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Prevalence of Tobacco Dependence and Problem Drinking Among Workers in a Tea Plantation in South India

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ABSTRACT

Introduction: The use of tobacco and alcohol is increasing in developing countries like India. There is an urgent need to understand about these health risk behaviours among vulnerable population like plantation workers. The objective of the study was to screen the tea plantation workers for tobacco dependence and problem drinking

Methodology: This cross sectional study was conducted between January and March, 2013 and included 315 workers. The study tools were CAGE (Cut Down, Annoyed, Guilty and Eye Opener), AUDIT (Alcohol Use Disorders Identification Test) and FTND (Fagerstrom Test for Nicotine Dependence).

Results: The prevalence of tobacco and alcohol use was 40% and 7.3% respectively. As assessed by FTND, 52.90% and 47.1% were in the low and medium risk categories for tobacco dependence. Age, gender, educational status and duration of work in plantation were found to be associated with tobacco use. Among alcohol users, 8.69% screened positive for problem drinking and 34.8 % had a greater likelihood of harmful drinking.

Conclusion and Recommendation: Given the rising trend of Non-Communicable diseases in India, modifiable risk factors such as tobacco and alcohol use which were high in this study group need to be controlled.

Key words: Alcohol use, dependence, South India, tea plantation workers, tobacco use.

INTRODUCTION

Drug abuse is one of the most common health problem that modern society has come across.Tobacco is the most widely abused drug in the world.[1] This devastating epidemic has affected the countries and regions that can least afford its health, social and economic effects.[2] Tobacco use is the leading cause of majority of the noncommunicable diseases and preventable deaths in our country. [3,4] In India tobacco accounts for almost a million deaths every year.[4, 5] The Global Adult Tobacco Survey (GATS) done in 2010 revealed that more than one out of three adults in India (35%) used tobacco in some form or the other. Any form of tobacco use is dangerous and can lead to physical and psychological dependence. In India, khaini or tobacco-lime mixture (12%) and bidi (9%) were the most commonly used smokeless and smoked form of tobacco [6, 7]

In addition to the abuse of tobacco, alcohol consumption is also on rise in many countries; Alcohol consumption imposes a considerable global bur-

den in terms of morbidity and mortality. Nearly one third of the people who consume alcoholic beverages worldwide are reported to have one or more diagnosable alcohol use disorders. 3.2% of all deaths and loss of 4% of total DALYs can be attributed to the effect of alcohol consumption. [8, 9] In India, the estimated numbers of alcohol users in 2005 were 62.5 million (21.4%), with 17.4% of them (10.6 million) being dependent users. [8, 9, 10]

Most tobacco and alcohol related diseases have a long latency period, early management of these risk factors in the form of primary prevention is beneficial in controlling these diseases and prevent deaths. Very few studies have been done to identify the extent and pattern of alcohol and tobacco dependence among tea plantation workers and there is lack of adequate information regarding the same. So the current study was carried out with a primary objective of assessing the prevalence of tobacco use and level of nicotine dependence among workers in a tea plantation in South India. The secondary objective was to screen them for problem drinking and potential alcohol problems

METHODOLOGY

A cross-sectional study was conducted from January to March 2013 in a tea estate located in the Anamallai Hills of Coimbatore District in Tamil Nadu, South India. According to the Global Adult Tobacco Survey, prevalence of tobacco use in Tamil Nadu was found to be 16.2%. [11] With 95% confidence interval and 5% absolute precision, sample size was calculated to be 209. However we were able to interview 315 workers. All workers of the tea estate above age group of 18 years were included in the study. The study tools included a structured interview schedule, which assisted in collecting relevant data from the respondents. The schedule had five parts.

Part 1: Socio-Demographic details and the study variables
Part 2: CAGE (Cut Down, Annoyed, Guilty and Eye Opener)
Part 3: History of Alcohol use and AUDIT Questionnaire (Alcohol Use Disorders Identification Test)
Part 4: History of use of smoking form of tobacco and Fagerstrom test for nicotine dependence (FTND)
Part 5: History of use of smokeless form of tobacco and Karl Fagerstrom Test for Nicotine Dependance Smokeless Tobacco Questionnaire (FTND-ST)

A) Demographic details and the study variables: duration of work, type and pattern of usage of tobacco and alcohol.

