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Prevalence and Associated Factors of Alcoholism among Tuberculosis Patients in Udupi Taluk, Karnataka, India: A Cross Sectional Study

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ABSTRACT

Background: Tuberculosis (TB) is a major public health problem in India. Several studies carried out in India have shown alcoholism as a risk factor for tuberculosis mortality, factor for default in TB and reason for non-compliance under the Revised National Tuberculosis Control Program (RNTCP). The aim of this study was to assess the prevalence, pattern and associated factors of alcohol use among tuberculosis patients in Udupi taluk, Karnataka, India.

Methods: A cross-sectional study was conducted with the complete enumeration of all the cases undergoing Directly Observed Treatment Short-course (DOTS) treatment in Primary Health Centre and Community Health Centre of Udupi taluk from March to April 2013. Interview was conducted to obtain the socio-demographic and health information and participants were screened using WHO developed Alcohol Use Disorders Identification Test (AUDIT) for alcohol use.

Results: Out of 123 participants, 78% were males, 86.2% were Hindu, 79.7% were married and 88.6% were from low socio-economic status. About 20.3% (n=25) participants were alcoholic. Among them, 44% were low risk drinkers, 32% were hazardous drinkers, 4% were harmful drinkers and 20% were alcohol dependent. Age, sex, occupation, tobacco use, perceived health status and discrimination due to tuberculosis positive status were significantly associated with alcohol use. On logistic regression sex, tobacco use, perceived health status and facing discrimination due infection with tuberculosis were found to be factors associated with alcohol use.

Conclusions: This study found a high prevalence of alcoholism among tuberculosis patients which is of concern and has to be addressed.

Keywords: alcoholism; alcohol use disorder identification test; tuberculosis.

INTRODUCTION

Tuberculosis is an infectious disease caused by *Mycobacterium tuberculosis*. Global studies on alcoholism among tuberculosis patients have found alcoholism to alter pharmacokinetics of medicines used in the treatment of tuberculosis (TB), higher rate of defaults during the treatment and development of drug-resistant forms of TB.[1-7] Studies carried out in India have found alcoholism to be a risk factor for TB mortality, factor for default in TB and reason for non-compliance under RNTCP.[8-10] These findings are corroborated by research from The Tuberculosis Research Centre (TRC) in India, who report alcoholism as a major underlying factor associated with default and mortality among TB patients.[11,12]

Prevalence of current use of alcohol among the general population was 13% in Udupi taluk in 2011.[13] There is paucity of documented evidence on the prevalence of alcohol use among tuberculosis patients. The present study was carried out to assess the prevalence, patterns and associated factors of alcoholism among tuberculosis patients in Udupi taluk.

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METHODS

This study was carried out in southern India in Udupi taluk of Udupi district, Karnataka. A cross-sectional study was carried out in Primary health centres and Community health centres of Udupi taluk, Karnataka for duration of two month from March to April 2013. Primary and community health centres are the peripheral level health institution facility at community level. The study participants comprised of 123 TB patients who were registered for TB treatment in PHC and CHCs of Udupi taluk. Complete enumeration of all the TB cases was done. Ethical approval was obtained from the institutional ethics committee of Kasturba Hospital, Manipal University. Written informed consent was taken from all the participants before the interview and one copy of consent was provided to participants as well.

Paediatric tuberculosis cases, participants with medically verified psychological disorders and seriously ill participants who were not able to respond to the questionnaire were excluded from the study. A semi-structured questionnaire was designed following literature review and expert opinion from district tuberculosis officer. Pretesting of tool was done to validate the tool. Uday Parikh scale was used to assess the socio-economic status of the respondents. In this study Alcohol use disorder identification test (AUDIT) developed by WHO was used to assess the pattern of alcohol use among tuberculosis patients. AUDIT was developed by World Health Organization and the revised second edition was published in 2001. It has three domains to identify harmful, hazardous drinking and alcohol dependence. Score of individual items are added to get total score which ranges from 0 to 40. Scores greater than 20 indicates alcohol dependence (WHO, 2001).[14] In this study the cronbach's alpha for AUDIT tool was 0.80 which is considered to be significant. Interview was conducted by trained data collectors who were conversant in the local language Kannada to collect information from participants. Data was entered and analysed in SPSS version 15 (Chicago, IL). Results were tabulated using frequency distribution and proportion. Chi-square test was used to assess the associations of alcoholism with selected variables. Unadjusted odds ratio was calculated to find out the associated factors of alcoholism. Odds ratio is reported along with 95% confidence interval.

