Public Health England

Protecting and improving the nation's health

The range and magnitude of alcohol's harm to others

A report delivered to the Five Nations Health Improvement Network

A rapid review of cross-sectional surveys

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Background

There is a large body of epidemiological literature describing the relationship between alcohol consumption and a range of health conditions including high blood pressure, cancer and liver disease. Reviews have also demonstrated the negative impact alcohol has socially; it is an important factor in crime and disorder, family and marital problems, adverse childhood experiences and reduced workplace productivity through premature death, absenteeism or presenteeism. Increasingly, evidence is demonstrating the detrimental effect of alcohol to people other than the drinker. Considering these 'harms to others', or 'second-hand effects', can enable a more accurate measurement of the full burden of alcohol on society. Alcohol's harm to others (AHTO) was identified as an area of interest by the alcohol expert forum of the Five Nations Health Improvement Network (England, Scotland, Wales, the Republic of Ireland [ROI] and Northern Ireland) and is the focus of this rapid review. There have been several reviews that have identified the wide range of harms to people from others drinking. The aim of the review was to describe the range and magnitude of AHTO from cross-sectional surveys. These surveys do not cover all AHTO, for example Foetal Alcohol Syndrome, therefore do not present a complete picture.

Method

A rapid review was undertaken which included full-text, English language studies published in Medline, PsycINFO, Cumulative Index to Nursing and Allied Health Literature (CINAHL) and Her Majesty's Inspectorate of Constabulary (HMIC) between January 2008 and July 2018 (inclusive) and 6 AHTO surveys from across the UK and ROI. Research conducted in countries within the Organisation for Economic Co-Operation and Development (OECD) areas were included. Grey/unpublished literature was only included where it related to surveys conducted within the United Kingdom (UK) and the ROI.

Results

A wide range of AHTO was identified in this review covering harms to individuals, communities and society. Methodological quality varied across surveys, as did the survey methods (for example face-to-face or computer-assisted telephone interviews), recall period (for example previous 12 months or lifetime), number of items or types of harm included in the questionnaire, and the population of interest (the denominator, for example those in intimate relationships with heavy drinkers or the whole population). Because of these differences, direct comparisons of the prevalence and risk factors of

AHTO across surveys cannot always be made. While methodological differences preclude direct comparisons, this report presents findings for the range and magnitude of AHTO across the UK and the ROI.

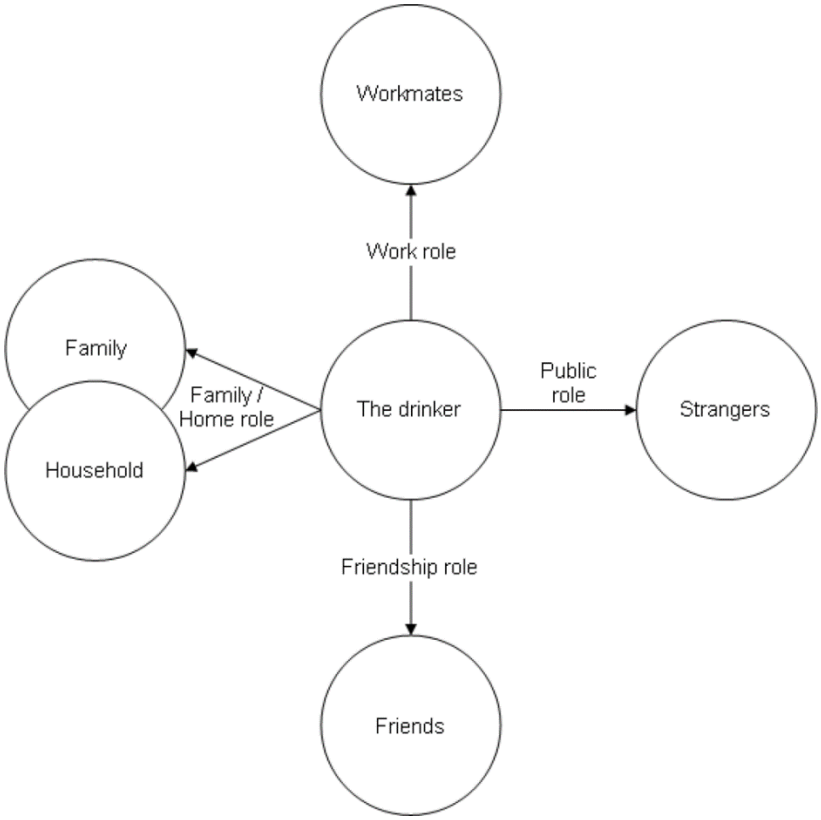
Implications

In the UK, ROI, and across OECD countries, surveys have helped reveal the frequency, magnitude and range of AHTO, though direct comparisons cannot be made across these surveys. More granular detail, such as the severity of AHTO, and how these change with time, could provide useful insight when considering effective policy options. It should be noted that not all harms are well-suited to being studied using cross-sectional designs as were included in this review, and other approaches such as longitudinal studies or data-linkage studies could be used to good effect. Going forward, the devolved nations, alongside other interested countries, could work together to develop a consistent methodology to support meaningful comparison. Given that alcohol consumption both causes harm and puts drinkers and non-drinkers at risk from experiencing harm from others, evidence-based policies that reduce alcohol use across society (for example duty increases, a minimum unit price, restrictions on the availability of alcohol, and marketing regulation) are likely to be most effective at reducing the total burden of alcohol-related harm and also AHTO. Targeted interventions aimed at specific issues such as parenting programmes or advice to pregnant women, could also be used to good effect.

Introduction

Alcohol consumption is commonly constructed as a problem that affects the health and social aspects of individual drinkers. Nonetheless, the harm originating from alcohol affects those other than the drinker (1). This can include children and family members, adults, co-workers, strangers, neighbourhoods and communities, and society. For example, a drinker may fail to meet their work commitments meaning a co-worker has to pick up the additional work burden (2), or a drinker may choose to get behind the wheel of a car and increase the risk of injury or death to a fellow road user (3). Figure 1 provides a helpful overview for contextualising alcohol's harm to others (AHTO) (4). At the centre of the conceptual framework sits the drinker, with harms exerted on others through their different roles such as their work role, public role, family/home role, and friendship role.

Figure 1: A conceptual framework for understanding alcohol's harm to others (4)



Increasingly, research has focused on AHTO, sometimes called 'externalities', 'collateral damage', or the 'second hand effects of alcohol' (5). Understanding the impact of alcohol not only on the individual drinker, but to those around them, improves our ability to estimate the total burden of alcohol on society (6).

Rationale and aim

The rationale behind the present rapid review came from discussions within the alcohol expert forum of the Five Nations Health Improvement Network who wanted to understand the full range of consequences associated with the harmful use of alcohol beyond the impact on the drinker themselves. The group includes representatives from England, Wales, Scotland, Northern Ireland, and the Republic of Ireland. This aligns with the World Health Organization (WHO) who have identified AHTO as a key element of its Research Initiative on Alcohol, Health and Development, which aims to develop better quality evidence for AHTO, similar to that available for passive smoking (1).

The aim of the present review was to identify the range and magnitude of harms caused by, or associated with, someone else's alcohol consumption. To facilitate comparison across studies, and to balance time and resource constraints, all findings are drawn from cross-sectional surveys.

A note on reading this review

Alongside this review we have published a set of accompanying tables that includes key information about the surveys identified in this review and their methodological approach. These tables are intended to be read alongside the sections of this report so that these aspects can be considered alongside the key findings. Greater weight should be given to surveys with higher quality methods. The prevalence of AHTO has not been included in the accompanying tables since methodological differences preclude direct comparisons.

Cross-sectional surveys: strengths and limitations

In cross-sectional surveys, researchers aim to obtain a representative sample by taking a cross-section of the population of interest at a single point-in-time. They are useful for estimating the prevalence of an outcome in a population (7), and are therefore an important method for understanding the prevalence of AHTO. Other advantages of cross-sectional surveys are that they can be a relatively quick, simple, and cheap way to obtain insightful data. Loss to follow-up is not a problem since respondents complete a survey only once. Finally, it is possible to record multiple variables to identify risk factors for experiencing harm. Because the exposure and outcome data is only recorded at one point-in-time, only an association, and not causation, can be inferred from cross-sectional surveys.

In all cross-sectional surveys, selection bias can be a problem. Selection bias occurs when the sample population is systematically different from the population it is meant to represent (7). The use of random sampling reduces the risk of selection bias if the

sampling frame (the population who could be selected) is comprehensive. Telephone interviews sampling households with landlines could lead to bias since these households may be systematically different from households without landlines (8). Some social groups are known to be systematically missing or underrepresented in surveys including the homeless, those in hospital or care homes, those who are incarcerated, and heavier drinkers (9). The accompanying tables include information on the sampling approach of each survey and should be considered when interpreting the survey's findings.

Selection bias is also a problem in surveys if those who are randomly selected to take part and decline are systematically different from those who are randomly selected and accept (8). The lower the response rate to a survey the more likely this is to be a problem. In this review, the response rates ranged from 12% to 81% clearly demonstrating different levels of selection bias across surveys. These rates are reported in the accompanying tables and should be considered when interpreting the survey's findings.

