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Study of Psychosocial Risk Factors and Assessment of Dependency of Smokeless Tobacco among Adolescents in Ahmedabad

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Abstract

Context

Tobacco use is the leading preventable cause of mortality and morbidity worldwide, including in India. A significant proportion of adolescents in India reside in low-resource settings and engage in the consumption of various forms of tobacco products, rendering them a highly vulnerable population.

Aims

Determine the psychosocial risk factors among school going adolescents and to identify adolescents at increased risk of smokeless tobacco use in upcoming years. To assess the dependency among adolescents for smokeless tobacco consumption.

Settings and Design

A cross-sectional study was conducted among students of class 9th and 10th standard, Ahmedabad.

Methods and Material

A total of 575 students were studied using Global Youth Tobacco Survey, Schwarzers General Self Efficacy Scale, Pareeks Preadolescent Adjustment Scale, Modified Fagerstrom- Smokeless Tobacco.

Statistical analysis used

Ms Excel 2007.

Results

A total of 575 students participated in the study, out of which 62.6% were boys and 37.3% were girls with mean age 14.8 ± 0.9 years. 58 (10.09%) of the students were smokeless tobacco users. The score on Schwarzer's General Self-Efficacy Scale (GSES) among SLT non-users is significantly higher more than 30 than in SLT users ($Z= 5.23$, $p<0.001$). According to PAAS Score, the SLT users were maladjusted towards Home, School, Teacher, Peers and also in the General domain. Out of 58 SLT users 3.4% were substantially dependent on smokeless tobacco.

Conclusions

Early and mid-adolescence are more vulnerable to initiation of tobacco use and hence a targeted intervention is necessary to reduce the tobacco uptake in this age group.

Keywords: Smokeless Tobacco, Adolescents, Global Youth Tobacco Survey, Schwarzers General Self Efficacy Scale, Pareeks Preadolescent Adjustment Scale

Introduction

India, with more than 256 million adolescents has the highest number of adolescents in the world [1]. As one in four adults and one in ten school students of age 13-15 years are using smokeless tobacco and are at serious risk due to their addiction [2].

India is 2nd largest consumer & producer of tobacco after China and also accounts for 9% of the production and 10% of the world tobacco area. Total area under tobacco cultivation: 4 Lakh hector, approximately 1.2-1.3 crore people are engaged in tobacco sector. Global Youth Tobacco Survey (GYTS) conducted all over India and Gujarat estimated that 14.6% and 19% of students, respectively, currently use any form of tobacco products [2].

The high consumption of smokeless tobacco (SLT) in India consequently leading to increase in burden of mortality and morbidity. Many studies shows that India has the maximum burden of oral cancer in the world [3].

Despite the facts, that the harmful effects of tobacco chewing and smoking are widely known, many young people start it during adolescence, largely because they believe that it will boost their social acceptability and image. Family influences also

play a role; adolescents whose parents or siblings are taking tobacco products are more likely to use tobacco. Once adolescents have experimented with it, approximately 50% continue to use it and become addicted.

In 2008, WHO introduced a practical, cost-effective way to scale up implementation of the main demand reduction provisions of the WHO FCTC on the ground: MPOWER. Each MPOWER measure corresponds to at least 1 provision of the WHO Framework Convention on Tobacco Control [4]. Section 6 of the COTPA is aimed to restrict the access of a minor to tobacco products [5].

The present study was conducted with purpose of to identify the role of psycho-social determinants associated with tobacco use and adolescents at increased risk of smokeless tobacco use in upcoming years and dependency of smokeless tobacco among SLT users of secondary school students in Ahmedabad.

Aim And Objectives

- To find out psychosocial determinants associated with tobacco use.
- To identify reasons of adolescent's at increase risk of smokeless tobacco use in upcoming years.
- To assess the dependency of smokeless tobacco among SLT users of secondary school students in Ahmedabad.

