Health Development Agency

Prevention and reduction of alcohol misuse

Evidence briefing summary

2nd edition, March 2005

Introduction

This briefing presents an update of the evidence from selected systematic reviews, meta-analyses and other reviews about the effectiveness of public health interventions to prevent and reduce alcohol misuse.

The aims of this briefing are to:

- Update the first edition of the alcohol briefing
- Identify all relevant systematic reviews, syntheses, meta-analyses and review-level papers published since the first edition (June 2002)
- Review all papers and highlight ‘what works’ to prevent and reduce alcohol misuse for all population groups, as well as for hazardous/risky/harmful drinkers, but with particular reference to disadvantaged and vulnerable groups, before the onset of dependence
- Identify studies on the cost effectiveness of interventions for the prevention and reduction of alcohol misuse
- Highlight any gaps in the evidence and provide recommendations for research commissioners.

This briefing does not cover interventions aimed at the treatment of alcohol dependence; prevention of relapse for previously known alcohol dependents; screening for alcohol problems or misuse; or interventions which aim to minimise the harm associated with drinking alcohol (either to the individual or society). It does, however, include interventions that aim to prevent and reduce alcohol misuse for hazardous/risky drinkers before the onset of dependence as well as interventions that combine screening for alcohol problems with an intervention to prevent or reduce alcohol misuse (for example, provision of advice).

Alcohol consumption and trends

Alcohol plays an important role in our society; over 90% of adults in the UK population – nearly 40 million people – consume alcohol and it is widely associated with pleasure and relaxation, and drinking in moderation can confer some health benefits (Cabinet Office Strategy Unit, 2003). It also makes a substantial contribution to the UK economy with the drinks market generating approximately one million jobs and excise duties on alcohol raising about £7 billion per year in Exchequer revenues (Cabinet Office Strategy Unit, 2003).

Over half the adult population drinks fewer than 14/21 units (men and women respectively) a week. Average weekly consumption in the last 12 months for men increased from 15.7 in 1992 to 17.0 units in 2002 (DH, 2004). The increase for women was from 5.5 to 7.6 units during the same period.
Introduction

This indicates an increase in alcohol consumption for both men and women, but a more substantial one for women.

In 2002, 27% of men and 17% of women aged 16 and over drank on average more than 21 and 14 units respectively. Drinking at these levels among men has remained stable at about 27% since 1992; for women it has risen from 12% to 17% in the same period (DH, 2004). Further alcohol consumption data is presented below and in the table.

Binge drinking in the UK accounts for 40% of all drinking occasions by men and 22% by women. Young people (aged 16-24 years) are more likely to binge drink (Cabinet Office Strategy Unit, 2003).

Alcohol use among younger children (11-15 years) has been rising steadily in England from 21% in 1992 to 27% in 1996 and it has since fluctuated within this range, showing no clear pattern over recent years (DH, 2004). In 2003, 25% of 11 to 15 year olds had drunk alcohol in the week prior to interview, and the proportions drinking alcohol in this age group increased sharply with age – only 6% of pupils aged 11 compared with 49% of those aged 15.

National statistics and research studies indicate that – as well as sex and age – socio-economic status, ethnicity and geographical area of residence are among the factors linked to levels and patterns of harmful alcohol consumption (ONS, 2000).

Alcohol misuse

Alcohol is causally related to cancers of the oral cavity and pharynx, larynx, oesophagus and liver, while there is suggestive but inconclusive data for a causal role in rectal and breast cancer (Seitz and Homann, 2001; Royal College of Physicians, 2001). Alcohol misuse can be directly linked to deaths from liver cirrhosis (DH, 2004).

In addition, between 15,000 and 22,000 deaths each year are associated with alcohol misuse, mainly resulting from stroke, cancer, liver disease, accidental injury or suicide (Cabinet Office Strategy Unit, 2003).

Linked to this is the accumulating body of knowledge of the individual and social harms associated with alcohol consumption and misuse as follows (Cabinet Office Strategy Unit, 2003 – figures indicative of current position):

Crime and disorder

- In 1999, an estimated 1.2 million violent incidents (half of all violent crimes) were alcohol-related
- There are about 360,000 alcohol-related incidents of domestic violence
- There are 85,000 cases of drink driving

Health

- Alcohol-related disease accounts for 1 in 26 NHS bed days
- Up to 35% of all A&E attendance and ambulance costs, £500 million, are estimated to be alcohol-related
- 40% of all A&E admissions are alcohol-related
- Up to 150,000 hospital admissions are related to alcohol misuse
- Alcohol is associated with up to 1,000 suicides per year

Workplace

- Up to 17 million days are lost annually due to alcohol-related absence

Family/social networks

- Between 0.78-1.3 million children are affected by alcohol misuse in the family
- Around a third of incidents of domestic violence are linked to alcohol misuse
- There are up to 20,000 street drinkers in the UK.