Together, these potential sources of biases can affect the generalisability, or external validity, of the findings from the sample to the population the sample represents. Weighting the data so that the sample is more representative of the population is one approach to reducing the impact of selection bias (8). We include information on whether data has been weighted in the accompanying tables and this should be considered when interpreting the survey's findings.

Ascertainment bias occurs if the information recorded for the participants is systematically different from their actual experiences and could arise if participants do not accurately record or recall their experiences (8). Harms that occur a long time ago or had little impact on the respondent may be more difficult to recall than more recent or severe harms. On the other hand, participants may be unwilling to record very personal events that are upsetting or embarrassing, especially if the responses are relayed to the researcher rather than self-completed. The mode of survey delivery (for example computer-assisted telephone interview [CATI] versus self-administered postal or web questionnaires) is therefore important and this has been included in the accompanying tables and should be considered when interpreting the survey's findings.

It is also possible that information could be inconsistently or inaccurately recorded by the interviewer, although this is minimised if the interviewers are trained and work from a standardised framework (8). That an event is alcohol-related may not always be evident – it is not always possible to accurately identify if someone has been drinking or a harm could have occurred irrespective of whether the person had been drinking. Inevitably, survey data reflects the perspective of the respondent and their view on whether alcohol played a causal role. Survey data alone is not able to identify the extent to which harm is over- or underestimated. Finally, not all types of harm have

been included in surveys, for example foetal alcohol syndrome, and for these harms, in addition to the harms already included within cross-sectional surveys, other types of research designs may prove to be more insightful.

Methods

Approach

To address the aim and objectives, a rapid evidence review was considered the most appropriate methodological approach (10). A rapid evidence review balances resource and time constraints while providing a robust analysis and synthesis of contemporary literature (11, 12). Searching, screening, and retrieval were undertaken by a single researcher (RB).

Eligibility criteria

Inclusion and exclusion criteria were applied to ensure the literature reflected contemporary practice, while focusing on the population and outcomes of interest (11, 13). Only cross-sectional surveys published between January 2008 and July 2018 (inclusive) were eligible for inclusion since this captured a large amount of relevant literature and was in line with parameters usually applied in rapid reviews (12). Exclusion criteria were:

- survey not published in the English language
- survey not available in full-text format
- survey not carried out in an Organisation for Economic Co-Operation and Development (OECD) country
- reviews/editorials/expert comments
- survey focused on harm to individual drinker without reporting on a harm to a third party

Search procedure

A comprehensive search strategy was devised to identify relevant literature taking 'abbreviations' and 'accelerations' where appropriate in line with rapid evidence review conduct guidance (14). The search was completed using electronic databases, selected on their relevance to the research of interest for this rapid evidence review (15). The following databases were used: Medline, PsycINFO, CINAHL and HMIC.

To search these databases, a suitable search strategy was devised, encompassing the selection of search terms, Boolean operators, and eligibility criteria. Key search terms were selected based on their relevance to the review question, for example 'alcohol*' and 'harm to others' or 'externalities', 'alcohol ADJ second hand effect*', and survey.

To augment the online database search, a process of 'snowballing' or cross-referencing was carried out. This comprised an assessment of the reference lists of identified studies to highlight any further relevant studies that may not have been included in the search process. Although this technique may increase the risk of bias, particularly of publications from a single researcher or research group (11), it is widely used as a means of overcoming the limitations of databases key word selection and indexing, which can limit

the findings of a comprehensive search approach (16). The 5 nations' surveys were identified by representatives from each of the nations – England, Wales, Scotland, Northern Ireland, and the ROI.

Study selection

Following the application of eligibility criteria, studies were further refined according to a sequential process (11). Initially, study titles were scrutinised to determine the relevance of the study to the research topic. Following this, an analysis of the remaining study abstracts was carried out to confirm adherence to the eligibility criteria. Finally, for those studies that were deemed relevant following title and abstract review, a full-text analysis was completed to ensure the fulfilment of the eligibility criteria.

Synthesis of results

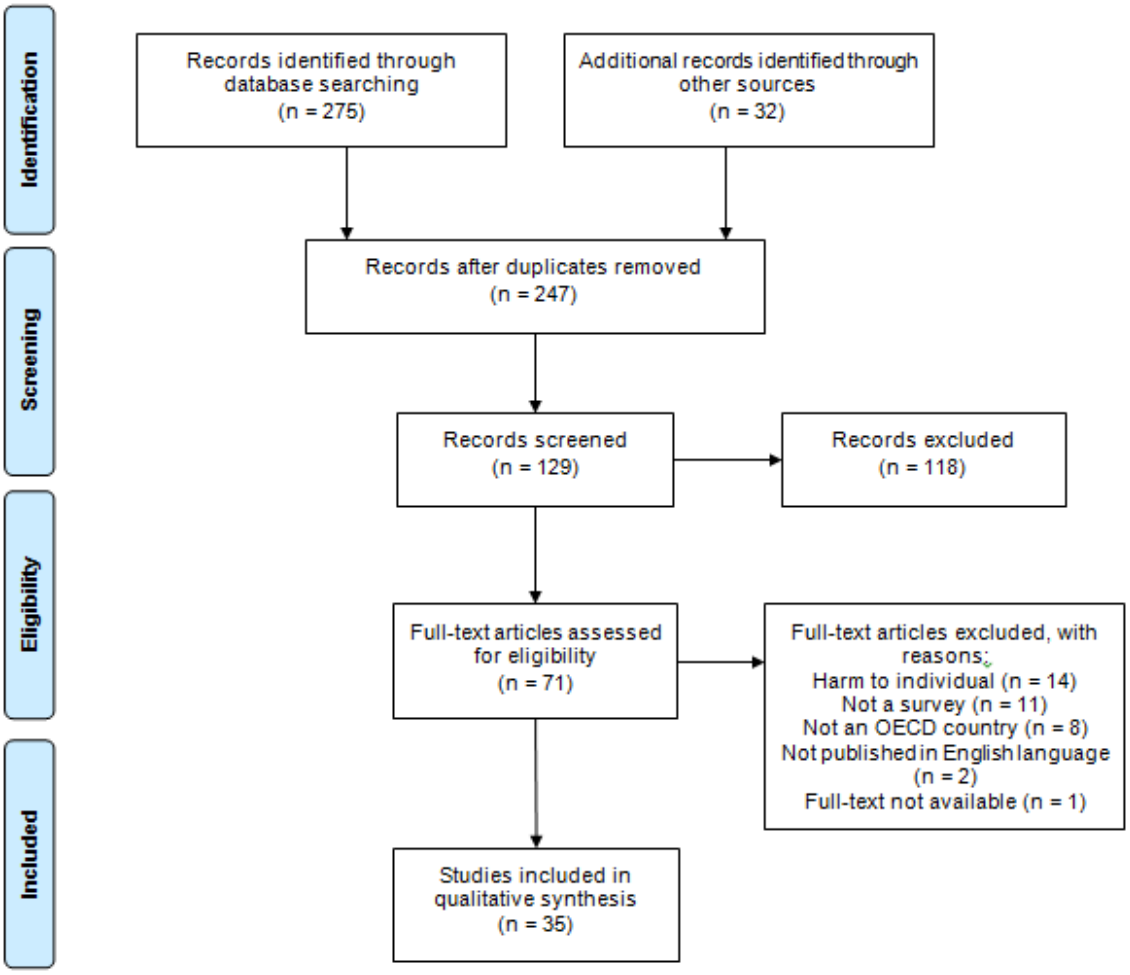
Data analysis involved a structured approach to evaluating the evidence and synthesising the findings into a coherent narrative (11, 17). First, we summarise the findings of surveys that have been carried out across the 5 nations. We then report findings by those harms which occur to individuals, and harms which occur to larger social aggregates, social systems, and institutions. Within these broader sections, we report findings by the type of AHTO, for example harm to children, or household expenditure. It is intended that the narrative synthesis be read alongside the accompanying tables to contextualise the strength of evidence and details of each study. Due to methodological differences, the findings of surveys are not directly comparable. To conclude, the review summarises the findings and presents implications for research, policy, and practice going forward. Throughout the write-up, where uncertainty estimates are included in the primary literature, these are included in the write-up. All findings are reported to one decimal place unless this was not reported, where this review uses 'no dp'.

Results

Study selection

An overview of the screening and selection process can be seen in Figure 2 and is based on the PRISMA[1] reporting guidelines (18). This table outlines the number of papers which were identified and iteratively removed, with reasons for their exclusion. A summary table of the key features of all surveys included in this review are listed in the accompanying tables.

Figure 2: Flow diagram of study screening and selection process for alcohol-related harms to others literature



Overall, and including the 5-nations surveys, 35 papers were identified, some of which analysed the same survey data but used different respondent subsets. Of all surveys, 10 were taken from an Australian sample, 9 from a United States of America (USA) sample, 6

[1] Preferred Reporting Items for Systematic Reviews and Meta-Analyses

from the UK and ROI, 4 from New Zealand, 3 from Norway, one from Canada, one from Denmark and one from Finland. Though publication dates were set to include papers published between 2008 and 2018, survey years ranged from 1995 to 2015.

