Managing Alcohol Use Disorder in Primary Health Care

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Published online: 14 September 2017
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Abstract

Purpose of Review The aim of this study is to summarise the current literature on both the impact and the implementation of primary health care-based screening and advice programmes to reduce heavy drinking, as an evidence-based component of managing alcohol use disorder in primary health care.

Recent Findings Systematic reviews of reviews find conclusive evidence for the impact of primary health care delivered screening and brief advice programmes in reducing heavy drinking. The content, length of advice and which profession delivers the advice seems less important than the actual encounter between provider and patient. Despite the global burden of disease due to heavy drinking and the evidence that this can be reduced by screening and brief advice programmes delivered in primary health care, such programmes remain poorly implemented. Were such programmes widely implemented, there would be substantial health and productivity gains. Systematic reviews and international studies indicate that improved implementation requires tailoring of training and programme content to match the needs of providers, training and ongoing support and embedding of programmes within local community support, championed by local leaders.

Summary The next stage of implementation and scale-up of evidence-based screening and brief advice programmes should take place embedded within supportive local community action, with appropriate research to demonstrate impact.

Keywords Heavy drinking · Alcohol use disorder · Primary health care · Screening · Brief advice · Implementation · Community

Introduction

Heavy drinking is a cause of ill-health and premature death [1]. Even though heavy drinking can be prevented and managed, the World Health Organisation (WHO) has estimated that as many as four out of five heavy drinking individuals do not receive an offer of evidence-based advice and treatment [2, 3]. As a lifestyle risk factor, alcohol consumption is a leading cause of global ill-health and premature death, making action to prevent and treat heavy drinking a priority for policy and practice. In this overview, we critically evaluate recent literature on primary health care-based interventions for managing heavy drinking. We begin with a brief summary of the epidemiology of heavy drinking, including an examination of the relevancy and utility of the various definitions of problem drinking currently in use. We move on to summarise the findings of latest research on interventions for heavy drinking, with a specific focus on screening and brief alcohol advice. We conclude with some observations on the current challenges faced by the field, including thoughts on how the slow rate of implementation might be addressed.
**Epidemiology of Alcohol Use Disorder**

Alcohol is a cause of a wide range of diseases and injuries, exacerbated by occasions of heavy drinking [4•], resulting in it ranking as the ninth leading global risk factor for morbidity and premature death [5•]. There are more than 40 ICD-10 three-digit disease categories that are fully attributable to alcohol, including neuro-psychiatric disorders, intoxication and dependence, gastrointestinal diseases, poisoning and foetal alcohol syndrome, as part of foetal alcohol spectrum disorders. Alcohol is a carcinogen, being a cause of cancers of the oral cavity, larynx, pharynx, oesophagus, colon and rectum, liver and breast [6, 7]. Most partially attributable disease categories show dose-response relationships with the volume of alcohol consumed: the higher the level of consumption, the higher the risk of ill-health or premature death. Exceptions are ischaemic heart disease and diabetes, which show curvilinear relationships, with, compared to abstainers, lower risks at low doses of consumption, and higher risks at high doses of consumption. The absolute number of alcohol-attributable DALYs (disability adjusted life years, a summary measure of ill-health and premature death) increased by about 25% between 1990 and 2015, largely driven by changes in population growth, population ageing, and background rates of diseases for which alcohol is an attributable cause. The adverse impacts from heavy drinking are exacerbated by lower income. For any given level of alcohol consumption, poorer people suffer more harm than richer people [8]. Harm also occurs to people other than the drinker, with considerable harms extending to families, communities, health systems and economies as a whole [9].

The bulk of severe alcohol-related health problems, including mortality, occurs in middle age [10] and, it is amongst this age group that policy and programme interventions are likely to bring the greatest health and productivity gains [11•]. Heavy drinkers are responsible for the majority all alcohol-related harm [12]. It is also amongst this group, compared with lighter drinkers, that disproportionately greater health gains can be made for the same absolute reduction in alcohol consumption [13]. Thus, if advice and treatment programmes are to be most efficient in reducing the harm done by alcohol, they should preferentially address adult drinkers, and, in particular, those who drink heavily.