In terms of financial burden, it is estimated that the costs of alcohol misuse are around £20 billion a year (Cabinet Office Strategy Unit, 2003). These costs cover alcohol-related health disorders and disease, crime and anti-social behaviour, loss of productivity in the workplace, and problems for both those who misuse alcohol and for their families, including domestic violence.

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**Table: Percentage of men and women who drank in excess of recommended sensible drinking levels in 2002 (DH, 2004)**

<table>
<thead>
<tr>
<th>Daily harmful consumption</th>
<th>Men</th>
<th>Women</th>
</tr>
</thead>
<tbody>
<tr>
<td>Over 4 units (men) and 3 units (women), aged 16 and over on at least one day in the previous week</td>
<td>37%</td>
<td>22%</td>
</tr>
<tr>
<td>Over 8 units (men) and 6 units (women), aged 16 and over on at least one day in the previous week</td>
<td>21%</td>
<td>9%</td>
</tr>
<tr>
<td>Over 4 units (men) and 3 units (women), aged 16-24 years on at least one day in the previous week</td>
<td>48%</td>
<td>40%</td>
</tr>
<tr>
<td>Over 8 units (men) and 6 units (women), aged 16-24 years on at least one day in the previous week</td>
<td>34%</td>
<td>26%</td>
</tr>
<tr>
<td>Over 4 units (men) and 3 units (women), aged 65 and over on at least one day in the previous week</td>
<td>15%</td>
<td>5%</td>
</tr>
</tbody>
</table>
Methods

An extensive and systematic search of the literature was conducted by the HDA’s Health Intelligence team to update the search undertaken in the first edition. A total of 263 citation titles and abstracts were independently assessed for relevance.

A total of 44 papers identified were critically appraised. The critical appraisal process identified the extent to which the papers met the following HDA criteria: systematicity, transparency, quality and relevance. A total of 15 papers were selected for the Findings section. All the accepted papers (now referred to as HDA Evidence Base papers) were compared and collated, and a narrative synthesis was produced by the HDA reviewers under the following core themes:

- Interventions to reduce alcohol-impaired driving
- Healthcare settings
- Children and young people.

A number of evidence statements about whether certain interventions were effective, based on the evidence from the included HDA Evidence Base papers are also made within each theme. Each summary statement categorises the evidence as follows:

- Evidence of effectiveness: derived from the review-level literature where the results were all in agreement, using the review authors’ own words
- Currently, a lack of evidence of effectiveness: applied to interventions in the review-level literature which showed no current impact on outcomes
- Conflicting evidence: derived from the review-level literature (or primary studies within a review) where the interpretation and conclusions of the papers were not in agreement.

A key remit of this briefing was to scrutinise the reviews for details on the effect on inequalities in health and on the cost effectiveness of the interventions.

Findings

A total of 15 systematic reviews or meta-analyses met the criteria outlined above and were included onto the HDA Evidence Base.

Interventions to reduce alcohol-impaired driving

Blood alcohol concentration (BAC) laws
- There is review-level evidence that 80mg/100ml blood alcohol concentration (BAC) laws are effective in reducing alcohol-related crash fatalities (Shults et al., 2001).

Lower BAC laws for young or inexperienced drivers
- There is review-level evidence that lower BAC laws are effective in reducing alcohol-impaired crash fatalities among young or inexperienced drivers (Shults et al., 2001; Zwerling and Jones, 1999).

Minimum legal drinking age laws
- There is review-level evidence that minimum drinking age laws, particularly those that set the minimum drinking legal age at age 21, are effective in preventing alcohol-related crashes and associated injuries (Shults et al., 2001).

Sobriety checkpoints
- There is review-level evidence that selective breath testing, sobriety checkpoints and random breath testing are effective in preventing alcohol-impaired driving, alcohol-related crashes, and associated fatal and non-fatal injuries (Shults et al., 2001; Peek-Asa, 1999).

Ignition interlock devices
- There is review-level evidence for the effectiveness of ignition interlock devices in reducing recidivist intoxicated driving (ie habitual relapses in offending or criminal behaviour) (Cohen and Larkin, 1999).

Server training programmes
- There is review-level evidence to suggest that intensive, high quality, face-to-face server training, when accompanied by strong and active management support, is effective in reducing intoxication levels in customers (Shults et al., 2001).

Healthcare settings

GP-based lifestyle interventions
- There is conflicting review-level evidence for the effectiveness of GP-based lifestyle advice interventions to reduce heavy drinking (Ashenden et al., 1997)

Psychosocial interventions delivered by GPs
- There is review-level evidence to suggest that a cognitive behavioural intervention by a GP is no more effective than a cognitive behavioural intervention by a nurse practitioner or brief advice (Huibers et al., 2003).

