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Epidemiological appraisal of tobacco users among college students in a north Indian town

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ABSTRACT

Background: Tobacco use is one of the important causes of preventable morbidity & mortality. Worldwide there are 1.1 billion tobacco users with 182 million living in India. College students are highly vulnerable because of their young age, curious mind and adventurous behaviour. Considering potential risk, it was decided to ascertain trend, social risks and correlates of tobacco use among under-graduates in a north Indian town.

Materials and Methods: 228 under-graduate students of a college were selected by stratified random sampling and studied during May – July 2018. Institutional approval and individual consent were taken. A pre-tested, structured proforma was introduced to students in small batches to obtain information on demographic traits, smoking habits and smoking related attributing factors. Data obtained was tabulated and statistically analysed.

Result: Majority of the students (67.1%) belonged to 21-25 years age. 65.7% were male and 15.79% of them were using tobacco. Girls didn't indulge in tobacco. Significantly higher proportions of smokers were hostellers, belonged to lower middle class families from rural linage. Smoker's son indulged in smoking significantly more than son of non-smokers. Imitating smoker father or brother found significantly contributory. 37-60% knew about ill effects of smoking through media or warning on packs.

Conclusion: Study showed relatively petite trend with significant cognizance of adverse effects of smoking among collegiate portraying a favourable prospect anew from past observations. Identification of at-risk students is a felt-need and is advocated to be addressed among collegiate through periodic campaign.

1. Introduction

Tobacco use is one of the prime causes for preventable morbidity & mortality with approximately four million smokers dying annually around the world.[1] Use of tobacco leads to lung cancer, oral cancer, COPD, atherosclerotic CVD, peptic ulcer, IUGR, spontaneous abortion, female infertility & male sexual dysfunctions.[2] It has been estimated that there are 1.1 billion tobacco users worldwide with 182 million living in India.[3] It is a rapidly growing public health concern with an alarming increase in smoking among young adults.[4] The prevalence is on the rise, especially in developing countries. An increasing trend is seen among college students, with common pre-cursive factors like undue stress, peer pressure, social acceptance and desire to attain high personality profile, that tend the students to use tobacco.[5]

The college going students are highly vulnerable because of their young age, curious mind and adventurous behaviour. Considering the potential risk among students, it was decided to assess trend, social risk and correlates of tobacco use along with associated contributory factors, if any, among

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college going students.

2. Materials and Methods

The study was conducted among consenting first and second year students of an undergraduate college in a north Indian town during May-July 2018. Nominal roll of the students was obtained from college authorities after taking necessary permission for study. Out of 376 students studying in various undergraduate streams, only 342 students agreed and consented to participate initially. Considering tobacco use prevalence as 16.2% among university students as documented by Kumar R et al. in a recent study, the sample size was calculated to be 228 at 95% confidence interval with margin of error of 5% and non-response rate of 10%.[6] 228 students of both sexes were selected by stratified random sampling according to year of study and discipline to elect a representative sample. The students were approached in small groups to explain the objective of study in the background of importance of the issue before final participation. A pretested, structured questionnaire was introduced to the students in small group at a time maintaining confidentiality. Name, address and mobile no. of students were excluded to ensure confidentiality; however roll no. with year and stream of study was included to avert repetition securing authenticity of information. Questionnaire mainly comprised of two parts i.e. personal particulars including demographic attributes and details of tobacco use with associated ancillary factors. Socio-economic status (SES) was determined as per revised Kuppuswamy's SES scale.[7] The data obtained was tabulated and statistically analysed. Common statistical tests like Chi-square and Fisher's exact probability test were applied.

3. Result

Table 1 shows the mean age of the students was 23.6±2.19 with 67% belonging to 21-25 years age group. Out of 228 students, 65.7% were male and 15.79% were using tobacco. Girls stated that they didn't indulge in tobacco. All tobacco users were smokers however, 4(1.75%) were using oral tobacco simultaneously. 97% were Hindu and 59.6% belonged to middle class families. 74.6% were from rural background, 24.5% were hostel-scholars and 43% belonged to families where one or more members smoked.

Table 2 reveals that 24.8% Hindu boys were smoker and majority of smoker boys (10.3%) belonged to 21-25 year age group. Significantly 75% boys from lower middle class families were smokers. Similarly, 29% of boys having rural background and 41.6% of hostel scholars were smokers. 40.6% of boys from families with smoker members indulged in smoking mostly having predominance of smoking father (58%). Son of smokers (SOS) pandered to smoking significantly higher than son of non-smokers (SONS).

