



Review

Underage drinking in the UK: Changing trends, impact and interventions. A rapid evidence synthesis[☆]

Christine Healey^{a,*}, Atif Rahman^a, Mohammad Faizal^b, Peter Kinderman^c^a Institute of Psychology, Health and Society, Waterhouse Building, University of Liverpool, Liverpool L69 3GL, United Kingdom^b Mersey Care NHS Trust Addictions Clinical Business Unit, Rathbone Hospital, Mill Lane, Liverpool, United Kingdom^c Institute of Psychology, Health and Society, Waterhouse Building, University of Liverpool, United Kingdom

ARTICLE INFO

Article history:

Received 1 April 2013

Received in revised form 3 July 2013

Accepted 8 July 2013

Keywords:

Underage alcohol use

Children and adolescents

Alcohol-fuelled violent offending

Indicated interventions

Evidence synthesis

ABSTRACT

The UK is a high prevalence country for underage alcohol use. We conducted an evidence synthesis to examine (1) the changing trends in underage drinking in the UK compared to Europe and the USA, (2) the impact of underage drinking in terms of hospital admissions, (3) the association between underage drinking and violent youth offending, and (4) the evidence base for the effectiveness of alcohol harm reduction interventions aimed at children and adolescents under the age of 18 years. The following databases were searched from November 2002 until November 2012: Cochrane Database of Systematic Reviews, National Institute for Health and Clinical Excellence, The Evidence for Policy and Practice Information, DARE, Medline, The Campbell Collaboration, CINAHL, Criminal Justice Abstracts, Psych INFO and Social Care Online. Our findings revealed changes in the way children drink in the UK and how much they drink. Alcohol related harms are increasing in the UK despite overall population levels of consumption reducing in this age group. Girls aged 15–16 years report binge drinking and drunkenness more than boys. Girls are also more likely than boys to be admitted to hospital for alcohol related harm. The evidence suggests a strong association between heavy episodic binge drinking and violent youth offending. Only 7 out of 45 randomised controlled trials (RCTs) identified for this review included children and adolescents under the age of 18 years. Most were delivered in the emergency department (ED) and involved a brief intervention. All were characterised by a wide age range of participants, heterogeneous samples and high rates of refusal and attrition. The authors conclude that whilst the ED might be the best place to identify children and adolescents at risk of harm related to alcohol use it might not be the best place to deliver an intervention. Issues related to a lack of engagement with alcohol harm reduction interventions have been previously overlooked and warrant further investigation.

© 2013 The Authors. Published by Elsevier B.V. All rights reserved.

Introduction

Underage drinking is when a person who is not of legal age drinks alcohol. In the UK it is illegal for someone under the age of 18 years to buy alcohol, to drink alcohol in a public place, attempt to buy alcohol or to be sold alcohol. Young people aged 16–17 years can drink beer, wine or cider with a meal if it is bought by an adult and they are accompanied by an adult, but it is illegal to drink spirits (Inside Government, Ministry of Justice, 2013). Underage heavy episodic binge-drinking, defined as consuming five or more drinks

on one occasion, is associated with a range of negative health and social outcomes including accidents, physical and mental health problems, poor school performance, anti-social behaviour and violence (Alcohol Concern, 2011; Atkinson, Sumnall, & Bellis, 2012; British Medical Association, 2009). The national *Offending, Crime and Justice Survey* (2008) found that underage drinkers who drank at least once a week commit a disproportionate number of offences, particularly violent offences (Roe & Ashe, 2008). The UK is now one of the few countries in Europe where girls aged 15–16 years report binge-drinking and drunkenness more than boys (Hibell et al., 2012). Violent offending by girls under the age of 18 years increased from 8702 in 2003 to 15,672 in 2007 (Youth Justice Board Annual Workload Data, 2007). Girls are also 1.3 times more likely than boys to be admitted to hospital via the emergency department for an alcohol specific condition (Smith & Curran, 2010). Binge-drinking is associated with an increased risk of becoming pregnant with rates of teenage pregnancy in the UK the highest in Western Europe (Bellis et al., 2009). There is also evidence to suggest an association

[☆] This is an open-access article distributed under the terms of the Creative Commons Attribution-NonCommercial-No Derivative Works License, which permits non-commercial use, distribution, and reproduction in any medium, provided the original author and source are credited.

* Corresponding author. Tel.: +44 0151 794 8041; fax: +44 0151 794 5604.

E-mail address: chealey@liverpool.ac.uk (C. Healey).

between drinking among young people, especially binge drinking, and increased risk of forced sex (Bellis et al., 2009). Trends in alcohol consumption tend to mirror the numbers of children and young people seeking alcohol related medical treatment (Lansley, 2010). A report by the UK Department for Children, Schools and Families (2008) estimated that approximately 1245 young people attend hospital emergency departments (ED) weekly for alcohol-related treatment, the equivalent of 64,750 per year (Newbury-Birch et al., 2009). However, only 6 per cent of emergency departments in the UK offer alcohol harm-reduction interventions to patient's aged 16-years or under (Alcohol Concern, 2011). This article reviews the literature on (1) the changing trends of underage drinking in the UK compared to Europe and the USA, (2) the impact of underage drinking in terms of hospital admissions, (3) the association between underage drinking and violent youth offending, and (4) the evidence base for the effectiveness of alcohol harm reduction interventions aimed at children and adolescents under the age of 18 years.

Method

Why evidence synthesis

Evidence synthesis combines multiple sources of data to derive best evidence for use by knowledge users, policy makers and decision makers in healthcare. It follows broadly similar steps to those of conventional systematic reviews, but the methodology is less well developed (Athanasious & Darzi, 2011). As well as randomised controlled trials assessing the impact of an intervention on health outcomes, evidence synthesis is more flexible and inclusive of a wider range of non intervention study types including cohort studies, case-control studies and surveys. Methods are also being developed to use meta-ethnography to synthesise evidence from multiple qualitative studies (Popay & Roberts, 2006). This flexibility allows the reviewer to address questions that go beyond effectiveness and to make better use of the information contained within the existing evidence base to inform decision making in healthcare (Athanasious & Darzi, 2011). While the majority of high-quality systematic reviews such as those published by the Cochrane Collaboration remain focused on the issue of effectiveness, evidence syntheses are beginning to address additional, complementary issues. These complementary issues can include questions about the cost effectiveness of interventions, the processes involved in delivering interventions, the appropriateness and acceptability of particular interventions and the conditions necessary for the successful real world implementation of interventions shown to be effective in a research context (Popay & Roberts, 2006). While systematic reviews are considered to be the gold standard in knowledge synthesis, they are not without limitations. They usually require six months to two years to complete and focus on a narrow clinical question or set of questions (Khangura, Konnyu, Cushman, Grimshaw, & Moher, 2012). Approximately 50 per cent of published systematic reviews include meta-analysis. They tend to be long and can be very technical to read (Khangura et al., 2012). Evidence synthesis can report on the results of included meta-analysis but they do not undertake this level of quantitative synthesis. The aim of an evidence synthesis is to consult and synthesise a broad range of quality evidence that is both more timely and user-friendly than traditional systematic reviews (Ganann, Ciliska, & Thomas, 2010; Khangura et al., 2012).