Alcohol's harm to others across the 5 nations

To date there have been six AHTO surveys carried out across the UK and ROI [surveys 1-6 in Appendix 1]. An overview of the types of AHTO included is shown in Table 1.

Table 1: Types of alcohol-related harms to others survey items included in the 5 nation's surveys

Type of harm	England	Wales	Scotland	Republic of Ireland	Northern Ireland
Serious argument	✓	✓	-	-	-
Verbal insults	-	-	✓	-	-
Felt physically threatened/harassed/ afraid/unsafe	✓	✓	✓	-	-
Emotionally hurt/neglected	✓	✓	-	-	-
Physically hurt	✓	✓	✓	✓	✓
In a car with a driver who had been drinking	✓	✓	✓	✓	✓
Forced/pressurised into sex	✓	✓	-	-	-
Uncomfortable in a social situation	✓	✓	-	-	-
Property damaged	✓	✓	✓	✓	✓
Financial problems	✓	✓	✓	✓	✓
Child negatively affected	✓	✓	✓	✓	-
Caring for a drinker	✓	✓	-	-	-
Let down by a drinker	✓	✓	-	-	-
Kept awake	✓	✓	✓	-	-
Drank to cope	✓	✓	-	-	-
Ceased contact with a drinker	✓	✓	-	-	-
Moved home	✓	✓	-	-	-
Contacted the police	✓	✓	-	-	-
Family/marriage problems	-	-	✓	✓	✓
Problems at work	-	-	✓	✓	-
Problems with friends/neighbours	-	-	✓	-	-
Any other harm	✓	✓	-	-	-

Surveys in England and Wales were administered during 2015 and 2016 and used the same questions covering 18 different harms plus a free text box for 'other alcohol-related harms' (19, 20). The reported prevalence of 'any harm' in England was 20.1% (95% confidence interval [CI]: 18.9%, 21.4%) and 59.7% in Wales (20). This difference in prevalence could be genuine however the magnitude of this difference seems unlikely, given the similarities between the 2 nations. The difference may, in part, be due to differences in survey methods. In Wales, responses from the free-text field were included which would likely raise the overall prevalence in Wales compared to England. In England 'other harms' were not included because it was not always clear the harms were alcohol-related. As such, while both surveys principally asked about 18 different types of AHTO, in reality, the Welsh survey included many more harms. In England the questions were appended to the Alcohol Toolkit Survey (21), which may have affected how people responded to the AHTO questions. Additionally, the Welsh survey was administered by telephone, whereas the English survey was delivered face-to-face, with the AHTO being self-completed. The mode of delivery can affect AHTO responses and therefore the

prevalence of harm (22), though it is not possible to ascertain how these differences may have expressed themselves in the survey data.

In Scotland, North West of England and ROI, last-year prevalence of harm was 51.4% 78.7% and 28% (no dp) respectively (23-25). These surveys all used different questions meaning the results are not comparable either to each other, or the Welsh and English surveys. In Northern Ireland, no overall prevalence was reported, though 13.0% of respondents reported family or relationship problems because of another person's drinking, 9.4% report being hit or assaulted, 6.6% reported being a passenger in a car with a driver under the influence, 6.3% reported property damage, 2.3% reported financial problems, and 1.6% reported being involved in a traffic accident (26). No details regarding the methodological approach were reported, and despite contacting the authors, these details could not be retrieved.

Despite differences in the overall prevalence of AHTO between England and Wales, the relative prevalence of different harms were similar; being kept awake at night, feeling uncomfortable or anxious at a social occasion, and having a serious argument were the most commonly reported harms in both surveys (19, 20). Being kept awake at night due to drunken behaviour was also prevalent in Scotland and the North West of England (23, 24). In the North West of England, being annoyed by people littering the street when they have been drinking had a higher prevalence than being kept awake at night, but this type of harm was not included in other surveys. At the other end of the spectrum, only a small proportion of respondents in England and Wales reported having to move out of a usual place of residence, and being forced into something sexual (19, 20). In Scotland, the lowest prevalence of harm was being in a traffic accident when someone who had been drinking was responsible (23, 24), while in the North West of England the lowest prevalence was for having a child who had been negatively affected by someone's drinking (24). In the ROI, the harms reported with the highest prevalence were family problems, followed by being a passenger with drunk driver, having property vandalised, physically assaulted and lastly experiencing money problems (25).

Given the differences across surveys the results cannot be meaningfully compared. Even minor differences, such as whether a question on drink driving includes all instances when the driver was under the influence of alcohol or only those occurrences which resulted in an accident could make a sizeable difference in the reported prevalence. Studying only a limited number of existing key items that are identical across surveys in the 5 nations would improve the potential for comparison.

Given overall general indicators of harm from others' drinking varied so greatly, the next sections of the present report limit comparisons to more narrowly defined harms from others' drinking.

Harms to individuals

Individuals can experience harm because of someone else's drinking, and the drinker may be known or a stranger. The harms can occur in the public or private sphere. This section describes AHTO experienced by individuals, presented in order of harms most to least frequently asked about in surveys.

Verbal and physical abuse

Fourteen surveys were identified which measured outcomes relating to verbal and physical abuse [surveys 8, 10-12, 14-16, 19, 22, 28, 31-34].

In 2011, in an Australian general population sample, 23.0% of respondents reported being verbally abused, and 8.5% reported physical abuse [survey 10 (27)]. In 2008, 16.1% of Australian respondents reported being emotionally hurt or neglected, 15.9% had been involved in a serious argument, and 1.4% said they were physically hurt – by a drinker they knew [survey 22 (28)]. In relation to a strangers' drinking, 18.9% of the Australian sample experienced verbal abuse, 11.4% were involved in a serious argument, and 4.0% were physically abused [survey 28 (29)]. The prevalence of harm was higher among those who identified a problematic drinker[2] in their immediate social network.[3]

In New Zealand, nearly 7% of men and 3% of women reported having been physically assaulted in the previous year, with 44% of these people having suffered more than one assault (no dp) [survey 32 (30)]. When responding in relation to drinkers who had harmed them the most, 49% reported being involved in a serious argument, 44% were emotionally hurt or neglected, and 7% were physically hurt (no dp) [survey 19 (31)]. Prevalence was highest for people aged 18 to 25 years and lowest for people aged 56 to 65 years: 12.3% (95% CI: 11.1%, 13.6%) and 0.8% (95% CI: 0.4%, 1.2%) respectively. Amongst respondents who reported having experienced physical assault in the last 12 months, 44% reported more than one assault (no dp). The highest prevalence group for perpetrators was strangers (52%) and the lowest was parents (1% no dp). The prevalence of physical assault was highest in a pub, bar or club (28%) and lowest prevalence was in the workplace (6%). Of all physical assaults caused by other people's alcohol consumption, 28% included police involvement and 15% included medical involvement.

In a survey from the USA, 14.9% of respondents reported being harassed by another person who had been drinking, 3.6% were pushed, hit or assaulted, and 2.0% were physically harmed [survey 8 (32)]. Harassment and being threatened were most commonly attributed to the drinking of strangers or friends, assaults to the drinking of strangers, and

[2] Defined as individuals who respondents considered to be a "fairly heavy drinker, or someone who drinks a lot sometimes"
[3] Including household members, family, friends or another known person

for physical harm, spouses and strangers. Odds of feeling threatened or afraid was higher for friends who had been drinking compared to strangers: OR=4.12 (95% CI: 1.82, 9.32). An earlier survey from the USA reported a slightly higher proportion of respondents reporting physical violence – 28.3% had ever been pushed, hit, or assaulted, by someone who had been drinking, reducing to 2.4% in the last 12 months [survey 30 (33)]. In an earlier USA survey, among those reporting crime victimisation (6.7% of male respondents and 4.1% of female respondents), 71.5% reported physical victimisation [survey 34 (34)].

A USA survey explored how AHTO differed by context and gender [survey 16 (35)]. For females, drinking when friends came over was positively associated with assault due to someone else's drinking (OR=1.17, [95% CI: 1.01, 1.35]), but for males, this was a negative association: 0.96 [95% CI: 0.93, 0.99]). For males, assault was positively associated with someone else's drinking across a range of contexts including in a bar (OR=1.06; 95% CI: 1.02, 1.12), at a party (OR=1.07; 95% CI: 1.02, 1.12), and drinking during a quiet evening at home (OR=1.08; 95% CI: 1.04, 1.11).

Being physically harmed[4] was the type of harm least commonly reported in a Canadian survey [survey 12 (36)]. Only 7.0% (95% CI: 1.1%, 12.9%) of respondents who experienced physical harm.

Survey data from the USA demonstrated that alcohol is not always involved in intimate partner violence (IPV) - among respondents reporting cases of IPV, the majority stated alcohol was never used: 84.4% for respondents and 71.1% for their spouses [survey 31 (37)]. More frequent alcohol use during IPV was associated with alcohol abuse and dependence.