Methodology

An observational cross-sectional study performed from June 2019 to June 2020 among students of 9th and 10th standards selected from the secondary schools of Ahmedabad. Sample size was calculated based on prevalence of tobacco use among adolescents (14.6%) GYTS 2009 [6] by using the formula: $n = \frac{(Z\alpha)^2 pq}{L^2}$ considering relative precision of 20% of prevalence, the minimum estimated sample size came out to be 562. Data was collected from 575 students. The multi-stage random sampling was used to select the representative sample of schools of Ahmedabad from five different zones. The Ahmedabad is divided into five zones & for representative sample from urban & rural areas probability proportion to size (PPS) method was used. To make the sample more representative one school from each zone (total 5 schools) were selected randomly in the next stage. The study protocol was approved by the Institutional Ethical Review Board of B.J Medical College, Civil Hospital, Ahmedabad. Approval to conduct this study was obtained from District Education Department and School Principal before carrying out the study. Questionnaire to assess demographic variables, prevalence of smokeless tobacco use using Global Youth Tobacco Survey [6], Schwarzers General Self Efficacy Scale [7] for testing Self-esteem of adolescents [8], Pareeks Preadolescent Adjustment Scale [9] for psycho social adjustment in five psycho social domain. The analysis of the data was done using Microsoft office Excel 2007 and Epi-info version 7.2.2.2. Statistical significance for all comparisons was based on the t-test and chi square test.

Exclusion criteria were those who were not willing to take part in the study and those not available at the time of administering the questionnaire.

Results

A total of 575 students participated in the study, out of which 62.6% were boys and 37.3% were girls with mean age 14.8 ± 0.9 years (Fig.1).

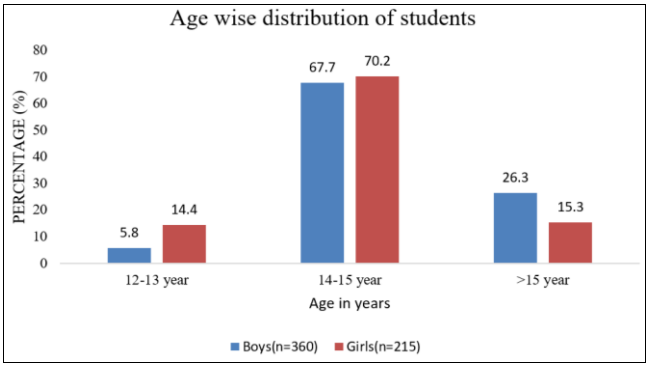

Fig 1: Distribution of boys and girls according to their age group. (N=575)

(Majority of studied students (both boys and girls) are in the age group of 14-15year.) 80% of student's father's occupations were in business or doing job and 20.1% of student's either of parents was using SLT which gave statistically significant effect on students for using tobacco (Table 1) whereas it was insignificant for age, religion, type of family, Education of either parent and mothers occupation. According to GYTS scoring of students, we identified 58 students as SLT users (10%). Among them, 51.1% of the SLT users started at the age of 10 to 11 years with approximately 88% of SLT users were 'current users' (used SLT at least one day during past 30 days). 24.1% users used SLT 2-5 times a day and 25.8% used it once a day. Around 38 % SLT users sometimes feel like using it but 8.6% always feel like using it first thing in the morning.

Table 1: Distribution of students according to sociodemographic profile

Sociodemographic variable		SLT user (n=58) Number (%)	SLT non-user (n=517) Number (%)	Total Number (N=575)(%)	Chi square And p-value
Age (years)	12 to 13	2(3.4)	50(9.6)	52(9)	2.7869 (p=0.248222)
	14 to 15	44(75.8)	351(67.8)	395(68)	
	>15	12(20.6)	116(22.4)	128(22)	
Gender	Boys	52(89.6)	308(59.5)	360(62.6)	**20.1568* (p< 0.00001)**
	Girls	6(10.3)	209(40.4)	215(37.3)	
Religion	Hindu	45 (77.5)	491(94.9)	536(93)	0.0973 (p=0.952532)
	Muslim	2(3.4)	21(4.0)	23(4)	
	Other	1(1.7)	15(29.0)	16(2)	
Type of Family	Nuclear	40(68.9)	363(70.2)	403 (70)	0.0021 (p=0.963712)
	Joint	18(31.0)	154(29.7)	172(29.9)	
Socio Economic class	I & II (higher status)	20(34.4)	304(58.8)	324(56.3)	**12.5379* (p=0.00039)**
	III, IV & V (lower status)	38(65.5)	213(41.1)	251(43.6)	

*statistically significant (p<0.05)

34.4% of SLT users develop a strong desire to use it again that is hard to ignore in four days or more. 65.5% of SLT users would like to stop. 87.9% tried to stop SLT during last 12months, all SLT users think that they would be able to stop using SLT if they wanted to stop it. Almost everyone was advised to quit tobacco by their friend, family, programme or Professionals. 76% got SLT from someone else some from street vendors whereas 70.6% were refused by the seller because of their age. 87.9% of SLT users saw the warning signs and thought about quitting it whereas 64.6% of SLT non-users have seen it but didn't think about it. No one was offered 'free tobacco' by anyone. 89.6% of SLT users probably use tobacco if offered by their best friend and 87.9% of SLT users think that it would probably be difficult to quit once someone has started using SLT. Among SLT non users 1.7% agreed that they might enjoy using SLT.