Table 3 divulges that mean age of initiation of tobacco use was 15.22±2.61. Majority of rural students (41.67%) started smoking in the age of 14-16 years. Average no. of cigarette smoked per day was 9; 38.9% rural students smoked less than 05 cigarettes a day. Imitating father or brother was found in 69.44% smokers, which was significantly contributing as compared to other impulses. Only 4(11.11%) students tried to quit but failed due to multiple combined reasons.

Awareness on various facets of ill effects of smoking varied from 37.2% to 60.5% as reflected in Table 4. Knowledge about effects of smoking was significantly remarkable among girls. 60.5% knew about relationship of smoking with chronic diseases and 51% could relate smoking with lung cancer. 50% of subjects identified preponderance of chronic cough among smokers and even 42% stated possibility of oral cancer among smokers. Most of the subjects acquired knowledge from media or warning on cigarette pack. However, only 37% knew the effects of passive smoking among family members of smokers.

Awareness on different counts of ill effects of smoking was significantly high among the non-smoker boys (Table 5). Awareness indices varied from 30.6% to 55.3% on different aspects of ill effects. 55% recognised association of smoking with chronic diseases and 43% connected smoking with lung cancer. 44.6% identified predominance of chronic cough among smokers and even 36% stated cancerous predisposition of chronic smokers. The scholars mostly attained knowledge from print and advertisement media. However, only 30.6% were aware about the effects passive smoking among family members of smokers.

4. Discussion

Present work revealed that majority of the students belonged to 21-25 years age group. Out of 228 subjects, 65.7% were male and 15.79% of them were using tobacco. Girls didn't indulge in tobacco. Further analysis divulged that the girls didn't indulge in smoking because of social reservation, societal fear and family restriction. A recent study among scholars in Delhi documented a smoking prevalence rate of 16.2% with 54% students in age group of 17-21 years of which 62.9% were male.[6] Reported prevalence of smoking among girls has been as low as 0-3.9%.[6,8] A multi-centric study conducted by PGIMER, Chandigarh in collaboration with other premier medical institutions across India noted a comparable population prevalence rate of 15.6%.[9] Reports in past documented the prevalence of tobacco use in India in different population from 15 to over 50% in men.[8] It appears that possibly formal education helped students to assimilate and inculcate acquired knowledge from media/advertisements favourably resulting in comparatively subjacent trend of smoking in the present study. Studies in the past demonstrated an inverse

Table 1: Demographic and social profile of the students

Personal Attributes (N-228)	Sub-attributes	Number	Percentage
Age Group	18- 20 years	58	25.44%
	21-25 years	152	66.67%
	Above 26 years	18	7.89%
Gender	Male	150	65.79%
	Female	78	34.21%
Using tobacco currently	Male (150)	36	15.79%
	Female (78)	-	-
Types of Tobacco use (n =36)	Smoking	36	100.00%
	Chewable tobacco	-	-
	Both	4	1.75%
Religion	Hindu Muslim	222 06	97.36% 2.63%
Family SES	Upper middle	60	26.31%
	Middle	136	59.65%
	Lower Middle	32	14.03%
Family origin	Urban	58	25.43%
	Rural	170	74.56%
Students residing at	Hostel	56	24.56%
	Home	172	75.43%
Smoking in family members	Smoker in family	98	42.98%
	No smoker in family	130	57.02%

Table 2: Smoking and social profile of male students

Personal Attributes	Sub-attributes	No. of Smokers	Percentage of Smokers	P value *p –Significant (Sig)
Religion (N-150)	Hindu (145) Muslim (05)	36 0	24.83% -	Fisher's prob 0.34, Not Sig
Age & smoking (N-150)	18-20 yr.(n^1-38)	11	28.95%	*p - 0.00001, df 2
	21-25 yr (n^2-98)	15	15.31%	
	26 yr+ (n^3-14)	10	71.43%	
Family SES (N-150)	Upper middle (n^1-40)	09	22.50%	*p - 0.00001, df 2
	Middle (n^2-90)	12	13.33%	
	Lower Middle(n^3-20)	15	75.00%	
Family origin (N-150)	Urban(n^1-40)	4	10.00%	*p - 0.015, df 1
	Rural(n^2-110)	32	29.09%	
Students residing at (N-150)	Hostel(n^1- 48)	20	41.66%	*p - 0.0005, df 1
	Home(n^2-102)	16	15.68%	
Smoking in family members (N-150)	Smoker in family (n^1-64)	26	40.63%	*p - 0.00003, df 1
	No smoker in family (n^2-86)	10	11.63%	
Smoking among family members (N-64)	Father smoker (n^1-31)	18	58.06%	Fisher's prob 0.02 *p - 0.02
	Brother smoker (n^2-23)	5	21.74%	
	Others (n^3-10)	3	30.00%	