Using the 2008 Australian survey of AHTO and the same sample followed up 3 years later, harms from intimate partners in the years 2008 and 2011 were documented [survey 15 (38)].[5] A minority of respondents were affected by their intimate partners drinking, yet over half (57%) of those harmed in 2008 continued to experience harm in 2011. Additionally, half (46.9%) of those who were not harmed in 2008 but did live with a heavy drinking intimate partner went on to be harmed in 2011.

A Norwegian survey aimed to understand respondents' perceptions of how problematic AHTO were, comparing respondents who had and had not experienced harm [survey 11 (39)]. Overall, 96.8% of respondents reported being physically hurt as being 'very problematic', reducing to 83.9% for being afraid that a drinker would hurt them, and 71.1% for being shouted at or insulted by a drinker. Respondents who had experienced these types of harm perceived them to be less problematic – 34.0% reported being physically hurt as 'very problematic', 26.6% for being afraid, and 20.7% for being shouted at.

[4] Defined as responding 'yes' to one of the following because of someone else's drinking: physically hurt, put at risk in the car, injured in a car accident, forced or pressured into sex or something sexual

[5] Defined as partners, ex-partners, and boy/girlfriends

Data from Denmark reported on whether the respondent had caused or experienced AHTO [survey 14 (40)]. Overall, 3.4% reported causing injury but not experiencing it, 1.3% reported not experiencing injury but causing it, and 0.8% reported causing injury and being injured. Most of the sample (94.5%) reported not experiencing or causing injury. It is possible that the low prevalence is since 'injury' implies a medical condition requiring treatment, whereas someone who is 'physically hurt', as asked in other surveys, may not necessarily class the incident as an injury.

In Denmark, 21% of respondents reported having been harassed or bothered by intoxicated people in the street or other public places in the last 12 months, 23% of males and 46% of females [survey 33 (41)]. Older respondents were less likely to report being hit, punched, or tackled by an intoxicated person in a public place, compared to younger respondents, and the prevalence of this type of physical harm was higher for males in all age groups compared to females.

Taken together these surveys show variable levels of verbal or physical abuse caused by someone else's drinking, though levels of verbal abuse were higher than for physical abuse. Being emotionally hurt or neglected was experienced by a large proportion of respondents. Certain contexts had higher prevalence such as a pub, bar, or club. Perceptions of the severity of harm were worse for respondents who have not experienced that harm. There is evidence that verbal abuse persists with time for many people, but physical abuse persists for a smaller number.

Mental health and wellbeing

Thirteen surveys included an assessment of mental health and wellbeing in relation to AHTO [surveys 9, 12, 13, 15, 17, 19, 20, 22, 24, 25, 27, 28 and 35].

In a sample of respondents from the USA, there were stronger relationships between poor mental health and financial troubles due to someone else's drinking and with assaults perpetrated by spouses, partners, or other family members than those perpetrated by friends or strangers, even after adjusting for confounders [survey 9 (42)]. This was similar to earlier findings from the USA which showed that experiencing one of 4 AHTO[6] was strongly associated with respondents reporting higher levels of distress and depression compared to those who did not report experiencing harm [survey 17 (43)].

In New Zealand, an index of exposure to heavy drinkers was created based on the number of heavy drinkers the respondent was exposed to [survey 20 (44)].[7] This index was combined with the amount of time each heavy drinker lived in the household, in order to reflect the cumulative effect of exposure to drinkers. Respondents rated their subjective wellbeing and health status using standardised measures. On average and controlling for

[6] Being pushed, hit or assaulted; family/marriage problems; having property vandalised; and financial troubles
[7] In the previous 12 months

other factors including the respondent's own drinking, personal wellbeing and health status scores were 4% lower and 16% lower respectively for the people most exposed to heavy drinkers compared to people who had no heavy drinkers in their lives (no dp).

An Australian survey considered the impact of heavy drinkers and problematic drinkers[8] on mental wellbeing and depression/anxiety [survey 24 (45)]. The analyses showed that knowing a heavy drinker and being negatively affected by someone else's drinking both increased the odds of having depression/anxiety and impaired mental wellbeing. The association was strongest when the respondent indicated the heavy drinker was someone whose drinking negatively impacted their life.

An Australian survey considered the impact of heavy drinkers[9] on the subjective wellbeing and health-related quality of life of survey respondents [survey 25 (46)]. Each heavy drinker outside the household reduced the personal wellbeing score by 1.08 points (95% CI: -1.61, -0.56) whereas there was no impact on wellbeing from people living in the home. Each heavy drinker outside the respondent's household was associated with a reduction of 2.13 (95% CI: -2.73, -1.52) in their quality of life score and each heavy drinker living inside of the home reduced their quality of life score by 3.19 (95% CI: -4.28, -2.11). These findings are perhaps counterintuitive, though the authors did not offer an explanation for the direction of these findings.

In Canada, experiencing AHTO was correlated to a respondent's self-reported mental well-being [survey 12 (36)]. Self-reported mental well-being was associated with the number of types of physical AHTO and the number of financial AHTO. Respondents reporting higher self-reported mental wellbeing were more likely to have experienced fewer physical AHTO and fewer financial AHTO.

Using relatively simply measures of mental wellbeing and harm – respondents were asked if they had 'worried' about a drinker or had experienced 'negative consequences' – data from a Norway survey showed that 31.2% of respondents were worried about someone else's drinking and greater levels of worry were associated with greater experience of harm [survey 13 (47)]. Compared to those who did not report harm, the odds of experiencing worry for a respondent who had experienced a small degree of alcohol-related harm from another was 3.96, while the odds of experiencing worry for those who reported a higher degree of harm was 11.74 - a notable difference between groups.

A second Norwegian survey reported a complex interaction between alcohol consumption among spouses and spousal mental distress (defined as anxiety and/or depression) [survey 35 (48)]. Alcohol consumption was significantly associated with a decrease in spousal mental distress, but alcohol problems were associated with increased spousal

[8] Defined as someone whose drinking had had a negative effect on the respondent in the previous 12 months

[9] Defined as individuals who respondents considered to be a "fairly heavy drinker, or someone who drinks a lot sometimes"

distress. These findings provide an interesting insight to suggest that couples with discordant problems of alcohol consumption experience more mental distress.

Experiencing harm from another's drinking detrimentally affects one's mental health and wellbeing with the surveys here showing evidence for depression, anxiety, lower quality of life, and worry. Greater exposure to a greater number of heavy drinkers was associated with higher levels of anxiety and distress. Concerns about someone else's drinking were common. A perpetrator's alcohol consumption is important, as is the drinking behaviour of the person affected. Incongruence in drinking behaviour between spouses, for example, may be a more important factor than drinking per se.

The family and household environment

Ten surveys were identified which measured outcomes relating to the family and household environment [surveys 8, 12, 14-16, 19, 22, 28, 30, 34].

In the USA, 3.7% of respondents reported family or marital problems because of someone else's drinking, and this was the third most common type of harm reported [survey 8 (49)]. This was in line with a previous USA survey which reported that 5.3% of female and 2.6% of male respondents said they experienced family or marital problems due to their partner's drinking [survey 16 (35)]. Women were more likely to report marital problems associated with a partner drinking at bars than at other places (OR=1.16; 95% CI: 1.05, 1.28). For men, bar drinking was associated with greater marital and/or financial[10] problems from their partner's drinking compared to other drinking locations: OR=1.08 (95% CI: 1.03, 1.12). In an earlier survey from the USA [survey 34 (34)] among those reporting past-year family problems, 89.6% reported marriage difficulties (denominator not reported). Table 2 shows the prevalence of family and household AHTO in a New Zealand sample reporting in relation to the drinker who had caused them the most harm (no dp) [survey 19 (50)]. A drinker failing to do what was expected of them was most commonly reported, while going without food was least commonly reported.

Table 2: The prevalence of harms in the family and household environment due to the drinker who most affected the respondent in the previous 12 months (50)

Harm type	Female % (no dp)	Male % (no dp)	Total % (no dp)
…failure to do something they were being counted on to do	57	52	55
…had to clean up after them	38	41	39
…extra responsibilities caring for children or others	30	31	30
…could not bring friends home	17	17	17
…meals not cooked	19	14	16
…had to leave home to stay somewhere else	17	10	14
…gone without food	6	5	5

[10] Due to a low number of responses, marital and financial problems were combined

Table 3 shows similar data for an Australian sample reporting with regards to the drinker who had caused them the most harm [survey 22 (28)]. Negatively affecting a social situation was most commonly reported, while having to leave home was least commonly reported. In a different survey, of those reporting at least one problem drinker[11] in their social network[12] 69.8% of respondents reported that the problem drinker negatively affected a social occasion, 56.2% reported that they failed to do something they were being counted on to do, and 37.6% had to stop seeing the drinker [survey 28 (29)]. This demonstrates that the prevalence of AHTO is substantially higher among respondents who identify a heavy drinker.

