## Original Article

# Willingness to quit alcohol use and its associated factors among male outpatients attending urban primary health centers in Delhi

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**Abstract:**

**CONTEXT:** Harmful use of alcohol has led to 1.7 million deaths from noncommunicable diseases and 1 million injury deaths including road traffic accidents, self-harm, and interpersonal violence. The opportunistic screening can be used to screen for substance abuse in outpatient department (OPD) attendees of primary health-care (PHC) settings in India.

**AIMS:** This study was conducted to determine the prevalence of willingness to quit alcohol use among alcohol users and factors associated with it.

**SUBJECTS AND METHODS:** A facility-based cross-sectional study was conducted in urban PHCs and willingness to quit alcohol was assessed among the alcohol users. Alcohol Use Disorder Identification Test (AUDIT) scale was used to assess the alcohol use disorder score. Data were entered using Epidata version 3.1 and analyzed using STATA version 14.

**RESULTS:** It is found that two-third of the male OPD patients are using alcohol and 59% of the alcohol users were willing to quit alcohol. Education (adjusted prevalence rate ratio [aPR] = 1.9; 95% confidence interval [CI]: 1.2–2.9), occupation (aPR = 1.4; 95% CI: 1.1–1.8), higher AUDIT scores (aPR = 2.7; 95% CI: 2.2–3.5), frequency of alcohol use (aPR = 1.6; 95% CI: 1.2–2.0), and positive family history of alcohol-related illness times (aPR = 1.6; 95% CI: 1.3–2.0) were significantly associated with willingness to quit alcohol.

**CONCLUSION:** Two-third of the male OPD patients are using alcohol and 59% of the alcohol users were willing to quit alcohol. Education, occupation, higher AUDIT scores, frequency of alcohol use, and positive family history of alcohol-related illness were significantly associated with willingness to quit alcohol.

**Keywords:**

Alcohol abuse, Alcohol Use Disorder Identification Test, intention to quit, operational research, willingness to quit

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## Introduction

The World Health Organization (WHO) has estimated that globally one person dies every 10 s due to alcohol-related causes such as cancers, heart disease, traffic crashes, and violence.[1] The burden of mortality due to alcohol consumptions is even higher than that caused by other diseases such as tuberculosis, HIV/AIDS, and diabetes.[1,2] Harmful use of alcohol has led to 1.7 million deaths from noncommunicable diseases (NCDs) and almost 1 million injury deaths including road traffic accidents, self-harm, and interpersonal violence were attributable to alcohol.[1] Alcohol consumption also leads to sexually

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transmitted infections by increasing the risk of unsafe sexual behavior. Alcohol consumption leads to huge economic losses to the community due to costs related to social welfare, health, lost productivity, and criminal justice systems.[3,4]

According to the WHO, 2.3 billion people are current drinkers globally.[1] Heavy episodic drinking was prevalent in 18.2% of the global population[1] Heavy episodic drinking was defined as ≥60 g of pure alcohol consumption on at least one occasion at least once per month. It is also estimated that globally 237 million men and 46 million women have alcohol use disorders.[1] In a developing country like India, 17.2% of the people >15 years have heavy episodic drinking. Heavy episodic drinking was more among males (28%) when compared to females (5%).[1,5] In India, 9.1% of the males >15 years had alcohol use disorders and 7% had alcohol dependence in the year 2016.[1]

Various community-based studies done in different parts of India have found that the prevalence of alcohol use was ranging from 9.4% to 59.6%.[6-8] With this background, it is obvious that harmful use of alcohol is an important public health problem, especially in developing countries like India. Alcohol consumption is higher among men as compared to women, and men are at higher risk of having alcohol-related morbidity and mortality.

Few facility-based studies done in primary health-care (PHC) settings in India have found that the prevalence of alcohol use among male outpatient department (OPD) attendees were ranging from 38% to 63%.[9-12]

