Prevalence of alcohol use disorders in hospitalised male patients

Tejas V. Patel, Mehul J. Brahmbhatt, Ganpat K. Vankar

Summary

Aims: To study the prevalence of alcohol use disorders (AUD) among male patients hospitalised at a tertiary care centre in medical, surgical and orthopaedic trauma wards.

Materials and Methods: A prospective, randomised, cross-sectional study at a tertiary hospital in a state with prohibition policy. Male patients hospitalised in medical, surgical and orthopaedic trauma wards (n=150 in each ward) were screened for AUD using Alcohol Use Disorder Identification Test (AUDIT). A psychiatrist evaluated them as per the DSM-IV-TR criteria. Case records were examined for mention of AUD by the treating physician. Chi squared test and two-tailed t-test were applied appropriately; p<0.05 was considered as indicative of statistically significant difference.

Results: On the whole, prevalence of AUD was 16.9% (in medical in-patients 22%, in surgical in-patients 16% and in orthopaedic in-patients 12.7%). AUDIT had sensitivity of 86.8%, specificity of 95.9% and overall accuracy of 94.4%.

Discussion: AUD is present in at least a fifth of hospitalized patients in an Indian state with prohibition policy. They were poorly recognized by treating physicians. A simple screening by the AUDIT scale when routinely used may increase detection of AUD.

Conclusions: Alcohol use disorders are common among medically ill indoor patients. However, for various reasons AUD is not detected, hence an opportunity for early intervention is wasted.

alcohol use disorders, AUDIT, screening, detection

INTRODUCTION

Alcohol use disorders are among major public health problems concerning both high-income and middle-income countries. According to the World Health Organization (WHO) alcohol consumption is a major risk factor for preventable deaths, especially in men [1] Excess alcohol intake leads to various medical, psychosocial and legal problems. The cost in terms of loss of productivity, health and family problems is immense [2].

Researchers have calculated that the direct and indirect cost associated with alcohol addiction is more than triple the profits derived from alcohol taxation [3]. General hospitals are widely distributed and accessible to most of the population. Therefore, hospitalisation is an excellent opportunity to identify alcohol-related problems and

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initiate interventions. Hospital Physicians can do much to stem the progression of alcohol use disorder (AUD). Evidence indicates that brief interventions by health professionals can reduce alcohol-related problems [4-7]. However, AUD detection rates by physicians are low. Responsible factors may be inadequate knowledge and negative attitudes toward patients with AUD.

Several studies in India as well as other countries had found AUD among significant proportion of indoor patients [8-19]. This study focuses on AUD in hospitalised patients in medical, surgical and orthopaedic wards. It also explores socio-demographic and other correlates of AUD. Gujarat is one of the few states in India where the production, sale and consumption of alcohol is legally prohibited.

METHODS

Setting:

Tertiary care hospital with a capacity of around 5000 beds.

Sample

450 indoor patients, 150 each from medical, surgical and orthopaedic wards.

Inclusion criteria

Male, age 18 years or older.

Exclusion criteria

Female, patients too unwell to participate (for instance, those on a ventilator or confused) and patients who refused to participate in the study.

METHODOLOGY

After a full description of the study to the participants, their written informed consent was obtained. Data were collected via an interview with the indoor patients and their relatives in an isolated room on a general ward. The inter-

view comprised a questionnaire including a sociodemographic data sheet and Alcohol Use Disorders Identification Test (AUDIT). Patients were then interviewed for alcohol use disorders as per DSM IV TR diagnostic criteria. The study lasted for 50 consecutive days. First 3 new daily admissions in the medical, surgical and orthopaedic trauma wards were interviewed.

STUDY INSTRUMENT

Sociodemographic data sheet and AUDIT. Sociodemographic data included patient's name, age, education, occupation, income, religion, family type and locality.

