

# Screening for hazardous alcohol use and dependence in psychiatric in-patients using the AUDIT questionnaire

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## Abstract

The Alcohol Use Disorders Identification Test (AUDIT) has been used to screen for hazardous and harmful alcohol consumption among general hospital populations but not in psychiatric patients. Using the AUDIT, we assessed alcohol use in patients with four major types of psychiatric disorder, namely mood, adjustment, anxiety and psychotic disorders. Nine hundred and ninety consecutive admissions to the psychiatric units of two hospitals during a 12-month period underwent assessment. In each diagnostic group a high proportion of patients was alcohol-dependent. Among those with mood disorders 25.4% of men were alcohol-dependent, compared with 16.3% of women, while 34.5% of men with anxiety disorder were alcohol-dependent compared with 25.0% of women. Both gender differences were statistically significant. The differences were even greater for adjustment disorder (44.4% vs. 14.5%) and psychosis (29.2% and 4.2%, respectively). More men than women with anxiety disorder were classified as hazardous (24.1% vs. 11.7%) or harmful drinkers (13.8% vs. 3.3%), but for the other diagnostic groupings the percentages in these drinking categories were more nearly similar. Thus, there is a high rate of excessive alcohol consumption in people with psychiatric disorders, especially males. Such individuals may be particularly vulnerable to complications of alcohol misuse such as suicide and exacerbation of their disorder. The potential for decreased severity of psychiatric symptoms and a reduction in the number of hospital admissions following cessation or reduction in alcohol consumption is considerable. The AUDIT is a simple screening

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## Introduction

Increasingly, clinicians and policy makers are recognizing the importance of detecting and managing problems associated with alcohol prior to the development of major physical or psychosocial damage. While a number of alcohol screening instruments, such as the Michigan Alcohol Screening Test [1], CAGE [2] and LeGo Grid [3] have been developed, these are primarily designed to identify people with alcohol dependence or significant alcohol-related sequelae, rather than the early detection of alcohol problems.

In response to this deficit, a collaborative project was initiated by the World Health Organization (WHO) to develop a simple screening instrument capable of detecting hazardous and harmful alcohol use in a broad range of primary health care settings. By selecting significant questions that focused on alcohol consumption, behaviour and associated problems, a 10-item questionnaire, the Alcohol Use Disorders Identification Test (AUDIT) was developed and is able to screen separately for hazardous or harmful consumption and alcohol dependence [4].

The AUDIT has now been used in a number of general hospital settings including Accident and Emergency Departments [5–7], hospital in-patient facilities and general hospital medical and surgical out-patient departments [8]. Findings of these studies have supported the AUDIT's ability to identify hazardous or harmful alcohol consumption in a range of hospital settings.

Screening for hazardous alcohol use and dependence is especially important among patients with psychiatric disorders. Alcohol misuse and dependence are associated closely with several psychiatric disorders, with rates of 30–50% being reported among patients with several health diagnoses [9]. These rates are well above the average of 14–16% in the community [10]. The recent use of alcohol or the presence of withdrawal sequelae such as anxiety, disorientation, confusion or hallucinations may mimic primary psychiatric disorders. Furthermore, compliance with treatment regimes may be compromised in those with excessive use [11–14].

The level and frequency of drinking in patients on psychiatric wards is greater than that observed among patients on general wards [15]. Moreover, Miller & Fine [16] note that the prevalence of co-morbid psychiatric and addiction problems is greater in psychiatric clinics than the general population, greater in inpatient psychiatric settings than out-patients, and greater in public than private settings.

Alcohol misuse is more common among those with particular psychiatric diagnoses, notably schizophrenia [17–21] and bipolar disorder [22,11,16]. In patients seeking treatment for anxiety disorders, widely varying rates of problem drinking have been reported (between 7% and 36%) [23–24]. This variation is, to some extent, explained by Kushner and colleagues [24], who demonstrate in their review that problem drinking in patients with anxiety disorders varies with the nature of the anxiety disorder. Studies of alcohol use prevalence in psychiatric patients with mood disorder indicate that a greater percentage of males than females consume alcohol at high levels [25–26].

