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Research Article

ESTIMATION OF PREVALENCE AND PATTERN OF TOBACCO USE: A CROSS-SECTIONAL STUDY AMONG SCHOOL ADOLESCENTS

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ABSTRACT

Objective: Over the world, tobacco kills more than 8 million people every year. A WHO report on tobacco consumption mention that tobacco consumption in India will continue to increase at 2.4% per annum and most of the new users will be school children.

The objective of the study was to estimate prevalence and pattern of tobacco use among school-going adolescents and to assess their knowledge of harmful effects of tobacco.

Methods: A cross-sectional study was carried out at government schools in urban and rural field practices areas of Jhalawar Medical College, Jhalawar. A semi-structured questionnaire pertaining information regarding age, sex, use of tobacco, knowledge of hazards, etc., was used for data collection.

Results: Out of the 337 students, 15.1% reported an experience of any type of tobacco use. 8.61% students use smoking form of tobacco, 6.52% student use smokeless tobacco, and 1.48% of students use both form of tobacco. The difference of tobacco use among boys and girls student was statistically significant. Most common influential factor for tobacco use was peer pressure among the tobacco user. Out of the 51 tobacco users, adolescent students 31.37% have desire to quit tobacco.

Conclusion: High prevalence of tobacco use among school-going students was alarming situation. The desire to quit tobacco among adolescent was very low.

Keywords: Adolescent, School children, Smoking, Tobacco.

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INTRODUCTION

Over the world, tobacco kills more than 8 million people every year. Among them, more than 7 million of those deaths are the result of direct tobacco use, whereas around 1.2 million are the result of second-hand smoke [1]. In India, there are 275 million current tobacco users, including 197 million men and 78 million women. The prevalence of smoking and smokeless tobacco in India is 24% and 33% among men and 3% and 18% among women, respectively [2].

Harmful effects of smoking are cough, shortness of breath, respiratory illnesses, reduced physical fitness, poor lung function, lung cancer, cardiovascular mortalities, and morbidities, whereas smokeless tobacco can cause cancers of mouth, pharynx, esophagus, receding gums, and leukoplakia [3].

A WHO report on tobacco consumption mention that tobacco consumption in India will continue to increase at 2.4% per annum and most of the new users will be school children [4]. Global youth tobacco survey (GYTS) results in India revealed that 22% boys and 10.3% girls were current users of tobacco; 18.5% boys and 8.4% girls were current users of smokeless tobacco with 10.5% boys and 4.4% girls being current smokers [5].

The adolescent age group of 10–19 years, comprise 22% of the Indian population [6]. Approximately 70% of premature deaths among adults are due to behavioral patterns that emerge in adolescence, including smoking, violence, and sexual behavior according to the World Health Organization [7].

Indian government has developed guidelines for tobacco-free schools and educational institutions by certain provisions. Despite this, adolescent students are vulnerable targets for the tobacco industry, being easily influenced by television, cinema, advertisements, and by their peers. The present study was conducted to estimate prevalence and pattern of tobacco use among school-going adolescents and to assess their knowledge of harmful effects of tobacco in urban and rural field practice areas of Jhalawar Medical College, Jhalawar, Rajasthan.

METHODS

A cross-sectional study has been carried out at government schools in urban and rural field practices areas of Jhalawar Medical College, Jhalawar. Ethical approval was obtained from the Institutional Ethics Committee before the data collection. The study was conducted among 10^{th}–12^{th} standard students of two randomly selected schools each from urban and rural field practice area from June 2019 to November 2019. Complete enumeration of all adolescent students (10^{th}–12^{th} standard) from four selected schools was taken as sample size. Nature and purpose of the study was explained in detail to all students before commencing the study. Anonymity and audio visual privacy was maintained in data collection. Written consent of school authorities and students was taken. Students who were absent on the day of data collection and who do not willing to participate were excluded from the study. In school located at rural field practices areas, Mandawar, a total of 176 students were enrolled in 10^{th}–12^{th} standard, but on the day of assessment, only 153 students were present. In school located at urban field practices areas, Jhalarapatan, a total of 206 students were enrolled in 10^{th}–12^{th} standard, but on the day of assessment, only 191 students were present. Hence, in the present study, a total of 344 students were included as study participants. A semi-structured questionnaire pertaining information regarding age, sex, use of tobacco, knowledge of hazards, etc., was used for data collection. Sitting arrangement of students was made in common hall in each school. Criteria and definitions of tobacco use were based on the WHO guidelines [7]. "Ever use" was defined as having used tobacco even once in their lifetime.

