

## Relationship between alcohol use disorders and suicidality in a psychiatric population

### In-patient prevalence study

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**Background** Alcohol misuse is a risk factor in suicide and parasuicide.

**Aims** To measure the prevalence of alcohol use disorders in a cohort of psychiatric admissions using the Alcohol Use Disorders Identification Test (AUDIT), and the relationship between the AUDIT score and suicidality.

**Method** Consecutive psychiatric admissions were interviewed with a lifestyle survey that included the AUDIT, and admission case notes were reviewed.

**Results** Out of 200 subjects, 48.5% scored 8 or more (indicating hazardous or harmful alcohol use) and 22.5% scored 16 or more (indicating significant alcohol dependence) on the AUDIT. There were no significant gender differences. Alcohol misuse was strongly associated with suicidality.

**Conclusions** The AUDIT questionnaire should be incorporated into psychiatric assessments when risk of self-harm is being evaluated. Further research is warranted to examine the impact of interventions for alcohol use disorders in psychiatric settings on self-harm and suicidal ideation.

**Declaration of interest** None.

There is a high prevalence of alcohol use disorders and substance misuse in psychiatric units (Hulse *et al*, 2000) and concern regarding the links between alcohol use disorders, deliberate self-harm and suicide (Platt & Robinson, 1991). Recently the UK Department of Health issued substantial guidance on the management of alcohol and substance use comorbidity (Department of Health, 2002). Psychiatrists however, may miss opportunities to screen for alcohol use disorders (Barnaby *et al*, 2003) and hold negative attitudes towards those perceived as having alcohol problems. Recent research on treating alcohol use disorders and substance misuse in acute psychiatric settings has produced mixed results (Baker *et al*, 2002; Hulse & Tait, 2002). We identified the reduction in the risk of self-harm and suicide as a major, yet largely unexplored, rationale for conducting controlled studies in this setting.

### METHOD

#### Study aims

This study forms part of a longer-term project to investigate the potential for randomised trials of brief motivation enhancement therapies for alcohol use disorders within acute psychiatric in-patient settings. In this study we wished to ascertain the prevalence and spread of severity of alcohol use disorders among psychiatric patients (including gender differences) and the extent to which these were associated with suicidality. Such data could be used to generate hypotheses about therapeutic techniques or potential obstacles that might influence the effectiveness of these interventions. The hypotheses under test were that alcohol use disorders would be particularly prevalent among psychiatric in-patients; that there would be a positive association between alcohol use disorders and in-patients with a history of suicidality;

and that case-note review would indicate that alcohol use disorders were being underdetected.

An inclusive definition of suicidality was used. Individuals were classified as having a history of suicidality if there was a record in their multidisciplinary case notes that they had carried out any deliberate self-harm or had had thoughts or plans of self-harm or suicide.

#### Sample

Patients consecutively admitted to acute general psychiatry wards in two psychiatric hospitals were approached within 7 days of their admission and invited to take part in a confidential lifestyle survey. Potential participants were given verbal and written information about the study. Written, informed consent was obtained, including consent to review their case notes. Participants received a £5 shop voucher for their participation. Both voluntary patients and those detained under Sections 2 and 3 of the Mental Health Act 1983 were included, subject to their ability to complete the questionnaire in English. Transfers from other psychiatric units and those electively admitted to specialist units were excluded, as were those with serious physical illness and patients in medium secure or intensive-care wards.

A 6-month survey period was chosen because it was estimated that 200 subjects would be interviewed during this time, giving adequate statistical power: the overall population prevalence of alcohol use disorders in London is approximately 25% (Singleton *et al*, 2000). Participants were recruited from November 2001 to June 2002, excluding the Christmas/New Year period to avoid any seasonal bias towards excessive alcohol consumption.

#### Assessment tools

The first part of the survey instrument consisted of an anonymous self-completion lifestyle survey. It included demographic information, quality-of-life items (regularity of sleep pattern, use of leisure facilities, buying of lottery tickets) designed to be non-threatening and to maximise participation, a section on smoking, the Alcohol Use Disorders Identification Test (AUDIT; Saunders *et al*, 1993; Babor *et al*, 2001) and a section on substance use.

The AUDIT is a ten-item self-completion screening instrument for alcohol use disorders that has been widely validated (Reinert

& Allen, 2002) including in individuals with severe mental illness. Items are scored 0–4, giving a total range between 0 (no problems) and 40 (severe problems). The items cover three domains: excessive alcohol intake, dependence and problems related to drinking. To date there has been little research on the use of the AUDIT in the psychiatric population in the UK or the relationship between the AUDIT score and the risk of deliberate self-harm. The questions on smoking included items from the General Household Survey (Office of Population Censuses and Surveys, 1998). The substance use section was the Substance Abuse Assessment Questionnaire (Ghodes, 1995). In the second part of the survey the participants' multi-disciplinary case notes for the period of the admission were reviewed and ICD–10 diagnoses (World Health Organization, 1992) were coded from clinical diagnoses made in the admission notes. Up to two diagnoses could be coded, allowing for primary and secondary/differential diagnoses. Subjects with and without a severe mental illness were compared. Serious mental illness was defined as a schizophreniform psychosis, obsessive-compulsive disorder, bipolar affective disorder or psychotic mood disorder.

