

# Discriminating levels of alcohol use associated with self-harm in individuals presenting to a district general hospital

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**Aims and method** Although alcohol is reported as commonly associated with self-harm, there is nothing in the literature that bases the association on validated screening tools. We sought to discern the different types of alcohol use as discriminated by the Alcohol Use Disorders Identification Test (AUDIT). Completed AUDITs from a 2-year period were analysed, all relating to people who had presented to a district general hospital in Northumberland following self-harm.

**Results** The proportion of dependent, harmful and hazardous drinkers identified using AUDIT was many times higher than previously estimated in similar studies that had not used a validated alcohol screening tool.

**Clinical implications** The routine use of an alcohol screening tool should be part of any standard psychosocial assessment of self-harm, to guide appropriate interventions for problematic alcohol use that might otherwise be overlooked.

**Declaration of interest** None.

Alcohol use is positively associated with non-fatal injuries. A World Health Organization (WHO) collaborative study found that the risk of injury increases tenfold after six units of alcohol in the 6 hours prior to injury; that intentional injury is a higher risk than non-intentional injury; and that the risk of intentional self-injury is greater than that of suffering an injury inflicted by somebody else.<sup>1</sup>

Alcohol use has been reported as a factor in 65% of suicide attempts in England, and as implicated in 15–25% of completed suicides.<sup>2–4</sup> In a report based on the National Morbidity Survey of 2000, a fourfold increase in suicidal behaviour was identified among those with alcohol-related problems compared with those without such problems.<sup>5</sup>

Alcohol misuse has been identified as an independent predictor of suicide following non-fatal self-harm.<sup>6</sup> In a discussion paper on the National Suicide Prevention Strategy for England,<sup>7</sup> Anderson & Jenkins argued for the need to highlight alcohol as an independent risk factor for suicide.<sup>8</sup> A review of research evidence on links between alcohol consumption and suicidal behaviour suggests that alcohol predisposes to suicidal behaviour because of its depressive effect, its impairment of problem solving, the consequent promotion of adverse life events, and its aggravation of impulsive behaviour.<sup>9</sup>

In England there has been an increase in the association between alcohol use and hospital admission for treatment of self-harm between 1995 and 2000.<sup>10</sup> A study analysing trends in alcohol use and hospital treatment for self-harm in Oxford from 1989 to 2002 reported an

increase in use of alcohol by females around the time of self-harm, but not by males.<sup>11</sup> No reports on the association of alcohol use and self-harm stratify the seriousness of problematic alcohol use by adopting a readily transferable method, such as an alcohol-screening tool. Such tools might be expected to produce potentially comparable results, and also improve the reliability of the detection of problematic alcohol use.

This paper reports on the alcohol use among people who attended a district general hospital in the north east of England following self-harm. The data are drawn from a 2-year period to the end of December 2007. The types of alcohol use discerned were discriminated by the Alcohol Use Disorders Identification Test (AUDIT).<sup>12</sup>

## Method

Data on alcohol use and self-harm presented in this paper arise from activity in a district general hospital that serves east Northumberland. The hospital serves a population of 250 000; it attends to 36 000 emergencies annually. In 2006–07 there were 1202 admissions for alcohol-related diseases; suicide among males between 2002 and 2004 was significantly higher (with a direct standardised mortality rate of 18.2) than the national average during the same period (13.0).<sup>13</sup>

The hospital is served by a self-harm and mental health liaison team which comprises 0.2 whole-time equivalent consultant psychiatrist and 4.3 whole-time equivalent

mental health nurses. This team provides a 365-day a year service to in-patient wards and post-discharge care. It also offers follow-up assessments and care to people who have self-harmed and, having attended the emergency care department, have returned home without requiring hospital admission. Emergency care out-patients are also supported 24 hours a day, 7 days a week, by a mental health crisis service.

From January 2006 the mental health liaison team adopted AUDIT as a routine component in its assessment of people who had self-harmed. It was primarily adopted to: first, increase inter-professional reliability in identifying probable alcohol-related problems; second, provide a more quantified and less discursive stratification of the severity of alcohol problems encountered; and third, inform the initial treatment and onward referral of patients that was more consistent and equitable in relation to each individual's use of alcohol. The primary clinical purpose of adopting AUDIT was therefore to support professionals' judgements concerning what type of help to manage an alcohol problem would be most likely to be effective in each case (e.g. that a person was not subject to a brief intervention if the evidence suggested that short-term counselling would be more effective).

