PREVALENCE AND FACTORS ASSOCIATED WITH SMOKELESS TOBACCO USE AMONG ADOLESCENTS LIVING IN TEA GARDENS OF DIBRUGARH DISTRICT, ASSAM- A CROSS-SECTIONAL STUDY

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ABSTRACT

BACKGROUND

Tobacco epidemic is a matter of concern across the globe. Use of smokeless tobacco products pose a major challenge, as they are used in a variety of forms. Preventing smokeless tobacco use at adolescent age would provide an opportunity in prevention of non-communicable diseases, particularly cancer.

The objective of this study is to assess the prevalence and factors associated with smokeless tobacco use among adolescents living in tea gardens of Dibrugarh district, Assam.

MATERIALS AND METHODS

A community-based, cross-sectional study conducted from June 2016 to May 2017. Multistage sampling method was used to select 4 out of 144 tea gardens of Dibrugarh district of Assam. Data was collected by house-to-house survey using a pre-tested, pre-designed proforma, interviewing 400 adolescents (both boys and girls). Bivariate and multivariate regression analysis of factors associated with smokeless tobacco use was done.

RESULTS

Gutka and khaini were the two smokeless tobacco forms used. Prevalence of current use of gutkha and khaini were 26.2% and 6.2% respectively. Male sex, late adolescent age, school dropouts, tobacco use by friends and ignorance about health hazards of tobacco were associated factors.

CONCLUSION

Smokeless tobacco use among adolescents of tea gardens of Assam is an area of concern and needs appropriate preventive measures to bring down the future morbidities and mortalities.

KEYWORDS

Smokeless Tobacco, Prevalence, Factors, Adolescents, Tea Garden.

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BACKGROUND

Tobacco use is the single greatest preventable cause of death in the world today, killing upto half of its users. Globally, more than 5 million deaths each year are attributed to tobacco use. If the current trend continues, tobacco will kill more than 8 million people per year by 2030. ⁽¹⁾ Use of smokeless tobacco is an important area of public health concern, as it is used in a variety of forms in at least 70 countries and by more than 300 million people. Majority (89%) of the smokeless tobacco users are from South-East Asia Region. ⁽²⁾ According to Global Youth Tobacco survey in India (2009), among school students aged 13 - 15 years the prevalence of smokeless tobacco use was found to be 9.0% (11.1% among boys and 6.0% among girls). ⁽³⁾

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Epidemiological studies suggested the carcinogenic nature of smokeless tobacco products. There are sufficient evidence to prove that smokeless tobacco causes precancerous oral lesions and cancers of the oral cavity, oesophagus and pancreas besides causing addiction. ⁽⁴⁾ Health risks increase with concurrent cigarette smoking.

Adolescence, being a vulnerable age group, the young growing minds fall easy prey to risky behaviours, tobacco use being one of them. The increased initiation of smokeless tobacco products at a young age may be caused by marketing strategies of the tobacco companies and introduction of new and attractive flavoured products. ⁽²⁾ Preventing smokeless tobacco use at adolescent age would provide an opportunity in prevention of non-communicable diseases, particularly cancer. Therefore, it is important to determine the burden of smokeless tobacco use in this age group as well as investigate its associated factors in order to take appropriate preventive measures against its consumption. ⁽⁵⁾

The tea industry is a major industry of Assam, contributing immensely to the state's economy. The tea garden population constitutes approximately 1/5th of the state's population. ⁽⁶⁾ Study conducted by Medhi GK et al (2006) among tea garden youths of Assam found high prevalence of alcohol and tobacco use among them with a prevalence of 38.1% tobacco use in the age group 15 - 19

years. ⁽⁷⁾ Recent research works on smokeless tobacco use among adolescents of tea garden community are scarce. Thus, the present study is undertaken to assess the prevalence and factors associated with smokeless tobacco use among adolescents living in tea gardens of Dibrugarh district of Assam.

MATERIALS AND METHODS

Study Setting

The study was conducted in Dibrugarh district of Assam, which is also known as the 'Tea city of the North-East.' Dibrugarh district boasts of the highest amount of tea production in India with a total of 144 tea gardens, several of them dating back to the British era. The district has 7 development blocks. ⁽⁸⁾ It was a community-based cross-sectional study conducted from June 2016 to May 2017 among the adolescent boys and girls residing in tea gardens of the district.

Sample Size

The sample size was calculated by using the formula $n = z^2 pq / d^2$, where $z = 1.96$, $p =$ anticipated prevalence, $q = 1 - p$, $d =$ allowable error. Taking prevalence of smokeless tobacco use among tea garden youths (p) 52.5% ⁽⁷⁾ with 10% relative error (d) and 95% confidence interval, the sample size was found to be 362. Considering 10% non-response rate and rounding up the required sample size turned out to be 400.

Sampling Design

Multistage sampling technique was used. Out of the 7 development blocks of the district, one block Lahoal was selected randomly which comprises of 18 tea gardens. Each tea garden of the block has an average adolescent population of 100. Therefore, from the list of tea gardens of the selected block, 4 tea gardens were selected randomly to meet the sample size of 400. Then from each tea garden, 100 adolescents were selected by house-to-house visit.