**Alcohol Use Disorder**

Alcohol use disorder (AUD) is a summary term used for the two diagnosable conditions of “harmful use of alcohol” and “alcohol dependence” within the WHO ICD-10 classification of mental and behavioural disorders [14]. AUD will also be included in the ICD-11 revision under disorders due to the use of alcohol [15]. Similarly, AUD is a diagnosable condition within the 5th edition of the Diagnostic and Statistical Manual of Mental Disorders (DSM–5) of the American Psychiatric Association [16]. The most recent global burden of disease analyses estimate that globally, there were between 63.5 [17] and 95 million cases [18] of AUD in 2015, leading to 137,500 deaths [19], 6.3 million years lived with disability [17] and 112 million disability-adjusted life years [20].

**Harmful Use of Alcohol**

WHO also uses the term the harmful use of alcohol [14]. As a clinical term, it is a pattern of alcohol use that is causing damage to health. This designation will be replaced in 2017 with two clinical terms: a harmful pattern of alcohol use (a pattern of alcohol use sustained over at least 12 months that has clinically significantly harmed the health of the user or someone else); and, a single episode of harmful use of alcohol that has caused damage to a user’s health or someone else’s health [15]. Harmful use of alcohol is a term used (albeit, with different definitions) in the global non-communicable disease framework [21], the WHO global strategy to reduce the harmful use of alcohol [22], and the United Nations sustainable development goals [23].

**United Nations Sustainable Development Goals**

In 2015, United Nations launched the sustainable development goals (SDGs) (http://www.un.org/sustainabledevelopment/sustainable-development-goals/) for the 15-year period 2016–2030. For good health and well-being, Goal 3, Target 3.5 is to strengthen the prevention and treatment of substance abuse, including narcotic drug abuse and harmful use of alcohol [23]. The two key indicators are: 3.5.1, coverage of treatment interventions (pharmacological, psychosocial and rehabilitation and aftercare services) for substance use disorders (including alcohol use disorders); and, 3.5.2, harmful use of alcohol, defined according to the national context as alcohol per capita consumption (aged 15 years and older) within a calendar year in litres of pure alcohol.

**Summary Exposure Value**

A summary exposure value (SEV) has been proposed by the Global Burden of Disease studies as an indicator to monitor achievement of health-related SDGs. For alcohol, SEV is estimated from a combination of average daily alcohol consumption of pure alcohol (measured in g/day) in current drinkers who had consumed alcohol during the past 12 months and the proportion of the population reporting heavy episodic drinking, defined as consumption of at least 60 g for males and 48 g for females of pure alcohol on a single occasion [5•]. SEV ranges from 0% (no risk exposure in a population) to 100% (entire population has maximum possible risk). The global age-standardised SEV for alcohol remained stable for men between
1990 (SEV = 10.9%) and 2015 (SEV = 10.7%), whereas it decreased for women from 5.9% in 1990 to 5.1% in 2015, with most of the decrease occurring in the years 1990 to 2005.

Structural drivers of alcohol exposure are socio-demographic changes, which have been aggregated as an index (SDI) based on estimates of lag-dependent income per capita, average educational attainment over the age of 15 years and total fertility rate, scaled from zero to one. Globally, as SDI goes up, alcohol exposure goes up [5•]. The exception to this is within higher income countries (which have overall higher alcohol exposure than lower income countries), where, within country groupings, there is a tendency for countries with higher SDIs to have lower alcohol exposure.

Focus on Heavy Drinking

Alcohol use disorder and harmful use of alcohol are not easy or simple to understand concepts when screening for risky patients in primary health care [24, 25]. An easier concept to understand is heavy drinking based on a level of alcohol consumption [26, 27]. The European Medicines Agency [28] provides an operational definition of heavy drinking: ‘threshold 1’ defines heavy drinking as more than 60 g of alcohol consumed on average a day by a man and more than 40 g a day by a woman. These levels are the same as those used in the original global burden of disease studies [29]. For operational purposes, the mid-point (50 g a day) can be taken as a definition of heavy drinking. Roughly speaking, 50 g of alcohol is contained in three and a half 12-oz (355 ml) cans of 5% beer, two thirds of a bottle of 12% wine (3–4 glasses, depending on the size poured) and three and a half shots of spirits (1.5 oz, 44 ml, of 40% alcohol). At this level of consumption, there is little difference in absolute risk between men and women of dying prematurely due to alcohol before the age of 70 years, where the risk is about 3.5% [30].