## AUDIT

The AUDIT is a 10-item screening instrument designed to identify people for whom the use of alcohol puts them at risk of harmful consequences.<sup>14</sup> The test places people into one of four 'zones': zone I (score: 0–7) is indicative of an individual who may, as a prophylactic measure, benefit from education about alcohol; zone II (score: 8–15) is indicative of someone who might benefit from simple advice on the safer management of their alcohol consumption; zone III (score: 16–19) is indicative of someone who might benefit from brief counselling to support a sustained reduction in their alcohol use; and zone IV (score: 20–40) is indicative of an individual who should be referred to a specialist service for a full diagnostic assessment of possible alcohol dependence. Zones II, III and IV correspond approximately to hazardous, harmful and dependent use of alcohol. Hazardous use of alcohol refers to drinking alcohol above safe limits but without suffering concurrent harm; harmful drinking is suffering a concurrent harm of using alcohol; alcohol dependence is associated with symptoms of withdrawal when alcohol is not used.<sup>4</sup>

AUDIT's performance has been evaluated positively across a variety of populations, including people with severe mental illnesses.<sup>15</sup> Estimates of sensitivity range from 0.85 to 0.95; estimates of specificity range from 0.65 to 0.77.<sup>12,16</sup>

All figures that follow refer strictly to individuals. When an individual presented more than once in the 2 years, the second and subsequent presentations have been excluded from our study; when a person is known to have presented with self-harm before 1 January 2006, their first presentation on or after 1 January 2006 has been included but subsequent presentations (if any) have not. The maximum number of known presentations by one individual is 21 over the 2 years. All repeat presentations have been excluded to simplify the picture that emerges from the

data by preventing inflation and distortion of these data by a small number of frequent attendees.

## Results

In the 2 years to 31 December 2007, 1552 persons presented to the district general hospital following self-harm. Of these, 916 (59%) were treated as out-patients: 659 (72%) had taken an overdose of medication and 244 (27%) had self-injured by cutting; other acts of self-harm included burning, use of ligatures, jumping in front of vehicles, wading into water, and ingestion of non-toxic objects.

Of these 916 accident and emergency out-patients, 571 (62%) were triaged-on by the liaison team to primary care services following a review, together with emergency care staff, which fell short of a full psychosocial assessment that included use of AUDIT. Another 152 (17%) were either fully assessed by the mental health crisis service before leaving the department, were seen by their own mental health worker, or were prisoners subject to assessment, care in custody and teamwork (ACCT) plans which precluded a further full assessment. The liaison team therefore fully assessed, including use of AUDIT, 193 persons of those seen in accident and emergency (21% of out-patients).

Of the 1552 persons presenting following self-harm, 636 (41%) were admitted for in-patient treatment. All but 11 of these were for treatment of poisoning; 2 had self-inflicted stab wounds requiring surgery; 3 had hypothermia following attempted drowning; 3 had impact injuries; 2 had carbon monoxide poisoning; and 1 had ingested non-toxic objects.

Of these 636, 69 (11%) were not assessed by the liaison team: 34 refused to be seen, and had the capacity to refuse; a further 9 took their discharge against medical advice; 15 were already open to mental health services and preferred to be seen by their existing mental health worker; 3 were prisoners subject to ACCT plans; and 8 were reviewed by the mental health liaison team and arrangements were made for them to be seen by their primary care mental health worker. The remaining 567 in-patients (89% of those admitted) received a full assessment from the liaison team.

Excluded from these figures are individuals who died in the department, apparently following an act of self-harm but before being seen by the mental health liaison team. We believe that there were six such deaths in the 2 years of the study.

In total, the mental health liaison team undertook a full psychosocial assessment of 760 persons following self-harm between 1 January 2006 and 31 December 2007. Of these, 466 (64%) were recorded as having used alcohol immediately before or in the course of their self-harm, but blood-alcohol levels at admission were not consistently taken and no reliable time frame was used as a reference in the record (e.g. 'within 6 hours'). Of those assessed, 729 (96%) had AUDIT completed as part of that assessment: 5 people refused to answer questions on their use of alcohol and a further 26 were thought to be too distressed to cooperate with AUDIT.

**Table 1** Audit zone scores by age and gender

|          | Total, n = 729 |                 |                  | Males, n = 336       |                 |                  | Females, n = 393       |                 |                  |
|----------|----------------|-----------------|------------------|----------------------|-----------------|------------------|------------------------|-----------------|------------------|
|          | n (% of total) | Mean age, years | Mean AUDIT score | n (% of total males) | Mean age, years | Mean AUDIT score | n (% of total females) | Mean age, years | Mean AUDIT score |
| Zone I   | 277 (38)       | 40              | 2.6              | 114 (34)             | 38              | 3.6              | 162 (41)               | 41              | 1.9              |
| Zone II  | 153 (21)       | 34              | 10.6             | 54 (16)              | 36              | 10.7             | 98 (25)                | 34              | 10.6             |
| Zone III | 73 (10)        | 39              | 18.2             | 33 (10)              | 39              | 18.0             | 39 (10)                | 40              | 18.4             |
| Zone IV  | 226 (31)       | 35              | 27.7             | 135 (40)             | 35              | 31               | 94 (24)                | 35              | 26.3             |