Although the AUDIT has been used in a number of general hospital settings, its use in general hospital psychiatric patients has not been reported. The aim of the present study was to determine the probable prevalence of hazardous or harmful alcohol consumption and alcohol dependence as assessed by the AUDIT in four groups of patients with psychiatric disorders (mood, anxiety, adjustment and schizophrenia/psychosis) who had been admitted to one of two major general hospital psychiatric units.

## Subjects and methods

The sample was drawn from people aged 18–64 years who resided in the Perth metropolitan area, and who were admitted to the psychiatric wards of two general public hospitals in Perth (Sir Charles Gairdner Hospital and Royal Perth Hospital) in 1994 and 1995. Admissions originated from the Accident and Emergency Department (41%), general hospital wards

(8%), or from general practitioners, psychiatrists and other acute mental health services (51%). Typically, patients were diagnosed with acute psychiatric disorders requiring short-term hospitalization.

All patients aged 18–64 were targeted for AUDIT screening as part of a larger study aimed at assessing the effects of a brief alcohol intervention. The census of the psychiatric wards at each hospital was checked two or three times a week to identify new admissions. Patients were approached to complete the AUDIT following advice from the primary nurse that they were stabilized and not suffering any cognitive impairment.

Patients were excluded for the following reasons; too old or young (over 65 or under 18 years of age); lived outside metropolitan Perth; memory problems (e.g. mentally handicapped; Alzheimer's disease); language problems (e.g. interpreter required); or the patient was considered too aggressive.

AUDIT questions were interviewer-administered. Scores on the AUDIT were calculated in the usual manner, and patients were classified as having non-hazardous, hazardous or harmful alcohol use, or alcohol-dependent [4]. The AUDIT questionnaire collects information on usual alcohol consumption and behaviour over the preceding 12-month period. Where patients had irregular drinking patterns, they were asked to recall their heaviest drinking session within the 12-month period.

All psychiatric diagnoses were recorded in hospital medical records according to ICD-9 codes. The primary discharge diagnoses were retrieved from the medical records, and organized these into diagnostic

categories as outlined in the DSM-IV [27]. Data on AUDIT score and classification and psychiatric diagnosis for the 665 screened patients were entered on to an SPSS database.

#### Statistical analyses

Within each of the four major diagnostic groups of mood, anxiety, adjustment and schizophrenia/psychosis the percentage of males to females classified as consuming alcohol at non-hazardous, hazardous, problem or dependent levels were compared using Fisher's exact test for dichotomous data. Due to multiple comparisons the *p*-value was adjusted using Duncun's method. Significant difference was defined to be  $p < 0.035$ . The percentage of males or females in each diagnostic group also were compared to each other using Fisher's exact test for dichotomous data.

## Results

There were 990 psychiatric admissions during the 12-month study period, 541 (54.8%) being admitted to Sir Charles Gairdner Hospital and 449 (45.2%) to Royal Perth Hospital. Females comprised 598 (60.3%) and males 394 (39.7%) of the patients. Ages ranged from 18 years to 64 years, with a mean of 35.4 years (SD 11.6 years). No significant difference in age of patients was detected between the two hospitals. Mean length of stay was  $15.8 \pm 16.2$  days, with a range from 0 to 127 days.

