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## Acceptability of screening for early detection of liver disease in hazardous/harmful drinkers in primary care

### Abstract

#### Background

It is estimated that one-quarter of adults in the UK drink at harmful/hazardous levels leading to increased mortality and alcohol liver disease (ALD). The Alcohol Liver Disease Detection Study (ALDDeS) aimed to test out in primary care the feasibility of alcohol misuse screening in adults, using the AUDIT questionnaire, and to assess screening harmful/hazardous alcohol users for ALD using newer non-invasive serum markers of fibrosis.

#### Aim

To explore patients' experiences of taking part in ALDDeS and understanding of the delivery and process of screening for ALD using self-report questionnaires and feedback of liver fibrosis risk using levels of non-invasive serum markers.

#### Design and setting

A nested qualitative study based in five primary care practices in the UK.

#### Method

From a sample of patients who were identified as drinking at harmful/hazardous levels, 30 participants were identified by maximum variation sampling for qualitative in-depth interviews. Using the principles of constant comparison the transcribed interviews were thematically analysed.

#### Results

Receiving a postal AUDIT questionnaire was viewed as acceptable by participants. For some completing the AUDIT increased awareness of their hazardous alcohol use and a positive blood test indicating liver fibrosis was a catalyst for behaviour change. For others, a negative blood test result provided a licence to continue drinking at hazardous levels. A limited understanding of safe drinking and of ALD was common.

#### Conclusion

Educational and training needs of primary care professionals must be taken into account, so that patients with marker levels indicating low risk of fibrosis are correctly informed about the likely risks of continuing to drink at the same levels.

#### Keywords

alcoholic liver disease; patient acceptance of health care; primary care; understanding.

### INTRODUCTION

Alcohol misuse is a major public health problem in Europe and in the UK, an estimated 24% of adults drink dangerously or harmfully,<sup>1</sup> costing the NHS in excess of £2.7 billion per annum.<sup>2</sup> Problems associated with excess alcohol consumption include social issues,<sup>3</sup> increased accidents, chronic health problems<sup>4</sup> and mortality.<sup>5</sup> In 2005 an estimated 14 982 deaths were attributable to alcohol consumption and a high proportion of these were from alcohol liver disease (ALD).<sup>5</sup>

ALD develops slowly with few symptoms at an early stage with patients often presenting with features of advanced liver disease. Compared to routine liver function tests newer serum markers of fibrosis have greater accuracy for detecting fibrosis or cirrhosis at an early stage.<sup>6</sup> Such tests could be used along with alcohol screening to improve detection of liver disease in asymptomatic individuals with the potential to reduce the complications and mortality associated with severe liver disease. If high risk drinking patterns can be identified, brief alcohol interventions provide an effective and cost-effective approach to reducing consumption.<sup>7-9</sup> The main setting for detecting those at risk and intervening is primary care<sup>10</sup> with the attitudes and involvement of GPs as key factors in the

success of brief alcohol interventions.<sup>11,12</sup> However many barriers to implementing brief alcohol interventions in primary care exist in Europe<sup>13</sup> and the UK<sup>14,15</sup> with GPs reporting a lack of time in consultations, support and training,<sup>12,13,15</sup> and fears that discussing alcohol consumption will cause offence.<sup>16</sup>

A survey of patients' attitudes towards screening for 'at risk' drinking with self-report questionnaires and an alcohol biomarker blood test showed that patients are in favour of these techniques being used.<sup>17</sup> Patients also saw value in discussing alcohol consumption in primary care with a GP or health professional with whom they had developed a rapport,<sup>18,19</sup> particularly if discussions are combined with lifestyle issues or when linked to other health conditions<sup>18,19</sup> and as part of routine questioning in a consultation.<sup>20</sup> However there is limited understanding of patients' experiences of screening for high risk drinking patterns using self-report questionnaires, blood tests, and the use of brief alcohol interventions in primary care. As outlined above, an understanding of the perceptions and barriers to alcohol interventions is essential for subsequent successful implementation. ALDDeS is a primary care based feasibility study,<sup>21</sup> which aimed to test out population screening

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## How this fits in

Patients when surveyed have reported the acceptability of possible blood test screening for alcohol liver disease in primary care. In this study patients reported that blood test screening in primary care was an acceptable process, and a positive blood test result can be a catalyst for drinking behaviour change. However a negative blood test could provide inappropriate reassurance, suggesting a great deal of care is required when screening. All interviewees were screened to be drinking at harmful/hazardous levels and all conveyed uncertainty about national guidance on safe drinking and how such guidance relates to them as individuals.

for adults for alcohol misuse using self-report questionnaires and liver fibrosis blood tests. This paper reports on a nested qualitative study, which was conducted with the aim of exploring patients' experiences and understanding about the delivery and process of screening and brief alcohol intervention in primary care.