**Table 2** Audit zones by age range

| Age, years | Zone 1 | Zone 2 | Zone 3 | Zone 4 | Total, n |
|------------|--------|--------|--------|--------|----------|
| 16–25      | 53     | 42     | 13     | 52     | 160      |
| 26–35      | 39     | 39     | 17     | 72     | 167      |
| 36–45      | 71     | 35     | 16     | 46     | 168      |
| 46–55      | 56     | 22     | 18     | 51     | 147      |
| 56–65      | 32     | 7      | 5      | 7      | 51       |
| >66        | 26     | 5      | 5      | 0      | 36       |
| Total, n   | 277    | 150    | 74     | 228    | 729      |

## AUDIT results

The results of the AUDIT are summarised in Tables 1 and 2. A breakdown of the spread between AUDIT zones I–IV by age and gender is presented in Table 1; AUDIT zone by the decile age ranges 16–25 years up to 56–65, and then post-65 years, is summarised in Table 2.

Of the 729 people whose assessment included the AUDIT, 393 (54%) were females (mean age 38 years, range 16–83), and 336 (46%) were males (mean age 36 years, range 16–86).

Of those screened using AUDIT, possible dependent drinkers included a large proportion of females (94, or 24% of the women seen), but a greater proportion of males fell into this zone (135, or 40% of the men seen). One in three of those assessed were identified as people whose use of alcohol indicated a need for a specialist assessment, diagnosis, and possible treatment for their alcohol problem alone. Overall, 299 (41%) were identified as in need of more than mere education or simple advice with respect to their alcohol use (Table 1).

In people over 55 years of age, self-harm and use of alcohol appeared to decline. This may indicate an improvement in mental health in later life, late maturation and improved coping skills, or premature mortality. Strikingly, although 87 people aged over 55 years (12% of all those seen) were assessed, only 7 of these presented as possible dependent drinkers (on point of detail, nobody aged over 58 years) (Table 2).

## Discussion

The proportion of self-harm presentations identified as associated with possible dependent alcohol use is markedly higher in this study than that identified in studies drawing

on data from the Oxford Monitoring System for Attempted Suicide: 9.2% of 316 people assessed in 2002 (14.9% of males and 5.7% of females)<sup>11</sup> and 7.9% of self-harm patients seen between 1976 and 1985.<sup>17</sup> At the time of the publication of the 2002 study, there were no reports from other UK centres with which to compare the findings. We hope that this paper begins to rectify that gap.

## Discrepancies between the Oxford and Northumberland studies

The discrepancy between findings from Oxford, concluding that one in ten people treated following self-harm have alcohol dependence, and our finding that three in ten may be so dependent requires explanation. The explanation probably lies in the differences between the methods used in identifying likely alcohol problems and in the differing characteristics of the respective populations.

### *Different study methods*

Although AUDIT has been evaluated positively across a variety of populations,<sup>15</sup> it is not in itself an assessment of excessive alcohol use. It is a screening tool for probable alcohol problems intended to prompt rationally targeted fuller assessments. The balance of the range of estimates of sensitivity from 0.85 to 0.95 and of specificity from 0.65 to 0.77 indicate that AUDIT tends towards false positives, because sensitivity is the proportion of positive cases correctly identified and specificity is the proportion of negative cases correctly identified. In the context of screening for a potentially serious problem, this balance is acceptable because it is safer; it is safer because it misidentifies fewer positive cases as negative than it does negative cases as positive. This tendency will be expressed in the outcome of more safe drinkers being promoted to the hazardous drinking category than hazardous drinkers relegated to the safe category; more hazardous drinkers being promoted to the harmful category than harmful drinkers relegated to the hazardous category; and more harmful drinkers promoted to the dependent category than dependent drinkers relegated to the harmful category. It is probable therefore that AUDIT will inflate suspected morbidity levels relative to the final results of specialist assessments of alcohol-related problems.

We are not in a position to comment directly on any under- or overestimations of alcohol misuse associated with the assessments of self-harm in the Oxford studies. In general, all that we can say is that in the absence of a standard method for quantifying the use of alcohol among

those assessed following self-harm, reliable comparisons are themselves rendered problematic.

#### *Different population characteristics and alcohol use patterns*

Significant differences can be identified in the use of alcohol by the populations of Oxfordshire and Northumberland. Haw *et al* noted that the population of Oxford includes a relatively large number of young people.<sup>11</sup> However, in our study no obvious differences emerged in the proportion of the population under the age of 26 who were hazardous, harmful or dependent alcohol users compared with older adults of working age. Differences in the age profile of the two areas are not therefore an explanation of the differences in the apparent pattern of alcohol use associated with self-harm.