Opportunistic screening represents the possibility and liability of the health-care worker to use his or her numerous contacts with the patients for exercising prevention-related activities.[13] The opportunistic screening can be used to screen for substance abuse in OPD attendees of PHC settings in India.[12] This is in accordance with one of the strategies in WHO's SAFER initiative to control alcohol-related death and disability and facilitate access to screening.[14] Through opportunistic screening for alcohol use, we will be able to identify the alcohol users who are at high risk of having alcohol-related morbidity and mortality. After identification of these alcohol users, the transtheoretical model can be used to assess the individual's stage of behavioral change. The various stages in behavioral change are precontemplation, contemplation, preparation, action, and maintenance. The second stage "contemplation" involves the intention or willingness to start a healthy behavior which is quitting alcohol consumption behavior. There were very limited literatures related to willingness to quit alcohol, but an

analysis from global drug survey data has found that 34.8% of the alcohol users had an intention to reduce alcohol use.[15] There were no literatures related to willingness to quit alcohol in the Indian PHC study setting. Furthermore, the willingness to quit alcohol use can be influenced by various sociodemographic and family-related factors. Identification of the willingness to quit alcohol use and various factors associated with it will help in finding patients at different stages of the behavior change model, thereby helping the health-care provider in making an individualized intervention for behavioral change. With this background, this study was conducted to find the prevalence and factor associated with willingness to quit alcohol use among the alcohol users identified through opportunistic screening among attendees of the OPDs of selected urban health training centres (UHTC) in Delhi.

## Subjects and Methods

### Study design and setting
A cross-sectional study was conducted in three UHTCs from April 1, 2019 to April 30, 2019. These UHTCs are attached to a medical college in Delhi. These UHTCs are providing preventive, promotive, and curative care for around hundreds of patients every day. The centers were led by senior residents and junior residents of the department of community medicine. Medical interns posted in these centers for 15 days as part of the training. These interns were involved in providing outpatient care under the supervision of the senior and junior residents.

### Study population
The study included all adult males attending the outpatient clinic during the study period in the UHTCs and consumed alcohol at least once in their lifetime.

### Sampling and sample size
The UHTCs with convenience to conduct the study were selected, and all adult male patients seeking care from the selected UHTCs were included in the study. With the expected prevalence of willingness to quit alcohol consumption among alcohol users as 34.8%,[15] 95% confidence level, and 15% relative precision, the sample size calculated to be 443.However, considering the patient's benefit, all male patients seeking outpatient care during the study period were included in the study.

### Study tools
Alcohol use disorder was assessed using the Alcohol Use Disorder Identification Test (AUDIT) scale. AUDIT is a validated scale recommended by the WHO for use in the PHC setting.[16] AUDIT has a set of 10 questions developed by the 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 increases. The patient's severity of alcohol use disorder is graded as Zone I (scores 0–7), Zone II – hazardous drinking (scores 8–15), Zone III – harmful drinking (scores 16–19), and Zone IV – dependent drinking (scores 20–40).[17]

### Study procedure

All male patients were provided with initial medical care for their presenting illness, after which they were explained about the study. Informed consent was obtained from the participants before recruiting for the study. Medical interns, junior residents, and the senior residents were trained in using the AUDIT scale to screen the alcohol use disorder. The opportunistic screening was done in which all male OPD attendees were screening for alcohol use. If they were using alcohol, their alcohol dependence was assessed using the AUDIT scale. Their willingness to quit alcohol consumption behavior was assessed. Their sociodemographic details, alcohol consumption behavior, smoking history, alcohol-related morbidity such as NCD, family history of alcohol use, and alcohol-related morbidity were collected using a pretested semi-structured questionnaire. After collecting these details, the study participants were counseled for the cessation of alcohol consumption. The participants who needed specialist intervention were referred to the nearby tertiary health-care center for further management.

### Study variables

The age of the study participants was categorized into <30 years, 31–60 years, and >60 years. Education of the study participants was categorized into no formal education, less than primary level, primary and middle level, and secondary level and above. The age of initiation of alcohol was summarized as mean (standard deviation [SD]) years and also categorized as <20 years, 21–30 years, and >30 years. The frequency of alcohol use in the past 30 days was categorized as <7 days, 8–14 days, and >15 days.

### Statistical methods

The data were entered using EpiData software version 3.1 (EpiData Association, Odense, Denmark), and analysis was done using STATA statistical software version 14 (StataCorp LLC, Lakeway Drive College Station, Texas, USA).[18,19] Continuous variables were summarized with mean (SD) or median (interquartile range [IQR]) based on the distribution of data. Categorical variables were summarized as proportion. The association of various factors with the willingness to quit alcohol use was expressed as prevalence ratio (PR) and adjusted prevalence rate ratio (aPR) along with 95% confidence intervals (95% CIs).[20] $P < 0.05$ was considered statistically significant. For doing multivariate regression

modeling, the frequency of alcohol use was categorized as ≤7 days and >7 days. Adjusted PR was calculated using generalized linear models in which the variables which were significantly associated with willingness to quit alcohol use in univariate analysis were added in the model.[21] The variables included in the model were education, current employment status, age of initiation of alcohol use, frequency of alcohol use, AUDIT zones, presence of NCD, positive family history of alcohol consumption, and positive family history of alcohol-related diseases.