Table 3: Percentage of respondents affected in ways by the identified drinker who caused them the greatest amount of harm in the previous 12 months (28)

Harm type	Female %	Male %	Total %
…negatively affected a social occasion	20.8	16.4	18.6
…failure to do something they were being counted on to do	17.3	12.0	14.7
…additional cleaning responsibilities	10.1	8.1	9.1
…additional caring responsibilities	6.8	4.5	5.7
…drinker did not commit to share of housework[13]	3.8	2.0	2.9
…could not bring friends home[14]	2.3	0.7	1.5
…had to leave home and stay elsewhere	1.8	0.8	1.3

An Australian survey followed respondents up between 2008 and 2011 and focused only on harms experienced by intimate partners[15] [survey 15 (51)]. Harms experienced in the household and family environment persisted across surveys (Table 4).

Table 4: Respondents most affected by intimate partners in each survey year (51)

Harm because of an intimate partner's drinking	Harmed only in 2008 % (95% CI)	Harmed in 2008 and 2011 % (95% CI)
…had to leave home or sleep somewhere else	21.4 (6.5, 51.7)	23.1 (10.3, 43.9)
…they negatively affected a social occasion	66.7 (45.2, 82.9)	58.8 (41.3, 74.4)
…failure to do something they were counted on to do	45.8 (26.8, 66.2)	56.3 (38.4, 72.6)
…couldn't bring friends home	28.6 (10.3, 58.1)	20.0 (8.2, 41.3)
…they did not do their share of the house work	42.9 (19.4, 70.0)	34.6 (18.4, 55.3)
…had to stop seeing them	29.2 (14.1, 50.8)	24.2 (12.3, 42.2)

Lifetime prevalence of family or marriage difficulties due to someone else's drinking in the USA was 17.9%, reducing to 3.4% for last year prevalence [survey 30 (33)]. Considering

[11] Defined as individuals who respondents considered to be a "fairly heavy drinker, or someone who drinks a lot sometimes"
[12] Defined as a household member, family, friend, or other known person
[13] Only asked of those respondents who identified a drinker who lives in the household
[14] Only asked of those respondents who identified a drinker who lives in the household
[15] Defined as spouses, partners, ex-partners, and boyfriends/girlfriends

gender differences in reported lifetime prevalence of AHTO, women were almost twice as likely as men (24% of women versus 13% of men, no dp) to have reported experiencing family or marital problems.

Being socially harmed[16] was the most commonly reported type of AHTO in a Canadian sample, reported by 34.8% (95% CI: 25.5%, 44.1%) of respondents [survey 12 (36)]. It was more common in males compared to females: 40.6% (95% CI: 26.5%, 54.6%) and 28.3% (95% CI: 16.3%, 40.3%) respectively.

Data from Denmark reported on whether the respondent had caused or experienced AHTO [survey 14 (40)]. Overall, 5.6% reported not causing family/marital problems but experiencing them, 4.7% reported causing family/marital harms but not experiencing them, and 0.6% reported causing and experiencing family/marital problems. Most of the sample (89.0%) reported not experiencing or causing family/marital problems.

Taken together, these surveys identify a range of harms in the household and family environment. Some have a relatively low level of severity, such as not seeing the drinker when they wanted to, through to more severe harms such as going without food. Some harms from others' drinking were shown to persist over time in Australia (the range for prevalence of different harms that occurred in both 2008 and 2011 was 20% to 58.8%). Women were more likely to report harm from family members compared to men.

Household or personal finances

Nine surveys were identified which measured outcomes relating to household or personal finances [surveys 8, 9, 12, 14-16, 19, 22, and 30].

Five surveys in this review used respondents from the USA. In 2005, lifetime prevalence of financial troubles was higher than last year prevalence, (7.1% and 1.0% respectively for previous 12 months) and women reported higher prevalence than men [survey 30 (33)]. This gender difference was also seen in a 2010 survey: 2.8% of women and 1.0% of men reported financial problems [survey 16 (35)]. In 2014/15, 1.9% of respondents reported financial difficulties, most commonly due to the drinking of a spouse, then family member, then friends [survey 8 (49)]. Of a small number of respondents who reported financial harm (n=76), experiencing this type of AHTO was associated with self-reported reductions in quality of life and increased distress [survey 9 (42)]. The final USA survey focused specifically on financial harms reported by adult caregivers to children where <1% reported not having enough money for the child's needs (no dp) [survey 7 (52)]. Despite the low prevalence, not having enough money had the highest prevalence of respondents reporting it to be very problematic.

[16] Defined as responding 'yes' to one of the following die to someone else's drinking: negatively affect a social occasion; failed to do something they were being counted on to do; did not do their share of household work; and gone without seeing friends or family as much

A higher prevalence of not having enough money was reported in a New Zealand survey when respondents were asked to identify the drinker who caused them most harm – of the 85% of respondents identifying a drinker who caused them the most harm, 19% of females and 11% of males reported not having enough money for the things they needed (no dp) [survey 19 (50)]. In Australia, of respondents who identified a drinker in the household, females, on average, reported 3.6 occasions in the previous 12 months where there was less money for the household due to someone else's drinking compared to 1.8 occasions for men [survey 22 (28)]. Financial harm persists – 36.0% (95% CI: 19.2%, 57.1%) of respondents included in the survey reported having less money available because of an intimate partners[17] drinking in both 2008 and 2011 [survey 15 (51)].

In Canada, of the 40.1% of respondents reporting harm due to another person's drinking, 8.3% (95% CI: 3.7%, 12.9%) reported being financially harmed [survey 12 (36)]. Compared to other surveys, males reported higher levels of financial harm than females – 10.2% (95% CI: 2.2%, 18.1%) and 6.2% (95% CI: 2.1%, 10.3%) respectively. People with higher self-perceived mental wellbeing were more likely to have experienced less financial harm related to another person's drinking.

Data from Denmark reported on whether the respondent had caused or experienced AHTO [survey 14 (40)]. Overall, 5.3% reported causing financial problems but not experiencing them, 0.4% reported not causing them but experiencing them, and 0.2% reported causing and experiencing financial problems. Most of the sample (94.1%) reported not experiencing or causing family/marital problems.

When money is spent on alcohol, it is not available to be spent on other commodities. This may be particularly so for those on low-incomes, and those who spend a large part of their overall income on alcohol. Financial harms due to someone else's drinking among the general population was low, though much higher for intimate partners, family members, and drinkers who caused respondents harm. These surveys do not quantify the cost.

Third party harms on the road

Eight surveys were identified which measured outcomes relating to harms on the road [surveys 8, 12, 15, 19, 22, 27, 28, and 30].

In New Zealand, 15% of respondents (including those without a heavy drinker in their lives) had been injured in a car accident because of the heaviest drinker they knew and 23% of respondents reported feeling at-risk in the car (no dp) [survey 19 (50)]. Twenty per cent of respondents reported not having transport available due to someone else's drinking.

Four surveys analysed data collected from respondents in Australia. For all drinkers known to the respondent, 1.1% of respondents had been involved in a traffic accident due to

[17] Defined as spouses, partners, ex-partners, and boyfriends/girlfriends

someone else's drinking [survey 22 (28)]. When respondents answered in relation to the most problematic drinker they knew,[18] 7.8% of respondents had been put at-risk in the car, with males more likely to report this type of harm compared to females (10.6% and 5.7% respectively) [survey 28 (29)]. When respondents were followed up between the years 2008 and 2011, and asked to report in relation to their intimate partners,[19] 6.1% reported being put at-risk in a car in both years, and no respondents reported this harm in 2008 and not in 2011 [survey 15 (51)]. Of respondents answering in relation to the drinker who had caused them the most harm and also reported having to spend time caring for them, respondents spent, on average, nine hours in the last year driving them to, or picking them up from, somewhere in the car [survey 27 (53)]. This was similar for males and females.

Lifetime and last year prevalence of being a passenger with a drinking driver in the USA was 44.2% compared to 3.3% respectively [survey 30 (33)]. Similarly, 8.1% of respondents had ever been in a motor vehicle accident because of someone who had been drinking, compared to 0.3% in the last 12 months. A more recent USA survey showed that <1% (no dp) of respondents reported being in a traffic accident because of someone else's drinking [survey 8 (49)].

In Canada, being put at-risk in the car and being physically injured in a car were grouped alongside experiencing unwanted sexual attention and being physically hurt and were aggregated as 'physical harms', and reported by 4.1% (95% CI: 0.0%, 10.1%) of respondents [survey 12 (36)]. Figures for individual survey items relating to third party harms on the road were not reported. Lower self-reported mental wellbeing was associated with a greater self-reported amount of physical harm.

A sizeable proportion of respondents' report feeling at-risk in a car because of someone else's drinking, and a sizable portion reported not having transport available. The prevalence was higher for those reporting about the drinker who caused them most harm. A much smaller proportion of respondents reported injury due to a car accident, which is not unexpected given that not all occurrences of drink driving result in an accident. Lifetime prevalence was higher than last year prevalence. A small proportion of respondents reported feeling at-risk in the car in both 2008 and 2011 which suggests this type of harm persists to a small extent.

Sexual abuse and assault

Seven surveys were identified which measured outcomes relating to sexual abuse and assault [surveys 11, 12, 15, 19, 22, 28, and 31].