The notes were reviewed to ascertain the duration of the psychiatric history and whether the subject was previously known to misuse alcohol or to have attended alcohol services. The quality of any alcohol and/or substance misuse history recorded was assessed according to predetermined criteria, including the recording of alcohol units, the results of any relevant physical investigations (gamma glutamyl transpeptidase, urine toxicology) and the use of any alcohol assessment instruments. These results are reported elsewhere (Barnaby *et al*, 2003).

**Analysis and statistics**

Two cut-offs for the AUDIT score were used: 8 or more indicates hazardous or harmful alcohol use (Saunders *et al*, 1993) and 16 or more represents a level of alcohol dependence requiring specific intervention and continued monitoring (Singleton *et al*, 2000; Babor *et al*, 2001). Categorical data were analysed using  $\chi^2$  tests for association, pooling data with small numbers (e.g. ethnicity and diagnosis). Where continuous data were significantly skewed or there were significant between-group differences in variance (AUDIT score, age, duration of psychiatric history), non-parametric statistics were used. Logistic regression

was performed using a forward stepwise model based on the Wald statistic to ascertain the relationship of the AUDIT score to suicidality. Data were analysed using the Statistical Package for the Social Sciences program, version 10.

**RESULTS**

**Sample characteristics**

During the study period there were 364 acute psychiatric admissions according to computerised records. Two hundred individuals (76% of those eligible) consented to take part in the study. Reasons for not taking part in the study are described in Table 1.

Subsequent analysis is based on the 200 individuals who consented to be involved with the study. Of those, 161 reported that they had drunk alcohol in the 1-year period covered by the AUDIT. Approximately equal numbers of men and women were admitted: 105 men (52.8%) and 94 women (47.2%). There were no significant differences between the proportions of men and women with a severe mental illness. Admission diagnoses were recorded on 189 participants. Thirty-nine received a secondary or differential diagnosis. Men were more likely to be diagnosed with a non-affective psychosis and women with a mood disorder. Substance and/or alcohol use disorders (ICD–10, F10.1–19.9) were

recorded for 17 participants (4.7%), mostly alcohol-related (16 participants). There was no significant age difference between men and women (means of 39.6 and 42.6 years, respectively;  $t = -1.43$ ,  $d.f. = 190$ ,  $P = 0.19$ ). Participants had been known to services for a mean of 8.3 years (range 0–43 years), with no significant gender differences. A quarter of participants had been known to services for a year or less, and half for less than 5 years. The demographic characteristics and psychiatric diagnoses of the sample are given in Table 2.

**Prevalence of alcohol use disorders**

Table 3 shows associations between participants' demographic characteristics and psychiatric diagnoses and their AUDIT scores. Ninety-seven participants (48.5%) had an AUDIT score of 8 or more, indicating hazardous or harmful alcohol use ('AUDIT positive'). The AUDIT positive participants tended to be younger than the AUDIT negative ones (Mann–Whitney  $U$  test:  $z = -2.97$ ,  $P = 0.003$ ), and were more likely to be White than from other ethnicities. Men and women were equally likely to be AUDIT positive. The AUDIT positive participants did not differ from the AUDIT negative ones on other significant variables: the proportion with psychosis (ICD–10, F20–29.9), any mood disorder (ICD–10, F30–39) or severe mental illness; the proportion of those with no fixed abode or living alone; the proportion who were unemployed or sick/disabled.

Forty-five participants (22.5%) had AUDIT scores of 16 or more, indicating significant alcohol dependence. Again, equal numbers of men and women scored at this level (27 men, 28 women;  $\chi^2 = 1.22$ ,  $d.f. = 1$ ,  $P = 0.27$ ). They were almost exclusively White (British or Irish) rather than from other ethnic groups. Compared with other participants they were more likely to be living alone. They were less likely to be diagnosed with a schizophreniform psychosis or severe mental illness (ICD–10, F20–29) than those with lower scores.