Search criteria

An extensive literature review of studies and reports relevant to the aims of this review has been carried out using electronic and printed sources. The following electronic databases were searched

Table 1

Lifetime alcohol use, use in the last 12-months and 30-days.

	UK	ESPAD (2011) average for 36 European countries
Lifetime alcohol use	90%	87%
Use in the last 12-months	85%	79%
Use in the last 30-days	65%	57%

from November 2002 until November 2012: Cochrane Database of Systematic Reviews, National Institute for Health and Clinical Excellence, The Evidence for Policy and Practice Information, DARE, Medline, The Campbell Collaboration, CINAHL, Criminal Justice Abstracts, Psych INFO and Social Care Online. Search terms included children, adolescents, youth, young people, alcohol use, alcohol misuse, alcohol abuse, binge-drinking, alcohol dependency, violence, violent crime, offending. The inclusion criteria for the evidence base on the effectiveness of alcohol harm reduction interventions comprised (1) RCT with one or more components, (2) includes children and adolescents under the age of 18 years, (3) in English language, and (4) alcohol consumption or alcohol-related consequence outcomes. Eleven systematic reviews published between 2007 and 2012 were identified. Four Cochrane systematic reviews were excluded as they focussed on broad based universal interventions (Foxcroft & Tsertsvadze, 2011a, 2011b, 2011c; Gates, McCambridge, Smith, & Foxcroft, 2009). A further two reviews were excluded as they focussed on interventions for more severe problems related to poly substance use and/or co morbid mental health problems (Deas, 2008; Toumbourou et al., 2007). Four systematic reviews and one meta-analysis reporting on 45 randomised controlled trials (RCTs) were selected for this evidence synthesis (Calabria, Shakeshaft, & Havard, 2011; Mitchell, Gryczynski, O'Grady, & Schwartz, 2013; Tripodi, Bender, Litschge, & Vaughn, 2010; Wachtel & Staniford, 2010; Yuma-Guerrero et al., 2012). Only seven of 45 RCTs included children and adolescents under the age of 18 years. One study was conducted in the Netherlands with the remaining six all conducted in the USA. The findings have been integrated to summarise the evidence base on the effectiveness of alcohol harm reduction interventions aimed at children and adolescents under the age of 18 years.

Results

Trends in underage drinking in the UK

The European Survey Project on Alcohol and Drugs (ESPAD) is a high quality survey conducted every four years to provide comparable data on trends in alcohol use among 15–16 year old pupils across 36 European countries (Hibell et al., 2009, 2012). Problematic alcohol use is measured using two items. The first is a subjective measure of drunkenness defined as staggering when walking, not being able to speak properly, vomiting or not remembering what happened. The second is heavy episodic 'binge' drinking, defined as consuming five or more drinks on one occasion (Atkinson et al., 2012). The UK is consistently classed as a high prevalence country for underage alcohol use as the proportions of pupils reporting lifetime alcohol use, use in the last 12-months and use in the last 30-days are all higher than the ESPAD average. This is illustrated in Table 1.

From 2007 onwards the ESPAD survey revealed significant changes in the way young people drink in the UK and how much they drink. Although the overall proportion of 15–16 year olds who 'do not' drink is increasing, those who do drink tend to start drinking at a younger age and are drinking much greater quantities (Fuller et al., 2012; Hibell et al., 2012). Levels of alcohol use amongst those who do drink increased substantially from 5.3 units a week in 1990

Table 2
Drinking five or more drinks on the same occasion.

	UK girls	UK boys	ESPAD average for 36 European countries for girls	ESPAD average for 36 European countries for boys
1995	49%	51%	29%	41%
2007	55%	52%	41%	45%
2011	54%	50%	38%	43%

to 11.6 units per week in 2009 (Fuller et al., 2012). Binge drinking patterns are more likely amongst girls and drinkers from more deprived areas of the UK (Elliot et al., 2009). Sex differences were also observed for type of drink consumed with boys being more likely to drink beer and girls more likely to drink spirits (Alcohol Concern and Balance North East, 2012). The UK has also witnessed a trend toward increased unsupervised drinking by young people in open-air public places such as parks, at bus stops and shopping areas (Alcohol Concern, 2011). Early onset heavy drinking before the age of 15-years can be a marker for future problems, including suicidal thoughts and attempts, unintentional injury, as well as drug and alcohol dependence later in life (Friese & Grube, 2009; Surgeon General, 2007). The rate of liver deaths in the UK has nearly quadrupled over 40 years; a very different trend from most other European countries (British Medical Association, 2009). A comparison of heavy episodic binge drinking trends for 15–16 year old boys and girls in the UK compared to the average for 36 European countries is presented in Table 2.

Monitoring the Future Survey (MTF) is conducted annually among 8th, 10th and 12th graders in the United States (Friese & Grube, 2009; Johnston et al., 2012). Data collected for 10th grade students aged 15–16 years is used to compare drinking rates in the United States to European countries using data from the ESPAD (Hibell et al., 2009, 2012). The questions from the two surveys map closely onto one another particularly the item addressing self-reported intoxication (Hibell et al., 2009, 2012). A comparison of the 2007 MTF and 2007 ESPAD revealed much higher intoxication rates for the UK compared to the USA. 33 per cent of students in the UK reported intoxication in the last 30-days compared to 18 per cent in the USA and 24 per cent reported intoxication before the age of 13-years compared to 8 per cent for the USA (Johnston et al., 2012). British youth have also been found to have by far the most positive expectations of drinking and distinctly favourable attitudes towards intoxication compared with youth in other countries in Europe and elsewhere (Hibell et al., 2009, 2012; Measham, 2008).