In New Zealand, 1.0% of females and 0.4% of males reported sexual assault, with 45% of respondents reporting that they had been assaulted more than once [survey 32 (30)].

[18] Defined as individuals who respondents considered to be a "fairly heavy drinker, or someone who drinks a lot sometimes"

[19] Intimate partners were defined as partners, ex-partners, and boy/girlfriends

Perpetrators who had been drinking at the time were more likely to be strangers or other people outside the respondent's family, rather than relatives. Compared to assaults where the perpetrator was not drinking, assaults where the perpetrator was drinking were less likely to have occurred inside the respondent's home.

One USA survey of respondents aged 12 to 17 years reported a prevalence of drug/alcohol facilitated rape[20] of 0.2% [survey 29 (54)].

Among respondents in New Zealand identifying a heavy drinker in their life,[21] 3% reported feeling forced or pressured into sex or something sexual (2% of females, 3% of males) (no dp) [survey 19 (50)] . For unknown drinkers 15% of respondents reported receiving unwanted sexual attention; 18% of females and 12% of males. In Australia, 2.3% of respondents who identified at least one problem drinker[22] in their social network[23] reported feeling forced or pressured into sex or something sexual: 3.2% and 1.2% for females and males respectively [survey 28 (29)].

Of Australian respondents who identified a drinker who had harmed them the most in the previous 12 months, 0.7% reported feeling forced or pressured into something sexual, for unknown drinkers, the prevalence was also 0.7% [survey 22 (28)]. Feeling forced or pressured into sex or something sexual because of an intimate partner's[24] drinking persisted in 5.9% (95% CI: 1.4%, 21.6%) of respondents between 2008 and 2011 and occurred in 2008 only for 4.2% (95% CI: 0.5%, 26.0%) [survey 15 (51)].

In Canada, experiencing unwanted sexual attention was grouped alongside 3 other types of 'physical harm' (being physically hurt, put at-risk in the car, or physically injured in a car accident), and was reported by 4.1% (95% CI: 0.0%, 10.1%) of respondents [survey 12 (36)]. Figures for unwanted sexual attention only were not reported. Lower self-reported mental wellbeing was associated with a greater self-reported amount of physical harm.

In a Norwegian survey, respondents were asked to specify how problematic they perceived unwanted alcohol-related sexual attention [survey 11 (39)]. Overall, 71.1% of respondents reported it to be 'very problematic', though of respondents experiencing harm (13.3% of the sample), only 10.4% reported it to be 'very problematic' with most respondents reporting it to be 'quite unproblematic'.

These surveys show low levels of sexual assault, coercion, and drug/alcohol facilitated rape. Prevalence was higher among females, intimate partners, and heavier drinkers. Unwanted sexual attention was notable, though 'feeling forced or pressured into sex or

[20] Defined as experiencing rape by a boyfriend, girlfriend, or dating partner
[21] Defined as individuals who respondents considered to be a "fairly heavy drinker, or someone who drinks a lot sometimes"
[22] Defined as individuals who respondents considered to be a "fairly heavy drinker, or someone who drinks a lot sometimes"
[23] Defined as a household member, family, friend, or other known person
[24] Defined as spouses, partners, ex-partners, and boyfriends/girlfriends

something sexual' lacks specificity – it is unclear if respondents were forced into an unwanted sexual act or only felt pressured to.

Public disturbance and nuisance

Three surveys were identified which measured outcomes relating to public disturbance and nuisance [surveys 11, 22 and 33].

In an Australian survey which asked about adverse effects of drinking in the previous 12 months, experience of public disturbance and nuisance by strangers were common [survey 22 (28)]. Going out of your way to avoid drunken people or places where drinkers are known to hang out was reported by 41.6% of respondents, being kept awake at night or disturbed by 37.1%, being annoyed by people vomiting, urinating or littering by 27.6%, and experiencing trouble or noise relating to a licensed venue by 22.1%.

In Finland, a survey reported the prevalence of harm in public places at 2 time points – 2000 and 2008 [survey 33 (41)]. Again, this type of harm was common – 25% and 35% of respondents reported being afraid of intoxicated people in the street or other public places in 2000 and 2008 respectively. The figures for being harassed or bothered by intoxicated people in the street or other public places were 18% and 21%, and for being kept awake at night the figure was 30% in both years (no dp). Women reported higher levels of all these harms across both years. Generally, those under 30 years were more likely to experience this type of harm.

A Norwegian survey examined the perceptions of different harms amongst those who had and had not experienced them [survey 11 (39)]. Overall, being kept awake at night by noise from drunken people was generally viewed as unproblematic when experienced infrequently but became more problematic as it occurred more often. Perceptions of how severe these types of harm were, changed by the hypothetical frequency they occurred. For example, 44.1% of respondents reported harm as 'quite unproblematic' when experienced a few times a year, 48.0% reported harm as 'quite problematic' when experienced a few times each month, and 80.3% reported harm as 'very problematic' when experienced a few times each week. For those who had experienced the harm (34.0% of respondents), 46.0% viewed it as 'quite unproblematic'. Females perceived this harm to be less problematic than males (whereas males perceived all other harms to be more problematic) and older people perceived this harm as more problematic than younger people (as they did with all other harms).

Public disturbance or nuisance is one of the most common types of AHTO experienced by respondents, with many people reporting changes in their behaviour such as avoiding certain places. The range of harms includes littering and urination in the street, being kept awake at night, and feeling intimidated and threatened due to intoxicated people. For most of these harms, women reported higher levels than men and younger people reported this type of harm more commonly than older people. Reasons for such differences cannot be established from these surveys, but it may be because young people are more likely to be

in drinking environments or live in areas nearer licensed premises. How problematic these harms are perceived to be vary with how frequently they occur – they are perceived to be less problematic when experienced infrequently.

Time spent caring for drinkers

Two surveys using the same data were identified which measured outcomes relating to time spent caring for a drinker [surveys 22 and 27].

In the first analysis, researchers measured the amount of time respondents spent caring for friends, family or co-workers who were "fairly heavy drinkers or who drank a lot sometimes" [survey 27 (53)]. Firstly, respondents who participated in caring activities were asked to identify the 'most harmful drinker' in terms of who most adversely affected the respondent in the previous 12 months. Of the 778 respondents who reported harm, 63% reported having spent time caring for a drinker (no dp). Across all respondents who indicated harm (those who did and did not report caring activities), the mean amount of time spent caring for the most harmful drinker and extra time caring for any dependents was 32 hours over the previous 12 months. Based on this, authors estimated the annual cost of caring in 2008 to be AUS $250 million.

The second analysis was based on asking respondents about a number of people well known to the respondent and whether any were "fairly heavy drinkers or who drank a lot sometimes" and whether this had affected the respondent in the previous 12 months [survey 22 (28)]. Considering only the drinker who had caused the respondent the most harm, 10.2% of respondents indicated they had had to spend time caring for them, while 5.7% indicated they had to spend extra time caring for children or other dependents because of the drinker's alcohol use.

Taken together these surveys show a generally low prevalence of respondents reporting spending time caring for heavy drinkers, though this was much higher among those responding regarding the heaviest drinker who caused them the most harm in their immediate social circle. Despite the prevalence being generally low, the average amount of time spent caring was substantial, and this was reflected in the estimated costs to society. This demonstrates the advantage of getting more granular data in addition to just the prevalence of harm to understand the full burden of individuals.

Harms to children

Two surveys were identified which measured outcomes relating to harms to children [surveys 7 and 26].

A survey from the USA asked adult caregivers[25] to respond in relation to any child for whom they had caregiving responsibility and whether that child had been harmed due to the drinking of any person in that child's life [survey 7 (52)]. Overall, 7.4% of caregiver respondents reported alcohol-related harm to children, with parents, stepparents, and guardians accounting for 55.5% of all harms reported. Verbal abuse was the most common type of harm (5.1%), followed by witnessing violence (2.2%). The least common types of harm reported were being physically hurt (<1%) and not having enough money for the child's needs (<1%) (no dp).

An Australian survey aimed to establish the overall prevalence of alcohol-related harm to children in the general population, and to explore what sociodemographic characteristics were associated with reporting harm [survey 26 (55)]. Respondents were considered to be 'caregivers' if they indicated that they lived with or had parental responsibility for children under 17 years. Respondents were asked to respond with regards to a child or children in their household. Overall, 12% of respondents reported alcohol-related harm to children (no dp). The most common type of harm reported was a child being yelled at, criticised, or verbally abused, and the least common type of harm was a protection agency or family services called (0.3%). Single carers were 2.67 (95% CI: 1.79, 3.99) times more likely to report harm than 2-carer households, and weekly drinkers were 1.67 (95% CI: 1.00, 2.67) times more likely to report harm than non-drinkers.

Severe alcohol-related harms to children, such as being physically hurt, witnessing violence in the home, not having enough money for the child's need, have a low prevalence. Less severe harms, such as being yelled at, criticised, or verbally abused were more common. More research is needed to understand the full extent of these harms – they may be low in prevalence, but their severity is high. This is particularly important since this data hint that protection agencies or family services were not utilised as commonly as the data suggests they should be. Importantly, there may be data accuracy issues here whereby respondents are less likely to report harm for fear of repercussion.