- There is also review-level evidence to suggest that a behavioural change programme is no more effective than brief advice, assessment of drinking behaviour only, or follow-up measurement only, on alcohol consumption or alcohol-related problems (Huibers et al., 2003).

Brief interventions
- There is review-level evidence to suggest that heavy drinkers receiving brief interventions are twice as likely to moderate their drinking six to 12 months after an intervention when compared with drinkers receiving no intervention (Wilk et al., 1997).

- There is review-level evidence to show that brief interventions (especially multi-contact interventions) can reduce net weekly drinking by 13% to 34%, resulting in 2.9 to 8.7 fewer mean drinks per week and a significant effect on recommended or safe alcohol use (Whitlock et al., 2004).

- There is currently a lack of review-level evidence for the effectiveness of very brief and extended interventions in decreasing alcohol intake in both men and women (Poikolainen, 1999).
• There is currently a lack of review-level evidence for the effectiveness of very brief interventions in decreasing alcohol intake in both men and women (Poikolainen, 1999; Whitlock et al., 2004).
• There is review-level evidence for the effectiveness of extended brief interventions (several visits) in primary healthcare settings for women. Extended brief interventions decreased alcohol intake in women by, on average, 51g per week (Poikolainen, 1999).
• There is currently a lack of review-level evidence for the effectiveness of extended brief interventions (several visits) in primary healthcare settings for men (Poikolainen, 1999).
• There is review-level evidence to suggest that brief interventions are equally effective in men and women for hazardous alcohol consumption in primary care settings (Ballesteros et al., 2004; Whitlock et al., 2004).
• There is review-level evidence to suggest that brief interventions are effective in opportunistic (non-treatment-seeking) samples and as typically delivered by healthcare professionals (Moyer et al., 2002).
• There is review-level evidence to support the moderate efficacy of brief interventions for hazardous drinkers in the primary care setting (Ballesteros et al., 2004b).
• There is a lack of evidence for a dose-effect relationship linking the intensity of brief interventions with outcome (Ballesteros et al., 2004b).

Interventions to increase rates of screening and giving advice by GPs
• There is review-level evidence to suggest that it may be possible to increase the engagement of GPs in screening and giving advice for hazardous and harmful alcohol consumption (Anderson et al., 2004).

The use of bibliotherapy (self-help materials)
• There is review-level evidence to suggest that the use of bibliotherapy is effective in decreasing at-risk and harmful drinking, particularly with those seeking help for their drinking and to a lesser extent with drinkers identified through screening as at-risk (Apodaca and Miller, 2003).

Children and young people
• There is currently a lack of review-level evidence for the effectiveness of interventions in reducing alcohol misuse in young people (Foxcroft et al., 2002).

Based on the findings of this briefing there is a general lack of evidence on a wide range of topic areas relating to the prevention and reduction of alcohol misuse. We have compiled a list of recommendations, presented in no particular order. These are based on our own recommendations plus those made by the authors of the HDA Evidence Base papers, which are referenced. It is important to note that we have not systematically searched for gaps in the primary research, although some of the recommendations will impact on this.

Inequalities and vulnerable groups
From the systematic review and meta-analytic literature, there is a complete lack of evidence on the effectiveness of interventions targeting specific socio-economic, ethnic or vulnerable groups. Furthermore, the interventions identified did not address the differential effectiveness of interventions among these groups, or how the different components affected them.

Recommendations include:
• Primary research is needed to carry out brief interventions to reduce alcohol misuse and evaluate their effectiveness among minority ethnic groups, particularly among Asians and African-Caribbeans, as well as religious ethnic groups such as Sikhs, Hindus and Muslims
• There is a need to carry out adequate evaluation of interventions aimed at young people targeting hard to reach and vulnerable groups.

Cost effectiveness
• Some evidence was found from studies conducted in the US (Shults et al., 2001) regarding the cost effectiveness of interventions to reduce alcohol-impaired driving. However, there is still an urgent need for primary research that examines the cost effectiveness of interventions to prevent alcohol misuse in both the general population and disadvantaged and vulnerable groups.