AUDIT

AUDIT consists of 10 questions concerning alcohol consumption in the past 12 months. The total score ranges from 0 to 40, with scores greater than or equal to 8 (the cut-off point generally used in research) indicating that the patient most likely has an AUD or harmful drinking. It is considered a low degree of alcohol problem when the score is up to 7, medium degree when the score is between 8 and 15 and a severe degree when score is above 15. The test has sensitivity between 61 and 96% and specificity between 84 and 96%. AUDIT is considered the gold standard for the diagnosis of AUD in this study [20].

The interviewer reviewed the patients' case history notes to examine whether the medical team had recorded alcohol use. If they had, the reviewer checked whether it had been categorised alcohol use disorder as abuse/dependence or not.

ANALYSIS

Data were analysed with statistical tests including SPSS. Data were tabulated and analysed with a chi squared test for categorical data.

RESULTS

Prevalence of AUD

In a semi-structured interview, out of 450, 76 (16.9%) patients met DSM-IV-TR criteria for cur-

rent alcohol abuse or dependence. Among them, 25 (5.6%) had alcohol abuse and 51 (11.3%) had alcohol dependence. 300 (67%) had never used alcohol and 55 (11%) were social drinkers.
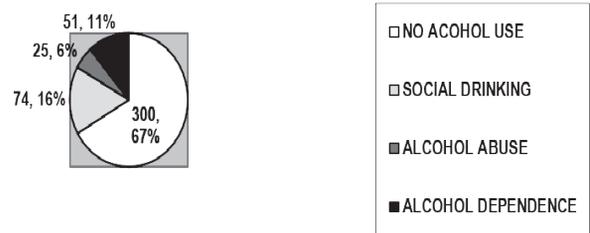

Figure 1: Prevalence of alcohol use disorder

Demographic characteristics and AUD

Table 1. Sociodemographic characteristics

Sociodemographic characteristics	AUD present (n=76) N (%)	AUD not present (n=374) N (%)	Statistics
Current age, years: Range Mean (SD)	19-78 41.49 (13.74)	16-88 43.41 (16.88)	F =1.50929 df(373,75) p=0.03132
Marital status: Single Married Remarried/Widowed/Divorced/Separated/Other	9 (11.8) 65 (85.5) 2 (2.6)	54 (14.4) 316 (84.5) 4 (1.1)	χ^2 =1.468 df=2 p=0.48
Occupation: Professional Semi professional Clerical/shop owner/farmer Skilled worker Semiskilled/ unskilled worker Unskilled worker Unemployed	0 4 (5.3) 5 (6.6) 15 (19.7) 23 (30.3) 22 (28.9) 7 (9.2)	4 (1.1) 7 (1.9) 41 (11) 61 (16.3) 121 (32.4) 96 (25.7) 44 (11.8)	χ^2 =0.7474 df=3 p=0.8620
Education : High-school certificate and above Middle school certificate Primary school certificate Illiterate	18 (23.7) 28 (36.8) 13 (17.1) 17 (22.4)	100 (26.7) 114 (30.5) 94 (25.1) 66 (17.6)	χ^2 =3.51 df=3 P=0.31
Monthly family income in Rs.: Upto 3000 3000-5000 5000-10000 >10000	14 (18.4) 27 (35.5) 26 (34.3) 9 (11.8)	54 (14.4) 142 (38) 147 (38.3) 31 (8.3)	χ^2 = 1.352 df=2 p= 0.50

Religion:			x^2 = 0.3911
Hindu	71 (93.4)	346 (92.5)	df=2
Muslim	4 (5.3)	25 (6.7)	p=0.82
Sikh/Christian/Buddhist/Jain/other	1 (1.3)	3 (0.8)	
Family type:			X2 = 0.01415,
Nuclear	29 (38.2)	140 (37.4)	df=1 ,
Extended/Joint	47 (61.8)	234 (62.6)	p=0.90
Locality :			X2 = 1.675,
Urban	46 (60.5)	196 (52.4)	df=1 ,
Rural	30 (39.5)	178 (47.6)	p=0.19

Rs, Indian rupees.