**Sleep quality, smoking and use of sedatives and illicit drugs**

One hundred and fifty-seven participants (78.5%) had smoked cigarettes at least once in their lives and the majority were current regular smokers (125 participants, 62.5% of entire sample). Of those who stated that they smoked cigarettes

**Table 1** Reasons for exclusion from study

|   | n   | %    |
|---|-----|------|
| Included                                    | 200 | 54.9 |
| Excluded                                    |     |      |
| Ineligible                                  | 41  | 11.3 |
| Not seen                                    | 60  | 16.5 |
| Declined to take part                       | 63  | 17.3 |
| Total number of acute admissions            | 364 | 100  |
| Reasons for ineligibility                   |     |      |
| Cognitive impairment                        | 6   | 15   |
| Language barrier                            | 29  | 70   |
| Transfer to a specialist unit               | 6   | 15   |
| Reasons not seen                            |     |      |
| Participant on leave                        | 2   | 3    |
| Access refused by nursing staff             | 2   | 3    |
| Participant transferred to another hospital | 8   | 14   |
| Participant self-discharged                 | 10  | 17   |
| Participant discharged                      | 38  | 63   |

**Table 2** Demographic characteristics and psychiatric diagnoses of the sample

| Characteristic                   | Total    |      | Men      |      | Women    |      | Significance                     |
|----------------------------------|----------|------|----------|------|----------|------|----------------------------------|
|                                  | <i>n</i> | %    | <i>n</i> | %    | <i>n</i> | %    |                                  |
| Gender <sup>1</sup>              | 199      | 100  | 105      | 52.8 | 94       | 47.2 |                                  |
| Ethnicity <sup>2</sup>           |          |      |          |      |          |      |                                  |
| White British                    | 129      | 64.5 | 68       | 64.8 | 60       | 63.8 | NS                               |
| White Irish                      | 12       | 6    | 8        | 7.6  | 4        | 4.3  |                                  |
| Other White                      | 16       | 8    | 6        | 5.7  | 10       | 10.6 |                                  |
| Caribbean                        | 11       | 5.5  | 9        | 8.6  | 2        | 2.1  |                                  |
| African                          | 8        | 4    | 3        | 2.9  | 5        | 5.3  |                                  |
| Indian                           | 6        | 3    | 2        | 1.9  | 4        | 4.3  |                                  |
| Other categories                 | 18       | 9    | 9        | 8.5  | 9        | 9.6  |                                  |
| Accommodation                    |          |      |          |      |          |      |                                  |
| No fixed abode                   | 16       | 8.0  | 11       | 10.6 | 5        | 5.6  |                                  |
| Living alone <sup>3</sup>        | 97       | 50.5 | 53       | 50.4 | 43       | 45.7 | NS                               |
| Employment status                |          |      |          |      |          |      |                                  |
| Unemployed                       | 59       | 29.5 | 39       | 37.1 | 19       | 25.3 | $\chi^2=6.9$ , d.f.=1, $P=0.009$ |
| Invalid <sup>4</sup>             | 57       | 28.5 | 28       | 26.7 | 29       | 30.9 | NS                               |
| Suicidality present <sup>5</sup> | 103      | 52.5 | 55       | 52.4 | 48       | 51.1 | NS                               |
| Diagnostic category              |          |      |          |      |          |      |                                  |
| Psychosis F20–29                 | 72       | 38.3 | 46       | 46.5 | 25       | 28.1 | $\chi^2=6.7$ , d.f.=1, $P=0.01$  |
| Mood disorder F30–39             | 81       | 43.1 | 32       | 32.3 | 49       | 55.1 | $\chi^2=9.9$ , d.f.=1, $P=0.002$ |
| All severe mental illness        | 147      | 78.2 | 77       | 77.8 | 69       | 77.5 | NS                               |
| AUDIT score                      |          |      |          |      |          |      |                                  |
| $\geq 8$                         | 97       | 48.5 | 56       | 53.3 | 41       | 43.6 | NS                               |
| $\geq 16$                        | 45       | 22.5 | 27       | 25.7 | 18       | 19.1 | NS                               |
| Smoking status <sup>1</sup>      |          |      |          |      |          |      |                                  |
| Regular smokers                  | 125      | 63.1 | 75       | 72.1 | 50       | 53.2 | NS                               |
| Sleep quality <sup>1,6</sup>     |          |      |          |      |          |      |                                  |
| Regular sleep                    | 73       | 36.7 | 39       | 37.1 | 34       | 36.2 | NS                               |

AUDIT, Alcohol Use Disorders Identification Test.

1. Data on 199 participants.

2. Categories from 2001 Census.

3. Data on 196 participants.

4. Claiming sickness/invalidity benefits.

5. Data on 198 participants.

6. Participants were asked whether their sleep was regular.

regularly, the modal number of cigarettes smoked was 20 per day (range 2–60). Half of these individuals wanted help to enable them to stop smoking (50.3% of regular smokers). However, the majority (98 individuals, 79%) thought that it would be fairly or very difficult to give up.