RESULTS

Majority of the respondents (44.7%) were in the age group of 35-54 years with a higher proportion of males (78%) compared to females (22%). More than three-fourths of the respondents (79.7%) were married. Majority of the respondents (88.6%) were from low socio economic status. About one-fourth (23.6%) of the respondents perceived that their health was poor and 13.8% of the respondents had faced discrimination as a participant with tuberculosis (Table 1).

Table 1: Baseline characteristics of the respondents

Variables	(n=123)	%
Age		
16 - 34 Years	32	26
35 - 54 Years	55	44.7
55 and Above	36	29.3
Sex		
Male	96	78
Female	27	22
Marital Status		
Single	24	19.5
Married	98	79.7
Widow	1	0.8
Education		
No Education	33	26.8
Primary	54	43.9
Secondary	20	16.3
Pre University College and Above	16	13.0
Socio economic Status		
Low Socioeconomic Status	109	88.6
Middle Socioeconomic Status	14	11.4
Perceived Health Status		
Good	94	76.4
Poor	29	23.6
Faced Discrimination		
Yes	17	13.8
No	106	86.2
Tobacco Use		
Yes	33	26.8
No	90	73.2

The overall prevalence of alcoholism among the participants was 20.3%. The mean age of initiation of alcohol use was 21.92±5.18 years. Of the total of 25 participants who consumed alcohol, 44% of respondents were low risk drinkers, 32% hazardous drinkers, 4% were harmful drinkers and 20% were alcohol dependent. The mean AUDIT score of the respondents was 12.08±8.02 with 56% of those consuming alcohol having an AUDIT score greater than 8 (Figure 1).

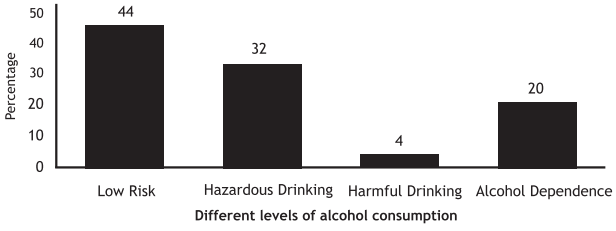

Figure 1: Bar diagram showing distribution of respondents according to level of alcoholism (n=25)

Prevalence of alcoholism was significantly higher (34.5%) in age group of 35-54 years (=12.43, p=0.002). Males showed higher alcohol consumption (25%) in comparison with females (3.7%) which was statistically significant (=5.902, p = 0.015). Chances of being alcoholic among men was eight times more as compared to females OR=8.7 (1.1-67.3). Consumption of alcohol was highest among those engaged in daily wages work (33.3%) which was again statistically significant (p=0.025). Tuberculosis patients who consumed any form of tobacco showed significantly higher (51.5%) use of alcohol (=27.09, p<0.001). and were 10 times more likely to be alcoholic than participants who did not use tobacco OR=10.8 (4-29.5). Prevalence of alcoholism was also significantly higher (62.1%) among those who perceived their health as poor than in comparison with those who perceived their health as good (7.4%) (=40.83, p<0.001). Chances of being alcoholic among tuberculosis patients who perceived their health as poor was 20 times higher compared to participants who perceived their health as good OR=20.3 (6.9-59.5). Proportion of alcoholism was higher (70.6%) among participants who faced any form of discrimination being a TB patient (p<0.001). Participants who had faced any form of discrimination being a TB patient were 17 times at greater risk of being alcoholic compared to participants who had not faced any form of discrimination OR=17.1 (5.2-56.6) (Table 2).

Table 2: Prevalence of alcoholism and its association with certain risk factors among TB patients