Among AUD patients the mean age was 41.49 years (range 19–78). They were predominately married. Illiteracy rate is somewhat higher as compared with those without AUD (22.4% vs. 17.6%). Most are Hindus (93.4%), had monthly income below Rs. 5000 (53.9%), belonged to extended families (61.8%) and lived in an urban locality (60.5%).

AUDIT RESPONSES AND PATTERNS OF DRINKING

Table 2. Distribution of AUDIT item scores of all participants (N=450)

Item	0 n (%)	1 n (%)	2 n (%)	3 n (%)	4 n (%)
How often do you have a drink containing alcohol?	300 (66.7)	39 (8.7)	35 (7.8)	23 (5.1)	53 (11.8)
How many units of alcohol do you drink on a typical day when you are drinking?	372 (82.7)	51 (11.3)	19 (4.2)	5 (1.1)	2 (0.4)
How often have you had 6 or more units if female, or 8 or more if male, on a single occasion in the last year?	390 (86.7)	18 (4)	15 (3.3)	15 (3.3)	12 (2.7)
How often during the last year have you found that you were not able to stop drinking once you had started?	400 (88.9)	20 (4.4)	12 (2.7)	10 (2.2)	8 (1.8)
How often during the last year have you failed to do what was normally expected from you because of your drinking?	408 (90.7)	17 (3.8)	13 (2.9)	7 (1.6)	5 (1.1)
How often during the last year have you needed an alcoholic drink in the morning to get yourself going after a heavy drinking session?	407 (90.4)	12 (2.7)	7 (1.6)	11 (2.4)	13 (2.9)
How often during the last year have you had a feeling of guilt or remorse after drinking?	386 (85.8)	19 (4.2)	15 (3.3)	11 (2.4)	19 (4.2)
How often during the last year have you been unable to remember what happened the night before because you had been drinking?	416 (92.4)	14 (3.1)	8 (1.8)	8 (1.8)	4 (0.9)
Have you or somebody else been injured as a result of your drinking?	422 (93.8)	-	15 (3.3)	-	12 (2.7)
Has a relative or friend, doctor or other health worker been concerned about your drinking or suggested that you cut down?	334 (74.2)	-	22 (4.9)	-	94 (20.9)

Among 450 in-patients, 66.7% were teetotallers while in others their frequency of drinking was as followed: 8.7% drinking monthly or less often and 11.8% drinking 4 or more times a week. On a typical day of drinking, 82.7% had 1-2 drinks while 17.3% had 3 or more drinks. Binge drinking (6 or more drinks on a single occasion) daily/occasionally were found in 13.3% patients.

Loss of control over drinking once started daily/occasionally was found in 11.1% patients while failure to do expected work daily/occasionally was found in 9.3% patients. 9.6% patients had a morning drink after a heavy drinking session the night before, while 7.6% had experienced transient blackouts. 14.2% patients had felt remorse after drinking daily/occasionally. As a result of drinking, accidental injury occurred to the patient himself/somebody else in 6.2% of patients ever/in the last year. In case of 25.8% patients, doctor/other people had concerns about the patient's drinking/suggested that he should cut down.

Alcohol use: AUDIT and DSM IV TR criteria

Among 450 indoor patients, 300 had AUDIT score 0, which means they were teetotallers and not experiencing any harm due to alcohol. Among 150 patients with alcohol use, 69 (46%) patients had a low degree of alcohol-related problems, 41 (27.3%) patients had alcohol-related problems of a medium degree and 40 (26.7%) patients had severe alcohol-related problems.

According to DSM-IV-TR criteria, 150 were drinkers, of whom 74 (16.44%) were social drinkers and 76 (16.9%) had AUD. Among the 76 AUD patients, 25 (5.6%) had alcohol abuse and 51 (11.3%) had alcohol dependence.

