selected by simple random sampling.
- Second stage: All the schools of this block were stratified as per rural/urban and government/private schools strata. Schools were selected by probability proportionate to size cluster sampling procedure to select proportionate number of students from each stratum. There were 45 senior secondary schools in Kullu block out of which 20 schools (10 government and 10 private senior secondary schools) were selected in the jurisdiction of Kullu district by probability proportional to size.
- Third stage: Equal number of students (i.e., 45 students) was selected from each school. Individual classes of the selected school were selected by simple random sampling method.

An anonymous, pretested, self-administered questionnaire was used to collect relevant information on sociodemographic variables such as level of education, occupation, and monthly household incomes. Socioeconomic status (SES) was assessed using Kuppaswamy's SES scale updated for 2017.

The date and time of the survey were finalized in consultation with the principals of the various schools so as to cause minimal disruption in the school activities. On the day of the survey, the questionnaire was administered to all eligible and consenting

students. The students were assured of complete anonymity and confidentiality of information. The questionnaire was administered to all the students of the class in one session. The respective teachers were requested to stay away during the exercise.

The study was conducted under the guidance of the researcher who gave a brief introduction regarding the objectives and relevance of the study. It was thus ensured that all respondents understood each and every question and completed the questionnaire timely. After completion, questionnaires were collected simultaneously from all students in a box kept in the class.

A brief presentation/discussion regarding the effects of SHS was undertaken by the investigator in the class/school as per local arrangements with the principal of the concerned school after filling of the questionnaire.

Data on awareness about SHS, any tobacco control law in India; SHS-related health problems were collected. Written informed consent was taken from parents and assent was taken from students before administering the questionnaires. Moreover, they were free to opt in or out of the study.

Data were entered into Microsoft Excel. Analysis was done using Epi info v 7. Descriptive statistics, frequency percentages were determined for categorical variables. Means and standard deviations were calculated for quantitative variables. Odds ratio (OR) and 95% CI were calculated for each categorical variable. A $P < 0.05$ was considered as statistically significant.

RESULTS

The mean age of participants in the study was 15.51 ± 1.61 years. The mean age for male participants was 15.60 ± 1.62 years, while that for female participants was 15.43 ± 1.60 years. There was near equal distribution of males and females in the study population.

It was observed that majority of the students were residing in rural area (69.3%). It was found that only 25.3% of fathers and 16.4% of mothers of the study participants were graduates or above. Nearly, 14.1% (in case of father) and 17.2% (in case of mother) participants denied having information about their parents' education status. Majority (58.1%) of them belonged to lower middle socioeconomic class [Table 1].

Around 35.1% of the study participants were exposed to SHS at home. Nearly, 71.1% perceived it to be harmful for health, among which it was highest (49.4%) for cancer followed by respiratory disease (37.6%). Regarding awareness about COTPA, 29.8% of the participants were aware of any act/legislation related to tobacco products [Table 2].

The awareness of COTPA was more among participants who were studying in private schools (OR 2.15, 95% CI: 1.08-4.26), whose fathers were highly educated (OR 2.20, 95% CI: 1.15-4.21), whose mothers were highly educated (OR 2.31, 95% CI: 1.56-4.61), whose friends smoked (OR 1.84, 95% CI: 1.03-3.29), and who were themselves smokers (OR 5.60, 95% CI: 2.78-11.29) compared to their counterparts [Table 3].

Table 1: Sociodemographic profile of respondents

Sociodemographic profile	n=900 (%)
Age (year)	
13-15	437 (48.6)
16-19	463 (51.4)
Gender	
Male	447 (49.7)
Female	453 (50.3)
Area of school	
Urban	277 (30.7)
Rural	623 (69.3)
Education level of father	
Postgraduate	82 (9.1)
Graduate	146 (16.2)
High school	395 (43.9)
Primary education	150 (16.7)
Do not know	127 (14.1)
Education level of mother	
Postgraduate	41 (4.6)
Graduate	106 (11.8)
High school	313 (34.7)
Primary education	284 (31.6)
Do not know	156 (17.2)
Type of family	
Joint	313 (34.8)
Nuclear	587 (65.2)
SES	
Upper (I)	23 (2.6)
Upper middle (II)	84 (9.4)
Lower middle (III)	523 (58.1)
Upper lower (IV)	196 (21.7)
Lower (V)	74 (8.2)

SES: Socioeconomic status

Table 2: Awareness about COTPA and tobacco-related health problems (n=900)

Variables	n (%)
Awareness of the harmful effects of SHS	639 (71.1)
Cancer	422 (46.9)
Respiratory disease	357 (39.7)
Cardiac disease	164 (18.2)
Tuberculosis	290 (32.2)
Hypertension	48 (5.3)
All of the above	139 (15.5)
Awareness about act/legislation regarding tobacco products (COTPA)	268 (29.8)
Awareness about penalty for violation of act	196 (21.8)
Awareness about ban on selling tobacco products near educational institutes	239 (26.6)
Ban on sale of tobacco products to minors	256 (28.2)
Health warnings on tobacco products	101 (11.2)

*Percentages do not add up to 100 because of multiple answers, COTPA: Cigarettes and other tobacco products act, SHS: Secondhand smoke

DISCUSSION

In the current study, 35.1% of the study participants were exposed to SHS at home which is much less than reported by global adult tobacco survey for India and Himachal Pradesh, for adults of age ≥15 years which were 52.3% and 84.3%, respectively.^[8] This

Table 3: Factors associated with awareness of COTPA: Univariate analysis (n=900)

Variable	Odd's ratio	95% CI	P value
Type of school			
Government	Ref 2.15	1.08-4.26	0.03
Private			
Education of father			
Illiterate/do not know/primary/high school level	Ref 2.20	1.15-4.21	0.03
Graduate/postgraduate			
Education of mother			
Illiterate/do not know/primary/high school level	Ref 2.31	1.56-4.61	0.02
Graduate/postgraduate			
Smoking habit of friends			
Nonsmokers	Ref 1.84	1.03-3.29	0.04
Smokers			
Smoking habit of self			
Nonsmokers	Ref 5.60	2.78-11.29	0.00
Smokers			

COTPA: Cigarettes and other tobacco products act

might be due to the fact that in the present study participants only 13-18 years of age was included.

In the study population, only 29.8% of the participants were aware of any tobacco-related law/act, which is less than to the observations of Rao *et al.*^[2] and Sharma *et al.*^[11] (45.7% and 47.5%, respectively). The awareness levels regarding COTPA have to be raised further for effective implantation of the legislation and dissuade people from using tobacco and other related products.

The awareness of COTPA increased significantly with increasing education of parents, which is similar to the findings of a study done in Andhra Pradesh^[2] and Assam.^[11] Efforts should be made to increase the awareness levels among the less educated people.

In the current study, a vast majority (71.1%) of the participants were aware about at least some health problem of SHS, which was in contrast to the observations of a study done in Assam^[11] and Gujarat,^[12] but similar to the study done in Kolkata, where it was only 75%.^[13]

Awareness about specific health problems because of tobacco use, namely, cancer, respiratory disease, and heart problems was similar to some older studies.^[11,14,15]

CONCLUSIONS

Nearly, one-third the participants had awareness of COTPA which opined that the implementation of the legislation was not effective. Hence, a concerted effort has to be made to increase the awareness of the act and regarding the public health aspects of the smoke-free act.

To achieve maximum gains, the act should be implemented in true spirit so as to dissuade the population from falling victims

to the Tobacco epidemic. This will contribute to preventing the ill effects of SHS, thereby increasing health improvement, which is the main purpose of COTPA Section 4.

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