Impact of underage drinking

Whilst government policy in the UK has often focused on how to tackle alcohol as a public nuisance issue, insufficient attention has been paid to the health problems that young people face through consuming alcohol at a time when their bodies are less able to deal with it (Alcohol Concern, 2011; British Medical Association, 2009). In the short term, alcohol can lead to drunkenness, and when used excessively, poisoning. In terms of the primary effects of alcohol, between 2006 and 2009 21,288 children and adolescents under the age of 18 years were admitted to hospital for an alcohol-specific condition such as alcohol poisoning and/or acute intoxication. Regions in the UK characterised by high levels of social deprivation experience the highest rates of admissions (Alcohol Concern, 2011; Elliot et al., 2009). Hospital admissions increase sharply between the ages of 11 and 16 years, with girls being more likely than boys to be admitted (Donaldson, 2009). Between 2004 and 2009 23,347 girls under the age of 18 were admitted compared to 18,159 boys (Smith & Curran, 2010). In terms of the secondary effects of alcohol such as accidents and assaults due to intoxication, between 2002 and 2009 92,220 children under the age of 18 were

admitted to hospital due to alcohol-related conditions, an average of 36 per day (Smith & Curran, 2010). There has also been a 57 per cent rise in alcohol-related deaths amongst young people aged 15–34 years between 1991 and 2006 (Alcohol Concern, 2011). However, almost 50 per cent of hospital emergency departments in the UK have no existing mechanism for referral to specialist alcohol support; three quarters have not developed an alcohol-harm reduction strategy that includes young people, and only 6 per cent of emergency departments offer harm reduction interventions to patients aged 16-years or under (Alcohol Concern, 2011). An audit conducted in one of the few paediatric EDs in the UK that offers a harm reduction intervention to patients under the age of 18 years revealed that 71 per cent of alcohol attendees were female, the majority aged 12 to 15 years and the main drink consumed was vodka. Over one in ten patients were admitted to hospital and nearly two-thirds were referred to a brief intervention clinic (BIC) situated in the ED. Only 9 per cent of those referred to the BIC were recorded as having attended and received the brief intervention (Quigg et al., 2010).

It is estimated that the costs to the UK health and ambulance services due to underage binge drinking is in the region of £19 million UK per annum (Alcohol Concern, 2011). It has also resulted in high levels of children and young people needing to access specialist treatment for tackling alcohol problems including dependence. In 2010 approximately 9000 children and adolescents under the age of 18-years accessed this support, over 24 each day (Alcohol Concern, 2011). Vulnerability to alcohol abuse and dependence is greatest among adolescents who begin drinking before the age of 15 years (Donaldson, 2009). In the absence of quantitative evaluations of the cost-effectiveness of interventions for underage drinkers, it is estimated that a modest 7 per cent reduction in the number of young people in the UK likely to become adult alcohol abusers in their lifetime would generate up to £92.6 million UK in short term net benefits and if these reductions are achieved, the long term net benefits of treatment would be high, up to £159 million UK (Department for Education, 2010).

The relationship between alcohol and violent youth offending

Young people who start drinking at an earlier age, drink on a frequent basis or engage in heavy episodic binge drinking are at an increased risk of involvement in youth violence as both victims and perpetrators (Bellis et al., 2012; Hughes & Bellis, 2006). A report by the World Health Organisation (2006) found that violence affecting young people can be linked to the use of alcohol in many ways including the following: (1) alcohol consumption can affect physical and cognitive functioning, reducing self-control, the ability to process information and the ability to recognise warning signs, (2) beliefs that alcohol causes aggression can lead to use of alcohol as preparation for violence and to excuse violent acts, (3) alcohol can be used as a coping mechanism by victims of violence, and (4) alcohol and violence can be linked through shared risk factors that make people vulnerable to both behaviours (Bellis et al., 2012). These risk factors at the individual, relationship, community and population level are presented in Table 3.

Alcohol-related violence is a growing global concern and studies linking youth violence and alcohol have been conducted in

Table 3
World Health Organisation ecological model of risk factors for alcohol-related youth violence (2006).

Individual factors	Relationship factors	Community and societal factors	Populations
Alcohol use	Poor parental supervision	Presence of gangs, guns and drugs	Modernisation and urbanisation
Male (but increasingly female)	Harsh parental punishment	Availability of alcohol	Income inequality
Delivery complications	Parental conflict	Poor social integration	Weak governance
Personality and behaviour disorders	Large number of children in the family		Culture supportive of violence
Low intelligence/academic achievement	Young age of mother		
Impulsiveness and attention problems	Poor family cohesion		
	Single parent household		
	Low socio-economic status		
	Having delinquent friends		

several countries including Australia, Czech Republic, Estonia and the United States (World Health Organisation, 2010). It is a more visible problem in high income countries like the UK where it is measured. The national *Offending, Crime and Justice Survey* (2006) was the first longitudinal self-report offending survey in England and Wales. It found that frequency of drinking in those under the age of 18 years was strongly associated with offending (Sharp et al., 2006). The prevalence of violent offending was high among those who drank one to three times a month, with 26 per cent reporting that they had committed a violent offence in the last 12-months, and even higher among those who drank at least once a week with 39 per cent committing a violent offence. Among those who had not drunk alcohol in the past 12-months the figure was lower at 11 per cent (Sharp et al., 2006). The relatively low number of girls under the age of 18 years engaged in offending has meant that most expertise has been developed in response to male offending, but research conducted in the UK indicates a relationship between use of alcohol and violent and disorderly behaviour in relation to girls (Eklund & Klinteberg, 2005; Perkle & Richter, 2006). Official statistics show that violent offending by girls increased from 8702 in 2003 to 15,672 in 2007 (Youth Justice Board Annual Workload Data, 2007). Whether this trend represents a real increase in the criminality of girls or a change in the policing of girls is difficult to tell from the statistics alone, but amid concerns a national investigation has been launched by Her Majesty's (HM) Chief Inspector of Probation and Youth Offending Services for England and Wales. A recent joint inspection by *HMI probation and the Quality Care Commission* (2010) found many inconsistencies across youth offending services. Alcohol-related needs were often not identified or linked to offending behaviour. Physical health needs were not well assessed, even where documented chronic alcohol misuse was highly likely to have impacted on health (HMI, 2010).