Intervention design
• The problems of evaluating community approaches should be reviewed with a view to testing different approaches (possibly innovative methods) to evaluation (eg using qualitative approaches as well as quantitative).
• When undertaking evaluations of interventions, there is a need to include a process evaluative approach and to collect qualitative data where possible. This should include those who have dropped out of interventions. This data will allow an assessment of how the intervention can be transferred from the research setting to clinical practice, enable the easy identification of features of effective interventions, and show how the intervention can be replicated on a wider scale.
• Researchers and policy makers should consider the advantages of agreeing and implementing standard alcohol consumption measures and definitions (Poikolainen, 1999).
• The methodology of evaluations needs to be improved. Large-scale randomised controlled trials (RCTs) are possible and preferable for rigorous scientific evaluation of discrete interventions, but appropriate statistical analysis needs to be undertaken to take account of the intra-class correlation coefficient. For large community interventions where
RCTs are not practical, a comparative interrupted time series design with sufficient pre-and post-intervention measurement time points should be considered (Foxcroft et al., 2002).

- All researchers should clearly describe attrition rates, how they vary between different treatment and control groups, and how attrition is dealt with in any statistical analysis, for example through an intention-to-treat analysis (Foxcroft et al., 2002).
- Culturally focused interventions require further development and rigorous evaluation, including cost-effectiveness assessment (Foxcroft et al., 2002).
- There is a need to look at the long-term effects of interventions on healthcare utilisation. Interventions should also investigate other outcomes such as work performance, family relationships and overall quality of life (Wilk et al., 1997).

Interventions to reduce alcohol-impaired driving

Shults et al. (2001) highlighted a number of issues that require further research:

- What effects do these interventions have on long-term changes in social norms about drinking and driving?
- What are the independent effects of publicity on the effectiveness of laws to reduce alcohol-impaired driving?
- Does targeting publicity efforts to specific subpopulations (eg young drivers, ethnic minorities, men) improve the effectiveness of interventions to reduce alcohol-impaired driving?
- Does public compliance with new laws change in a predictable manner over time?
- Are server intervention training programmes delivered community wide effective at decreasing alcohol-impaired driving and alcohol-related crashes?
- What is the long-term effect of server intervention training programmes? Are ‘booster sessions’ required to maintain effectiveness?

Peek-Asa (1999) and Zwerling and Jones (1999) also recommended:

- Multivariate research controlling for confounding variables, such as other ongoing prevention programmes, needs to be conducted to determine the proportion of crashes reduced specifically by random screening programmes. Cost-benefit analyses are also needed (Peek-Asa, 1999).
- Future research should address the enforcement of zero tolerance laws. Studies should look at process measures such as arrest and conviction rates as well as outcome measures (Zwerling and Jones, 1999).

Healthcare settings

- Considerable work is needed to implement screening combined with brief interventions for risky/harmful alcohol use as part of routine practice, and more research is needed on effective strategies and support for adoption of these services by physicians and health plans. Future research is also needed to establish the possible cost savings or cost effectiveness of these interventions (Whitlock et al., 2004).
- There is a pressing need for more implementation research. Future studies may reveal why some interventions work and others do not (Anderson et al., 2004).
- Further research of higher quality is needed particularly with a specific focus on multi-component alcohol programmes (Anderson et al, 2004).
- Additional studies are also needed to determine the relative impact of outreach as opposed to non-outreach programmes and the relative impact of educational and office-based interventions (Anderson et al., 2004).
- A systematic review is needed for the effectiveness of brief alcohol interventions carried out in hospital settings in the UK. There are individual studies conducted in accident and emergency departments in the UK, but to date no systematic review has been undertaken.

Children and young people

- Research into the important outcome variables needs to be undertaken. There is no single outcome measure of youth drinking behaviour that is used in evaluation studies, and no clear understanding of which outcome measures are important predictors of alcohol misuse, morbidity and mortality in later life (Foxcroft et al., 2002).
- The US-based Strengthening Families Programme needs to be piloted in the UK and evaluated on a larger scale and in different settings to confirm the current results and the transferability of the programme to the UK. Cost-effectiveness analyses would be useful (Foxcroft et al., 2002).
- There is an urgent need to fill the current evidence gap in interventions to reduce alcohol misuse in young people.

Pregnancy

- There is a need to undertake a systematic review on interventions to reduce alcohol consumption in pregnancy as none have been undertaken since 1996.

Workplace

- The workplace is a major location that ‘captures’ many people in the heavier drinking groups (eg 16-24 year olds, employed professional women, people in occupational groups with a higher risk of developing alcohol problems). It is also the context within which occupational and professional socialisation takes place. It is, therefore, an important context within which to tackle attitudes and drinking behaviours. The development and evaluation of workplace policies should be encouraged.

Other gaps identified

- The impact of policies and initiatives such as fiscal measures, legislation other than drink driving, safer drinking environment, education and mass media, on the prevention of both alcohol misuse and related harm is worthy of further investigation.
- This evidence briefing has investigated the effectiveness of interventions in reducing alcohol misuse. However, the effect of interventions in reducing alcohol-related harm, for example harm to the individual, families or society, is also of great importance and should be considered.
References


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