The majority of the sample (63%) reported an irregular sleep pattern. This was strongly associated with illicit drug use and an AUDIT score of 16 or more. Participants were asked about their use of sedative drugs. These were defined as sedatives, sleeping pills and tranquillisers to calm you down or improve your sleep (e.g. librium, valium, temazepam, barbiturates). About half of all participants (107, 53.5%) had used sedative drugs in the past 30 days. In the majority of cases (83%)

these were prescribed. However, 22% of the sample reported that they had used illicit sedatives.

Self-reported illicit drug use is detailed in Table 4. Fifty-seven participants (28.9%) felt that their substance use had interfered with work, social or home life in the previous year. Overall, men were more likely to have used drugs than women. Lifetime drug use was not associated with psychosis in this sample ( $\chi^2=0.572$ , d.f.=1,  $P=0.351$ ). Individuals reporting lifetime drug use were younger than other participants (Mann–Whitney  $U$  test:  $z=-6.06$ ,  $P<0.001$ ) and had shorter psychiatric histories (Mann–Whitney  $U$  test:  $z=-1.99$ ,  $P=0.045$ ).

Participants who had used drugs in the past 30 days were more likely to be men

and were significantly younger than other participants (Mann–Whitney  $U$  test:  $z=-4.15$ ,  $P<0.001$ ), but did not differ from them in terms of diagnosis. Positive scores on the AUDIT were strongly associated with all measures of illicit drug use. Two-thirds of recent drug users scored 8 or more and one-third scored 16 or more on the AUDIT.

### Relationship between alcohol use disorders and suicidality

According to admission case notes, 104 admissions (52.5%) were associated with suicidal ideation or deliberate self-harm (see Table 5). They were younger than other participants (mean of 38.8 compared with 43.9 years; Mann–Whitney  $U$  test:  $z=-2.08$ ,  $P=0.038$ ) and more likely to be White and unemployed. The AUDIT score was strongly associated with suicidality: 70% of those scoring 8 or more and 86.7% of those scoring 16 or more were so admitted (odds ratios=2.98 and 8.10, respectively). With respect to diagnosis, suicidality was positively associated with mood disorders and negatively with psychosis. Suicidality was associated with illicit drug use in the previous 30 days for the sample as a whole and for women specifically ( $\chi^2=5.15$ , d.f.=1,  $P=0.02$ , odds ratio=3.80, 95% CI 1.14–12.74), but not for men ( $\chi^2=0.75$ , d.f.=1,  $P=0.39$ ).

Logistic regression was carried out to ascertain which factors were independently associated with suicidality in this sample. In addition to gender, variables associated with alcohol use disorders according to AUDIT score or with suicidality at a level of  $P<0.05$  were entered into the logistic regression. Age was entered as a continuous variable. The following were entered as dichotomous variables: audit score (8 or more *v.* less than 8), gender, employment status (unemployed/other groups), ethnicity (White/other groups), living alone, diagnostic category (severe mental illness/other diagnostic groups), lifetime use of illicit drugs, illicit drug use in the previous 30 days, sleep quality and whether a regular smoker. Significant predictors of suicidality are listed in Table 6. The regression indicates that the AUDIT score, irregular sleep pattern and not having a severe mental illness were significant predictors of suicidality (i.e. once controlled for age, gender and the other variables listed above). Similar results are obtained if the AUDIT score is entered as a continuous variable.

**Table 3** Associations between participants' demographic characteristics and psychiatric diagnoses and their scores on the Alcohol Use Disorders Identification Test (AUDIT)<sup>1</sup>