B) CAGE - It is a validated screening test used to screen for problem drinking and potential alcohol problems. It is a 4 item questionnaire. Individual item responses are scored 0 if the person answers "no" and 1 if the person answers "yes". The total score can range from 0 to 4. Cut off score of 2 or greater is considered clinically significant. [12]

C) AUDIT - It is a validated 10 item questionnaire used for screening excessive drinking and to assist in brief assessment. Each of the questions has a set of responses to choose from, and each response has a score ranging from 0 to 4. AUDIT scores in the range of 8-15 represented a medium level of alcohol problems whereas scores of 16 and above represented a high level of alcohol problems. [13]

D) FTND: It is a validated questionnaire to assess the dependence of nicotine (smoked form). It was used in the study to assess dependence on smoking form of nicotine as a risk factor. It was administered to those who reported the use of smoking form of tobacco. It contains 6 questions. Total score ranges from 0 to 10 with scores corresponding to various levels of dependence: Low: 0-3; Medium: 4-6; High: 7-10. [9, 10, 11]

E) FTND-ST: It is a validated questionnaire to assess the dependence of nicotine (smokeless form of tobacco). It was used in the study to assess dependence on smokeless form of nicotine as a risk factor. It was administered to those who reported to use of smokeless form of tobacco. It contains 6 questions. Total score ranges from 0 to 10 with scores corresponding to various levels of dependence: Low: 0-3; Medium: 4-6; High: 7-10. [14, 15, 16]

Workers who fulfilled the inclusion criteria were selected by consecutive sampling. After obtaining written informed consent, interview schedule was administered to them and data was collected.

Statistics and analysis of the data: The data was coded and entered in Microsoft Excel and all the statistical analysis was performed using Statistical Package for Social Sciences (SPSS). Sample characteristics were described by mean (SD) and N (%) for continuous and categorical variables respectively. Pearson chi-square test and Fisher's exact test were used to find association between two categorical variables. Spearman correlation coefficient was used to find the correlation between outcome and socio demographic variables. Mann Whitney U test was used to compare median between the groups. A p value < 0.05 was considered to be statistically significant.

RESULTS

Demographic details:: Out of the 315 participants interviewed, 261 (82.85%) were females and most

of the participants 245 (77.8%) were in the age group of 20-49 years. The mean age of workers was 43.33 years (SD 7.80 years). Out of 261 female workers 101 (38.7%) were uneducated and most of the male workers 33 (61.1%) had secondary school education. There was a significant difference in the educational status of male and female participants (χ^2= 26.14, p value <0.001). The socio-demographic profile of the study population is shown in Table1.

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Table1: Socio-demographic profile of the study population

Variables	Number (%)
Age (in years)	
20-29	9 (2.8)
30-39	87 (27.6)
40-49	149 (47.3)
50-59	68 (21.6)
>60	2 (0.6)
Education (Highest education attained)	
Uneducated	107 (34)
Class (1-6)	104 (33.0)
Class 7 and above	104 (33.0)
Gender	
Males	54 (17.1)
Females	261 (82.9)
Religion	
Hindu	267 (84.8)
Muslim	3 (0.9)
Christian	45 (14.3)
Type of family	
Nuclear	274 (87)
Joint	41 (13)
Duration of work in plantations	
< 10 years	48 (15.2)
11- 20 years	124 (39.4)
>20 years	143 (45.4)

Table 2: Tobacco dependence among participants

FTND	Smoking form of tobacco (n=17)		Smokeless form of tobacco (n=109)	
	Males(%)	Females(%)	Males(%)	Females(%)
Mild	9 (52.9)	0	4 (66.7)	98 (95.1)
Moderate	8 (47.10)	0	2 (33.3)	5 (4.9)
Total	17 (100)	0	6 (100)	103 (100)

Table 3: Comparison of FTND Scores and educational status

Educational Status	FTND Scores Median(IQR)	P Value
Uneducated	3 (3,3)	<0.001
Educated	2 (0,3)	

Table 4: Correlation of tobacco dependence with age and duration of work

Variables	Correlation coefficient	P value
FTND-ST Scores and age	0.298	0.002
FTND–ST Scores & duration of work	0.253	0.008
FTND Scores & duration of work	0.591	0.04

All participants were currently married. Majority 267 (87.8%) were Hindus and belonged to nuclear family 274 (87%). Most of the participants 266 (84%) were pluckers. Among the 315 study participants, 131 (41.6%) used either tobacco or alcohol and 9 (2.9%) used both tobacco and alcohol

Details of Tobacco use: The current reported use of tobacco in any form was 126 (40.0%) and among them 103 (32.7%) were females and 23 (7.3%) were males. All female workers used only smokeless form of tobacco and majority 17 (73.91%) of males used smoked form of tobacco. The mean age of initiation of smoking form of tobacco was 30.71 years (SD 5.48 years) and smokeless form was 37.7 years (SD 7.20 years). Curiosity and peer pressure were the main reasons to start tobacco use. Tobacco-lime mixture was the most commonly used smokeless tobacco and bidi was most commonly used smoking product among workers. As assessed by FTND, 9 (52.90%) and 8 (47.1%) were in the low and medium risk categories respectively for smoked form and 102 (93.5%) and 7 (6.5%) were in the low and medium risk categories respectively for smokeless form of tobacco. None of the workers were severely dependent on tobacco.