## METHOD

### Setting and participants

The sample were selected from the group of patients who had tested as harmful/hazardous drinkers (AUDIT >8). Patients were chosen using purposive maximum variation sampling to ensure heterogeneity of age, sex, locality (using surgeries, from inner city to rural market town practices) and blood test results. Patients were selected from the four groups of hazardous drinkers that were originally identified in ALDDeS, as blood test: negative; borderline; positive; and strongly positive, (the grading of liver risk evolved during the main study into The Southampton Traffic Light test (STL)<sup>21</sup> but was not relevant to this patient interview sample.

### Semi-structured interviews

Patients were written to by the study team and invited to participate in a qualitative interview. On return of a reply slip indicating interest in participating, the patients were contacted to arrange an interview at their surgery. All interviews were conducted and analysed by one author. Semi-structured interviews permitted in-depth exploration of participants' experiences of taking part in the ALDDeS and views on alcohol in general.<sup>22</sup> The interview guide (Box 1) was developed by the study team by consensus and assisted exploration of topics but was sufficiently flexible to allow participants to raise issues that were important to them. The interview guide was piloted with the first participant and no changes were made as a result. Consent was taken face-to-face before the interviews, which were held at the patient's surgery, lasted up to 60 minutes and were audiorecorded and transcribed verbatim in preparation for thematic analysis. Recruitment of patients continued until saturation of data was achieved (when no new codes/themes could be identified), it was estimated that 25–30 interviews would be sufficient to achieve saturation.<sup>22</sup>

### Analysis

Analysis of the transcribed interviews started as soon as data collection commenced. Using constant comparison, whereby data are systematically compared within and between interviews,<sup>23</sup> the transcripts were coded and themes and relationships between themes developed<sup>24</sup> allowing the main issues for participants to be identified. Eight members of the ALDDeS team (consisting of a mix of qualitative and quantitative researchers) analysed three transcripts each to check the quality of analysis, the validity of codes and themes, the consistency of their allocation and discrepancies. Any subsequent changes (such as new codes) were agreed by consensus.

## Box 1. Interview guide

### Part 1. Experiences of taking part in the ALDDeS study

- How would you describe your overall experience of taking part in the study?
- The acceptability of screening questionnaires (AUDIT).
- Being invited for and having a blood test.

### Part 2. Your views and understanding of alcohol and safe drinking

- Tell me about you and alcohol and the role it has played in your life before you took part in this study.
- Tell me about you and alcohol and the role that it plays in your life after having taken part in the study.
- Before you took part in the study what did you know or understand about alcohol liver disease?
- How has your knowledge or understanding changed since taking part?
- What do you think constitutes safe drinking?

**Table 1. Sample characteristics**

	Total interviews (n = 30)
<b>Surgery</b>	
A Market town	2
B Urban	7
C Market town	10
D Urban	2
E Rural	9
<b>Sex</b>	
Female	14
Male	16
<b>Age, years</b>	
25–34	3
35–44	14
45–54	13
<b>Blood test</b>	
Did not attend clinic (audit >8)	10
Negative	8
Borderline positive	3
Positive	5
Strongly positive	4

## RESULTS

Over a 4-month period 210 patients were contacted about participating in an interview, of these, 48 responded expressing an interest in the study. Thirty interviews were conducted and recruitment stopped at this point as saturation of the data was reached between interview 27 and 30 (Table 1). Three main themes emerged and are discussed; interview number, sex, age, and blood test result are provided after the quotations.