| Characteristic                      | AUDIT score < 8<br>(n=103) |      | AUDIT score ≥ 8 (n=97) |      |                |        | AUDIT score < 16<br>(n=155) |      | AUDIT score ≥ 16 (n=45) |      |                |        |
|-------------------------------------|----------------------------|------|------------------------|------|----------------|--------|-----------------------------|------|-------------------------|------|----------------|--------|
|                                     | n                          | %    | n                      | %    | χ <sup>2</sup> | P      | n                           | %    | n                       | %    | χ <sup>2</sup> | P      |
| <b>Ethnicity</b>                    |                            |      |                        |      |                |        |                             |      |                         |      |                |        |
| British/Irish/Other White           | 75                         | 47.8 | 82                     | 52.2 | 4.07           | 0.04   | 116                         | 73.9 | 41                      | 26.1 | 5.47           | 0.02   |
| Other ethnic groups                 | 28                         | 65.1 | 15                     | 34.9 |                |        | 39                          | 90.7 | 4                       | 9.3  |                |        |
| <b>Living status<sup>2</sup></b>    |                            |      |                        |      |                |        |                             |      |                         |      |                |        |
| Living alone                        | 44                         | 45.3 | 53                     | 54.6 | 2.93           | 0.09   | 67                          | 69.1 | 30                      | 30.9 | 6.89           | 0.01   |
| No fixed abode                      | 5                          | 31.2 | 11                     | 68.8 | 2.93           | 0.09   | 11                          | 68.8 | 5                       | 31.3 | 0.74           | 0.39   |
| <b>Employment status</b>            |                            |      |                        |      |                |        |                             |      |                         |      |                |        |
| Unemployed                          | 27                         | 45.8 | 32                     | 54.2 | 3.21           | 0.07   | 41                          | 69.5 | 18                      | 30.5 | 3.08           | 0.08   |
| Invalid <sup>3</sup>                | 25                         | 43.9 | 32                     | 56.1 | 1.86           | 0.17   | 43                          | 75.4 | 14                      | 24.6 | 0.19           | 0.66   |
| <b>Diagnostic category</b>          |                            |      |                        |      |                |        |                             |      |                         |      |                |        |
| Psychosis                           | 40                         | 55.6 | 32                     | 44.4 | 0.83           | 0.36   | 63                          | 87.5 | 9                       | 12.5 | 6.36           | 0.01   |
| Mood disorder                       | 46                         | 56.8 | 35                     | 43.2 | 1.70           | 0.19   | 68                          | 84.0 | 13                      | 16.0 | 3.13           | 0.08   |
| All severe mental illness           | 79                         | 53.8 | 68                     | 46.3 | 1.55           | 0.21   | 125                         | 85.0 | 22                      | 15.0 | 20.15          | <0.001 |
| <b>Smoking status<sup>4</sup></b>   |                            |      |                        |      |                |        |                             |      |                         |      |                |        |
| Regular smoker                      | 50                         | 40.0 | 75                     | 60.0 | 17.05          | <0.001 | 87                          | 69.6 | 38                      | 30.4 | 11.65          | 0.001  |
| Not regular smoker                  | 52                         | 70.3 | 22                     | 29.7 |                |        | 67                          | 90.5 | 7                       | 9.5  |                |        |
| <b>Illicit drug use</b>             |                            |      |                        |      |                |        |                             |      |                         |      |                |        |
| Lifetime use                        | 44                         | 40.0 | 66                     | 60.0 | 13.14          | <0.001 | 79                          | 71.8 | 31                      | 28.2 | 5.09           | 0.02   |
| Past 30 days                        | 17                         | 32.7 | 35                     | 67.3 | 10.31          | <0.001 | 34                          | 65.4 | 18                      | 34.6 | 6.14           | 0.01   |
| Interference with life <sup>5</sup> | 17                         | 29.8 | 40                     | 70.2 | 15.08          | <0.001 | 35                          | 61.4 | 22                      | 38.6 | 12.4           | <0.001 |
| <b>Sleep quality</b>                |                            |      |                        |      |                |        |                             |      |                         |      |                |        |
| Sleep regular                       | 44                         | 59.5 | 30                     | 40.5 | 2.98           | 0.08   | 66                          | 89.2 | 8                       | 17.8 | 9.20           | 0.002  |
| Not regular                         | 59                         | 46.5 | 67                     | 53.2 |                |        | 89                          | 70.6 | 37                      | 29.4 |                |        |

1. An AUDIT score ≥ 8 indicates hazardous or harmful alcohol use, and a score ≥ 16 indicates significant alcohol dependence.

2. Data on 196 participants.

3. Claiming sickness/invalidity benefits.

4. Data on 199 participants.

5. Participants were asked whether drug use had interfered with work, relationships or home life.

**Table 4** Self-reported illicit drug use

| Substance                      | Lifetime |      |     |      |       |      | Past 30 days   |        |       |      |     |      |       |      |
|--------------------------------|----------|------|-----|------|-------|------|----------------|--------|-------|------|-----|------|-------|------|
|                                | Total    |      | Men |      | Women |      | χ <sup>2</sup> | P      | Total |      | Men |      | Women |      |
|                                | n        | %    | n   | %    | n     | %    |                |        | n     | %    | n   | %    | n     | %    |
| Cannabis                       | 102      | 51.5 | 41  | 43.2 | 54    | 56.8 | 6.13           | 0.01   | 36    | 18.2 | 24  | 23.2 | 12    | 1.8  |
| Cocaine                        | 56       | 28.3 | 33  | 31.4 | 23    | 24.5 | 1.34           | NS     | 22    | 11.1 | 14  | 13.3 | 8     | 8.5  |
| Stimulants                     | 52       | 26.3 | 35  | 34.0 | 17    | 18.1 | 6.39           | 0.01   | 5     | 2.5  | 4   | 3.9  | 1     | 1.1  |
| Hallucinogens                  | 52       | 26.3 | 36  | 35.0 | 16    | 17.0 | 8.13           | 0.004  | 2     | 1.0  | 2   | 1.9  | 0     | 0    |
| Inhalants                      | 38       | 19.3 | 26  | 25.5 | 12    | 12.8 | 5.07           | 0.04   | 1     | 0.5  | 1   | 0.9  | 0     | 0    |
| Opiates                        | 36       | 18.2 | 22  | 21.4 | 14    | 14.9 | 1.38           | NS     | 20    | 10.1 | 12  | 11.4 | 8     | 8.5  |
| Any illicit drug               | 110      | 57.9 | 66  | 64.1 | 44    | 46.8 | 5.94           | 0.02   | 52    | 27.4 | 34  | 33.3 | 18    | 19.1 |
| Drug use interfering with life | 57       | 28.9 | 40  | 38.8 | 17    | 18.1 | 10.2           | <0.001 |       |      |     |      |       |      |