[25] Defined as persons with parental responsibility for at least one child aged ≤17 years

Harms to larger social aggregates, social systems, and institutions

Harm from alcohol is not only experienced by individuals but can be experienced collectively, affecting our social systems, sometimes impacting our institutions, creating a social cost or a collective burden on groups of individuals, communities and society. Given AHTO is preventable, this additional burden placed on society is also preventable. The harms can occur in the public or private sphere. This section describes AHTO experienced by larger social aggregates, social systems, and institutions, presented in order of harms most to least frequently asked about in surveys.

Property damage and vandalism

Eight surveys were identified which measured outcomes relating to property damage and vandalism [surveys 8, 11, 15, 19, 22, 28, 33, and 34].

In the USA, 2.8% of respondents had property vandalised by someone under the influence [survey 8 (49)]. The most common perpetrator was a stranger (just over 40% of cases), followed by a spouse, then friend, with the fewest instances caused by a family member other than a spouse. Alcohol-related vandalism was associated with self-reported distress experienced by the respondent.[26] A previous survey from the USA reported that, among respondents reporting crime victimisation (6.7% of male respondents and 4.1% of female respondents), 45.1% reported vandalism of their property [survey 34 (34)].

In an Australian survey, the total proportion of people who had property damaged or broken by a drinker[27] was not reported, though when respondents were asked to focus on the person whose drinking had most negatively affected them, 4.8% said that someone had broken or damaged something that mattered to them (5.0% of females and 4.5% of males) [survey 22 (28)]. When asked to focus on harms from strangers or people the respondent did not know well, 9.9% reported property damage (9.7% of females and 10.0% of males), and 5.6% reported having personal belongings damaged (4.7% of females and 6.6% of males). Analysing a subset of respondents answering in regards to "fairly heavy drinkers or someone who drank a lot sometimes" in their social circle and whose drinking had adversely affected them in the previous 12 months, the reported prevalence was 16.7% [survey 28 (28)]. Data from 2008 and 2011 Australian surveys, and focusing only on intimate partner[28] drinking, showed that in 2008, 13.0% (95% CI: 4.0%, 34.7%) of respondents' intimate partners had broken or damaged something that mattered

[26] Distress measured using PHQ-2, anxiety measured using GAD-2

[27] A member of the household, girl-/boy-friend, ex-partner, or co-worker who was a *"fairly heavy drinkers or who drank a lot sometimes"*

[28] Defined as spouses, partners, ex-partners, or girl-/boy-friends

to them [survey 15 (51)]. Furthermore, 12.1% (95% CI: 4.5%, 29.0%) reported this in both years 2008 and 2011, however the sample size was very small (n=58).

In a Norwegian survey, having clothes or other belongings of value damaged by someone who had been drinking was perceived to be the second most problematic harm (second only to being physically hurt) [survey 11 (39)]. Overall, 84.3% of respondents reported it as 'very problematic'. Those who had experienced this harm (4.5% of the sample) saw it as less problematic, with only 15.7% reporting it is 'very problematic'. Respondents who were female, older, living with a partner, did not drink, and had not experienced harm, were more likely to rate damage to clothing and other belongings as problematic compared to males, younger age, those who did not live with a partner, those who drank, and had not experienced this type of harm.

In a survey focusing only on respondents who identified problem drinkers[29] who had most harmed them, 23% reported experiencing having something that mattered to them broken on damaged (no dp) [survey 19 (50)]. Respondents were also asked specifically about harms caused by a stranger's drinking, and 14% reported experiencing damage to their house, car, or property.

A survey using lifetime and last year prevalence reported that 12.0% of respondents had ever had property vandalised by someone who had been drinking, reducing to 1.8% for last year prevalence [survey 30 (33)]. This demonstrates the effect of using different recall periods on prevalence.

The final survey combined data from Finland from 2 years, 2000 and 2008, and asked questions relating to belongings being destroyed by, or property lost to, an intoxicated person [survey 33 (41)]. Five percent of respondents reported this harm in 2000 only and 5% reported this harm in both years. Men were more likely that women to experience this type of harm and those aged 15-19 reported the highest prevalence.

Property damage and vandalism causes harm to individuals and results in costs due to having to mend or purchase new items that have been damaged. Generally, the prevalence of property damage and vandalism due to another's drinking was low, although higher for those describing harms experienced due to the heaviest drinker they knew, though this harm from a stranger's drinking was also notable.

Third party harms to workplaces

Three surveys were identified which measured outcomes relating to third party harms in the workplace [surveys 14, 18, and 19].

[29] Defined as individuals who respondents considered to be a "fairly heavy drinker, or someone who drinks a lot sometimes"

Data from Denmark reported on whether the respondent had caused or experienced AHTO [survey 14 (40)]. Overall, 4.4% reported not causing workplace harms but experiencing them, 2.5% reported causing them but not experiencing them, and 0.4% reported causing and experiencing workplace harms. Most of the sample (92.7%) reported not experiencing or causing workplace problems.

In New Zealand, of respondents who reported having a heavy drinker co-worker, 39% reported experiencing at least one harm (no dp) (Table 5) [survey 19 (50)]. Most commonly, respondents reported reduced productivity at work because of a co-worker's drinking.

Table 5: Harms experienced by respondents with co-workers identified as heavy drinkers (50)

Harms	Females % (no dp)	Males % (no dp)	Total % (no dp)
Productivity reduced at work	34	50	44
Had to cover for them	47	21	31
Had to work extra hours	29	24	26
Involved in an accident or a close call at work	4	0	2

Using survey data, Australian researchers aimed to estimate the cost of the extra time worked by Australian workers[30] due to their co-workers' alcohol consumption [survey 18 (2)]. The proportion of workers reporting being negatively affected by a co-worker's drinking is shown is Table 6. Among respondents who reported having to work extra hours because of co-workers drinking, on average, they worked an additional 48.1 (95% CI: 31.6, 64.7) hours each year. This was equivalent to an annual mean cost per individual of AU$1,933 (95% CI: AUS$952, AU$2,913). When these costs were weighted to reflect the Australian working population, the corresponding total cost was AU$453 million (95% CI: AU$202, AU$703 million).

Table 6: Proportion of workers who reported having a heavy drinking co-worker who negatively affected them (2)

Respondent reported	Number	% (95% CI)
Heavily drinking co-worker(s)	532	31.7% (29.2%, 34.4%)
Negatively affected by co-workers' drinking	134	8.0% (6.7%, 9.6%)
Worked extra hours because of co-workers' drinking	59	3.5% (2.6%, 4.9%)

The findings from these surveys demonstrate that the experience of having a heavy drinking co-worker is common, as are reports that this negatively affects workers, the costs of which are high. AHTO in the workplace include reduced productivity, having to work extra hours and covering for a drinker, and being involved in an accident or a close call.

[30] Defined as those in paid employment or doing unpaid voluntary work

Despite this, a large proportion of respondents reported never experiencing or causing workplace harms because of alcohol in Denmark.

Increased use of health services

Two surveys were identified which measured outcomes relating to the use of health services [surveys 21 and 23]. In Australia, 4.5% of respondents who reported experiencing harm from a known drinker reported using health services (equivalent to over 803,000 Australians) [survey 23 (56)]. Overall, 1.3% attended a hospital/emergency department, 0.9% sought other medical treatment, and 3.0% sought counselling/professional advice. Prevalence of service use in New Zealand is shown in Table 7 residents [survey 21 (57)].

Table 7: Prevalence of health service use because of other's drinking, and its prediction by index of exposure to heavy drinkers (57)

Services (past 12 months)	%	Exposure to heavy drinker OR (95% CI)		Linear contrast P-value
		Level 1	Level 2	
Had to get medical treatment at GP or after-hours doctor	1.8	1.35 (0.64, 2.86)	3.78 (2.08, 6.89)	<0.0001
Went to a hospital/emergency department	2.4	1.99 (1.02, 3.88)	3.74 (2.09, 6.70)	<0.0001
Got counselling/professional advice	2.6	2.08 (0.93, 4.67)	8.53 (4.65, 15.65)	<0.0001

These surveys suggest a considerable number of people require healthcare because of other people's drinking. Drinkers themselves place an increased burden on health services through their directly attributable effects, but also because of their impact on others. The health system provides care not just for drinkers, but for those experiencing AHTO.

Increased use of police services

Two surveys were identified which measured outcomes relating to the use of police services [surveys 21 and 23]. In Australia, 13% of respondents who experienced harm reported calling the police because of someone else's drinking, of which 41% reported harm from both strangers and known drinkers, 31% from strangers only, and 11% from known drinkers (no dp) [survey 23 (56)]. Increased levels of reported harm were associated with an increased likelihood of service use. Similar patterns were seen in New Zealand where 10% of respondents reported calling the police because of a heavy drinker,[31] corresponding to over 378,843 residents [survey 21 (57)]. Higher exposure to heavier drinkers was associated with a higher likelihood of contacting the police.

