

Opportunistic Screening for Substance Abuse in Primary Health Care Setting in India: An Operational Research

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ABSTRACT

Background: Globally every 10 seconds a person dies from alcohol-related causes including cancers, heart disease, traffic crashes and violence. Tobacco use causes one death every six seconds globally. This study is conducted to assess the prevalence of substance abuse in an urban primary health care setting.

Methods: A multicenter cross-sectional study was conducted in three urban health care and training centers (UHTC) in which adult male OPD attendees were asked about their alcohol consumption and smoking behavior. The FTND questionnaire and the AUDIT scale were used.

Results: Alcohol consumption was present in 63% (95% CI: 58% – 67%) of the male OPD patients. Fifty four percent (95% CI: 48% – 59%) of the alcohol users were in zone I, 24% (95% CI: 19% – 28%) were in zone II (hazardous drinkers), 9% (95% CI: 06% – 13%) in zone III (harmful drinkers) and remaining 13% (95% CI: 9% – 16%) in zone IV (dependent drinkers). Thirty nine percent (95% CI: 34% – 43%) of the male OPD patients were smoking tobacco. Low nicotine dependence was there in 63% (95% CI: 54% – 71%) of the smokers, low to moderate nicotine dependence in 12% (95% CI: 07% – 18%), moderate nicotine dependence in 13% (95% CI: 08%-20%) and high dependence in 11% (95% CI: 06% – 17%) of smokers.

Conclusion: Two third of the adult male OPD attendees were consuming alcohol and one third were smokers. Opportunistic screening for these substance abuses in the OPD of the health care setting identified the people who needed appropriate and equitable care.

Keywords: Alcohol abuse, Smoking, Substance abuse, tobacco use, Urban India

INTRODUCTION

According to WHO substance abuse refers to the harmful use of psychoactive substances which includes alcohol, tobacco and other illicit drugs. ^[1] Globally 2.3 billion people are current drinkers and 18.2% of the global populations are having heavy episodic drinking. ^[2] Heavy episodic drinking is defined as 60 or more grams of pure alcohol consumption on at least one occasion at least once per month. Globally it is estimated that 237 million men and 46

million women have alcohol use disorders. ^[2] In India 17.2% of the population above 15 years are doing heavy episodic drinking which is 5% more among males (28%) when compared to females (5%). ^[2,3] In 2016, 9.1% of the males above 15 years are having alcohol use disorders and 7% are having alcohol dependence. ^[2] It is evident that harmful use of alcohol is an important public health problem especially among males in India and its health consequences are extremely detrimental.

Mortality caused by alcohol consumptions is higher than that caused by other diseases like tuberculosis, HIV/AIDS and diabetes. [2,4] It is estimated that globally every 10 seconds a person dies from alcohol-related causes including cancers, heart disease, traffic crashes and violence. Harmful use of alcohol has caused 1.7 million deaths from non-communicable diseases (NCD) and almost 1 million injury deaths including road traffic accidents, self-harm and interpersonal violence were attributable to alcohol. [2] Alcohol consumption also increases the risk of unsafe sexual behavior and in turn sexually transmitted diseases. Alcohol consumption also causes huge economic losses to the community including costs related to social welfare, health, lost productivity and criminal justice systems. [5,6] WHO has launched a SAFER initiative in 2018 to control alcohol-related death and disability in which five high impact strategies are recommended for implementation. [7] One of the main strategies is to facilitate access to screening, so that early management of alcohol and related disorders is possible.

Using tobacco products is another common substance abuse all over the world. Since it contains nicotine, a highly psychoactive ingredient, it causes physical and psychological dependence. [8] The health consequences of tobacco use are similar to alcohol use and are mentioned above. Tobacco use causes one death every six seconds globally. [9] In 2010, the prevalence of tobacco smoking is as high as 22% among the world's population aged 15+. [9] Based on the prevalence of current tobacco smoking in 2010, it is estimated that 7,39,100 people more than 15 years age will be smoking tobacco in 2025. [10] In India, the prevalence of current tobacco smoking among persons aged 15 years and above was 13.3% in 2010, 11% in 2015 and it is estimated to decrease to 7.9% by 2015. Though the trend is decreasing, 83,514 people will be smoking in 2025. [10] In India, according to Global Adult Tobacco Survey (GAT Survey) 2016-17, the prevalence of

tobacco smoking among men was nearly 10 times higher among adult men (19%) when compared to adult women (2%). [11] Because of second-hand smoke, even the family members and bystanders who are non-smokers are also at risk of having tobacco-related diseases. [12] The GAT Survey has also found that 39% of adults were exposed to second-hand smoke at home and 30% at workplace. [11]