**DISCUSSION**

**Comparison with other studies**

This study adds to the growing evidence of the utility and acceptability of the AUDIT,

even with acutely unwell psychiatric patients, at least when approached by independent clinical researchers. The overall prevalence of alcohol use disorders in our sample is considerably higher than

found in the general population in the UK (Singleton *et al*, 2000). Hulse and colleagues (Hulse *et al*, 2000), in their study of psychiatric in-patients in Australia, reported that 49.1–72.4% of men and

**Table 5** Associations with suicidality

| Characteristic                              | No suicidality (n=94) |      | Suicidality (n=104) |      |          | Odds ratio | 95% CI of odds ratio |           |
|---|-----------------------|------|---------------------|------|----------|------------|----------------------|-----------|
|   | n                     | %    | n <sup>1</sup>      | %    | $\chi^2$ |            |                      | P         |
| <b>Gender</b>                               |                       |      |                     |      |          |            |                      |           |
| Male  | 49                    | 46.7 | 55                  | 53.3 | 0.32     | NS         | 0.95                 | 0.54–1.16 |
| Female                                      | 45                    | 47.9 | 48                  | 52.1 |          |            |                      |           |
| <b>Ethnicity</b>                            |                       |      |                     |      |          |            |                      |           |
| White                                       | 64                    | 41.2 | 91                  | 58.8 | 11.0     | 0.001      | 3.22                 | 1.61–6.67 |
| Other                                       | 30                    | 70.0 | 13                  | 30.0 |          |            |                      |           |
| <b>Living status<sup>2</sup></b>            |                       |      |                     |      |          |            |                      |           |
| Living alone                                | 42                    | 43.3 | 54                  | 56.7 | 1.03     | NS         | 1.34                 | 0.76–2.36 |
| No fixed abode                              | 5                     | 31.3 | 11                  | 68.8 | 1.78     | NS         | 2.09                 | 0.70–6.23 |
| <b>Employment</b>                           |                       |      |                     |      |          |            |                      |           |
| Unemployed                                  | 21                    | 35.6 | 38                  | 64.4 | 4.76     | 0.03       | 2.00                 | 1.06–3.70 |
| Invalid <sup>3</sup>                        | 23                    | 41.1 | 33                  | 58.9 | 1.29     | NS         | 1.40                 | 0.77–2.69 |
| <b>Diagnostic category</b>                  |                       |      |                     |      |          |            |                      |           |
| Psychosis                                   | 50                    | 70.4 | 21                  | 30.6 | 13.9     | <0.001     | 0.21                 | 0.11–0.40 |
| Mood disorder                               | 30                    | 37.5 | 50                  | 62.5 | 5.71     | 0.02       | 2.05                 | 1.13–3.70 |
| All severe mental illness                   | 82                    | 56.6 | 63                  | 43.4 | 20.8     | <0.001     | 0.22                 | 0.11–0.46 |
| <b>AUDIT score</b>                          |                       |      |                     |      |          |            |                      |           |
| $\geq 8$                                    | 32                    | 30.0 | 63                  | 70.0 | 13.93    | <0.001     | 2.98                 | 1.66–5.31 |
| $\geq 16$                                   | 6                     | 13.3 | 37                  | 86.7 | 24.75    | <0.001     | 8.10                 | 3.23–20.3 |
| <b>Illicit drug use</b>                     |                       |      |                     |      |          |            |                      |           |
| Lifetime use                                | 46                    | 42.6 | 62                  | 57.4 | 1.82     | NS         | 1.48                 | 0.84–2.60 |
| Past 30 days                                | 17                    | 34.0 | 33                  | 66.0 | 4.34     | 0.04       | 2.02                 | 1.04–3.95 |
| Drug use interfering with life <sup>4</sup> | 17                    | 30.4 | 39                  | 69.6 | 8.66     | 0.003      | 2.65                 | 1.37–5.12 |
| <b>Smoking status<sup>5</sup></b>           |                       |      |                     |      |          |            |                      |           |
| Regular smoker                              | 52                    | 42.3 | 71                  | 57.7 | 3.20     | NS         | 1.70                 | 0.95–3.04 |
| Not regular                                 | 41                    | 55.4 | 33                  | 44.5 |          |            |                      |           |
| <b>Sleep quality</b>                        |                       |      |                     |      |          |            |                      |           |
| Regular                                     | 47                    | 64.4 | 26                  | 35.6 | 13.7     | <0.001     | 0.33                 | 0.18–0.61 |
| Not regular                                 | 47                    | 37.6 | 78                  | 62.4 |          |            |                      |           |

AUDIT, Alcohol Use Disorders Identification Test.