In terms of victimisation over seven per cent of 10–15 year olds reported suffering a violent crime in the past year, equating to an estimated 566,000 violent crimes in this age group across England and Wales (Office for National Statistics, 2012). Over two-thirds of incidents resulted in an injury (Bellis et al., 2012). Emergency hospital admissions for assault in those aged 13–24 years increased from approximately 10,000 in 2001/2 to 13,000 in 2010/11 (Bellis et al., 2012). ED admission rates for violence are around five times higher in the most deprived regions of the UK compared to the most affluent, with the ratio of violence from richest to poorest greatest in childhood (Bellis et al., 2011). In addition to physical injury, violence can impact on mental and emotional well-being. Self-harm and suicide can stem from youth violence, as can post traumatic stress and internalising (anxiety) and externalising (aggression) problems in young people (Bellis et al., 2012; Winsper et al., 2012). Evidence also suggests that the risk of violent and sexual assault victimisation increase as the level of alcohol intake increases (Howard et al., 2008; Mohler-Kuo et al., 2004). Adolescents may be at particular risk due to a lower level of experience with alcohol intoxication, but also due to their exposure to situations in which binge drinking is more common (Boden & Fergusson, 2011). The UK government's

Alcohol Strategy (2012) states that 'binge drinking is not some fringe issue, it accounts for half of all alcohol consumed in this country. The crime and violence it causes drains resources in our hospitals, generates mayhem on our streets and spreads fear in our communities' (Secretary of State for the Home Department, 2012; p. 2). A sustained reduction in the numbers of 11–15 year olds drinking alcohol along with a reduction in the amount of alcohol-fuelled violent crime are two of six major desired outcomes of the government's new alcohol strategy (Home Office, 2012). The report also highlights the opportunity, currently under-exploited for health services to identify those at greatest risk of harm related to alcohol use and to provide advice and support to those that need it in emergency departments (Secretary of State for the Home Department, 2012).

Interventions for underage alcohol use

Interventions for underage alcohol use tend to be divided into (1) broad based universal interventions, (2) selective interventions, and (3) indicated interventions. Broad based universal interventions target the whole population without reference to those at particular risk, and generally aim to prevent or delay the onset of alcohol use in children and adolescents. Selective interventions target individuals or population subgroups identified as having a higher than average risk of a problem due to certain biological, psychological or social risk factors. Indicated interventions target those already using or engaged in other high risk behaviours to prevent more severe problems such as those attending emergency departments for alcohol related harm or those who participate in high risk drinking behaviours (Substance Abuse Mental Health Service Administration & National Institute of Mental Health, 2013). This section critically reviews the evidence base for the effectiveness of indicated interventions aimed at children and adolescents. Only seven studies included those under the age of 18 years. Interventions involved individual motivational interviewing, family motivational interviewing, cognitive behaviour therapy, lap top based educational programmes and behaviour change counselling. Participants ranged from 12 to 21 years. Most of the interventions involved one brief session of motivational interviewing and were delivered in the emergency department. Outcomes encompassed both alcohol consumption and alcohol-related consequences. Follow-up ranged from 2-months to 12-months post treatment. A summary of the evidence on the effectiveness of these indicated interventions is presented in Table 4.

Thush et al. (2006) conducted a two group RCT with high school students, two-thirds of whom reported binge drinking on one or more occasion in the past two weeks. The intervention group received seven weekly group sessions of cognitive therapy, plus an individual session of motivational interviewing (MI) plus one session of MI with parents. The control group received treatment as usual and information. At 12-month follow-up there were no significant between group differences in decreasing drinking

Table 4
Interventions for underage drinkers' under the age of 18 years (AIG, alcohol intervention group).

Author	Site	Participants	Age (years)	Intervention Group/s (IG)	Follow-up (F/U)	Method of F/U	Refusal and attrition	Results
Maio et al. (2005) (USA)	Emergency department	Presenting to the ED within 24 h after a minor injury.	14–18	(1) Lap-top based interactive computer programme (2) TAU	12-months	Telephone	Refusal rate 20%	Binge drinking in AIG decreased at 3-months, but returned to baseline level at 12-months follow-up
Spirito et al. (2004) (USA)	Emergency department	Screened for positive blood alcohol content on admission, or self-reported use of alcohol within 6-h prior to treatment in ED	13–17	(1) Brief motivational interview plus parental questionnaire (2) TAU	12-months	Face-to face	Refusal rate 47%	Both groups reduced alcohol consumption and alcohol related consequences. AIG sub-group reduced alcohol consumption
Thush et al. (2006) (Netherlands)	High school students	High school students	14–18	(1) Group cognitive therapy plus individual motivational interview and joint parental motivational interview (2) TAU	12-months	Mail/postal	Attrition rate 16%	No significant between group differences
Johnston, Rivara, Droesch, Dunn, & Copass (2002) (USA)	Emergency department	Undergoing treatment for an injury	12–20	(1) Behaviour change counselling (BCC) (2) TAU	6-months	Telephone	Refusal rate 22% Attrition rate 25%	No significant between group differences
Walton et al. (2010) (USA)	Emergency department	Screened positive for both alcohol use and violence	12–19	(1) Motivational interview delivered by therapist assisted by computer (2) Motivational interview delivered by computer (3) TAU	6-months	Computerised self-administered	Refused to be screened 22% Eligible and refused 23%	All groups reduced alcohol misuse, binge drinking and alcohol related consequences. No significant between group differences
Berstein, Heeren, Edward, Dorfman, & Bliss (2010) (USA)	Emergency department	Self-reported binge drinking or high risk behaviours in conjunction with alcohol use and/or alcohol use disorder	12–17	(1) Brief motivational interview plus one booster session (2) Standard assessment (TAU) (3) Minimal assessment (TAU)	12-months	Face-to face	Refusal rate 28% Attrition rate 28%	No significant between group differences
Spirito et al. (2011) (USA)	Emergency department	Screened for positive blood alcohol content on admission or self-reported use of alcohol within 6-h prior to treatment in ED	14–18	(1) Individual motivational interview (2) Individual motivational interview plus family motivational interview	12-months	Telephone and face-to face	Refusal rate 54%	No significant between group differences

(Wachtel & Staniford, 2010). Maio et al. (2005) compared a single session lap-top based educational computer programme to emergency department (ED) treatment as usual. All adolescents presenting to the ED within 24 h following a minor injury were invited to participate. Intoxicated patients were excluded from the study. At three month follow-up binge drinking in the intervention group decreased but returned to baseline at 12-month follow-up. Spirito et al. (2004) tested a brief motivational intervention compared to treatment as usual. Those who screened positive for blood alcohol content on admission to the ED, or who self-reported alcohol use 6-h prior to ED treatment were invited to participate. The intervention group received one session of motivational interviewing plus a parental questionnaire. At 12-month follow-up both the intervention group and control group reduced their drinking, but there were no between group differences in number of days drinking, binge drinking or alcohol related consequences. However, among a subgroup of adolescents who scored above the clinical cut off for more problematic alcohol use, those referred to the intervention group significantly reduced their number of days drinking per month ($p < .01$), and their frequency of high-volume drinking (Yuma-Guerrero et al., 2012). A subsequent study conducted by Spirito et al. (2011) compared individual motivational interviewing to family motivational interviewing. At 12-month follow-up both groups reported significant decreases in days of drinking, drinks per occasion and days of high volume drinking. But there were no significant between group differences in change over time on any outcome (Mitchell et al., 2013).