Ethical Issues

Ethical clearance was obtained from the Institutional Ethics Committee (H) of Assam Medical College and Hospital, Dibrugarh. A written informed consent was obtained from adolescents aged 18 - 19 years and for 10 - 17 years adolescent boys and girls, assent was obtained from the study participants and a written informed consent from the guardians was obtained prior to the commencement of the study.

Data Collection

In each household, the presence of an adolescent boy or girl was ascertained and if present he or she was included in the study. Those adolescents not willing to give consent, severely ill, absent at the time of visit and pregnant adolescent girls were excluded from the study. The study participants were carefully briefed about the purpose of the study to ensure their full cooperation. Data was collected by interviewing the study participants using a pre-designed and pre-tested

proforma. Questions on the use of common forms of smokeless tobacco namely gutka (mixture of areca nut, powdered tobacco, catechu and flavouring agents available in packets under different trade names), khaini (mixture of dried tobacco leaves and slaked lime) and pan with tobacco were included in the proforma.

Statistics

The study population was described by using rates, proportions, mean and standard deviation. Data was entered into SPSS, version 16.0 software. Analysis was done by using bivariate and multivariate logistic regression.

Working Definitions

Ever User

The study participant has used the smokeless tobacco form one or more times in his/ her life.

Current User

The study participant has used the smokeless tobacco form at least once during the past 30 days preceding the study.

Never User

The study participant has never used smokeless tobacco in his/ her life.

RESULTS

Out of the 400 study participants, 217 (54.2%) were adolescent boys and 183 (45.8%) were adolescent girls. The mean age group was 15.12 ± 2.59 years (range 10 - 19 years). Only 1.7% of the participants were illiterate, while 23.7% were school dropouts. The socio-demographic characteristics of the participants are shown in Table 1.

Gutka and khaini were the two smokeless tobacco forms consumed by the study participants. The prevalence of ever use of gutka and khaini were 28.3% and 8.7% respectively and current use of gutka and khaini were 26.2% and 6.2% respectively (Table 2). Gutka was the predominant smokeless tobacco form used. High prevalence was seen among the adolescent boys (46.1% were current gutka users) as compared to 2.7% adolescent girls currently using gutka. The participants preferred to use the cheaper smokeless tobacco products.

On bivariate analysis, it was revealed that late adolescent age group, male sex, school drop-outs, tobacco use by friends, lack of knowledge about health hazards of tobacco and not viewing any anti-tobacco messages on television were the factors found to be significantly associated with current gutka use (Table 3). After adjusting these variables to each other in the multivariate analysis, the most important factors associated with current gutka use were found to be male sex (AOR 37.58: 95% CI 13.16 - 107.30), tobacco use by friends (AOR 33.80: 95% CI 3.32 - 343.74) and late adolescent age group (AOR 8.22: 95% CI 3.15 - 21.43). School drop-outs, not viewing any anti-tobacco messages on TV and lack of knowledge on health hazards of tobacco were other associated factors (Table 4).

Socio-Demographic Characteristics		Number	%
Age Group (in years)	10-14	142	35.5
	15-19	258	64.5
Sex	Male	217	54.2
	Female	183	45.8
Religion	Hindu	373	93.3
	Christian	27	6.7
Marital Status	Married	7	1.7
	Unmarried	393	98.3
Educational Status	Illiterate	7	1.7
	Primary School	115	28.8
	Literate, but Below Primary	57	14.3
	Middle School	175	43.7
	High School	27	6.8
	Higher Secondary	19	4.7
Socio-Economic Class	Class III	15	3.8
	Class IV	262	65.5
	Class V	123	30.7
Type of Family	Nuclear	262	65.5
	Joint	138	34.5

Table 1. Distribution of Study Participants according to Socio-Demographic Characteristics

Type of Smokeless Tobacco	Ever User		Current User	
	Number	%	Number	%
Gutka	113	28.3	105	26.2
Khaini	35	8.7	25	6.2