The mean of General Self-Efficacy Score (GSES) was 24.8 with standard deviation of 3.2, while for SLT non-users the mean of General Self-Efficacy Score was 30.8 with standard deviation of 4.7. This represents that Self efficacy among SLT non-users was statistically (t=9.457, Df =573, p<0.0001) better than SLT user. The median score in Schwarzer's General Self-efficacy Scale (GSES) was 30. 86.2% of SLT users General Self Efficacy Score is less than 30, whereas in SLT Non users only 13.7% of students were having <30. This difference is highly significant as Z=5.23, p<0.001. GSES of students was statistically significant with per capita income (OR=1.45, p<0.05). (Table 2) According to PAAS scale it was observed that, SLT users were significantly maladjusted to Home (77.5%), School (81%), Peers (77.5%), Teachers (82.7%) and General (72.4%) domain (fig. 2) whereas only 0.7% of SLT Non Users are maladjusted (Table 3).

The mean score and standard deviation of modified Fagerstrom scale for SLT Users is 3.8±1.6. Most of students (43.1%) who are SLT users scored 3 to 4 showing moderate dependence. Whereas 3.4% were substantially dependent on smokeless tobacco.

Table 2: Distribution of students according to General Self-Efficacy and relation with various Socio Demographic factors. (N= 575)

Socio Demographic Factors		General Self-Efficacy Number (%)		p-value	Odds Ratio
		High [>30]	Low [<30]		
Gender	Male	189(52.5)	171(47.5)	0.5259	1.12(0.8-1.56)
	Female	107(49.7)	108(50.2)		
Family Type	Joint	89(51.7)	83(48.2)	0.9336	1.02(0.71-1.45)
	Nuclear	207 (51.3)	196(48.6)		
Per capita income	Above median (>4098.60)	121(57.3)	90(42.6)	0.0324	**1.45(1.03-2.04)***
	Below median (<4098.60)	175(48.0)	189(51.9)		

When General Self Efficacy of students was compared between SLT users and SLT non Users for the variables like gender and family type, odds were 1.12 and 1.02 respectively which was statistically not significant with p value of 0.5259 and 0.9336 respectively. Whereas GSES of students is statistically significant with per capita income (OR=1.45, p<0.05)

Median for PAAS score among SLT non users was found to be +5 which is higher as compared to SLT users that is +3, showing that SLT non Users are better adjusted towards General domain as compared to SLT Users. The Range among SLT non users is between -3 to +6 i.e. 9, while for SLT users it is between -2 to +6 i.e. 8.

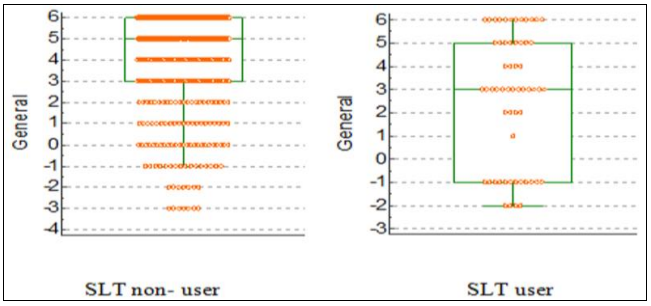

Fig 2: Box and Whisker plotted between SLT users and SLT non users for General domain of PAAS score. (n=575)

Table 3: Distribution of students according to PAAS Scale showing the adjustment and maladjustment with General, Home, Peers, Teachers, Family domain. (n=575)

Domain	PAAS SCALE	SLT User (n=58) No. (%)	SLT non-user (n=517) No. (%)	Chi Square	p value
Home	0 and above	13(22.41)	513(99.2)	384.9	<0.05
	<0	45(77.5)	4(0.7)		
School	0 and above	11(18.9)	486(94)	244	<0.05
	<0	47(81.0)	31(5.9)		
Peers	0 and above	13(23.6)	498(96.3)	280	<0.05
	<0	45(77.5)	19(3.6)		
Teachers	0 and above	10(17.2)	488(94.3)	261	<0.05
	<0	48(82.7)	29(5.6)		
General	0 and above	16(27.5)	487(94.1)	205	<0.05
	<0	42(72.4)	30(5.8)		

When PAAS scale was applied on both the groups, the difference between two groups was found to be statistically highly significant ($p<0.05$) in the entire given domain. The maladjustments to all domains was found among SLT users.