Johnston et al. (2002) targeted participants in the ED undergoing treatment for an injury. The intervention group received one session of behaviour change counselling compared to treatment as usual. At 6-month follow-up there were no significant differences between the intervention and control group on any outcome. A three group RCT by Berstein et al. (2010) was structured to test differences between an alcohol intervention group, a standard assessed control group and a minimally assessed control group. Those attending a paediatric ED who reported binge drinking or high risk behaviours in conjunction with alcohol use and/or alcohol use disorder were invited to participate. The sample included a number of participants who met criteria for alcohol dependency. The intervention group received motivational interviewing delivered by peers. At 12-month follow-up a significantly larger proportion of participants in the intervention group reported efforts to quit drinking and be careful about situations they got into when drinking. However, there were no significant between group differences on alcohol consumption, risk taking behaviours or alcohol-related consequences. Only one study included violence as an alcohol related outcome. Walton et al. (2010) compared two intervention groups to treatment as usual. Adolescents who screened positive for both alcohol use and aggression were invited to participate. Patients who screened positive for alcohol use only were excluded. The intervention groups received either one session of motivational interviewing delivered by a therapist assisted by a computer, or one session of motivational interviewing delivered by computer only. At 6-month follow-up all three groups reduced alcohol misuse, binge drinking and alcohol-related consequences, but there were no significant between group differences. Cunningham et al. (2012) re-examined the data six months later. Eighty four per cent of the original sample completed the follow-up assessments. The group who received the session of motivational interviewing delivered by the therapist showed significant reductions in both peer aggression and peer victimisation compared to the other conditions. However, there were no between group differences on any of the alcohol outcomes including binge drinking, alcohol misuse and alcohol related consequences (Cunningham et al., 2012).

Discussion

The ESPAD survey provides the best internationally comparable data for alcohol use amongst those under the age of 18 years throughout Europe (Measham & Ostergaard, 2009). It does however, have a number of limitations. As the survey is conducted within the general school population, it does not include children not participating in mainstream education, where there is likely to be a greater proportion of problematic alcohol users. From research conducted within the UK it is known that pupils who have a history of truancy or exclusion from school are more likely to have drunk alcohol in the last seven days (Department for Children, School and Families, 2008). The figures reported in the ESPAD survey are therefore likely to be under estimates. In most European countries boys report binge drinking patterns more than girls. In the UK however, girls report drunkenness and binge drinking more than boys. This apparent anomaly has also been observed in Norway, Denmark and Iceland (Hibell et al., 2009). This suggests that a social change is taking place in the UK that could reflect factors such as greater female social and economic empowerment, as well as the marketing practices of the beverage industry (Plant & Plant, 2006). Attitudes towards intoxication are distinctly favourable amongst UK youth compared with other countries in Europe and elsewhere, with nearly half of 15 year olds thinking it is okay to try getting drunk once a week (Martinic & Measham, 2008; Measham, 2008). Pupils participating in the ESPAD survey were asked how likely they thought they would experience positive and negative consequences to their own alcohol use. The majority (68%) of UK pupils associated alcohol consumption with positive outcomes. 82 per cent also reported that alcohol was 'fairly' or 'very' easy to obtain. This is supported by a home office study of 'binge drinking' that found "young people often go out with the definite intention of getting drunk, and... many deliberately accelerate or intensify their drunkenness by mixing drinks, drinking before they go out, or drinking beverages that they know have a strong effect on them" (Engineer et al., 2003, p. 16). These findings were replicated by Measham (2006) in a study with slightly older adolescents in licensed premises in the UK. When interviewed the majority of young people reported a desire to get drunk, suggesting the pursuit of 'determined drunkenness' was now an integral part of weekend socialising with friends in the UK (Measham, 2008).

Due to weaknesses in recording procedures, accurate information on alcohol specific and alcohol-related ED attendances in children and adolescents is not presently available in the UK. The data on alcohol hospital admissions is more robust, but it is only applicable to those aged 16 years and over and improved health information systems are urgently needed in the UK (Patton et al., 2012). Each year in the UK a considerable number of children and adolescents have contact with emergency services due to alcohol use and this opens up an opportunity to identify and engage them, an opportunity that is currently under exploited (Atkinson et al., 2012; Smith & Curran, 2010). The link between alcohol use and violent offending is complex and not a straight forward cause and effect relationship, but the evidence suggests a strong association. Indicative findings from a number of studies also suggest a relationship between the use of alcohol and offending in girls. Further, this seems to be related in particular to violent or disorderly behaviour (Eklund & Klinteberg, 2005; Perkle & Richter, 2006). It therefore seems logical to address these risky behaviours together, and explore the possibility of more effective joint working between crime reduction agencies such as probation services, youth offending services and EDs (Annull & Eagle, 2009).

In an attempt to confront alcohol-fuelled violence the UK government's *Alcohol Strategy* (2012) includes a number of reforms at the societal level including controlling the density of licensed premises and subjecting alcohol advertising to tighter controls.

One of the core assumptions of public health-focussed interventions such as these is the link between levels of alcohol consumption in a population and rates of harm. When per-capita alcohol consumption goes up, rates of alcohol harms such as mortality, morbidity and violence go up with them, but this link seems to be unravelling (Livingston et al., 2010). Alcohol-specific and alcohol related harm is continuing to rise in the UK despite the overall population level of alcohol use falling (Measham, 2008). A similar trend has also been observed in Sweden and Australia. Rates of harm in Australia are increasing despite no change in overall population levels of consumption (Livingston et al., 2010). What we might be witnessing in the UK is a polarisation with more abstainers and occasional drinkers, alongside more heavy consumption amongst those children and adolescents who are regular drinkers (Measham, 2008).