### Ethical concerns

The data were collected as a part of improving the routine medical services in the UHTCs considering the health and economic benefits to the study participants after successful de-addiction services. Informed consent was obtained from the study participants. The data collected were 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

During the study period, 504 adult males attending the OPD were screened for alcohol consumption behavior at least once in the past. Out of these 504 patients, 319 (63%) were using alcohol and these people were included in the study. All the 319 alcohol users were assessed for willingness to quit alcohol and we found that 187 (58.6%) alcohol users had the willingness to quit alcohol.

The mean (SD) age of the study participants was 53 (15) years and median (IQR) years of education was 8 (3–10). The characteristics of the study participants are described in Table 1. Most (54%) of the study participants were in the age group of 31–60 years and 63% of the study participants were educated above primary level. Fifty-nine percentage of the study participants were employed currently. The mean (SD) age for starting alcohol use was 24 (10) years. Alcohol consumption behavior was started before the age of 30 years in 89% of the study participants, among which 48% had started before their teenage. The last consumption of alcohol was present within the past 7 days in 61% of the alcohol users. Based on the AUDIT, 23.8% of the alcohol users were in Zone II (hazardous drinking), 9.4% in Zone III (harmful drinking), and 12.5% were in Zone IV (dependent drinking). Smoking history was present in 48.6% of the alcohol users and NCD was present in 53.6% of the alcohol users.

The association of various factors with the willingness to quit alcohol is described in Table 2. Alcohol users

**Table 1: Characteristics of the male outpatient department patients using alcohol in selected urban health-care and training centers of Delhi, *n*=319**

| Characteristics | Frequency (%) | |
| --- | --- | --- |
| | **Total** | **Willing to quit alcohol** |
| Age group (years) | | |
|   <30 | 30 (9.4) | 18 (60) |
|   31-60 | 172 (53.9) | 101 (58.7) |
|   >60 | 117 (36.7) | 68 (58.1) |
| Education* | | |
|   No formal education | 66 (20.7) | 52 (78.8) |
|   Less than primary | 52 (16.3) | 18 (34.6) |
|   Primary and middle | 96 (30.1) | 43 (44.8) |
|   Secondary and above | 105 (32.9) | 74 (70.5) |
| Currently employment status | | |
|   Unemployed | 132 (41.4) | 65 (49.2) |
|   Employed | 187 (58.6) | 122 (65.2) |
| Age of initiation of alcohol use (years) | | |
|   <20 | 152 (47.6) | 73 (48.0) |
|   21-30 | 133 (41.7) | 101 (75.9) |
|   >30 | 34 (10.7) | 13 (38.2) |
| Frequency of alcohol use in the past 30 days (days) | | |
|   <7 | 196 (61.4) | 136 (69.4) |
|   8-14 | 5 (1.6) | 5 (100) |
|   >15 | 118 (37.0) | 46 (38.9) |
| AUDIT zones | | |
|   Zone I (0-7) | 173 (54.3) | 88 (50.9) |
|   Zone II - hazardous drinking (8-15) | 76 (23.8) | 43 (56.6) |
|   Zone III - harmful drinking (16-19) | 30 (9.4) | 30 (100) |
|   Zone IV - dependent drinking (20-40) | 40 (12.5) | 26 (65.0) |
| Lifetime history of smoking | | |
|   Absent | 164 (51.4) | 104 (63.4) |
|   Present | 155 (48.6) | 83 (53.5) |
| Presence of NCD | | |
|   Present | 171 (53.6) | 89 (52.1) |
|   Absent | 148 (46.4) | 98 (66.2) |
| Type of NCD | | |
|   Hypertension | 89 (27.9) | 41 (46.0) |
|   Diabetes | 16 (5.0) | 15 (93.7) |
|   Both diabetes and hypertension | 58 (18.2) | 33 (56.9) |
|   Others | 156 (48.9) | 98 (62.8) |
| Family history of alcohol use | | |
|   Present | 199 (62.4) | 134 (67.3) |
|   Absent | 120 (37.6) | 53 (44.2) |
| Family history of alcohol related illness | | |
|   Present | 37 (11.6) | 37 (100) |
|   Absent | 282 (88.4) | 150 (53.2) |