1. Gender was not recorded for one person.

2. Data on 196 participants.

3. Claiming sickness/invalidity benefits.

4. Participants were asked whether drug use had interfered with work, relationships or home life.

5. Data on 199 participants.

**Table 6** Logistic regression: variables associated with suicidality in psychiatric in-patients<sup>1</sup>

| Variable                      | Wald statistic | d.f. | P      | Exp(B) | 95% CI of exp(B) |
|-------------------------------|----------------|------|--------|--------|------------------|
| AUDIT score $\geq 8$ v. $< 8$ | 10.61          | 1    | 0.001  | 0.333  | 0.17–0.66        |
| Diagnosis SMI v. others       | 15.44          | 1    | <0.001 | 0.190  | 0.08–0.44        |
| Sleep irregular v. regular    | 10.22          | 1    | 0.001  | 3.10   | 1.55–6.20        |
| Constant                      | 7.94           | 1    | 0.005  | 3.70   |                  |

AUDIT, Alcohol Use Disorders Identification Test; SMI, severe mental illness.

1. n=183 due to missing data.

29.2–44% of women were AUDIT positive, depending on the diagnosis (the overall prevalence was not reported).

Like Hulse and colleagues, we found that a smaller percentage of individuals

with severe psychiatric illnesses were drinking at a significantly dependent level compared with those having other psychiatric diagnoses. However, our study is unique in finding equally high rates of

alcohol use disorders in men and women regardless of diagnosis. The prevalence in women greatly exceeds that reported by Platt & Robinson (1991). Women have been described as having higher rates of psychiatric comorbidity than men (Brady & Randall, 1999). Women experience more physical complications of alcohol use disorders than men, along with accelerated progression of these complications ('telescoping') (Randall *et al*, 1999). A similar excess susceptibility to (or telescoping of) the psychiatric complications of alcohol use disorders might account for the high prevalence of alcohol use disorders found in the women of our sample (although

other explanations are possible). Our study highlights the need to screen women for alcohol use disorders and to develop effective interventions in psychiatric settings for this group.

This study adds to the literature demonstrating that severity of alcohol misuse is related to suicidality. We are not aware of any other reports in which the AUDIT has been used to examine this relationship. The strength of this association rises with the AUDIT score, and remains when controlled for by confounders such as age, ethnicity, employment status and drug use. We found the degree of association between suicidality and alcohol use disorders striking and of some concern, given the evidence for the poor detection of alcohol use disorders in routine psychiatric practice (Barnaby *et al*, 2003). In comparison with other studies we did not find that regular smoking was associated with suicidality.

The significant association between reported poor sleep and suicidality replicates previous observations (Tanskanen *et al*, 2001) and has significant implications for delivering effective interventions aimed at changing the individual's drinking behaviour. Drinking may be described by patients as a helpful way of coping with insomnia, especially when this is associated with other psychiatric symptoms. Our results would indicate that therapists should positively elicit such beliefs, examine alternative coping strategies for insomnia and raise the issue that hazardous drinking may actually exacerbate or maintain insomnia and increase the risk of subsequent suicidal or self-harming behaviour. Similarly there is an obligation to elicit from subjects any incidence of suicidal and self-harming thoughts or behaviours, the relationship of these to drinking episodes and potential risk-minimising strategies. Such therapeutic strategies call for sensitive training of study therapists and care in the running of trial interventions so that appropriate responses to suicidality in trial participants are in place.

### Limitations of the study

The use of the AUDIT has been recommended for use in the psychiatric population, both in individuals presenting with self-harm (Babor *et al*, 2001) and in those with psychotic illness (Hulse *et al*, 2000). However, the AUDIT has been criticised for lacking sensitivity compared with

structured diagnostic interviews for alcohol use disorders (Hearne *et al*, 2002). We employed the same cut-off score of 8 for men and women, although it has been argued that a lower cut-off score is appropriate for women (Reinert & Allen, 2002). Some experts (Hodgson *et al*, 2003) recently have recommended the Fast Alcohol Screening Test (FAST) to screen for alcohol use disorders in settings where time is limited, but this tool has yet to be validated as thoroughly as the AUDIT and we wished to compare our results with population means and results from studies in similar psychiatric settings.