From April 2013 the UK government will make available a ring-fenced public health grant, including funding for alcohol services. This will allow the commissioning of identification and brief advice (IBA) in emergency departments (EDs), which the government concludes to be effective in reducing the drinking of people at risk of ill health. IBA is a simple intervention aimed at individuals who are at risk through drinking above the recommended guidelines, but not typically seeking help for an alcohol problem. There is however, a lack of concrete evidence regarding the effectiveness of brief interventions such as IBA for children and adolescents under the age of 18 years and more research on the needs of these children is urgently needed (Calabria et al., 2011; Wachtel & Staniford, 2010). Only seven out of a total of 45 randomised controlled trials identified for this evidence synthesis included those under the age of 18 years and only one included violence as an alcohol-related outcome (Walton et al., 2010). All were characterised by a wide age range of participants and heterogeneous samples. For example, the study by Maio et al. (2005) excluded intoxicated patients due to a perceived inability to be able to adequately complete the survey or intervention. The study by Walton et al. (2010) excluded those who screened positive for alcohol use only. The exclusion of these potentially very important groups might have impacted on the findings (Wachtel & Staniford, 2010). Studies conducted in the ED were all typified by high rates of refusal and attrition ranging from 20 per cent to 54 per cent. This suggests that a lack of engagement with alcohol harm reduction interventions is an important issue that warrants further investigation. The findings from an audit undertaken by Quigg et al. (2010) support this assertion with only 9 per cent of those referred to a brief intervention clinic based in the ED attending. An alternative approach would be to implement a research study in one of the EDs that currently offer a harm reduction intervention as opposed to a new RCT (Mitchell et al., 2013). Issues such as the barriers and facilitators to engagement could be more fully explored as well as patient perspectives on differing formats of interventions such as group, individual and web-based. The acceptability of Interventions delivered outside of health care settings and by individuals other than health care professionals could also be investigated. It would also open up an opportunity to discover more about the needs of these children and adolescents in terms of who they are and why they drink. This would be a valuable addition to the existing evidence base that is currently limited due to the majority of studies being conducted in the USA (Calabria et al., 2011).

Limitations

The rapid growth of scholarly publishing and communication tools can make it difficult and time consuming to cumulate all the relevant literature on a given topic, in this case the issue of underage drinking in the UK. For this reason concessions had to be made in terms of limiting this evidence synthesis to four specific questions.

This meant omitting two important questions regarding (1) the causes of problems to help in the development of new interventions and (2) the appropriateness and acceptability of particular interventions and the conditions that are necessary for the successful real world implementation of interventions shown to be effective in a research context (Popay & Roberts, 2006). Given the inconclusiveness of the findings from the randomised controlled trials the later question appears to be somewhat premature at this stage, and the first question was simply beyond the scope of this review. As stated in the discussion, more exploratory work is required before new randomised controlled trial can be justified. As evidence synthesis methods do not employ as much rigor as would be applied in a traditional Cochrane review they may therefore be subject to a greater degree of bias (Khangua et al., 2012). There is also no universally accepted definition of what constitutes an evidence synthesis due to a lack of published studies on the methodology. It is worth noting however, that a study by Watt et al. (2008) found that despite axiomatic differences between rapid and full reviews, the essential conclusions of the rapid and full reviews did not differ extensively, suggesting that evidence synthesis may offer a useful and valid approach (Khangua et al., 2012).

Conclusion

Whilst the ED might be the best place to identify children and adolescents at risk of harm related to alcohol use it might not necessarily be the best place to deliver an intervention. More exploratory work on the issue of a lack of engagement with alcohol harm reduction interventions is required and assumptions cannot be made regarding the effectiveness of brief interventions such as IBA and motivational interviewing based on an adult centred evidence base (Smith & Curran, 2010).

Conflict of interest

All authors declare that they have no conflict of interest.

References

- Alcohol Concern. (2011). *Reducing underage alcohol harm in accident and emergency settings*. Accessed October 2012. <http://www.alcoholconcern.org.uk/assets/files/publications/2011>
- Alcohol Concern and Balance North East. (2012). *Binge drinking to get drunk. Influences on young adults drinking behaviors*. Accessed October 2012. <http://www.alcoholconcern.org.uk/assets/files/publications/2012/Drinking-to-get-Drunk.pdf>
- Arnall, E., & Eagle, S. (2009). *Girls and offending—Patterns, perceptions and interventions*. Youth Justice Board. Accessed December 2012. <http://www.yjb.gov.uk/publications/resources/downloads/girls.offending.fullreport.pdf>
- Athanasios, T., & Darzi, A. (2011). *Evidence synthesis in healthcare: A practical handbook for clinicians*. London: Springer.
- Atkinson, A., Sumnall, H., & Bellis, M. (2012). *Substance use among 15–16 year olds in the UK: Key findings from the 2011 European School Survey Project on Alcohol and Other Drugs (EPAD)*. Accessed September 2012. <http://www.alcoholresearchuk.org/downloads/insights/alcoholinsight>
- Bellis, M., Hughes, K., Perkins, C., & Bennett, A. (2012). *Protecting people, promoting health: A public health approach to violence prevention for England*. Department of Health and The Centre for Public Health, Liverpool John Moores University. Accessed December 2012. <http://www.cph.org.uk>
- Bellis, M., Hughes, K., Wood, S., Wyke, S., & Perkins, C. (2011). *National five year examination of inequalities and trends in emergency hospital admissions for violence across England*. *Injury Prevention*, 17, 319–325.
- Bellis, M., Morloe, M., Tocque, K., Dedman, D., Philips-Howard, P., Perkins, C., et al. (2009). *Contributions of alcohol use to teenage pregnancy: An initial comparison of geographical and evidence based associations*. Northwest Public Health Observatory. Accessed September 2012. <http://www.cph.org.uk/ShowPublication.aspx?pubid=579>
- Berstein, J., Heeren, T., Edward, E., Dorfman, D., Bliss, C., et al. (2010). *A brief motivational interview in a pediatric Emergency Department, plus 10-day telephone follow-up, increases attempts to quit drinking among youth and young adults who screen positive for problematic drinking*. *Academic Emergency Medicine*, 17, 890–902.
- Boden, J., & Fergusson, D. (2011). *The short and long-term consequences of adolescent alcohol use*. In J. Saunders, & J. Rey (Eds.), *Young people and alcohol: Impact, policy, prevention and treatment*. Chichester: Wiley-Blackwell.