*Less than primary - 1-5 years of schooling, Primary and middle - 6-8 years, secondary and above - >8 years. NCD=Noncommunicable disease

with no formal education (PR = 2.2; 95% CI: 1.5–3.3) and education above the secondary level (PR = 2.0; 95% CI: 1.3–3.0) were significantly associated with willingness to quit. However, after adjusting for other variables included in the model, only those who did not have formal education had more prevalence of willingness to quit alcohol use (aPR = 1.9; 95% CI: 1.2–2.9). The alcohol users who were currently employed had a 30% higher prevalence of willingness to quit (aPR = 1.4; 95% CI: 1.1–1.8) as compared to unemployed, and the

strength and significance of this associated remained the same even after adjusting for other variables in the model. The prevalence of willingness to quit alcohol use was 1.6 times (aPR = 1.6; 95% CI: 1.2–2.0) more among those study participants whose frequency of alcohol use was <7 days in the past 30 days as compared to those whose frequency was more than 8 days. This association was also statistically significant even after adjusting for other variables. When compared to alcohol users who were in AUDIT Zone I, those in

**Table 2: Association of various characteristics with willingness to quit alcohol among male out-patient department patients using alcohol in selected urban health care and training centers of Delhi, *n*=319**

| Characteristics | Crude PRR (95% CI) | Adjusted PRR (95% CI) | P |
|---|---|---|---|
| Age group (years) | | | |
| ≤30 | 1.03 (0.7-1.4) | - | - |
| 31-60 | 1.01 (0.8-1.2) | - | - |
| >60 | Reference | - | - |
| Education* | | | |
| No formal education | 2.2 (1.5-3.3) | 1.9 (1.2-2.9) | 0.005 |
| Less than primary | Reference | Reference | - |
| Primary and middle | 1.2 (0.8-1.9) | 1.04 (0.6-1.7) | 0.879 |
| Secondary and above | 2.0 (1.3-3.0) | 1.4 (0.9-2.3) | 0.103 |
| Currently employment status | | | |
| Unemployed | Reference | Reference | - |
| Employed | 1.3 (1.1-1.6) | 1.4 (1.1-1.8) | 0.011 |
| Age of initiation of alcohol use (years) | | | |
| <20 | 1.2 (0.7-1.9) | 1.3 (0.8-2.1) | 0.268 |
| 20-30 | 1.9 (1.2-3.0) | 1.4 (0.9-2.3) | 0.112 |
| >30 | Reference | Reference | - |
| Frequency of alcohol use in the past 30 days (days) | | | |
| ≤7 | 1.6 (1.3-2.1) | 1.6 (1.2-2.0) | <0.001 |
| ≥8 | Reference | Reference | - |
| AUDIT zones | | | |
| Zone I | Reference | Reference | - |
| Zone II | 1.1 (0.8-1.4) | 1.2 (0.9-1.4) | |
| Zone III | 1 | 2.7 (2.1-3.5) | <0.001 |
| Zone IV | 1.2 (0.9-1.6) | 2.3 (1.6-3.4) | <0.001 |
| Lifetime history of smoking | | | |
| Absent | 1.1 (0.9-1.4) | - | - |
| Present | Reference | - | - |
| Known patient of NCD | | | |
| Yes | Reference | Reference | - |
| No | 1.2 (1.1-1.5) | 0.9 (0.7-1.2) | 0.704 |
| Family history of alcohol use | | | |
| Present | 1.5 (1.2-1.9) | 1.1 (0.9-1.4) | 0.227 |
| Absent | Reference | Reference | - |
| Family history of alcohol related illness | | | |
| Present | 1.2 (1.1-1.3) | 1.6 (1.3-2.0) | <0.001 |
| Absent | Reference | Reference | - |

*Less than primary - 1-5 years of schooling, Primary and middle - 6-8 years, secondary and above - >8 years. NCD=Noncommunicable disease, CI=Confidence interval, PRR=Prevalence rate ratio

Zone II, III, and IV had 1.2 (aPR = 1.2; 95% CI: 0.9–1.4), 2.7(aPR = 2.7; 95% CI: 2.2–3.5), and 2.3(aPR = 2.3; 95% CI: 1.6–3.4) times higher prevalence of willingness to quit, respectively. The prevalence rate of willingness to quit was 1.2 times (PR = 1.2; 95% CI: 1.2–2.0) higher among alcohol users who had a positive family history of alcohol-related illness. After adjustment to other variables included in the model, the strength of association has increased to 1.6 times (aPR = 1.6; 95% CI: 1.3–2.0) and it remained statistically significant. Other variables such as age of initiation of alcohol use, presence of NCD, and positive family history of alcohol use which were significantly associated with willingness to quit alcohol in univariate analysis lost their statistical significance after adjusting for other variables included in the model.