To control the morbidity and mortality due to tobacco and alcohol use, Ask Assess and Address (AAA) policy can be implemented in a primary care outpatient setting. The AAA policy is based on the principle of screening for early diagnosis of substance abuse and its treatment which one of the SAFER strategy recommended by WHO. [7] "Ask" stands for asking about the current smoking and alcohol use. "Assess" stands for assessing the nicotine dependence for smoking and alcohol dependence score for alcohol consumption. "Address" stands for the management of substance abuse based on the dependency levels as per the WHO recommendations. With background, this operational research was conducted to assess the opportunistic screening for substance abuse in OPD of primary health care setting in Delhi.

METHODOLOGY

Study design and Setting:

A multicenter cross-sectional study was conducted in three urban health care and training centers (UHTC) during the month of April 2019. These UHTCs are attached to a medical college in Delhi. These PHCs are providing preventive, promotive and curative care for around hundreds of patients every day. The centers were led by two senior residents and two junior residents of the department of community medicine. Medical interns posted for fifteen days as part of training were involved in outpatient care.

Study population:

The study included all adult males who have attended the outpatient clinic during the study period in the UHTCs.

Sampling and sample size:

PHCs with convenience to conduct the study were selected and all adult male patients seeking care from selected PHCs were included in the study. Considering the expected proportion of alcohol use disorder in male outpatients as 40% with 95% confidence interval, 5% absolute precision and 20% non-response rate, the sample size calculated to be 443. [13] However considering the patient's benefit, all male patients seeking outpatient care during the study period were included in the study.

Study Procedure:

All male patients were provided with initial medical care for their presenting illness after which were explained about the study. Informed consent was taken from the participants before recruiting into the study. Medical interns, junior residents and the senior resident were trained in the Ask Assess and Address (AAA) policy. "Ask" stands for asking about the current smoking and alcohol use. All the study participants were asked about their current smoking and alcohol use behaviors. "Assess" stands for assessing the alcohol use disorder score and nicotine dependence score for smoking. Nicotine dependence was assessed by using the Fagerstrom Test for Nicotine Dependence (FTND). Alcohol use disorder was assessed by using the Alcohol Use Disorder Identification Test (AUDIT) scale. Both FTND and AUDIT are validated and they are also recommended by WHO for use in the primary health care setting. [14,15] "Address" stands for the management of the substance abuse based on the level of nicotine dependence and severity of alcohol use disorder, the study participants were given counseling and referral services appropriately.

FTND is a set of 6 questions to assess nicotine dependence. It has two different questionnaires for smoke and smokeless form of tobacco use. According to the response given by the participants, scores for nicotine dependence could be obtained in the range of 0 to 10. The higher the score, the more intense is the nicotine

dependence. The nicotine dependence is categorized as low dependence (scores 1-2), low to moderate dependence (scores 3-4), moderate dependence (scores 5-7) and high dependence (8 and above). [15] The alcohol use disorder identification test is a set of 10 questions developed by WHO as a tool to assess the harmful pattern of drinking among alcohol users. Each question is scored from 0 to 4 with a maximum possible score of 40 for each individual. Alcohol dependence increases as the AUDIT score increase. The patient's severity of alcohol use disorder is graded as zone I (scores 0-7), zone II (scores 8-15), zone III (scores 16-19) and zone IV (scores 20-40). [16] Other basic socio-demographic details and the participant's willingness to quit were also collected.

Statistical Methods:

The data was entered using EpiData software version 3.1 and analysis was done using STATA statistical software version 14 (StataCorp LCC, Lakeway Drive College Station, Texas, USA). [17,18] Continuous variables were summarized with mean (standard deviation (SD)) or median (interquartile range (IQR)) based on the distribution of data. Categorical variables were summarized as proportion. Tobacco use, alcohol use, nicotine dependence and alcohol use disorder were expressed in percentage with 95% confidence interval (CI).

Ethical concerns:

The data was collected as a part of improving the routine care for screening and treating substance abuse considering the health and economic benefit the study participants will get after successful de-addiction services. Informed consent was taken from the study participants. The data collected was anonymous and confidentiality of the data was maintained. At the end of the patient's participation in the study, they were given appropriate counseling and referral services for de-addiction as recommended by the WHO guidelines.