### Theme 1. Acceptability of the process of the study

Being invited to complete a questionnaire about alcohol intake through a postal approach was low cost but carried the risk of not being acceptable to participants. Indeed, reactions to receiving the questionnaire were mixed. Some participants reported that participation was an opportunity to have a free health check. Others, who had concerns over their health, described the questionnaire as arriving at the 'right time', as it helped to trigger awareness of the levels of their alcohol consumption:

*'When I started filling out the questionnaire which talked about the volumes [of alcohol] ... that you're drinking ... It's the first sort of time for a long time ... you sort of ... actually sat down and worked out ... what it is you drink ... and when ... and I could ... I'd recognised that ... there was an issue there.'* (Int. 7, male, age 44 years, blood test positive)

However, some were also curious or suspicious as to why they were selected, despite being informed that they were randomly selected:

*'I felt maybe it was perhaps pointed just at me. I had no problem with it but that was my initial thought when I actually opened it. I thought, hum, why is it coming to me? You know. I thought mmm ... why, you know, a little bit suspicious of why me. But I had no problem with it.'* (Int. 12, female, age 50 years, blood test positive)

Initial suspicion at being selected did not seem to preclude participation and this was often attributed to a growing concern about their health. Some described experiencing ill health while aware that they were drinking too much, while for others a family history of alcohol-related problems placed the topic of alcohol high on their own personal health agenda:

*'I have got a brother who's an alcoholic ... as well ... so ... you know ... there's that ... and I mean, it could be familial thing ... the fact that mine has come back slightly positive ... So I thought ... well ... you know ... I don't want to turn up ... like my brother ... he's in hospital at the moment ... so, I mean ... he's not in a good state of health with it ... um ... and you know ... it's gone on for some years ... stopping and starting and ... I think my granddad died of ... liver cancer ... and I think he liked ... I think he liked his ... I think he was a fairly ... fairly heavy drinker.'* (Int. 3, female, age 55 years, blood test strongly positive).

All of the interviewed participants who attended for a blood test deemed this type of general practice-led screening process to be acceptable and some expressed a belief that the blood test results provided useful concrete 'diagnostic' evidence:

*'I think ... yeah ... many people are sort of interested ... particularly when it comes to sort of having ... tests ... done. An actual result ... um ... from it. It's like they do the ... um ... what's it the ... err ... sort of stool samples aren't they at the moment for ... sort of cancer? Yeah ... it's ... you know ... people ... err ... people like that sort of thing. [Laughs] ... Sounds odd doesn't it? We don't want to be lectured at ... but you know ... if we see ... some sort of hard evidence of ... sort of problems then ... then you know ... I think people do respond to that.'* (Int. 5, male, age 39 years, blood test borderline positive)

### Theme 2. Alcohol blood testing: a catalyst for change?

Six of the eight participants interviewed who had received a negative blood test reported that they did not intend to change their drinking habits. These participants appeared to be lulled into a false sense of security as a negative blood test was viewed as an indication that they could safely continue drinking at their pre-test levels, despite having received a brief alcohol intervention leaflet:

*'I would say my drinking has remained the same. I want or I wanted to start to be able to curb my drinking but that hasn't been the effect of being involved in this study, so far. And that may very well be because I had a negative blood test. So in a way it's given me a license to carry on behaving as I do because I'm getting away with it, at the moment.'* (Int. 27, female, age 45 years, blood test negative)

Most of the participants who had positive blood tests reported that taking part in the ALDDeS study had either reinforced previous decisions to reduce their alcohol intake or stimulated them to reduce their alcohol intake:

*'I found it ... I've ... Well ... for me ... it's given me a kick up the backside with my drinking ... I mean I'm not going to ... I'm not going to say that it will be easy to stop drinking. This is where the ... this is where the alcoholism side of it comes in ... as opposed to ... but now I'm just so used to drinking ... That ... it's part of my routine. To get it out of my routine ... is going to be difficult, but it is urgent that I get it out of my ... system and because of the ... the ... the findings of the study ..., uh, it's put me ... in short, sharp shock mode to do something about it.'* (Int. 1, male, age 27 years, blood test strongly positive)

However, for some, this potential catalyst for change was mitigated by other factors such as uncertainty as to the meaning of the blood test results, skepticism as to the validity and relevance of their result:

*'They, kind of ... they were a little inconclusive so I was left with ... a little bit ... unclear ... as to ... The test showed there was signs of ... um ... early signs of liver damage ... which could've been caused by a whole multitude of things and ... you know ... I was left quite clear that ... you know ... unless they did further tests ... it was impossible to say whether this was a hereditary thing ... you know ... through alcohol ... through taking painkillers ... or ... a multitude ... of different things ...'* (Int. 6, male, age 44 years, blood test borderline positive)