Table 3: Attributes of tobacco users

Attributes (n-36)	Sub-attributes	No.(%)	Other Parameters	P value Significant (Sig)
Initiated tobacco use at age of (Urban-04, Rural 32)	Below 13 years Urban Rural	0(0.00) 12(33.33)	Mean 15.22 SD ± 2.61	Fisher's prob 0.03, Sig
	14-16 years Urban Rural	01(2.77) 15(41.67)		
	17 years & above Urban Rural	03(8.33) 05(13.88)		
No. of sticks smoking per day (Urban-04, Rural-32)	Less than 5 Urban Rural	0(0.00) 14(38.89)	Average 9 SD ± 3.89	Fisher's prob 0.014, Sig
	5-10 Urban Rural	01(2.77) 13(36.11)		
	More than 10 Urban Rural	03(8.33) 05(13.88)		
Initiating impulse (n-36)	Father/brother Urban Rural	01(2.77) 24(66.66)		Fisher's prob 0.016, Sig
	Friends Urban Rural	01(2.77) 06(16.66)		
	Curiosity Urban Rural	01(2.77) 2(5.55)		
	Stress Urban Rural	01(2.77) 0(0.00)		
Tried to quit but not succeeded(n-36)	Yes	04(11.11) 32(88.89)		
	Didn't try			
Reasons for failed quit (n-04)	Stress	03(75.00)		
	Urge to smoke	04(100.00)		
	Peer pressure	04(100.00)		

Table 4: Awareness on ill effects of smoking among students

Awareness parameters (n-228)	Awareness & Gender No. (%) Boys(150)	Girls(78)	Total Aware No. (%)	P value *p - Significant
Smoking is related to many chronic diseases	83 (55.33)	55 (70.51)	138 (60.53%)	*p- 0.02, df 1
Smoking often cause lung cancer	65 (43.33)	52 (66.67)	117 (51.31)	*p- 0.0008, df 1
Smoking precipitates chronic cough	67 (44.66)	47 (60.26)	114 (50.00)	*p- 0.02, df 1
Smoker's may develop oral cancer	54 (36.00)	42 (53.85)	96 (42.11)	*p- 0.009, df 1
Smoking aggravates bronchial asthma	49 (32.67)	40 (51.28)	89 (39.03)	*p- 0.006, df 1
Smoke is bad for family members if you smoke among them	46 (30.67)	39 (50.00)	85 (37.28)	*p- 0.004, df 1

Table 5: Awareness on ill effects of smoking among male students

Awareness parameters (n-150)	Awareness & smoking No. (%) Smoker (36)	Non-smoker (114)	Total Aware No. (%)	P value *p –Significant
Smoking is related to many chronic diseases	28 (77.78)	55 (48.24)	83 (55.33%)	*p - 0.001, df 1
Smoking often cause lung cancer	21 (58.33)	44 (38.60)	65 (43.33)	*p- 0.03, df 1
Smoking precipitates chronic cough	24 (66.67)	43 (37.72)	67 (44.66)	*p- 0.002, df 1
Smoker's may develop oral cancer	21 (58.33)	33 (28.95)	54 (36.00)	*p- 0.001, df 1
Smoking aggravates bronchial asthma	20 (55.56)	29 (25.44)	49 (32.66)	*p- 0.0007, df 1
Smoke is bad for family members if you smoke among them	19 (52.78)	27 (23.69)	46 (30.66)	*p- 0.0009, df 1

relation between education and smoking prevalence.[10,11]

The study disclosed that all tobacco users were smokers however; few were using oral tobacco concurrently. Studies in the past annotated that cigarette smoking (86% - 97.6%) as most favourable form of addiction among students.[6,12] Majority of smokers in the present intent were in age group of 21-25 years. Centers for Disease Control contemplated that among young adults, 18-25 years age had highest prevalence of smoking (31.8%) in US.[13] Global Adult Tobacco Survey (GATS) in India documented highest prevalence of smoking (27%) among male aged 25-44 years.[14] Majority of students in the present realm belonged to middle class families however, significantly higher proportion of smokers were from lower middle class families. Majority had rural background and smoked significantly in higher proportion than urbanites. Earlier study registered that rural background and low socio-economic status as important variable for smoking.[9,14]