Table 2. Distribution of Ever Use and Current Use of Smokeless Tobacco

Variables		Current Use		Odd's Ratio 95% CI	P-value
		Yes (%)	No (%)		
Age Group (in years)	10-14	13 (9.2)	129 (90.8)	Reference	0.000
	15-19	92 (35.7)	166 (64.3)	5.50 (2.94-10.27)	
Sex	Female	5 (2.7)	178 (97.3)	Reference	0.000
	Male	100 (46.1)	117 (53.9)	30.42 (12.63-76.96)	
Drop Out of School	No	58 (19.0)	247 (81.0)	Reference	0.000
	Yes	47 (49.5)	48 (50.5)	4.17 (2.54-6.83)	
Father's Education	Illiterate	23 (21.1)	86 (78.9)	Reference	0.153
	Literate	82 (28.2)	209 (71.8)	1.46 (0.86-2.48)	
Mother's Education	Illiterate	68 (26.0)	194 (74.0)	Reference	0.853
	Literate	37 (26.8)	101 (73.2)	1.04 (0.65-1.66)	
Type of Family	Nuclear	75 (28.8)	187 (71.4)	0.69 (0.42-1.12)	0.138
	Joint	30 (21.7)	108 (78.3)	Reference	
Socio-Economic Class	Class III	5 (33.3)	10 (66.7)	1.54 (0.50-4.69)	0.538
	Class IV	64 (24.4)	198 (75.6)	Reference	
	Class V	36 (29.3)	87 (70.7)	1.28 (0.79-2.06)	0.312
Tobacco Use by Friends	No	1 (0.7%)	135 (99.3)	Reference	0.000
	Yes	104 (39.4)	160 (60.6)	87.75 (12.08-637.23)	
Tobacco Use by Family Members	No	8 (22.2)	28 (77.8)	Reference	0.566
	Yes	97 (26.6)	267 (73.4)	1.27 (0.56-2.88)	
Knowledge about Hazards of Tobacco	Yes	55 (21.1)	206 (78.9)	Reference	0.001
	No	50 (36.0)	89 (64.0)	2.10 (1.33-3.32)	
Seen Anti-Tobacco Messages on TV	Yes	73 (23.5)	238 (76.5)	Reference	0.019
	No	32 (36.0)	57 (64.0)	1.83 (1.10-3.03)	

Table 3. Bivariate Analysis of Factors associated with current Gutka use among the Study Participants

Variables		Adjusted Odd's Ratio (95% CI)	P-value
Age Group (in years)	10-14		0.000
	15-19	8.22 (3.15 – 21.43)	
Sex	Female		0.000
	Male	37.58 (13.16 – 107.30)	
Drop Out of School	No		0.002
	Yes	3.21 (1.54 – 6.68)	
Tobacco Use by Friends	No		0.003
	Yes	33.80 (3.32 – 343.74)	
Knowledge about Hazards of Tobacco	Yes		0.031
	No	2.21 (1.07 – 4.56)	
Seen Anti-Tobacco Messages on TV	Yes		0.001
	No	4.97 (1.99 – 12.29)	

Table 4. Multivariate Analysis of Factors associated with current Gutka use among the Study Participants

DISCUSSION

In the present study, the prevalence of ever use and current use of gutka were 28.3% and 26.2%, respectively. Prevalence of gutka use among the adolescent boys and girls were 46.1% and 2.7% respectively. Bhaskar RK et al (2016) in their study in Kalaiya, Nepal found 8.4% gutka use among the study participants, which is lower than the present study finding.⁽⁹⁾ Bardhan T et al (2015) in their study in Guwahati, Assam found 83.4% prevalence of gutka use and Kamate RP et al (2017) in their study in Belagavi, Karnataka observed 78.87% prevalence of smokeless tobacco which were higher than the present study finding.^{(10), (11)}

Prevalence of ever users and current users of khaini in the present study were found to be 8.7% and 6.2% respectively. Studies done by Bhaskar RK et al and Bardhan T et al found the prevalence of khaini use among adolescents to be 9.2% and 9.7% respectively, which were consistent with the present study finding.^{(9), (10)} Khaini use is an age-old practice among the tea garden population of Assam. The tea garden workers use it while they pluck tea leaves in the gardens. They believed that using khaini would help in easy healing of insect bite wounds, which they get during work. They also used khaini to feel fresh to start the day. The present study findings suggest that khaini use start right from the adolescent age in the tea garden population. Easy availability and accessibility of smokeless tobacco products also contribute to their use.

Multivariate analysis revealed that gutka use was found to be associated significantly with late adolescent age group, male sex, school drop-out, tobacco use by friends, lack of knowledge about hazards of tobacco use and not viewing any anti-tobacco messages on television. Almost similar findings were obtained by Bhaskar RK et al in their study which showed significant association of tobacco use with male sex, family members using tobacco and exposure to tobacco use at home on multivariate analysis.⁽⁹⁾ Study by Kumar V et al (2014) in Delhi showed that on bivariate analysis male sex, socio-economic class and those getting higher pocket money were significantly associated with current tobacco use.⁽¹²⁾

CONCLUSION

The present study brings to light the prevalence and factors associated with smokeless tobacco use among adolescent boys and girls of the tea garden community. Prevalence was significantly high among the late adolescent age group, the adolescent boys and the school drop-outs. Tobacco use by peer groups and poor knowledge about adverse health effects

of tobacco also influenced its use. Appropriate preventive measures is the need of the hour to address tobacco addiction among adolescents to prevent future morbidities and mortalities. The adolescents should be educated and counselled regarding the short-term and long-term harmful effects of tobacco use. Parents, teachers and media can play an important role in this regard. Adolescent clubs and non-government organisations can be utilised to reach the out of school adolescents. Strict implementation of tobacco control legislations can further help to curb down the use of tobacco products among adolescents.

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