For some participants the GPs attempt to allay fears or to clarify a situation seemed instead to create confusion, especially regarding the necessity or otherwise to change their drinking behaviour. In some cases this was perceived as due to insufficient advice given or advice that conflicted with study guidance:

*'I didn't understand ... what is the difference between that test and what test my GP does ... you know ... quite regularly and ... So ... that ... So I came back to the GP ... and she said ... you know ... you need to cut down on the amount ... you drink ... Not to stop ... just ... follow the guidelines ... and she referred me for some more blood tests ... which I've had ... and they say it's now within normal limits ... so I don't know if it's the same blood test or a different blood test and that's*

*where I'm confused. ... She wasn't worried that I was an alcoholic ... She ... you know ... just aware that I drink all my units on a Friday and a Saturday night, so it's classed as binge drinking ... So she wasn't worried ... which to me goes against what the letter said ... that I have cirrhosis and fibrosis.'* (Int. 4, female, age 37 years, blood test strongly positive)

### **Theme 3. Knowledge of safe drinking and alcohol liver disease (ALD) and its role in behaviour change**

Most participants conveyed a limited understanding of safe drinking levels and expressed scepticism and/or confusion when asked about safe drinking guidelines:

*'I don't know I mean, I would go out and binge drink till I was ... being sick and falling over but I didn't know I was drinking enough to cause me damage ... and I don't know, I mean ... units ... I'm not sure what they mean, are they on the label? I don't think any of us know what that means ...'* (Int. 12, female, age 50 years, blood test positive)

Some participants used individual factors to define whether their level of drinking was safe, such as a lack of a hangover or the ability to function at work. Some described the importance of using tangible physical effects of drinking alcohol as a measure of safe drinking, such as the ability to exercise, not feeling excessively tired and maintaining a healthy weight:

*'My body tells me when I've had too much ... horrible taste in your mouth ... Tummy feels funny and feel a little bit grumpy ... Definitely grumpy ... um ... I get grumpy with my ... little girl sometimes ... and I know it's because ... I've overdone ... the drink ... you know ... overdone ... It makes me feel muzzy and horrible ... but I don't like to think about the units because I think if you added them all up it would be a bit scary.'* (Int. 19, female, age 54 years, blood test negative)

Participants' knowledge of the health consequences of drinking was limited. Two nurse qualified participants and participants who had experienced illness of family or friends due to excess alcohol consumption discussed the subject with some confidence. However, most asserted their knowledge in rather equivocal terms and described how they had acquired knowledge of ALD through popular media:

*'I mean I heard a radio programme a number of years' ago now, about George Best and a liver doctor said well if you give up for a day a week, it's fine, because your liver will renew yourself, so you always do that, you'll always be fine. And so I happily believed that for quite a few years.'* (Int. 11, female, age 50 years, blood test positive)

Many participants who had the blood test reported that ALDDeS increased knowledge of safe drinking guidelines and consequently increased their awareness of their own alcohol intake, as well as the alcohol intake of others, including friends and family. This knowledge was acquired either through study literature, interaction with the study nurse or through personal research triggered by their participation. These participants described modifying their alcohol consumption using a number of self-management strategies such as making lifestyle changes and enlisting support of family and friends:

*'You know, I haven't given up. Its knowing how to change ... no one has suggested ways ... I think ... It had become more of a habit I think ... of coming in and...you know ... you cook tea and then you have a glass of wine with tea ... But um ... you know ...now I do quite a bit of sport ... You know ... I don't necessarily drink every night ... Or if I go out. I play bridge one night and I know ... I drive ... so I don't ... you know, I wouldn't have drink then ... sometimes I offer to drive just so I don't have a drink.'* (Int. 3, female, age 55 years, blood test strongly positive)

## DISCUSSION

### Summary

This qualitative study indicates that receiving a postal AUDIT questionnaire was viewed as acceptable by patients. Completing AUDIT can increase awareness of alcohol drinking levels, and when coupled with a positive blood test indicating liver fibrosis, can provide a catalyst for behaviour change. Participants who had a negative blood test, even when aware that they were drinking too much, expressed relief at the result but were less inclined to describe intentions and/or strategies to reduce alcohol consumption. Most participants also described difficulties with understanding safe drinking and although aware of the unit measurements, did not always understand what a unit equated to when pouring their own drinks making it difficult to monitor or judge their intake. Most participants had a scanty knowledge of ALD and other health consequences

of alcohol consumption, however, a better understanding was described by participants who were health professionals or who had experienced illness of family and/or friends due to excess alcohol consumption.