The most common diagnoses among the 990 admissions were mood disorder (43.3%), adjustment

**Table 1.** Number of patients and major diagnostic categories of those screened and not screened with the AUDIT

Diagnosis	Screened	Not Screened	Total admissions % (n)
	% (n)	% (n)	
Mood	72.7 (312)	27.3 (117)	43.3
Adjustment	69.0 (98)	31.0 (44)	14.3
Anxiety	58.2 (89)	41.8 (64)	15.5
Schizophrenia/psychosis	65.5 (72)	34.5 (38)	11.1
Substance	45.5 (20)	54.5 (24)	4.4
Personality	72.2 (39)	27.8 (15)	5.5
Other diagnoses	60.3 (35)	39.7 (23)	5.9
Total	67.2 (665)	32.8 (325)	990

**Table 2.** Non-hazardous, hazardous, problem and dependent alcohol consumption by gender for psychiatric diagnosis

Diagnosis	Gender	N	Non-hazardous n (%)	Hazardous n (%)	Problem n (%)	Dependent n (%)
Mood	Male	110	56 (50.9)*	19 (17.3)	7 (6.4)	28 (25.4)*
	Female	202	128 (63.4)	35 (17.3)	6 (3.0)	33 (16.3)
Adjustment	Male	36	11 (30.6)	6 (16.7)	3 (8.3)	16 (44.4)*
	Female	62	36 (58.0)*	13 (21.0)	4 (6.5)	9 (14.5)
Anxiety	Male	29	8 (27.6)	7 (24.1)	4 (13.8)	10 (34.5)
	Female	60	35 (58.3)*	7 (11.7)	2 (3.3)	15 (25.0)
Schizophrenia/psychosis	Male	48	22 (45.8)	8 (16.7)	4 (8.3)	14 (29.2)*
	Female	24	17 (70.8)	4 (16.7)	2 (8.3)	1 (4.2)

\* Significant difference (Fisher's Exact Test) between males and females within psychiatric disorders

disorder (14.3%), anxiety disorder (15.5%) and schizophrenia/psychosis (11.1%), accounting for 84.2% of total admissions. Primary substance-related disorders and personality disorders represented only 4.4% and 5.5% of admissions, respectively, with other DSM-IV or ICD-9 categories (e.g. delirium, dementia, amnesic or other cognitive disorders; mental disorders due to a general medical condition; somatoform disorders; factitious disorders; dissociative disorders; eating disorders; and sleep disorders) representing 5.9% collectively (Table 1).

Of the 990 patients with diagnostic data screening was carried out on 665 (67%). Eighty-four patients failed to meet study inclusion criteria, 27 due to cognitive dysfunction. Thirty-two patients refused to undertake screening, 17 because they had been previously screened at another hospital. Two hundred and nine patients left the ward before screening could be undertaken. This included discharged before screened (86), transfer to a major psychiatric facility (31), short admission defined as a hospital stay of 3 or less days (79) and discharged against medical advice (13).

Of the four major diagnostic groups screening was carried out on between approximately 60% and 70% of each diagnostic group (Table 1). There were no significant differences in the numbers of patients screened vs. not screened by diagnostic category.

#### Mood disorders

Of 312 patients with a diagnosis of mood disorder who were screened, significantly more males than females (25.4% vs. 16.3%) were classified as alcohol-depend-

ent ( $p = 0.033$ ). The percentages of males and females consuming alcohol at hazardous or harmful levels were similar (17.3%), and significantly fewer males than females (50.9% vs. 63.3%) consumed alcohol at non-hazardous levels (Table 2).

#### Adjustment disorders

Of 98 patients with adjustment disorder who were screened substantially more men than women (44.4% vs. 14.5%) were classified as alcohol-dependent ( $p = 0.001$ ). The percentages of men and women who were hazardous or harmful consumers were similar (Table 2).

#### Anxiety disorders

Of 89 patients with an anxiety disorder who were screened, a higher percentage of men than women were classified as hazardous (24.1% vs. 11.7%), harmful (13.8% vs. 3.3%) and dependent (34.5% vs. 25.0%). Thus, significantly fewer males consumed alcohol at non-hazardous levels compared to females (27.6% vs. 58.3%) ( $p = 0.006$ ) (Table 2).

#### Schizophrenia/psychosis

Of 72 patients with a diagnosis of schizophrenia/psychosis who were screened, significantly more ( $p = 0.011$ ) males were alcohol-dependent than females (29.2% vs. 4.2%). The percentage of each sex who were hazardous or harmful drinkers was identical, at 25%.