Discussion

The study comprised of school going adolescents of class 9th and 10th standards in Ahmedabad district. Total 575 students were studied with mean age of 14.8 ± 0.9 years and prevalence of smokeless tobacco use came out 10%. Similar results were obtained in a study done among school going adolescents in Noida [10]. The Global Youth Tobacco Survey (GYTS) [11] reveals that the prevalence of current use of tobacco among 13–15 year is 14% and 14.6% in the years 2006 and 2009 respectively. Students from grades 8–10 have been included in the majority of studies investigating tobacco use among Indian students. In the present study results were found similar to study conducted by Varun Kumar *et al.* [9]in Delhi and in Rahul Sharma *et al.* [10]study. Ever tobacco use was found to be significantly higher among boys as compared to girls. In a study conducted by A. Mukherjee *et al.* [11] male preponderance was observed among current smokers similar to our study. In this study father's occupation was found to have a significant effect on SLT use of children.

The socio-environmental factors prevailing at home have been identified as one of the important causes of adopting smokeless tobacco. In this study there was no difference found in the type of family while in other study it was found to be significant as adolescents belonging to joint families are under constant adult surveillance which may reduce their risk taking behaviours including tobacco use. Smokeless tobacco use was found to be statistically significant if either of parents were using SLT, similar result was seen in a study conducted by Kailash Asawa *et al.* [12] Lower general self-efficacy and self-esteem, dependency, powerlessness, and social isolation all increase the tendency to any substance use behaviour including tobacco use. In this study it was found that General Self-Efficacy Score was statistically significant among SLT user and non user suggesting that substance use is associated with low general self-efficacy. Similar result was found in a study done by D'silva J *et al.* [13]among adolescents in Goa. Our study came up with a positive association between high general self efficacy and per capita income with odds ratio of 1.45 (1.03-2.04). Result was found to be consistent with a study done in New Delhi, India. [9] In some studies it was found that, adolescents with good school performance and high academic aspirations are less likely to use tobacco than those who do not possess these characteristics. In this study,few SLTnon-users were maladjusted towards schools,teachers, peers, home and general domain depicting that they are at more risk of using tobacco whereas SLT users are significantly maladjusted towards all domains. Early initiation of substance abuse is usually associated with a poor prognosis and a lifelong pattern of deceit and irresponsible behaviour [7, 13].

The mean score of modified Fagerstrom scale for SLT Users is 3.8±1.6, which is similar to the findings of Fagerström *et al.* (2.8–4.6) [14], Jayakrishnan *et al.* [15] (5.04 ± 5.05) whereasSaha *et al.* [16] found a higher score (6.47 ± 2.38), which may be due to inclusion of adult tobacco users.In our study there was no significant association between gender and dependency score of smokeless tobacco (3.8 ± 1.6) while in a study conducted in West Bengal [13], showed mean FTND score significantly higher among males (4.3 ± 2.4); Saha *et al.* [16] also noticed the same, but their finding was not statistically significant ($P > 0.05$).

Three-fourth of SLT users got smokeless tobacco from someone else that means most of students are not going directly to buy tobacco, whereas few of them bought it from shop or store or from a street vendor similar result was found by Varun *et al.*[9]Most of SLT users have seen the health warnings on smokeless tobacco packages and it led them to think about quitting smokeless tobacco. As per the second round of Global Adult Tobacco Survey (GATS-2, 2016-17) conducted in the age group 15 years and above, around half of current smokeless tobacco users thought about quitting because of warning label on packets of smokeless tobacco [17]. The promotion of tobacco products (e.g. provision of free smokeless tobacco) has been non-existent for decades, so was observed by this study. No one from the tobacco company has ever offered free smokeless tobacco to 575 students. Few of SLT nonusers agree that they might enjoy using smokeless tobacco and are at the urge of starting it, so it is important to focus on these group of children and motivating them for not to start using smokeless tobacco. The results in this study indicate that school based behavioural interventions can play significant role in several psychosocial environments. Awareness programs can be launched and parents, teachers and peer groups may be involved to educate about the consequences of tobacco use, this will enhance their personality and will leave a significant impact on well-being of child. Additional research in this area can help in identifying and promoting targeted interventions to benefit the society at large.

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