## Discussion

Willingness to quit alcohol consumption was present in 58.6% of alcohol users. These were the people who were in the contemplation phase of the transtheoretical model for behavioral change. The potential strategies which need to be focused in this group of OPD attendees were to increase their motivation and encouragement to make specific plans for quitting alcohol.[22] These people should also be guided about the resources available to them for quitting alcohol. For the remaining 41.4% of the alcohol users, increasing their awareness of the need for behavioral change among them and their family members were the strategies. Other studies reporting the willingness to quit alcohol use among UHTC OPD attendees were very limited.

Alcohol users with no formal education had 1.9 times higher prevalence of willingness to quit alcohol as compared to those who had formal education up to the primary level. This might be due to various health education activities being carried out in the UHTCs and mass information, education, and communication activities being done by the government. Among those alcohol users who were educated above the secondary level, the prevalence of willingness to quit alcohol was 2 times higher, but after adjusting for other variables including employment status, it decreased to 1.4 times and lost its statistical significance. This may be explained by employment status which can be correlated with education level. Alcohol users who were currently employed had 1.4 times higher prevalence of willingness to quit in the current study. With 58.6% of the alcohol users currently employed, workplace interventions for the cessation of alcohol use can be successful since workplace offers a target group for prevention campaigns which will help in early intervention, treatment, and also can reduce peer influences.[23]

The current study has found that the prevalence of willingness to quit alcohol was 1.6 times higher among those whose frequency of alcohol use was <7 in the past 30 days. This is a piece of evidence that those who were willing to quit has decreased their frequency of alcohol use. These alcohol users might have been in the preparation/action phase of the transtheoretical model. They have to be assisted with developing and implementing action plans to stop alcohol use.[22] Our study has found that as compared to AUIDT Zone I, the prevalence rate of willingness to quit alcohol use was higher among Zones II, III, and IV. The rate is constantly increasing with the severity of alcohol use disorder. This indirectly indicates the existence of the felt need to quit alcohol among alcohol users in Zones II, III, and IV. The opportunity presented during their visit to the health-care center can be utilized to educate and guide them further for alcohol cessation intervention. As these people are hazardous drinkers, intervention for these hazardous drinkers can lead to greater reduction in alcohol use disorder and alcohol-related disorders. When the alcohol users witness their family member's sufferings from alcohol-related illnesses, the felt need to quit alcohol increases. This might be the reason for the higher prevalence rate of willingness to quit among those who had a positive family history of alcohol-related illness.

Our study had a few strengths. (1) It is the first of its kind of studies which intended to determine the willingness to quit alcohol and the factors associated with it among PHC OPD attendees. (2) AUDIT scale was used to find alcohol use disorder which is validated and recommended for use in PHC settings by the WHO. (3) Since the odds ratio can overestimate the strength of association in cross-sectional studies, PR is used in our study.[24] (4) The study was conducted in UHTC in Delhi and all male OPD attendees were included in the study. Hence, the results can be generalized to other urban PHCs in Delhi and state-level action plans can be developed. There are a few limitations to the study. (1) Since it is a cross-sectional study, the temporal association cannot be inferred from the study. (2) There might be social desirability bias. Underestimation of alcohol users and overestimation of willingness to quit alcohol might be there in the study. However, this is minimized by explaining to the patient that the data were collected only for study purposes, anonymity, the confidentiality of the data collected, and the health and financial benefits the patients are going to get by quitting alcohol.

## Conclusion

Two-third of male OPD patients are using alcohol and 58.6% of the alcohol users were willing to quit alcohol. Education, occupation, higher AUDIT scores, frequency of alcohol use, and positive family history of alcohol-related illness were significantly associated with willingness to quit alcohol. The opportunity that provides when patients are visiting the primary care center for their treatment can be utilized to provide alcohol cessation activities.

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### Conflicts of interest
There are no conflicts of interest.

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