There was a significant difference between the level of nicotine dependence-smokeless form and the type of gender (Fisher's Exact Test, p value =0.048) with 33.3% of males in moderate level of dependence compared to 4.9 % of females (Table 2). There was a significant difference in the FTND-ST mean score betweens educated and uneducated participants (Mann Whitney U Test median score (uneducated) = 3, IQ (3, 3) median score (educated) =2, IQ (0,3) p value <0.001) indicating that uneducated participants were more dependent on smokeless form of tobacco (Table 3). Age and duration of work in plantation showed a positive correlation with FTND-ST scores with correlation coefficient and p value being 0.298 (0.002) and 0.253 (0.008) respectively. Similarly there was a positive correlation between duration of work in plantation and FTND scores (Correlation coefficient =0.591, p value=0.04) (Table 4). There was no significant association between tobacco use and dependence and factors like type of family, income, and religion of plantation workers (p>0.05).

Details of alcohol use

Current reported alcohol consumption was among 23 (7.3%) of all participants and all were males. Mean age of initiation of alcohol consumption was 31.52 years (SD 4.601years). Curiosity and peer pressure were the main reasons to start alcohol consumption.The most common type of alcohol consumed was brandy. As assessed by AUDIT, 8 (34.8%) had a greater likelihood of harmful and hazardous drinking and by CAGE, 2 (8.69%)

screened positive for problem drinking and potential alcohol problems.

There was no significant association between alcohol use and dependence and factors like age, type of family, income, religion, education and duration of work in the plantations (p>0.05).

DISCUSSION

In our study the prevalence of tobacco use and alcohol consumption was found to be 40% and 7.3% respectively. The prevalence was lower than a similar study done by Medhi et al among tea plantation youth workers in Assam. In that study prevalence of tobacco use was 52.5% and the prevalence of alcohol consumption was 32.8%. [17] The prevalence rate is much lower in our study population and this may be due to the better awareness created by health team who works closely with the population. However the prevalence of tobacco use among these plantation workers was higher than that of the general population of India. Nearly 50 % of them were in medium risk category for tobacco dependence (smoked form) also. Global Adult Tobacco Survey in India 2010 showed a prevalence of tobacco use among Indian adults to be 35% which is lower compared to the prevalence in this study population. [6] Substance use may also be influenced by cultural practices and the prevailing cultural norm regarding substance use exerts a powerful influence on the tea workers. Use of alcohol or tobacco is not taboo and culturally acceptable in this Dept of Community. [18] Previous studies also have shown that more than 80% of the adult tea workers used alcohol or tobacco. [19] The principle reason behind the start of alcohol consumption and tobacco use was found to be curiosity and peer pressure in our study which was similar to other study done among tea plantation workers. n the tea workers, adolescents become independent and are more susceptible to peer influence. [17]

National Household survey of alcohol and drug abuse showed that prevalence of alcohol dependence was 17%. [9, 10] The overall prevalence of alcohol consumption among our study population was low (7.4%) . This may be due to the fact that majority of study population were females. In our study, as assessed by AUDIT, 8 (34.8%) had a greater likelihood of harmful and hazardous drinking and by CAGE, 2 (8.69%) screened positive for problem drinking and potential alcohol problems. In our population age, gender, educational status was found to have significant association with tobacco use and dependence. Other studies of India also have found out that illiteracy and lower educational levels were associated with higher use of tobacco and alcohol. The awareness regarding the of tobacco and alcohol was more likely to be low among these groups and are more likely to be exposed to risk taking behaviors, predisposing them to serious diseases. [17,19]

There was no significant association between usage of alcohol and tobacco in any form and marital status while the study done among tea plantation workers in Assam showed an association between them. [17]

Limitation of the study

A limitation of this study was the collection of self-reported information regarding alcohol and tobacco use, which may result in under reporting of substance use.

CONCLUSION

The prevalence of tobacco use was found to be high (40%) among the study population. Nearly 50% of them were in medium risk category for tobacco dependence.The prevalence of alcohol use was found to be 7.3%. . Among alcohol users, 8.69% screened positive for problem drinking and 34.8 % had a greater likelihood of harmful drinking.Age, gender, educational status and duration of work in plantation were found to be associated with this risky behaviours.

Recommendations

Given the rising trend of non-communicable diseases in India, modifiable risk factors such as tobacco and alcohol use which were high in this study group needs to be regulated. Health education sessions were organized for both men and women tea plantation workers to create awareness regarding the harmful effects of tobacco and alcohol use.

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