"Current use" was defined as having used tobacco at least once in the last 30 days preceding the survey. "Never use" was defined as having not used tobacco even once in their lifetime. Data were entered into the MS excel 10. During data entry, 5 incompletely filled formats from rural area school and 2 from urban area school (total 07) were rejected. Hence, in the present study, data of total 337 adolescent students were analyzed using appropriate statistical tests. $p<0.05$ was considered statistically significant at 5% level of significance.

RESULTS

In this study, a total of 337 students were assessed, age of the students ranged from 13 to 19 years. Among the 337 adolescent students, 189 (56.08%) belongs to school of urban area and 148 (43.92%) student belongs to rural area school. 178 (52.82%) were boys and 159 (47.18%) were girls.

Out of the 337 students, 51 (15.1%) reported an experience of any type of tobacco use. 29 (8.61%) student use smoking form of tobacco, 22 (6.52%) student use smokeless tobacco, and 5 (1.48%) student use both form of tobacco. 41 (23.03%) boys student use tobacco, while among girl students, 10 (6.29%) use tobacco. This difference of tobacco use among boys and girls student was statistically significant (p=0.00003) (Table 1).

Tobacco use was more common among students of rural school (20.95%) in comparison to students from urban school (10.58%). This difference of tobacco use was statistically significant (p=0.0084). Among the urban school student, smoking (8.46%) was more frequent form of tobacco use, while among rural school students, smokeless tobacco use (12.16%) was more frequent (Table 1).

Most common influential factors for tobacco use was peer pressure among the tobacco user adolescents in both gender and both school areas as depicted in Table 2.

Table 3 depicts knowledge of school adolescents about health hazards of tobacco use and government law against tobacco product among. Among the boy adolescent students, majority of boys student reported that tobacco cause mouth cancer 112 (62.92%) followed by bad odor 106 (59.55%) and teeth problems 105 (58.98%). Among the girls student, majority of the students reported that tobacco cause bad odor 112 (70.44%) followed by mouth cancer 96 (60.37%) and teeth problems 89 (55.97%). Majority of urban school students reported that tobacco causes mouth cancer 124 (65.60) followed by teeth problems 111 (58.73%). Among the rural school students, majority of students reported that tobacco causes bad odor 108 (72.97%) followed by mouth cancer 84 (56.75%). Among the total 337 adolescent students, 122 (36.20%) know one provision of law, 103 (30.56%) know two provision, and 61(18.10%) know three or more provision.

Of the total 337 students, social media 233 (69.14) was main source of knowledge, followed by school education 208 (61.72%) as depicted in Table 4.

As depicted in Table 5, Out of the 51 tobacco user adolescent students 16 (31.37%) have desire to quit tobacco and 35 (68.63%) user either have no such desire or not yet decide to quit tobacco. Girls adolescent students have comparatively high desire to quit tobacco than boys adolescent student. The Difference of desire to quit tobacco between girls and boys student was found to be statistically significant (p=0.01). The Difference of desire to quit tobacco between student of urban and rural area was found to be statistically insignificant (p=0.09).

DISCUSSION

Tobacco addiction is one of the emerging major threats among school adolescent students in developing countries. The early age of initiation of tobacco require urgent need to protect and intervene this vulnerable group from falling into addiction. Tobacco use in early life make adolescent vulnerable for host of many diseases in future.

The present study was conducted to explore the prevalence of tobacco use, pattern of tobacco use, and knowledge about harmful effects and laws against tobacco use among the vulnerable adolescent group. In the present study, 15.1% of adolescent students reported an experience of any type of tobacco use which was higher compare to GYTS-2009 14.6% among 13–15-year-old students in India [8]. A study conducted by Kishore *et al*. in rural Wardha, Maharashtra reported that 35% of the school children were tobacco users which were higher compared to the present study [9].