- British Medical Association. (2009). *Alcohol misuse: Tackling the UK epidemic*. BMA Board of Science. February 2009.
- Calabria, B., Shakeshaft, A., & Havard, A. (2011). A systematic and methodological review of interventions for young people experiencing alcohol-related harm. *Addiction*, 106, 1406–1418.
- Cunningham, R., Chermack, S., Zimmerman, M., Shope, J., Bingham, R., Blow, F., et al. (2012). Brief motivational interviewing intervention for peer violence and alcohol use in teens: One-year follow-up. *Pediatrics*, 129, 1083–1090.
- Deas, D. (2008). Evidence-based treatments for alcohol use disorders in adolescents. *Pediatrics*, 121, S348–S354.
- Department for Children, School and Families. (2008). *Youth alcohol action plan*. Accessed September 2012. <http://www.education.gov.uk/publications>
- Department for Education. (2010). *Specialist drug and alcohol services for young people—a cost benefit analysis*. Frontier Economics Research Report DFE-RR087 May 2010. Accessed October 2012. <http://www.education.gov.uk/eOrderingDownload/DFE-RR08>
- Donaldson, L. (2009). *Guidance on the consumption of alcohol by children and young people*. Chief Medical Officer, Department of Health. Accessed June 2013. <http://www.dh.gov.uk/cmo>
- Eklund, J., & Klinteberg, B. (2005). Personality characteristics as risk indications of alcohol use and violent behaviour in male and female adolescents. *Journal of Individual Differences*, 26(2), 63–73.
- Elliot, G., Morleo, M., & Cook, P. (2009). *Identifying effective interventions for preventing underage alcohol consumption: Final report prepared for Wirral Drug and Alcohol Team August 2009*. JMU Centre for Public Health, Liverpool John Moores University. Accessed September 2012. <http://www.cph.org.uk/ShowPublication.aspx?pubid=593>
- Engineer, R., Phillips, A., Thompson, J., & Nicholls, J. (2003). *Drunk and disorderly: A qualitative study of binge drinking among 18 to 24 year olds*. Research study 262. London: Home Office.
- Foxcroft, D., & Tsertsvadze, A. (2011a). Universal school-based prevention programs for alcohol misuse in young people. *Cochrane Database of Systematic Reviews*, 2011(5) (Review).
- Foxcroft, D., & Tsertsvadze, A. (2011b). Universal family-based prevention programs for alcohol misuse in young people. *Cochrane Database of Systematic Reviews*, 2011(9) (Review).
- Foxcroft, D., & Tsertsvadze, A. (2011c). Universal multi-component prevention programs for alcohol misuse in young people. *Cochrane Database of Systematic Reviews*, 2011(9) (Review).
- Friese, B., & Grube, J. (2009). *Youth drinking rates and problems: A comparison of European countries and the United States*. Accessed October 2012. <http://www.resources.prev.org/documents/ESPAD.pdf>
- Fuller, E., Gill, V., Hawkins, V., Mandalia, D., & Whalley, D. (2012). *Smoking, drinking and drug use among young people in England in 2011*. NHS Information Centre. Accessed October 2012. <http://www.ic.nhs.uk/puns/sdd11fullreport>
- Ganann, R., Ciliska, D., & Thomas, H. (2010). Expediting systematic reviews: Methods and implications of rapid reviews. *Implementation Science*, 5, 56. Accessed June 2013. <http://www.implementation-science.com/content/5/1/56>
- Gates, S., McCambridge, J., Smith, L., & Foxcroft, D. (2009). Interventions for prevention of drug use by young people delivered in non-school settings. *Cochrane Database of Systematic Reviews*, (1).
- Hibell, B., Guttormsson, U., Ahlstrom, S., Balakireva, O., Bjarnason, T., Kokkevi, A., et al. (2009). *The 2007 ESPAD report. Substance use among students in 35 European countries*. Stockholm, Sweden: The Swedish Council for information on Alcohol and Other Drugs. Accessed September 2012. <http://www.espad.org>
- Hibell, B., Guttormsson, U., Ahlstrom, S., Balakireva, O., Bjarnason, T., Kokkevi, A., et al. (2012). *The 2011 ESPAD report. Substance use among students in 36 European countries*. Stockholm, Sweden: The Swedish Council for information on Alcohol and Other Drugs. Accessed September 2012. <http://www.espad.org>
- HMI Probation and the Quality Care Commission. (2010). *A joint inspection of youth alcohol misuse and offending*. Accessed December 2012. <http://www.justice.gov.uk/downloads/publications/inspectorate-reports>
- Howard, D., Griffin, M., & Boekeloo, B. (2008). Prevalence and psychosocial correlates of alcohol related sexual assault among university students. *Adolescence*, 43(172), 733–750.
- Hughes, K., & Bellis, M. (2006). *Youth violence and alcohol*. Geneva: World Health Organisation.
- Inside Government. (2013). *Alcohol & young people—The law*. Accessed June 2013. <http://www.gov.uk>
- Johnston, B., Rivara, F., Droesch, R., Dunn, C., & Copass, M. (2002). Behaviour change counselling in the Emergency Department to reduce injury risk: A randomized controlled trial. *Pediatrics*, 110, 267–274.
- Johnston, L., O'Malley, P., Bachman, G., & Schulenberg, E. (2012). *Monitoring the future national results on adolescent drug use: Overview of key findings 2011*. Ann Arbor: Institute for Social Research, University of Michigan.
- Khangura, S., Konnyu, K., Cushman, R., Grimshaw, J., & Moher, D. (2012). Evidence summaries: The evolution of a rapid review approach. *Systematic Reviews*, 1. Accessed June 2013. <http://systematicreviewsjournal.com/content/1/1/10>
- Lansley, A. (2010). *Alcoholic drinks: Misuse*. Parliamentary question, House of Commons, 2 March 2010. Accessed September 2012. <http://www.publications.parliament.uk/pa/cm200910/cmhansrd/cm100302/text/100302w0026.htm>
- Livingston, M., Matthews, S., Barratt, M., Lloyd, B., & Room, R. (2010). Diverging trends in alcohol consumption and alcohol-related harm in Victoria. *Australia and New Zealand Journal of Public Health*, 34(4), 368–373.
- Maio, R., Shope, J., Blow, F., Gregor, M., Zakrajsek, J., Weber, J., et al. (2005). A randomized controlled trial of an Emergency Department based interactive computer program to prevent alcohol misuse among injured adolescents. *Annals of Emergency Medicine*, 45, 420–429.
- Martinic, M., & Measham, F. (2008). *Swimming with crocodiles: Extreme drinking and young people*. New York/London: Routledge.
- Measham, F. (2006). The new policy mix: alcohol, harm minimisation & determined drunkenness in contemporary society. *International Journal of Drug Policy*, 17(4), 258–268.
- Measham, F. (2008). The turning tides of intoxication: Young people's drinking in Britain in the 2000s. *Health Education*, 108(3), 207–222.
- Measham, F., & Ostergaard, J. (2009). The public face of binge drinking: British and Danish young women, recent trends in alcohol consumption and the European binge drinking debate. *Probation Journal*, 56, 415–433.
- Mitchell, S., Gryczynski, J., O'Grady, K., & Schwartz, R. (2013). SBIRT for adolescent drug and alcohol use: Current status and future directions. *Journal of Substance Abuse Treatment*. <http://dx.doi.org/10.1016/j.jsat.2012.11.005>
- Mohler-Kuo, M., Dowdall, G., Koss, M., & Wechsler, H. (2004). Correlates of rape while intoxicated in a national sample of college women. *Journal of Studies on Alcohol and Drugs*, 65(1), 37–45.
- Newbury-Birch, D., Walker, J., Avery, L., Beyer, F., Brown, N., Jackson, K., et al. (2009). *Impact of alcohol consumption on young people: A systematic review of published reviews*. Accessed September 2012. <http://www.education.gov.uk/research/data/uploadfiles/DSCF-RR067.pdf>
- Office for National Statistics. (2012). *Crime in England and Wales, quarterly first release to March 2012*. London: Office for National Statistics.
- Patton, G., Coffey, C., Cappa, C., Currie, D., Riley, L., Gore, F., et al. (2012). Health of the world's adolescents: A synthesis of internationally comparable data. *Lancet*, 9826, 1665–1675.
- Perkle, E., & Richter, L. (2006). Personality, attitudinal and behavioural risk profiles of young female binge drinkers and smokers. *Journal of Adolescent Health*, 38, 44–54.
- Plant, M., & Plant, M. (2006). *Binge Britain: Alcohol and the national response*. Oxford: Oxford University Press.
- Popay, J., & Roberts, R. (2006). *Methodological issues in the synthesis of diverse sources of evidence*. National Institute for Health and Clinical Excellence. Accessed September 2010. <http://www.nice.org.uk>
- Quigg, Z., Stuart, J., Hughes, K., Williams, K., Mehta, B., Levibe, M., et al. (2010). *Measuring alcohol-related emergency department attendances amongst young people—Pilot study*. North West Public Health Observatory. Accessed October 2012. <http://www.cph.org.uk/ShowPublications.aspx?pubid=684>
- Roe, S., & Ashe, J. (2008). *Young people and crime: Findings from the 2006 Offending, Crime and Justice Survey*. Home Office Statistical Bulletin. Accessed December 2012. <http://www.homeoffice.gov.uk/rds>
- Secretary of State for the Home Department. (2012). *The government's alcohol strategy*. UK Stationary Office Limited. Accessed January 2013. <http://www.official-documents.gov.uk>
- Sharp, C., Aldridge, J., & Medina, J. (2006). *Delinquent youth groups and offending behaviour: Findings from the 2004 Offending, Crime and Justice Survey*. Home Office Online Report 14/06. Accessed December 2012. <http://www.webarchive.nationalarchives.gov.uk>
- Smith, T., & Curran, A. (2010). *Right time, right place: Alcohol-harm reduction strategies with children and young people*. Accessed September 2012. <http://www.alcoholconcern.org.uk/publications/policy-reports/right-time-right-place>
- Spirito, A., Monti, P., Barnett, N., Colby, S., Sindelar, H., Rohsenow, D., et al. (2004). A randomized clinical trial of a brief intervention for alcohol positive adolescents treated in an emergency department. *Journal of Pediatrics*, 145, 396–402.
- Spirito, A., Sindelar-Manning, H., Colby, S., Barnett, N., Lewander, W., Rohsenow, D., et al. (2011). Individual and family motivational interventions for alcohol-positive adolescents treated in an emergency department. *Archives of Pediatric and Adolescent Medicine*, 165, 269–274.
- Substance Abuse Mental Health Service Administration (SAMHSA), & National Institute of Mental Health. (2013). *Levels of risk, levels of intervention: Universal, selective and indicated prevention*. Accessed June 2013. <http://www.captus.samhsa.gov/prevention-practice>
- Thush, C., Wiers, R., Theunissen, N., Van den Bosch, J., Opendacker, J., van Empelen, et al. (2006). A randomized clinical trial of a targeted intervention to moderate alcohol use and alcohol-related problems in at-risk adolescents. *Pharmacology, Biochemistry and Behaviour*, 86, 368–376.
- Toumbourou, J., Stockwell, T., Neighbors, C., Marlatt, G., Sturge, J., & Rehm, J. (2007). Interventions to reduce harm associated with adolescent substance use. *Lancet*, 369, 391–401.
- Tripodi, J., Bender, K., Litschge, C., & Vaughn, M. (2010). Interventions for reducing adolescent alcohol abuse. *Archives of Pediatric Medicine*, 164, 85–91.
- United States Department of Health and Human Services. (2007). *Surgeon General's call to action to prevent and reduce underage drinking*. Office of the Surgeon General. Accessed October 2012. <http://www.surgeongeneral.gov/library/calls/underagedrinking/calltoaction.pdf>
- Wachtel, T., & Staniford, M. (2010). The effectiveness of brief interventions in the clinical setting in reducing alcohol misuse and binge drinking in adolescents: A critical review of the literature. *Journal of Clinical Nursing*, 19, 605–620.
- Walton, M., Chermack, S., Shope, J., Bingham, C., Zimmerman, M., Blow, F., et al. (2010). Effects of a brief intervention for reducing violence and alcohol