Impact of Screening and Brief Advice Delivered in Primary Health Care

Primary health care is the setting which can improve access to health care, particularly for the poor, at reasonably low cost in all countries, from low- to high-income. Primary health care is a vehicle to achieve universal health coverage, reduce inequities, and promote shared decision-making between providers and patients through participation, and collaborative care models throughout health systems [31]. Screening and brief advice to reduce heavy drinking in primary health care comprises two key elements; first, use of a short, but validated, questionnaire to help identify those individuals drinking heavily, with consistently good performance reported for the AUDIT-C instrument [32•]; and, second, delivery of brief advice and treatment, designed to promote awareness of the negative effects of heavy drinking and to motivate reduction in drinking, often based on the FRAMES principles [33].

AUDIT-C

The three questions of the AUDIT-C assess different dimensions of alcohol consumption, with each question scored on a different scale (i.e. drinking days per week, drinks per drinking day and frequency of heavy drinking). Thus, the summed score does not necessarily reflect any one pattern of drinking, and increasing scores are not necessarily related to linear increases in any given dimension of consumption. Nevertheless, AUDIT-C scores are associated with several alcohol-related health risks, including alcohol dependence, severity of problem drinking, postoperative complications, hospitalizations for gastrointestinal conditions, trauma and mortality, generally in a dose-response manner [34]. AUDIT-C also captures the summary exposure value defined for alcohol, a composite of average consumption and heavy episodic drinking [5•].

Brief Advice in Primary Health Care

Brief advice delivered in primary health care is commonly 5–10 min in duration and often based on the ‘FRAMES principles’ and the ‘Five As’ [33]. FRAMES is an acronym summarising the key components of brief advice: feedback (on the client’s risk of having alcohol problems); responsibility (change is the client’s responsibility); advice (provision of clear advice when requested); menu (what are the options for change?); empathy (an approach that is warm, reflective and understanding); and self-efficacy (optimism about the behaviour change). The five As are: (1) assess alcohol consumption with a brief screening tool, followed by clinical assessment as needed; (2) advise patients to reduce alcohol consumption to lower levels; (3) agree on individual goals for reducing alcohol use or abstinence (if indicated); (4) assist patients in acquiring the motivations, self-help skills or support needed for behaviour change; and, (5) arrange follow-up support and repeated counselling, including the referral of dependent drinkers to specialty treatment.

A series of systematic reviews over 15 years, covering a total of 56 unique primary health care-based randomised controlled trials, has consistently found that, up to 12-months follow-up, commonly the longest period studied, brief advice is effective in reducing heavy drinking, leading to lower average alcohol consumption, a reduction in alcohol-related
problems, and reduced health care utilisation and mortality outcomes [35•].

Delivery by a range of practitioners has beneficial effects, and there is little evidence to suggest that any one profession of provider performs better or worse than another [36••]. Further, there is little evidence to suggest that the content of the advice is important for the outcome, or that longer or more sophisticated advice leads to better outcomes than shorter or less sophisticated advice [36••]. So, it seems that the length, complexity and sophistication of the advice are less important than the actual contact between provider and patient. Further, two systematic reviews that studied outcomes amongst control groups in studies of brief advice [37, 38] found consistent evidence of reduced drinking. Thus, what is termed screening or assessment reactivity may be additional elements of the positive effects of brief advice.

Most of the evidence for brief advice has focused on adults aged between 18 and 65 years, rather than young or older people [35••]. Thus, it is not possible to conclude that brief advice works just as well for the young and elderly as it does for adults.