## Discussion

For those working with people with psychiatric disorders it is important to recognize the high rate of excessive alcohol consumption. The extent of this problem was highlighted by recent findings of the Australian National Survey of Mental Health and Wellbeing [28] where approximately half of all females with a substance use disorder also had an anxiety or affective disorder. Similarly, one-quarter of males with a substance abuse disorder also had another psychiatric disorder, with 10% having both an affective and anxiety disorder. The current study showed that approximately 60% of males and 40% of females, respectively, admitted to the general hospital psychiatric units had a level of consumption that was hazardous or harmful, or were alcohol-dependent.

Excessive alcohol consumption was especially evident among males. Approximately 70% of males with adjustment or anxiety disorder consumed alcohol at hazardous or greater levels, with half of all males with adjustment disorder screened classified as alcohol-dependent. Lower, but still considerable, percentages of excessive drinkers were found among males with a diagnosis of schizophrenia/psychosis or mood disorder, with approximately half assessed as consuming at hazardous or greater levels.

In contrast, approximately 60–70% of females in all diagnostic groups consumed alcohol at non-hazardous levels. This is consistent with the findings of most [25–26, 29–31], although not all [32], published data.

The very high consumption of alcohol among people with schizophrenia/psychosis that has been reported in previous research [17–20] was not observed in the current study. This was especially evident among females, among whom over 70% consumed alcohol at non-hazardous levels, few consumed alcohol at hazardous levels and even fewer were harmful or dependent consumers.

The AUDIT collects information on usual alcohol consumption and behaviour over the preceding 12-month period. It assumes that, in the majority of cases, alcohol consumption will have remained relatively constant over this period; that is, a given amount of alcohol is consumed on a 'regular basis'. Where variation in alcohol consumption exists AUDIT user instructions directs that the AUDIT user score in relation to the highest level of alcohol use over the 12-month period [33]. Use of alcohol by people with psychiatric morbidity is, however, often episodic in

nature and is often elevated for weeks or months [34]. In this respect the AUDIT may overestimate alcohol consumption by the psychiatric patient.

It has been suggested that the increased level of alcohol consumption by people with schizophrenia may be related to them attempting to control undesirable psychotic or other psychiatric symptoms associated with the disorder [35,18] or, alternatively, that alcohol may have an important biological role in the aetiology of schizophrenia [36–37]. Our data, however, suggest that schizophrenia/psychosis patients in the period prior to hospitalization were mostly not self-medicating with large amounts of alcohol and that alcohol was not a significant recent factor preceding the recent schizophrenic episode.

While a considerable amount of published data are available on alcohol consumption among people with anxiety, depression and schizophrenia/psychosis, there is a lack of published information on persons with adjustment disorder. This is despite adjustment disorders representing a major variety of psychiatric morbidity, which is frequently observed both in hospital and community psychiatric settings. In the current study, 14% of total admissions during the 12-month period in two major hospital psychiatric units were for adjustment disorder. This level of admission was similar to that observed for anxiety, and greater than that for schizophrenia/psychosis.

The prevalence of alcohol dependence was found to be considerably more in males than females with adjustment disorder. We speculate that the large difference in alcohol consumption patterns between males and females with anxiety or adjustment disorders may reflect culturally acceptable western behaviours for dealing with these disorders, with alcohol consumption being a more acceptable response for males than females.

The current study did not collect general population alcohol consumption data to enable a direct comparison between people with psychiatric disorders and the general population. A level of comparison can, however, be made by use of Health Department of Western Australia survey data, which assessed alcohol consumption in the general community [38].