Variables	Total N (%)	Yes N (%)	C I (Prevalence)	P value (x^2 / Exact)	OR(95% CI), p value
Age					
16 - 34 Years	32(100)	3 (9.4)	2.5 - 26.1	0.002	-
35 - 54 Years	55(100)	19 (34.5)	34.5 - 48.7		
55 and Above	36(100)	3 (8.3)	2.1 - 23.5		
Sex					
Male	96(100)	24 (25)	17 - 35	0.015	8.7(1.1-67.3), 0.039
Female	27(100)	1 (3.7)	0.1-20.9		1
Occupation					
Unemployed	32(100)	3 (9.4)	2.4 - 26.1		
Daily Wages	54(100)	18 (33.3)	21.4 - 47.5	0.025	-
Self Employed	16(100)	2 (12.5)	2.2 - 39.5		
Salaried	12(100)	2 (16.7)	3 - 49.1		
Others	9(100)	0 (0)	0 - 37.1		
Tobacco use					
Yes	33(100)	17 (51.5)	33.9 - 68.9	< 0.0001	10.8(4 - 29.5), 0.000
No	90(100)	8 (8.9)	4.1 - 17.2		1
Perceived health status					
Poor	29(100)	18 (62.1)	42.3 - 78.7	< 0.0001	20.3(6.9-59.5), 0.000
Good	94(100)	7 (7.4)	3.3 - 15.25		1
Faced discrimination					
Yes	17(100)	12 (70.6)	44 - 88.7	< 0.0001	17.1(5.2-56.6), 0.000
No	106(100)	13 (12.3)	7 - 20.4		1

DISCUSSION

The National Institute on Alcohol Abuse and Alcoholism states that excessive alcohol consumption can affect multiple organs including the brain, heart, liver, pancreas, and the immune system[15]. The Centers for Disease Control (CDC) also supports these findings and elaborates an exhaustive list of possible augmenting effect of alcohol in the development of both short-term and long-term health risks[16]. Lonnroth K. et al., in their systematic review identified three cohort and eighteen case control studies and concluded that the risk of developing active TB was significantly higher in those who consumed more than 40 g alcohol/day and/or had an alcohol use disorder[17]. Similar findings were also supported by Cois A. et al., and Rehm J et al[18, 19]. Alcholism is also evidenced to adversely influence drug adherence among those with active tuberculosis[20, 21].

In this study, the overall prevalence of alcoholism among participants with tuberculosis was 20.3%. It was observed that age, sex, occupation, tobacco use, perceived health status and discrimination due to positive tuberculosis status were significantly associated with alcoholism among the participants of the present study. In a similar study, Suhadev M et al [22] in Chennai found prevalence of 29% alcohol consumption among 490 tuberculosis patients covering 10 corporation zones. They also reported that age, education, income, marital status and treatment category were associated with alcohol use. Peltzer K et al [23] in their study conducted among 4,900 South African participants with tuberculosis found prevalence of 23.2% hazardous and harmful alcohol. In their study, they reported that men with low levels of education, poverty, poorer perceived health, retreatment for TB, tobacco usage and not being on ART were associated with hazardous or harmful alcohol use while among women low formal education, greater levels of poverty, TB retreatment and tobacco users were associated with hazardous or harmful alcohol use. Shin S et al [24] in Russia compared gender with abuse and dependence of alcohol and found 28.3% women and 70.6% men with lifetime alcohol abuse or dependence.

In the present study, of the total of 25 participants consuming alcohol, 44% of respondents were low risk drinkers, 32% were hazardous drinkers, 4% were harmful drinkers and 20% were alcohol dependent. Similar results were reflected in the study conducted by Suhadev M et al [22] where of a total of 141 tuberculosis patients who consumed alcohol, 48% were low risk drinkers, 29% were hazardous drinkers, 7% were harmful drinkers and 16% were alcohol dependent. Peltzer K et al [23] in their study found 76.8% were low risk drinkers, 16.6% were high risk drinkers and 6.6 were alcohol dependent.

The mean AUDIT score of the respondents in the present study was 12.08 ± 8.02 and about 56% had an AUDIT score of greater than 8 which indicates hazardous or harmful use of alcohol and possible alcohol dependence. Suhadev M et al [22] in their study reported 52% of the respondents scoring greater than 8 on the AUDIT score. Peltzer K et al [23] observed mean AUDIT scores of 4.3±8.1 while Shin S et al [24] found mean AUDIT scores of 8.6±9.0 among women and 14.7±8.7 among men.

As the study drew participants accessing services from the Government health facilities the study represented those who sought services at these centers; however, the study did include those participants who may have obtained services at private settings. The findings, therefore, cannot be generalised to all tuberculosis affected individuals. The alcohol content of all drinks could not be standardized so actual percentage of alcohol consumption could not be ascertained.

CONCLUSIONS

High prevalence of alcoholism was found among tuberculosis patients in this study. Given the huge burden of TB in India and the consequences of imbibing alcohol while on treatment, this is a matter of rising concern and has to be addressed by the healthcare providers targeting TB in India. Screening of participants before the initiation of the treatment should be made part of the treatment protocol and a comprehensive alcohol cessation program should be developed for those participants who are alcoholic and continue to indulge in the habit while on treatment.

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