Digital-based Advice

There has been considerable development both to supplement primary health care-based screening and brief advice programmes, and to extend the reach of screening and brief advice through digital-based interventions. A Cochrane systematic review that included 40 trials compared the drinking of people getting advice about alcohol from computers, telephones or internet sites against those that did not [39, 40]. Overall, participants randomised to a digital intervention drank on average 23.6 (95% CI 16.0, 31.2) grams of alcohol (roughly two drinks) per week less than controls, a proportional reduction similar in size to that achieved by face-to-face advice [35••]. The reduction appeared to be sustained across lengthening follow-up, although it was not statistically significant by 12 months. Of the 40 trials, 26 were solely of adolescents, young adults or college students. There was a statistically significant, although smaller, reduction in consumption in this population of 14.0 g per week (95% CI 8.1, 19.9). Five trials provided information on alcohol consumption by sex. There was no evidence from these trials that the difference in alcohol consumption between trial arms was modified by sex, but the available data were limited. Five trials reported a direct comparison between a digital and face-to-face intervention. There was no evidence from these trials of a difference in alcohol consumption between these arms. Four out of five studies investigating cost-effectiveness, reported the intervention was cost-effective. There was no evidence to suggest that the length of the intervention or the specific type of digital intervention impacted on cost-effectiveness. Of the behaviour change techniques, uniquely present in experimental arms, i.e. not present in both experimental and control arms, the five most frequently used were: ‘Feedback on behaviour’ (82.9%), ‘Social comparison’ (80.5%), ‘Information about social and environmental consequences’ (70.7%) ‘Feedback on outcomes of behaviour’ (65.9%) and ‘Social support (unspecified)’ (65.9%). There was not enough information to determine if advice was better from computers, telephones or the internet. Advice from trusted places like doctors’ groups (credible source) seemed helpful as well as suggestions about things to do instead of drinking (behaviour substitution).

Other Settings

The impact of brief advice programmes in antenatal care has infrequently been studied and there is no conclusive evidence that suggests an impact of brief advice programmes delivered in antenatal care [41]. There is a building evidence base for the feasibility and effectiveness of delivering screening and brief advice for heavy drinking in pharmacy settings, although there is insufficient evidence to date to propose widespread roll out [42]. Compared with primary health care, there is a smaller evidence base for the impact of brief advice undertaken in emergency care settings [41]. One meta-analysis based on 33 publications covering 28 individual studies found that 6 out of 9 meta-analyses, comparing change from baseline score differences between brief advice and control conditions, presented significant results favouring brief advice. However, the effect sizes were small, with the highest standardised mean difference amounting to 0.19 (95% CI 0.08–0.31), suggesting a cautious approach to widespread roll out of brief advice programmes undertaken in emergency care settings [43].

Screening and brief advice delivered in primary health care is effective in reducing heavy drinking. The evidence is stronger than in other settings. The actual content and length of the brief advice seems less important than the contact between provider and patient.

Implementing Screening and Brief Advice Programmes in Primary Health Care

Managing Screening

AUDIT-C scores for triggering brief advice in primary health care are commonly set at five for both men and women, or five for men and four for women. These levels reflect a consumption of about 20 g of alcohol or less per day [34]. Primary health care providers may be unwilling to give advice at such low levels of consumption, more so because it would become very time consuming, with as many as one in three or four patients being eligible for advice.

In the case of managing hypertension, cut-off levels are normally taken as levels of blood pressure at which treatment has shown to be effective [44]. Similarly, cut-off
levels for heavy drinking could be taken as levels of alcohol consumption found at which brief advice has been found to be effective. In the first Cochrane review of the topic, these levels were found to be, on average, 313 g per week [44••]. At a daily average of 45 g, the relevant AUDIT-C cut-off score is 8 [34]. That lower cut-offs may be a constraining factor is also illustrated by the lower effect sizes found in an update of the Cochrane review [46••] (half in size from the original Cochrane review [45••]), where the average baseline consumption at enrolment had dropped to 183 g/week (26 g/day).

It has also been proposed that primary health care providers might be more active in screening for heavy drinking, if screening were restricted to patients with comorbid conditions, such as high blood pressure or depression [47–49]. To date, though, there are no available evidence-based packages that deal with comorbidity to implement [50]. Further, such restrictive screening misses most screen-positive patients that are identified through universal screening [51].