AUDIT AS SCREENING INSTRUMENT

Table 3. AUDIT

AUDIT SCORE	DSM IV TR AUD present (n=76)	DSM IV TR AUD not present (n=374)
AUDIT score 8 or more (n=81)	66	15
AUDIT score <8 (n=369)	10	359

Sensitivity= 66/76 = 86.8%
Specificity=359/374 = 95.9%
PPV= 66/81 = 81.5%
NPV= 359/369 = 97.3%
Overall accuracy = 425/450 = 94.4%

Several studies have concluded that AUDIT with a cut-off score 8 or more in individuals who had been diagnosed with AUD has sensitivity in a range of 66–97%, specificity 85–96%, PPV 67–85%, NPV 95–99%, and overall accuracy at 86–98% [20-24].

IDENTIFICATION OF AUD PATIENTS BY RESIDENTS

Among 76 patients with AUD, only 45 (59.2%) were identified while 31 (40.8%) were missed by the treating medical team. Among 74 social drinkers only 20 (27.0%) were identified, while 54 (73.0 %) were missed.

Table 4. Department-wide identification by medical staff

DSM IV TR category	Actual no. of patients	Patients identified by medical staff N (%)	% of AUD identified by medical staff
Medicine			75.7
Abuse	10	5 (50)	
Dependence	23	20 (86.9)	

Surgery			54.2
Abuse	9	3 (33.3)	
Dependence	15	10 (66.7)	
Orthopaedics			36.8
Abuse	6	0	
Dependence	13	7 (53.8)	

DISCUSSION

Prevalence of AUD in hospitalised patients

The prevalence of AUD in this study was 16.9% (abuse 5.6% and dependence 11.3%). These figures are comparable with several other studies from very diverse cultures such as the United States, Israel, Taiwan, Brazil and also India [8-19]. It is worth noting that the Indian studies cited are from states where there is no prohibition policy. These findings question the prohibition policy as a measure to curb alcohol-related harm to the community. Alcohol availability is not a problem for the well-off even in Gujarat, but those of modest means may resort to cheaper, locally made alcohol, with increased violation of the law and sporadic deaths by methyl alcohol poisoning [25].

Alcohol abuse can lead to serious physical and psychosocial harm. It also places a significant burden on the workload of hospital services. General hospital workload results from damage not only to the drinker, but also to others affected by excessive drinking, such as those involved in accidents caused by intoxicated drivers. Apart from this, many studies have shown that approximately 20% of patients admitted to hospital for illnesses unrelated to alcohol are consuming alcohol at levels potentially hazardous to their health. These coincidental hazardous drinkers represent the 'potential' or future burden of alcohol misuse on hospital services.

Recent evidence suggests that both groups of patients reduce their alcohol intake with appropriate treatment and thus there is a huge potential for reducing the future burden of alcohol misuse on hospital services. However, considering the high frequency of hazardous drinking in all patients presenting to hospital services, a policy of screening for alcohol misuse should be incorporated into the routine health care in the general hospital setting [24].

Demographic characteristics of patients with AUD

Most patients with AUD were Hindus, of average age of 41 years, and of low socioeconomic status. The patients are from a government-run institution, with many receiving free treatment for groups living below the poverty line. Studies cited earlier had similar findings of sociodemographic detail in regards to age and income, but not for marital and occupational status. In our study most patients were married and had extended families with an urban background. It is possible that having an extended family, with its inherent family support, and being employed led to a continued marital relationship. Our patient population does not conform to the generalisation that most alcohol dependent patients are jobless. Henkel et al. found that unemployment had a strong connection to drinking problems in men, but in our study less than 10% were unemployed [26].

AUDIT as a screening instrument

The overall accuracy of AUDIT in this study was 94.4%. This is comparable to several other international studies which used AUDIT for screening AUD ranging from 86 to 98% [10-13].

There are other screening instruments for identifying AUD in hospitalised patients, such as the CAGE Questionnaire, MAST or Paddington Alcohol Test (PAT). However, AUDIT remains a standard international screening instrument supported by the World Health Organization.

This screening instruments have better accuracy in identifying AUD compared with any biochemical markers, such as like GGT, MCV, AST, CDT.

During his study on the severity of unhealthy alcohol use in hospitalised medical patients, Saitz et al. had observed that 81% of patients who were found positive on screening instruments for alcohol problems were confirmed to be alcohol dependent during a detailed interview [27].