In the present work, smoker's percentage was significantly preponderant among hostel-dwellers. A study among Malaysian students in Australia found that hostellers (11.96%) smoked significantly more than the day scholar (11.48%).[15] A study conducted in 2012 among medical under-graduates in Delhi observed hostellers (32.7%) smoked more than day scholars.[16] Present study unveiled that many subjects belonged to families where one or more members smoked; boys from such families smoked significantly more. Son of smokers (SOS) pandered to smoking significantly higher than son of non-smokers (SONS). Earlier studies noted if a child's sibling or parent smoke, the child is four times as likely to smoke as one with no smoking model in family.[17] Study among Delhi collegiate exposed that 57.1% smokers had smoking replica among family members as an influence.[6]

Mean age of initiation of tobacco use was 15.22±2.61. Earlier study documented that 40% of children started smoking between 10-15 years without much urban rural difference.[12] A recent study in Delhi noted 60.9% of the smokers started smoking at the age of 16-20 years.[6] Average no. of cigarette smoked per day was 9 in the present work. Previous endeavour cited that on an average 14 sticks were smoked daily with 15 and 12.4 for rural and urban smokers respectively.[9] Imitating father or brother was found in significant no. of smokers, which was significantly contributing as compared to other impulses. Many studies did notify similar observation.[6,17] Only few tried to quit but failed due to multiple combined reasons. Study among Delhi collegiate noted that 54% of smokers wanted to quit but couldn't succeed.[6]

Awareness on various counts of adverse effects of smoking varied from 37.2% to 60.2%. Reported awareness about ill effects of smoking has been considerably high.[6] Understanding about harmful effects of smoking proved beneficial to facilitate quit in developed nations where massive public campaign resulted in decline in smoking.[18,19] Knowledge about effects of smoking was significantly remarkable among non-smoker boys in present pursuit. A recent work in south India documented that most of the smokers (54.9%) smoked in houses among family members being unaware of effects of passive smoking and many knew about harmful effects of smoking like Carcinomas (19%), Cardiovascular diseases (33.3%), Cerebro-vascular accidents (25.5%) and Respiratory diseases (83.3%), yet they continued smoking because of addiction.[20] However, became aware about these ill effects by watching televisions and from statutory warning printed on packs like present work.[20] These findings are akin to the observations of present study. The effects of smoking are much less known to smokers because they are hardly discussed by physician or health care personnel. A study in New Delhi iterated that awareness of ill effects of smoking in population is much low.[21] Weinstein reiterated that some health risks of smoking such as lung cancer are well recognized; however, other risks of smoking are much underscored.[22]

It is remarkable to reiterate that high level of cognizance and appreciation about inimical effects of smoking demonstrated by the collegiate especially, the non-smoker boys is a welcome finding; quantitatively the awareness index appears to have creditably surpassed findings of previous studies.[6,20] It is likely that exposure to relentless and persistent publicity through mass media and mandatory warning on packs could have actualised under-indulgence in smoking among the subjects, a prospect that makes the present study finding way apart from previous studies. Many findings in the present intent show encouraging trend favouring declining drift towards smoking when correlated to the studies of recent past.

5. Conclusion

The study elucidated comparatively subjacent trend of smoking among the collegiate. Potentials like adolescent male, low SES, rural lineage, hostel-boarders and 'smoker-model' in the family were recounted to make a scholar 'at-risk'. However, many exhibited explicit knowledge on adverse effects of smoking which is honestly gratifying and resulted in a desirable downhill trend in smoking. Being a limited institutional study in an urban set-up, it is imperative to mention that the results stand guarded universally. However, the risk-correlates and awareness explicated in the current endeavour can go hand in hand for planning preventive strategies among the collegiate. The study recommends motivating the vulnerable young at-risk scholars periodically by organising 'Anti-smoking Campaign' in various institutions by non-smoker peer under the guidance of college authorities to instil and infuse practice of 'forestall smoking' among college students.

6. Source of Funding

None.

7. Conflict of Interest

The authors declare no conflict of interest.

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