**Evidence for Increasing Primary Health Care Activity**

Two systematic reviews [52, 53•] and two multi-country studies [54•, 55•, 56] have provided evidence on how to increase the activity of primary health care providers in screening patients and in advising screen-positive patients. The WHO Phase III four-country study on the identification and management of alcohol-related problems in primary care found that the odds ratios for the impact of training and support on increased screening (defined as 20% or more of eligible patients screened) was 2.2 (95% CI = 1.3 to 3.1) and on increasing higher intervention (defined as 10% or more of eligible patients screened and advice given to screen positives) was 2.8 (95% CI = 1.6 to 4.0); albeit from very low baseline levels [56].

The five-country European ODHIN (optimising delivery of health care interventions) study tested the impact of training and support and of financial reimbursement in changing provider behaviour. Providers who had received training and support screened 50% more patients that providers who had not received training and support; providers who received financial reimbursement screened 100% more patients than providers who did not receive financial reimbursement [54•]. In both cases, the baseline levels of screening were low, at 6/100 consulting adult patients screened [54•]. In contrast, evidence from routine practice in England practice found limited effects of financial incentives on provider’s screening and advice behaviours [57].

The WHO Phase IV 12-country study on the identification and management of alcohol-related problems in primary care concluded that primary health care activity could be enhanced through: (i) local customization of training and practice-based materials; (ii) reframing views about alcohol of both professionals (through training) and the public (through mass media campaigns); (iii) establishment of a lead organisation with endorsements and support from a range of organisations and individuals to provide focused leadership; and (iv) adequately controlled community-based studies to strengthen the evidence base for achieving routine implementation [58••]. These actions place primary health care-based screening and brief advice programmes in the context of community and municipal environments, in which additional support can help improve outcomes. In the USA, the SBIRT (screening, brief intervention and referral to treatment) programme led by SAMHSA (Substance Abuse and Mental Health Services Administration) [59] identified that local champions and whole primary health care centre buy-in were needed for successful implementation [60, 61].

The volume of screening and brief advice delivered in primary health care can be enhanced with training and support. It is likely, although not yet fully evaluated, that the volume could be further enhanced by embedding screening and brief advice within a frame of broader supportive community action.

**Implementation Strategies**

We view one of the main reasons for failing to achieve large-scale increases in PHC-based activity as due to implementation strategies focussing on health care providers alone, whereas successful implementation of health interventions within health systems requires managing relevant broader structural and support systems [62•]. In the final part of this review, we outline a number of mechanisms that could be used to embed primary health care activity within broader community support so as to enhance the volume of screening and brief advice delivered, Fig. 1.

**Local Champions** A champion, who acts as a trusted knowledge and practice broker can be identified and appointed with the responsibilities of promoting the implementation of screening and brief advice programme serving within communities [62•]. A local champion can: facilitate agreement on the common aims and objectives, and outcome measurements within local health; identify and mobilise relevant local resources; identify and operationalize the relevant practice changes that are needed to ensure sustainability of the programme; gather and analyse the needed data to feedback at the individual primary health care centre and community levels, leading to an adjustment of programme implementation as needed; identify and work with others in health systems to ensure that primary health care centres can access and coordinate a range of needed services and support systems;
and, create a system of regular planned communication with and between primary health care centres and local communities.

**Tailoring** To ensure acceptance, local ownership and ongoing sustainability in delivery screening and brief advice programmes, all training and implementation guidelines and materials require local tailoring. Tailoring can be guided by the seven domains of the Tailored Implementation for Chronic Diseases initiative [63–65]. These are: (1) local and national guideline factors; (2) individual health care provider factors; (3) patient factors; (4) interactions between different professional groups; (5) incentives and resources; (6) capacity for organisational change; and, (7) social, political and legal factors. At the level of primary health care, tailoring should be based on the principles of co-production of health between providers and patients [66]. At the local level, tailoring should be based on the principles of integration between primary health care and local community services [67] to prevent, manage and treat heavy drinking.

**Training** Training of primary health care providers needs to cover the practical skills in undertaking screening and in delivering brief advice, in using and scoring screening instruments, and in knowing when and how to refer patients with AUD [68–71]. In addition, training should cover practice management skills, and should discuss and address providers’ attitudes, and the perceived barriers and facilitators [72–74] in implementing screening and brief advice. All aspects of training should be contextualised to local circumstances [75*].