Table 1: Tobacco use among students according to gender and school

Form of tobacco consumed	Gender		School		Total
	Boys n (%)	Girls n (%)	Urban n (%)	Rural n (%)	Total n (%)
Smoking					
Yes	25 (14.04)	4 (2.52)	16 (8.46)	13 (8.78)	29 (8.61)
Smokeless					
Yes	16 (8.99)	6 (3.77)	4 (2.12)	18 (12.16)	22 (6.52)
Both forms					
Yes	5 (2.80)	0 (0.0)	2 (1.06)	3 (2.02)	5 (1.48)
Any type of tobacco use					
Yes	41 (23.03)	10 (6.29)	20 (10.58)	31 (20.95)	51 (15.13)
No	137 (76.97)	149 (93.71)	169 (89.42)	117 (79.05)	286 (84.87)
Total	178 (100)	159 (100)	189 (100)	148 (100)	337 (100)
χ^2=18.33; p=0.00003**			χ^2=6.94; p=0.0084**		

**Statistically significant

Table 2: Influential factors for initiation of consumption of tobacco products (n=51)

Influential factors	Gender		School		Total
	Boys (n=41) n (%)	Girls (n=10) n (%)	Urban (n=20) n (%)	Rural (n=31) n (%)	Total (n=51) n (%)
Family members	14 (34.15)	2 (20.00)	4 (20.00)	12 (38.71)	16 (31.37)
Peer pressure	37 (90.24)	7 (70.00)	16 (80.00)	28 (90.32)	44 (86.27)
Advertisements/Movies	14 (34.15)	2 (20.00)	6 (30.00)	10 (32.26)	16 (31.37)
Pleasure/Experiment	11 (21.57)	3 (30.00)	5 (25.00)	9 (29.03)	14 (27.45)
Stress	12 (29.27)	4 (40.00)	7 (35.00)	9 (29.03)	16 (31.37)

*Multiple responses

Table 3: Knowledge about health hazards of tobacco use and government law against tobacco products

Knowledge	Gender		School		Total
	Boys (n=178) n (%)	Girls (n=159) n (%)	Urban (n=189) n (%)	Rural (n=148) n (%)	Total (n=337) n (%)
Health hazards					
Mouth cancer	112 (62.92)	96 (60.37)	124 (65.60)	84 (56.75)	208 (61.72)
Lung cancer	92 (51.68)	60 (37.73)	99 (52.38)	53 (35.81)	152 (45.10)
Heart attack	61 (34.26)	55 (34.59)	65 (34.39)	51 (34.45)	116 (34.42)
Asthma/respiratory problems	92 (51.68)	79 (49.68)	91 (48.14)	80 (54.05)	171 (50.74)
Blood pressure	54 (30.33)	35 (22.01)	58 (30.68)	31 (20.94)	89 (26.40)
Teeth problems	105 (58.98)	89 (55.97)	111 (58.73)	83 (56.08)	194 (57.56)
Mouth ulcer	86 (48.31)	69 (43.39)	85 (44.97)	70 (47.29)	155 (45.99)
Bad odour	106 (59.55)	112 (70.44)	110 (58.20)	108 (72.97)	218 (67.65)
Government law against tobacco products					
Know one provision	62 (34.83)	60 (37.73)	65 (34.39)	57 (38.51)	122 (36.20)
Know two provision	51 (28.65)	52 (32.70)	57 (30.15)	46 (31.08)	103 (30.56)
Know three or more provision	32 (17.97)	29 (18.23)	41 (21.69)	20 (13.51)	61 (18.10)

Table 4: Source of knowledge about health hazards of tobacco use and government law against tobacco products

Source of knowledge	Gender		School		Total
	Boys (n=178) n (%)	Girls (n=159) n (%)	Urban (n=189) n (%)	Rural (n=148) n (%)	Total (n=337) n (%)
Social media	126 (70.78)	107 (67.29)	137 (72.48)	96 (64.86)	233 (69.14)
Family member	86 (48.31)	97 (61.00)	101 (53.43)	82 (55.40)	183 (54.79)
Friends	104 (58.42)	98 (61.63)	108 (57.14)	94 (63.51)	202 (59.94)
Health worker	58 (32.58)	49 (30.81)	65 (34.39)	42 (28.37)	107 (31.75)
School education	106 (59.55)	102 (64.15)	112 (59.25)	96 (64.86)	208 (61.72)

Table 5: Desire to quit tobacco use among tobacco users

Desire to quit tobacco use	Gender		School		Total
	Boys (n=41) n (%)	Girls (n=10) n (%)	Urban (n=20) n (%)	Rural (n=31) n (%)	(n=51) n (%)
Yes	9 (21.95)	7 (70.00)	9 (45.00)	7 (22.58)	16 (31.37)
No/Not decided yet	32 (78.05)	3 (3.00)	11 (55.00)	24 (77.42)	35 (68.63)
	χ^2=6.53; p=0.01**		χ^2=2.83; p=0.09		