In our study, more individuals with a pattern of alcohol use indicative of dependency were admitted for in-patient treatment as a consequence of self-harm than were treated within accident and emergency as out-patients; correspondingly, fewer hazardous drinkers were admitted. However, excessive use of alcohol will lower the threshold for the in-patient treatment of self-harm, most frequently by placing an individual above the high-risk treatment line but below the normal treatment line for plasma-paracetamol concentration.<sup>18</sup> A higher prevalence of more severe alcohol-related problems might therefore be expected among self-harming in-patients than self-harming out-patients.

There is also, however, a significant difference in the background use of alcohol between Oxfordshire and Northumberland, including between the city of Oxford and the urban areas of Northumberland. In 2007, the direct gender and age standardised rates for hospital stays due to alcohol was 188.1 per 100 000 in Oxfordshire<sup>19</sup> but nearly double that at 334.6 in Northumberland;<sup>13</sup> the rate was 309.7 for the city of Oxford<sup>20</sup> and for the two most urbanised areas of Northumberland the rates were 379.9 (for Blyth)<sup>21</sup> and 494.8 (for Wansbeck).<sup>22</sup> Similarly, estimates from the *Health Survey for England* conclude that there is a higher incidence of adult binge drinkers in Northumberland than in Oxfordshire, and higher incidences in the urbanised areas of Northumberland than in the city of Oxford.<sup>23</sup> There are independent grounds, therefore, for expecting a higher incidence of alcohol problems associated with hospital presentations of self-harm in the north east of England than in Oxfordshire.

The association of problematic alcohol use and general hospital presentations of self-harm reported here is closer to estimates for Scotland.<sup>24</sup> In 2006, a 10-week nationwide audit found that, although 36% of hospital attendances for self-harm had no reliable documentation concerning the use of alcohol, and just 0.4% of people seen were assessed using an alcohol screening tool, alcohol was nonetheless a contributory factor in 40% of such presentations; and that 25% of those seen had an alcohol-related health condition identified in their history. The audit concluded that these figures are likely to underestimate the role played by alcohol in general hospital presentations of self-harm in Scotland.

## Conclusion

Nothing in this overview of alcohol use associated with self-harm indicates what role alcohol played in the related incidents. However, it is clear that problematical patterns of alcohol use have a significant place in the psychosocial circumstances of self-harm. The assessment of alcohol use of a type that discriminates between hazardous, harmful and dependent use should therefore be a routine part of any post-self-harm psychosocial assessment because this better informs the choice of post-incident intervention.

It is unclear to us whether or not alcohol-associated self-harm is included in the estimated £0.5 billion ambulance and emergency care costs that were attributed to alcohol use by the National Treatment Agency for Substance Misuse.<sup>4</sup> However, interventions that effectively reduce problematic alcohol use might be expected to reduce incidents of intentional self-harm, consequent general hospital presentations and thus costs, and perhaps also the number of completed suicides.

Finally, the widespread adoption of simple and broadly comparable alcohol screening tools that are appropriate to busy emergency care departments, as well as readily usable as part of broader psychosocial assessments, is a necessary condition: both for establishing a consensus concerning the extent and seriousness of the association between alcohol use and self-harm, and also for subsequently measuring progress in reducing any such role played by alcohol, and estimating the effect such progress has on incidents of self-harm.

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## Effectiveness and confusion of the Time to Change anti-stigma campaign

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**Aims and method** Several national anti-stigma campaigns have been devised in the UK, including the current Time to Change campaign in England. Our aim was to assess whether the campaign promotional materials were likely to have any effect on public attitudes towards mental illness. Postcards, leaflets and bookmarks promoting the campaign were posted to 250 participants recruited from a representative panel of members of the public. Two weeks later a questionnaire was sent to assess the impact the campaign materials had.

**Results** The response rate was 78%. Only 23% of participants recognised the Time to Change logo after 2 weeks and only 20% correctly reported that one in four people were affected by mental health problems when presented with five alternative responses. Almost as many participants thought the campaign was promoting a British political party rather than discrimination against mental illness.

**Clinical implications** A single exposure to Time to Change campaign materials is unlikely to be effective. The title of the campaign is likely to be confused with political campaigning in Britain.

**Declaration of interest** None.

Stigma is a social construction that devalues people because of a distinguishing characteristic or mark.<sup>1</sup> The World Health Organization and the World Psychiatric Association recognise that the stigma attached to mental

disorders is strongly associated with suffering, disability and poverty.<sup>2</sup> Stigma is also a major barrier to seeking treatment.<sup>3</sup> Many studies show that negative attitudes towards the mentally ill are widespread, while the media