RESULTS

A total of 504 adult males were included in the study out of which 56% belonged to the age group of 31-60 years, 31% were elderly. The mean (SD) age of the study participants was 50.3 (15.8) years. Their median (IQR) education was 8 (3-10) years. The socio-demographic characteristics and alcohol use patterns of the study participants are described in Table 1. Among male OPD patients, 38% were educated above secondary level, 28% were educated up to primary and middle level school education, 13% were educated less than primary level and 21% did not have any formal education. Sixty-three percent of the study participants were unemployed.

The characteristics of adult male OPD patients were described in Table 1. History of alcohol use was present in 63%

(95% CI: 58% – 67%) of the male OPD patients out of which 48% have started using alcohol when they were adolescents. Only 10% of the alcohol users have started using alcohol after the age of 30 years whereas 42% of the alcohol users started their alcohol consumption behavior when they were in the age group of 20 to 30 years. The mean age for starting alcohol consumption among the study participants was 25.4 (10.3) years. Among those who consume alcohol, 61% had less frequent (<7 days) consumption of alcohol in the past 30 days whereas 37% had a very high frequency of alcohol consumption for more than 15 days in the past 30 days. The median (IQR) amount of alcohol consumption on the days when the study participants consumed alcohol was 180 (60-180) ml.

Table 1: Characteristics of adult male OPD patients attending the UHTCs in Delhi, N=504

Characteristics	Frequency	(%)	
Age group (years)	<30	63	(13)
	31 -60	284	(56)
	>60	157	(31)
Education*	No formal education	109	(21)
	Less than Primary	65	(13)
	Primary and Middle	141	(28)
	Secondary and above	189	(38)
Currently employment status	Unemployed	318	(63)
	Employed	186	(37)
History of alcohol use	Present	319	(63)
	Absent	185	(37)
Age of initiation of alcohol use (years)	<20	152	(48)
	20 – 30	133	(42)
	>30	34	(10)
Frequency of alcohol use in the past 30 days	<7 days	196	(61)
	8-14 days	5	(2)
	>15 days	118	(37)
AUDIT Zones	Zone I (0-7)	173	(54)
	Zone II-Hazardous drinking (8-15)	76	(24)
	Zone III-Harmful drinking (16-19)	30	(9)
	Zone IV-Dependent drinking (20-40)	40	(13)
Known patient of NCD	Yes	256	(51)
	No	248	(49)
Type of NCD	Hypertension	133	(52)
	Diabetes	28	(11)
	Both diabetes and hypertension	73	(28)
	Asthma	15	(6)
	Others	7	(3)
Family history of alcohol use	Present	261	(52)
	Absent	243	(48)
Family history of alcohol related illness	Present	99	(20)
	Absent	405	(80)
Willingness to quit alcohol use	Willing	187	(59)
	Not willing	132	(41)

*Less than primary – 1 to 5 years of schooling, Primary and middle - 6 to 8 years, secondary and above - >8 years.

We assessed the prevalence of alcohol use disorders using AUDIT scale and found that 54% (95% CI: 48% – 59%) of those who have ever consumed alcohol were in zone I. Twenty-four percent (95% CI: 19%-28%) of the alcohol users were in zone II, 9% (95% CI: 06%-13%) in zone III and remaining 13% (95% CI: 9% - 16%) in zone IV. The median (IQR) of the AUDIT score was 6 (2-14) among those who drink alcohol.

Fifty-two percent of the study participants had at least one person in their family who consumed alcohol and 20% even had a positive family history of alcohol-related illness. Only 59% of the alcoholic had the intention to quit alcohol use.

The smoking characteristics of the study participants are described in Table 2. Thirty-nine percent (95% CI: 34% – 43%) of the male OPD patients had a history of smoking at least once in the past. Their age

of initiation was less than 20 years for 17%, 20-30 years for 52% and more than 30 years for 31%. The number of cigarettes smoked was less than 10 per day for 78% of the smokers and more than 10 per day for 22% of the smokers. The median (IQR) number of cigarettes smoked per day was 5 (0-10) numbers. Among smokers, 58% were smoking for less than 20 years of duration, 37% were smoking for 20-40 years and the remaining 5% were chronic smokers for more than 40 years. The median (IQR) duration of smoking was 20 (12-30) years. Low nicotine dependence was there in 63% (95% CI: 54% – 71%) of the smokers, low to moderate nicotine dependence in 12% (95% CI: 07% – 18%) of the smokers, moderate nicotine dependence in 13% (95% CI: 08% – 20%) and high dependence in 11% (95% CI: 06% – 17%) of smokers. Family history of smoking was present in 44% of the study participants.