Physicians fail to detect patients with AUD

In this study identification of AUD by treating physicians was variable. In medicine and surgery departments, identification rates were 75.75% and 54.2% respectively. In the orthopaedic department rates were the lowest at 36.8%. The former two departments had a policy to routinely document alcohol use. However, in those two departments the recognition rate was not high and in the orthopaedic department it was very low. Physicians also labelled in their case notes even social drinking as "alcoholism", "drinker", "alcoholic drinker", "chronic alcoholism". Thus they recognised alcohol use but probably did not know the implications of abuse and dependence .

The simplest method of AUD screening would be to encourage doctors to take alcohol use history for all patients admitted to hospital. Of the alternative methods of screening, questionnaires are more sensitive and more economic than currently available laboratory markers. The AUDIT appears to be most suited to use in a general hospital setting. From the available evidence there seems little doubt that using this questionnaire to routinely screen medical admissions would identify significant numbers of hazardous drinkers that would otherwise be missed, thus providing an opportunity for intervention. Routine use of the AUDIT questionnaire as a screening tool in the general hospital would have the added benefit of shifting the focus from alcoholism as a clinical entity, to a public health perspective that emphasises early detection of hazardous drinking before the onset of significant harm.

The effect of AUDIT and brief interventions on alcohol consumption

Routine administration of AUDIT may identify most AUDs and brief interventions can reduce

alcohol consumption significantly in primary care settings [28]

In a recent Cochrane review Kaner et al has recently concluded that for primary care settings there is moderate-quality evidence for efficacy of brief interventions in reducing alcohol consumption in hazardous and harmful drinkers compared with minimal or no intervention. Longer duration of counselling probably has little additional impact [29].

Several studies show that matching the type of brief intervention to the patient's readiness to change is also essential. Spivak et al. found that 77% decreased their drinking when given self-help materials with specific instructions compared with 28% who were given materials with only general advice [30]. For poorly motivated patients, Heather et al. have found that motivational interviewing had a more effective role than specific instructions [31]. Some authors have found that such interventions are also effective in general hospital settings [32]. But a comparison study of efficacy of brief interventions among Polish and Mexican-Americans in the United States has been non-conclusive, especially for heavy episodic drinking in patients presenting to an emergency department [33].

It has been noted that nurses in general practice are underutilised for the detection and management of patients with alcohol misuse, but little is known about their knowledge and attitudes toward alcohol use and misuse [34]. Nurses should be encouraged to become involved in screening for and management of patients with alcohol-related problems in primary care, however, it is important to ensure that nurses receive appropriate training and have adequate back up facilities from physicians and other workers involved in the care of patients with alcohol-related problems [34].

Limitations and future recommendations

The study had a small sample size. Patients with severe alcohol dependence manifesting in the form of complications such as alcohol withdrawal, delirium/seizure or alcoholic dementia may have been lost due to exclusion criteria that might have been screened positively.

Studies at primary care, secondary care and tertiary care centres as well as multiple sites

would more accurately reflect patient population trends besides general population studies on the prevalence of alcohol use disorders.

An interventional study should be conducted, alongside recognition of appropriate health care professionals to intervene regarding prevention of the progression of alcohol use disorder among hospitalised patients. Alcohol screening and brief interventions delivered by nurses or midwives who work in primary health care, hospital settings or antenatal care are among the most effective and cost-effective prevention approaches [35].

SUMMARY AND CONCLUSIONS

Alcohol use disorders present a heavy burden on health care services in many direct as well as indirect forms. This study was carried out to investigate the prevalence of AUD in hospitalised patients and their identification by relevant medical staff.

AUD was present in at least one fifth hospitalised patients. Recognition by treating physicians and surgeons was less than satisfactory, as only 59% were identified and 41% were missed. A simple screening by AUDIT when routinely used may increase detection of AUD. Screening and brief interventions by appropriate health care professionals in the general hospital will detect hazardous drinking before the onset of significant harm and play a major role in reducing the overall burden on health care services.

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