There are some sources of potential bias within this study. In our sample, 17.9% of potential participants declined to take part and 8% were excluded because they were unable to complete the questionnaire in English. A written questionnaire may be less useful in multi-ethnic communities in which significant numbers of individuals have difficulty reading and communicating in English. The eventual sample size of 200 was relatively small, and we agree with Hulse and colleagues that it may be difficult to screen all psychiatric admissions for alcohol use disorders because of the short duration of many admissions to psychiatric units. Nevertheless, the sample was recruited from a large catchment area including inner-city as well as suburban areas and it is likely to be representative of general psychiatric practice in the UK. That the majority of participants did not have lengthy psychiatric histories strengthens the rationale for carrying out controlled trials of screening and brief alcohol interventions.

Concerns have been expressed about response bias to instruments designed to assess stigmatising conditions such as alcohol misuse (Beich *et al*, 2002). In an attempt to reduce this, we embedded the AUDIT within a longer 'health and lifestyle questionnaire'. The AUDIT has been incorporated into a longer questionnaire without compromising the validity or reliability of the AUDIT itself (Daeppen *et al*, 2000). In order to minimise the number of groups for analysis, we chose a broad definition of suicidality and may have included a larger group of individuals than those included under other definitions of parasuicide (Hawton & van Heeringen, 2000: 51). As a result, we may have combined individuals with a variable level of risk of further self-harm and suicide. For the same reasons the questionnaire did not ask

participants about behaviour that would have indicated their suicide risk prior to admission or at the time of assessment.

Although effort was made to make ICD-10 diagnoses from entries in the case notes, the study team were not blind to the responses obtained in the questionnaire, leading to the possibility of coding bias. Case notes may not precisely reflect the actual actions of mental health staff. The behaviour of the clinical staff caring for patients in hospital may have been influenced by the study taking place. However, data were collected by an independent study team, and clinical staff were not aware of the specific hypotheses under investigation.

### Implications for clinical practice and further research

Alcohol misuse is implicated in a substantial proportion of suicides (Foster, 2001). Recently, mental health policies in Britain have been directed towards reducing suicide rates, although these have been focused on individuals with severe and persistent mental illness rather than alcohol use disorders. Differing explanations have been offered to account for the relationship between alcohol use disorders and self-harm or completed suicide, involving both social and neurobiological mechanisms: the expression of suicidality may be one of the routes by which individuals seek help for alcohol and substance use disorders; and alcohol may decrease protection against serotonin-mediated suicide impulses (Lovinger, 1997). The latter mechanism might mitigate the potential for psychological interventions alone (e.g. brief motivational enhancement therapy) to effect significant change in psychiatric patients with alcohol use disorders. Because medical staff may miss the opportunity to screen a proportion of psychiatric in-patients owing to the short duration of many psychiatric admissions, screening in community psychiatric settings should be explored further. The advantages of the AUDIT are that it does not require lengthy staff training and is quick to complete. The brevity and face validity of the AUDIT make it suitable for inclusion in assessments conducted by non-medical staff in community settings (Daeppen *et al*, 2000).

Our findings can be used to generate hypotheses regarding the variable efficacy of brief interventions for alcohol use disorders in controlled trials carried out on the

psychiatric population to date (Baker *et al*, 2002; Hulse & Tait, 2002). Gender mix, demographic and genetic factors, duration and nature of psychiatric problems, including suicidality and concomitant drug use (including prescription sedative drug use), may also influence outcome. We encourage researchers in this area to describe in detail their sample and the training provided to study therapists, especially responses to insomnia and suicide risk.

We conclude that the AUDIT is useful in the psychiatric population, especially in those presenting with suicidality. It could be included in assessments of suicide risk. Further research is warranted to examine this relationship in larger samples studied prospectively and in other settings (e.g. in community and liaison psychiatric settings). Interventions for alcohol use disorders in psychiatric populations should aim to reduce suicidal ideation and deliberate self-harm. Priority in the meantime should be given to screening those presenting with deliberate self-harm and suicidal ideation for alcohol use disorders.

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## CLINICAL IMPLICATIONS

- The Alcohol Use Disorders Identification Test score is strongly associated with suicidality.
- Screening for alcohol use disorders in psychiatric settings should be combined with detailed assessment of suicide risk and sleep disturbance.
- Interventions for alcohol use disorders should monitor and aim to reduce the incidence of suicidal ideation and actual self-harm, in addition to addressing problem drinking.

## LIMITATIONS

- This was a small study carried out in only two hospitals in one London region.
- Written questionnaires may exclude those for whom English is not their first language.
- A broad definition of suicidality was used, grouping individuals together who may have differed in terms of risk.

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