Table 2: Characteristics of smoking among adult male OPD patients attending the UHTCs in Delhi, N=504

Characteristics		Frequency	(%)
History of smoking at least once in the past	Absent	308	(61)
	Present	196	(39)
Age of initiation of smoking	< 20 years	33	(17)
	20-30 years	102	(52)
	>30 years	61	(31)
Number of Cigarettes smoked per day	< 10	152	(78)
	>10	44	(22)
Duration of smoking (years)*	<20	92	(58)
	20 – 40	58	(37)
	>40	8	(5)
Nicotine dependence [#]	Low dependence	90	(63)
	Low to moderate dependence	17	(12)
	Moderate dependence	19	(13)
	High dependence	16	(11)
Family history of smoking	Present	223	(44)
	Absent	281	(56)

[#] only for current smokers (smoking for the past 30 days), n=142
^{*}Those who smoked only once or twice in the past were excluded from the denominator.

Out of 504 study participants, 51% had at least one of the non-communicable diseases of which, 52% had hypertension, 11% had diabetes, 28% had both diabetes and hypertension, 6% had asthma and 3% had other NCDs like epilepsy, chronic obstructive pulmonary disease (COPD).

DISCUSSION

Our study has found that the prevalence of alcohol use was 63% among the male OPD attendees whereas in another study done in South India had a prevalence of 38%. This difference in results might be due to the difference in the study setting. [19] Other studies done in India have found the prevalence was even lesser (9.4%-23.8%). [20,21] Current study was health center-based study whereas the other studies were

community-based study. Since people who already have any illness will come to the health center, the prevalence of alcohol use was higher in our study. The results of our study were similar to other health center based studies done by Sujiv A et al and Bute J et al which have found that lifetime use of alcohol was 57%. [13,22]

Among those who use alcohol, 54% were in the safer zone I and they were the people who did not require any intervention. Twenty-four percent of the alcohol users were in zone II who were given simple advice focused on the reduction of hazardous drinking according to WHO recommendations. Nine percent of the alcohol users were in zone III who were given brief counseling about the reduction of alcohol use and under follow up. Remaining 13% were in zone IV who needed further diagnostic evaluation for alcohol dependence in a de-addiction center and they were referred to the nearby tertiary care hospital.

The current study has found that the prevalence of smoking at least once in the past was 39%. An OPD based study done among adults in the USA has found that 63% were using tobacco. [23] This difference in results might be due to the difference in the study population since western population usage of tobacco smoke is high. Literature available for the prevalence of smoking among general OPD attendees at primary health centers is limited. But in another study done among psychiatric OPD patients the prevalence was 33% which is similar to the current study. [24] A nationwide community-based survey "National Family Health Survey (NFHS)" has found that 29% of the adult males are smoking. [25] In a community-based rural study in Rajasthan (India) it was found that 31% of adult males were smoking. [26] In the GATS survey 2016-17 the prevalence of tobacco smoking was 19% among males. [11] In the current study, tobacco smokers were assessed based on their stage of behavioral change and the nicotine dependence after

which appropriate management was done including referral to the de-addiction center.

From the current study it is evident that the opportunistic screening for substance abuse is a feasible approach to be implemented in a primary health setting to control the morbidity and mortality due to alcohol and tobacco use. The opportunity that the patients are attending the health center with an illness is used to screen them for substance abuse and their management. This opportunistic screening is advantageous to both patients as well as service providers since the patient were more receptive and more adherent to the counseling and advice given to them. This is because they were already suffering from some illness and they wanted to prevent future morbidity. These were the strengths of our study.

There are a few limitations. First, social desirability bias might be there since the patient might not want to reveal their substance abuse behavior because of the fear of being judged. However, this bias was avoided as much as possible by explaining that this study was conducted considering the patient's health and economic benefit. The confidentiality of the study was clearly explained to them and the data collected was anonymous. Second, this was a health facility-based study so we should cautious while extrapolating the results to the community from where the patients are coming. Third, the number of people having substance abuse is very less since we see only the tip of the iceberg. There might more substance abusers in the community who were not having any illness who were missed. A community-based study with a larger sample size needs to be conducted with community-based screening and management. It is also recommended that effective interventions to the smokeless form of tobacco use also needs to be studied since apart from the smoke form of tobacco smokeless form of tobacco are associated with cancers and others non-communicable diseases.

CONCLUSION

To conclude two out of every three adult male patient attending the OPD are using alcohol. Thirteen percent of the alcohol users are having severe alcohol use disorder and they need immediate evaluation for dependence and referral management. One-third of the adult male OPD patient use tobacco and 24% of them are having moderate to high nicotine dependence. The health workers in the primary health care setting need to be trained in identifying and managing them.

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