- misuse among adolescents: A randomized controlled trial. *Journal of the American Medical Association*, 304, 527–535.
- Watt, A., Cameron, A., Sturm, L., Lathlean, T., Babidge, W., Blamey, S., et al. (2008). Rapid versus full systematic reviews: validity in clinical practice. *ANZ Journal of Surgery*, 78, 1037–1040.
- Winsper, C., Lereya, T., Zanarini, M., & Wolke, D. (2012). Involvement in bullying and suicide-related behaviour at 11 years: A prospective birth cohort study. *Journal of the American Academy of Child and Adolescent Psychiatry*, 5, 271–282.
- World Health Organisation. (2006). *Youth violence and alcohol*. Accessed December 2012. http://www.who.int/violence_injury_prevention/violence/world-report
- World Health Organisation. (2010). *Governments confront drunken violence*. Bulletin of the World Health Organisation. Accessed December 2012. <http://www.who.int/bulletin/volumes/88/9/10>
- Youth Justice Board and Ministry of Justice Statistics Bulletin. (2007). *Youth justice annual workload data for England and Wales*. Accessed December 2012. <http://www.gov.uk>
- Yuma-Guerrero, P., Lawson, K., Velasquez, M., von Sternberg, K., Maxon, T., & Garcia, N. (2012). Screening, brief intervention, and referral for alcohol use in adolescents: A systematic review. *Pediatrics*, 130, 115–122.