**Adoption Mechanisms** Five adoption mechanisms have been identified to support the scale-up and implementation of prevention and treatment within health systems. As applied to screening and brief advice programmes, these include: (i) communicating the added value of primary health care-based screening and brief advice, its simplicity to deliver during a regular consultation, and its basis on the most up to date evidence of preventing and managing heavy drinking; (ii) involving respected primary health care leaders, building their skills of leadership to ensure widespread uptake of primary health care-base screening and brief advice, through identifying and advocating for large-scale change [76–78]; (iii) communicating the added value of implementing screening and brief advice programmes to both primary health care providers and to local community services [79]; (iv) identifying and advocating for appropriate and possible adjustment to local policies that influence the behaviour of primary health care providers to facilitate uptake and sustainability of screening and brief advice programmes; and, (v) bringing to the fore existing gaps in health system performance and the urgent need to prevent and manage heavy drinking as a call to motivate primary health care providers to be more active in delivering screening and brief advice programmes [80].

**Support Systems** Five support mechanisms have also been identified to support ongoing scale-up. As applied to screening and brief advice programmes, these include: (i) developing the professional capacity for scale-up amongst health care professional bodies, and commissioners and funders of health services, including insurance companies; (ii) developing, through redesign rather than additional resources the needed infrastructure for scale-up, including, for example, adjustment to electronic health records; (iii) linking implementation to regular monitoring and evaluation, with, for example, regular feedback and benchmarking of performance in undertaking screening and brief advice activity; (iv) creating intelligent systems that capture new ideas for change from implementing providers and actors, learn from collected ideas, use them to adjust the screening and brief advice programmes and their implementation. Knowledge should be shared between all implementers at primary health care and local levels through regular electronic newsletters and communications [81]; and, (v) identifying design factors that can be adjusted or implemented to ensure sustainability based on high levels of reliability and validity of new programmes, monitoring procedures to ensure that high-quality results are being achieved, and that support for
Conclusions

The first trials reporting evidence for the impact of brief advice delivered in primary health care to reduce heavy drinking were published between 25 and 30 years ago [84–86]. Despite a plethora of calls to implement routine screening in primary health care and the offer of advice to screen-positive patients [87, 88, 89, 90••], there remains a large gap in delivering such programmes. There is a need to speed up the translational process so that a highly modifiable disease burden can be addressed. Such an imperative has been called for by United Nations sustainable development target 3.5, more so in times of austerity and huge pressures on health services.

The Organisation for Economic Cooperation and Development (OECD), has modelled the potential health and economic impacts of primary health care-based screening and brief advice programmes. OECD found that, were the proportion of eligible patients receiving advice and treatment for heavy drinking to be 30% of eligible patients, the prevalence of harmful use of alcohol would decrease by between 10 and 15% across OECD member countries, with reductions in the annual incidence of alcohol use disorder of between 5 and 14% [11•]. OECD noted that, although widespread implementation of such programmes can be expensive because of staff and drug costs, they bring the potential of large reductions in health care expenditures, with, in some countries, such programmes reducing costs by large margins [11•]. Primary health care-based screening and brief advice can also reduce alcohol-related diseases amongst large numbers of working age people.

The US Surgeon General’s Report on Alcohol, Drugs, and Health concluded that “supported scientific evidence indicates that substance misuse and substance use disorders can be reliably and easily identified through screening and that brief interventions work with mild severity alcohol use disorders” [90••]. The US Preventive Services Task Force recommended that “clinicians screen adults aged 18 years or older for alcohol misuse and provide persons engaged in risky or hazardous drinking with brief behavioral counseling interventions to reduce alcohol misuse” [91].

As the Phase IV WHO Collaborative Project on Identification and Management of Alcohol-related Problems in Primary Health Care, Development of Country-wide Strategies for Implementing Early Identification and Brief Intervention in Primary Health Care concluded, what is needed next are adequately controlled community-based studies to strengthen the evidence base for achieving routine implementation of screening and brief advice programmes in primary health care [58••].

Acknowledgements

No funding was received for drafting the manuscript.

Compliance with Ethical Standards

Conflict of Interest

Peter Anderson, Amy O’Donnell, and Eileen Kaner declare no conflict of interest.

Human and Animal Rights and Informed Consent

This article does not contain any studies with human or animal subjects performed by any of the authors.

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  • Of major importance

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