This Health Department survey classified percentages of males and females within the general population as consuming alcohol at safe, hazardous or harmful levels using National Health and Medical Research Council (NH&MRC) criteria. The NH&MRC established guidelines for 'safe' drinking based on a standard drink defined as containing 10 g

(12.5 ml) of absolute alcohol. Safe, hazardous and harmful drinking were defined for males as  $\leq 4$ , 4–6 and  $> 6$  and for females  $\leq 2$ , 2–4 and  $> 4$  standard drinks per day, respectively [39].

Using these criteria the Health Department reported that 53%, 14% and 33% of 2491 males surveyed were classified as 'safe' (non-hazardous), hazardous and harmful alcohol consumers, respectively. In contrast, some 70% of 3199 females surveyed were classified as 'safe', 13% hazardous and 17% harmful consumers. Comparison with the findings from the present study suggests substantially higher alcohol consumption for males with both anxiety and adjustment disorder. Similarly, females with anxiety disorder also had greater levels of consumption than their general population counterparts. These results are similar to those reported by others [30–31]. In contrast, alcohol consumption for both males and females with mood disorder or females with anxiety disorder was not dissimilar from those reported for the general community. In the absence of data on alcohol dependence from the general population survey it is, however, not possible to compare drinking categories precisely.

Patients in the current study were targeted for AUDIT screening as part of a larger study aimed at assessing the effects of a brief alcohol intervention. Following the identification of hazardous plus consumption levels patients were randomized into a control or intervention condition. The intervention participants received a 45-minute 'motivational interview' on the benefits and drawbacks of the individual's drinking pattern. An important element of this was the feedback of objective test results including a liver function test and AUDIT. The control group received a handout summarizing the risks of exceeding the NH&MRC guidelines for safe alcohol consumption. Both groups were followed-up at 6, 12 and 18 months post-discharge to assess alcohol consumption and psychiatric status.

People with psychiatric morbidity may be particularly vulnerable to the psychosocial complications associated with alcohol consumption. For example, increased risk of suicide has been identified as the major distinguishing factor for depressive alcoholics [40], while alcohol disorder co-morbidity with mood disorder is, in women, highly associated with suicide attempts [41]. Even at consumption patterns not dissimilar from those observed in the general population, women with primary depression have a high suicide potential [40,42]. Co-morbid anxiety and

alcohol disorders among men has also been associated with increased suicide attempts [41].

In planning services for people with psychiatric disorders, the aim should be to reduce alcohol consumption to safe levels. People with psychiatric disorders tend to deny or underestimate their consumption of alcohol [43], making the identification of this co-morbidity factor difficult at the time of initial diagnosis. In this respect the AUDIT provides a simple procedure and represents a valuable screening device for investigating alcohol consumption among this population.

A number of recommendations can be made to those wishing to undertake alcohol screening and brief intervention in the general hospital psychiatric setting. First, the AUDIT provides a simple procedure for screening hazardous and harmful alcohol consumption among people with psychiatric morbidities. In those patients screened little difficulty was encountered using the AUDIT. Secondly, the optimum time to administer the AUDIT is following the subsidence of psychiatric sequelae, adjustment to medication and improvement in cognitive functioning. Thirdly, although the AUDIT was designed to be self- or staff-administered our experience was that the latter is more suited for the psychiatric in-patient setting and helped overcome problems in patient understanding of AUDIT questions. Fourthly, the AUDIT should be incorporated into the routine assessment and medical management of psychiatric units. Early administration of the AUDIT by ward staff maximizes the amount of time remaining to implement an intervention programme to those found to be consuming alcohol at a hazardous or harmful level. Finally, the primary nurse may be the most suitable person to administer the AUDIT, having had the opportunity since admission to build a rapport with the patient, as well as being aware of the patient's condition and the impact of medication changes.

The potential for decreased severity of psychiatric symptoms and a reduction in the number of hospital admissions following a reduction or cessation of alcohol consumption has major medical, social and economic ramifications that justify the use of the AUDIT among this population. While we encountered a number of problems specific to the psychiatric population, the ability to identify quickly hazardous or harmful alcohol consumption and, if necessary, provide an intervention far outweighed any difficulties.

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