### Strengths and limitations

Qualitative interviews were the optimal method of data collection. However, as with all interview studies the kind of data generated is limited to the perspective of a self-selected group of participants. Nevertheless, this perspective offers insight into experiences that can help to explain findings from larger studies of the early detection of liver disease and help to inform policy change. Interviews to explore GPs' perspectives on the impact of the study within their practices and to explore how they explained test results to their patients would have provided a useful complement to patients' interviews. There was less availability of participants within the 25–40-year old age group and this limitation is reflected in the study sample for this qualitative study. Despite the modest sample of 30 interviewees analytic saturation was reached and many perspectives discussed resonate with other relevant studies thereby increasing confidence in the face validity and transferability of the findings.

### Comparison with existing literature

This study echoes a previous study which showed that completing an AUDIT can result in increased awareness of alcohol consumption,<sup>25</sup> and although initially sceptical, patients had positive opinions about self-report alcohol screening and the use of blood tests.<sup>26,27</sup> Adding to this evidence it is suggested that patients may make changes as a consequence of a positive blood test. This suggests that the feedback of test results that clearly signal bodily harm attributable to drinking behaviour may increase motivation to change;<sup>28</sup> the significance of the results are likely to be instantly understandable and concerning.<sup>29</sup> This corresponds with what is known from smoking cessation studies.<sup>30–32</sup>

In ALDDeS a high proportion of participants reduced their drinking in comparison to previous studies of brief alcohol interventions.<sup>21</sup> It is possible that some of the participants interviewed in the negative test group derived a sense of false reassurance from a negative result reinforcing an already existing resistance to change. Indeed in such cases it might be that a negative blood test may require

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### Ethical approval

Ethical approval was granted by Southampton & South West Hampshire Research Ethics Committee on 10 October 2007 (REC reference 07/H0502/160).

### Provenance

Freely submitted, externally peer reviewed.

### Competing interests

The authors have declared no competing interests.

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more explanation to the participants in the context of their high AUDIT scores. The STL was a new test and GPs in the study were not familiar with its use. It was not made clear that although the STL test is reasonably good at identifying moderate and severe liver fibrosis, it will miss cases of very early fibrosis, and it is critical that patients are informed that a negative test result (or green traffic light) is not a 'green light' for continued drinking, but a sign that the problem has been caught in time. This message clearly did not get across in all cases, and this will need to be addressed in future studies.

Nationally, knowledge about safe drinking guidelines is (slowly) improving.<sup>33</sup> It is possible that such confusion has arisen, in part, from changes in published guidelines on weekly drinking limits to daily limits<sup>34,35</sup> and that sentiment was echoed by some participants. Adding to the confusion is the growing awareness of the role of binge or episodic drinking in ALD,<sup>36,37</sup> which contradicts other reports that it is a steady pattern of drinking daily or near daily heavy drinking which is particularly hazardous.<sup>38</sup> This is likely compounded by confused messages in the popular media<sup>39</sup> and a dearth of widespread and consistent GP-based education and counselling.<sup>40</sup>

Possibly arising from this confusion, participants described the difficulty of knowing what they were meant to adhere to in terms of safe drinking, relying instead on very individual definitional criteria and

safe drinking guidance grounded in their own beliefs and experiences, and this has been noted elsewhere.<sup>41</sup> This suggests that there is a need for a consistent, coherent and understandable policy on safe drinking.

### **Implications for research and practice**

There is robust evidence supporting the use of brief alcohol interventions in primary care: feedback of biomarkers have the potential to provide a catalyst for behaviour change. However, the information that is conveyed to participants particularly about their blood result is key to their understanding. A patient who has a negative blood test but who is still drinking at harmful/hazardous levels will need support in understanding the potential risks of continuing to drink. Information about risk can be presented differently depending on preferences<sup>42,43</sup> and a more tailored approach for this particular group may be necessary. It is also important to take into account the educational and training needs of primary care health professionals, including information about newer fibrosis tests to ensure GPs are comfortable sharing appropriate feedback to patients. This work supports the need for a randomised controlled trial to evaluate the impact on primary care patients of feedback of liver fibrosis markers, taking into account the qualitative data and addressing the use of the 'green traffic light' terminology and the need for appropriate training and a consistent message.

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