**Statistically significant

In the present study, smoking form of tobacco use was common form as (8.61%) student use smoking form of tobacco, (6.52%) student use smokeless tobacco, and 5 (1.48%) students use both form of tobacco. Discordant result to the present study were found in GYTS-2009, in which 4.4% of students currently smoke cigarettes, 12.5% currently use some other form of tobacco [8]. Other study done by Rajeshwari *et al*. in a co-education school also found that smokeless tobacco use was common form than smoking form (smoking: 7.7%, chewing: 8.1%, and both forms: 3.4%) [10].

In the present study, (23.03%) boy students use tobacco while among girls student (6.29%) use tobacco. This difference of tobacco use among boys and girls student was statistically significant (p=0.00003). Similar to the present study GYTS-2009 reported that boys (19.0%) consuming more tobacco than girls (8.3%) [8]. In contrast to the present study, none of the girls were found to use tobacco in the study by Kishore *et al*. [9]. The tobacco use by girl adolescent students is a serious concern for society.

Smoking (14.04%) was common form of tobacco use among boys, while among girls most common form was smokeless tobacco (3.77%). Contrast to the present study, Shruthi *et al*. found a higher usage of smokeless form of tobacco (17.9%) among high school boys [11].

Among the student of rural school (20.95%) uses tobacco, while (10.58%) student from urban school use tobacco. This difference of tobacco use among students of urban and rural area school was statistically significant (p=0.0084). Similar to the present study Matariya *et al*. in Gujrat also observed that students from the rural area (9.8%) consume more tobacco compared to urban area (6.4%) [12]. However, a study conducted in Karnataka by Gururaj found tobacco use was more in transitional Karnataka (10.1%) than rural (4.7%) students [13].

In the present study, among the tobacco user, 31.37% of adolescent students were having desire to quit tobacco. However, GYTS report depicted that 67.2% of the smokers had tried to stop smoking in the past year [8]. Girls adolescent student (70.00%) have significantly high desire to quit tobacco than boys adolescent student (21.95%) (p=0.01). Nearly 56.41% of the male and 50% of the female tobacco users wanted to quit tobacco use according to a study by Muzammil *et al*. [14]. Desire to quit tobacco between student of urban (45.00%) and rural area (22.58%) was found to be statistically insignificant (p=0.09). Such unfavorable desire to quit has a strong predisposition toward the habit of smoking and should be addressed at this vulnerable group.

The present study found that, among the tobacco user students, there were multi-influencing factor for tobacco use such as peer pressure (86.27%), use by family member (31.37%), advertisement/movies (31.37%), and experiments (31.37%). Other study also reported that friends pressure and tobacco user family member were common influencing factor [14,15]. However, other study by Matariya and Patel reported that commonest reasons for the initiation of tobacco consumption were friends and mental stress [12,16].

In our study, most of students know that tobacco use may cause mouth cancer (61.72%) and lung cancer (45.10%). A study by Mukherjee *et al*.

reported lower tobacco use than the present study that was 18.5% of the study population [3]. In our study only, 18.10% of adolescent student were know at least three or more section of anti-tobacco laws. This highlights importance of continued educational activities emphasizing tobacco hazards and existing law "The Cigarettes and Other Tobacco Products" address this problem. In the present study, most of students acquire their knowledge from social media (69.14%) and school education (61.72%). Among the adolescent student's life social media playing importance role in imparting knowledge about health hazards of tobacco. School education and involvement of teachers are important steps in addressing tobacco use.

CONCLUSION AND RECOMMENDATION

High prevalence of tobacco use among school going students was alarming situation. Girl adolescent students also consuming tobacco. The desire to quit tobacco among adolescent was very low. Peer pressure was one of the most common causes of tobacco use. Study depicted that most of school-going girls and boys have knowledge regarding the hazards of tobacco on health however they have low knowledge about anti-tobacco laws. Continue educational activities should be focus to motivate adolescent to quit tobacco. As most of the students started tobacco use under their friend's pressure, so importance should be given to tackle the peer pressure. There is a need for a strong life skills education to prevent tobacco use among vulnerable adolescent students into the school curriculum.

Limitation

This study was conducted on small sample size including few schools. Hence, we cannot generalize these findings to general population.

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