Increased use of police services because of other peoples' drinking contributes to the running costs of police services. This is in addition to the burden placed on these services

[31] Respondents were asked: "are there any people in your life whom you consider to be a fairly heavy drinker or someone who drinks a lot?" If they said "yes", they were asked to think about the first 'heavy drinker' in their life and state their relationship to that person, and how much of the last 12 months they had lived in the same household as the person. The respondents were then asked to think about the next heavy drinker in their lives. Respondents could report up to 10 heavy drinkers

by the drinker themselves. Respondents more frequently reported calling the police due to strangers compared to known drinkers. Increased levels of harm and increased exposure to heavy drinkers were associated with increased use of police services. The prevalence is equivalent to a substantial number of people in the population.

Discussion

This review has provided a broad overview of AHTO based on cross-sectional survey designs. Across OECD countries, AHTO are multifaceted and occur in multiple contexts, in different circumstances, and in varying degrees of severity. Harm from others' drinking may occur in the public or private sphere, and can impact a single individual, such as a co-worker, groups of individuals, such as a family, or a local community or society. AHTO occurs, albeit to differing extents, in relation to general wellbeing, health, crimes, social problems, workplace effects, and direct service utilisation. When taken together the welfare system, health systems, and parts of the criminal justice system, are all providing services for those harmed by a drinker. Few attempts have been made to fully cost the impact of AHTO, however those that have suggest they are substantial and likely to be underestimated largely due to data limitations, the exclusion of cost components, unaccounted and uncertain intangible costs, the need for numerous assumptions, and methodological issues (2, 6, 58). Further research capturing the full range of costs imposed by drinkers on others would provide more accurate estimates of the true economic burden of alcohol harm, supporting policy-makers to put effective measures for prevention into practice.

Surveys have more commonly explored the role of AHTO on individuals, rather than on institutions, though this review clearly demonstrates that harms occur across both. Direct comparisons cannot be made across cross-sectional surveys because, among other things, the survey methods and populations are different. Nonetheless, this review has demonstrated that the prevalence of some harms, such as general amenity harms, are usually higher than more severe harms, such as sexual assault. While gaining insight into the prevalence is certainly useful, more detailed items relating to the severity of harm, how often the harm occurred, the equivalent population-level burden, and an assessment of costs, would all be helpful for advancing this agenda. Many less severe harms are likely to have a large economic cost. Similarly, despite small prevalence of the more severe harms such as sexual assault or road injury, the personal, social and economic costs of these are substantial.

The harms identified in this review are far from complete since all studies used cross-sectional surveys and other research designs were excluded from this review (6). Triangulating surveys against other research designs and routinely collected monitoring and surveillance data can help provide a fuller picture of AHTO. For example, in-depth semi-structured interviews asking respondents about their experience of AHTO was able to provide a more nuanced understanding than surveys alone (59). Similarly, quantitative studies estimating the prevalence of foetal alcohol syndrome clearly provides better insight into this harm type relative to surveys and shows the global prevalence to be 14.6 per 10,000 population (60). Routine data can also provide insight into the prevalence of AHTO, for example, in England and Wales, in 2016/17, 38% of rape victims reported to the police that they perceived the perpetrator to be under the influence of alcohol, though this increased to 65% when the perpetrator was a stranger (61).

Survey studies that assess the involvement of the victim and the perpetrator could also help harness more reliable measures on exposure and harm. This has been done in the study of partner violence (62) and also parent-child relationships (63). Prospective cohort designs may offer the capacity for the assessment of causality, and these should be theory-driven. Clearly, widening the eligibility criteria to other research designs would have provided further insight into the range and magnitude of AHTO, though due to time and resource constraints, this was not possible. Future reviews focusing on AHTO should aim to bring together these different methods, alongside routine surveillance data, to produce a more complete picture of AHTO.

Strengths and limitations

Strengths of the present review include the use of a pragmatic and structured approach to literature retrieval which has presented conclusions similar to those that have been reported previously (1). Choosing to focus on OECD countries increases the comparability and generalisability of findings to the UK and Irish context, though as emphasised throughout, the surveys are not directly comparable. The review has also brought together a large body of cross-sectional surveys, which to our knowledge, has not previously been done. The benefits of synthesising such a variable body of evidence must be weighed against the corresponding loss of detail. Finally, this report has been subject to independent, external peer-review throughout its genesis comprising leading UK and global experts.

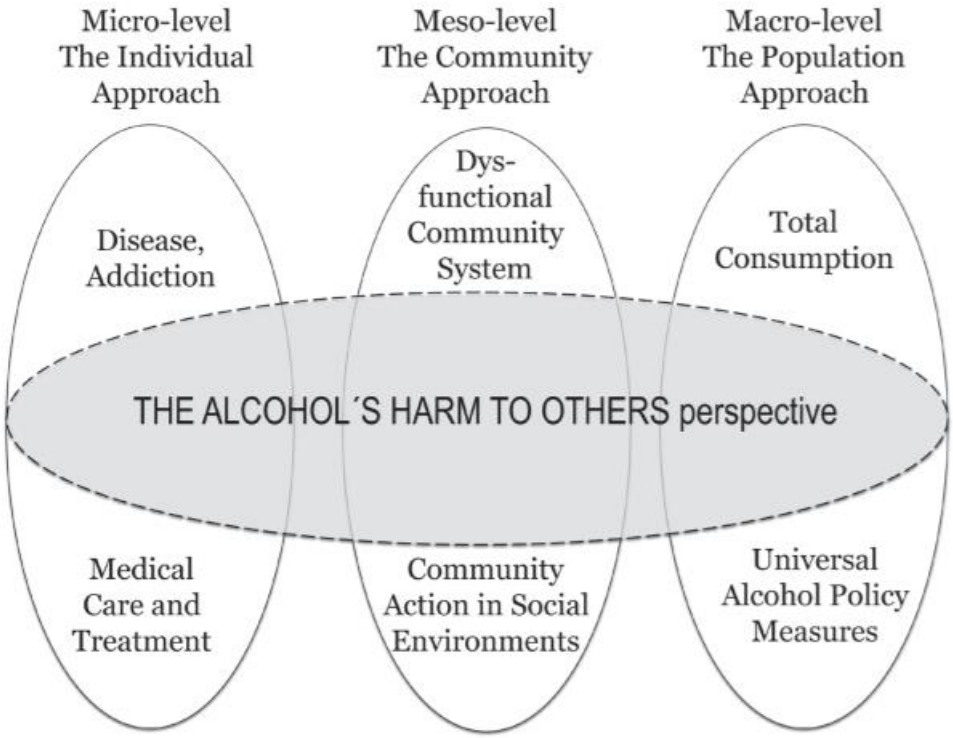
The review is not without limitations. It included only cross-sectional surveys – the disadvantages of this design are summarised in the introduction. This also meant that other types of research design that yield useful insight into the range and magnitude of AHTO were not included. Further limitations include the use of a deliberately constrained search methodology which was used to balance resource and time constraints. Similarly, no quality appraisal of the constituent studies was carried out; rather key items for each paper were reported and general issues related to these items are described in the section on limitations of cross-sectional surveys. Simplifying the quality appraisal is an acceptable method in rapid reviews (12).

Implications for policy/practice

The findings of this review have important implications for prevention, intervention, and policy. Areas of society where resources are allocated inefficiently are referred to as a 'market failure'. Across different political persuasions, there tends to be agreements that where there are 'market failures', government intervention is justified in order to benefit society as a whole (64). This review clearly demonstrates that the harms of alcohol consumption fall on a third party which is known as a 'negative externality' – a type of market failure. As such, evidence-based policies and interventions can be utilised to prevent or reduce these 'negative externalities', or AHTO. This is often a strategy put forward when considering taxation as a strategy to reduce AHTO (65).

Figure 3 provides a helpful overview for contextualising policy in relation to AHTO (66). Implicit in the figure is the reach of AHTO beyond individuals, and the need to implement actions right across the spectrum. All the approaches shift the discourse away from one of blaming individual drinkers. The individual, or medical approach, recognises harmful drinking as a disease or expression of social disadvantage – the drinker is a product of an alcogenic environment. The community approach highlights that problems are caused through dysfunctional social mechanisms at the system-level, not the individual drinker per se. Finally, the population approach views consumption and its harmful consequences as population-level phenomena, part of a collective behavioural pattern.

Figure 3: The perspective of alcohol's harm to others in relation to 3 established research approaches (66)



A 'policy package' for reducing AHTO looks similar to one focusing primarily on reducing population consumption – by reducing an individual's consumption, the risk of second-hand harm reduces. As such, this would include the most effective policies such as duty increases, a minimum unit price, restrictions on the availability of alcohol, and marketing regulation (67-69). Interventions delivered in the health service such as identification and brief advice and structured treatment should also be implemented (68). Effective actions at the community-level can also reduce AHTO, for example multi-component community programmes (70), and these have the specific benefit of acting in situations or social roles where AHTO commonly occur. Combining server training, enforcement, and licensing regulations could play an important role here (68). Some AHTO occur in private settings such as households where it is more difficult to implement interventions, and assertive efforts to reach these groups will be required. These context-specific efforts to reduce drinking should be implemented alongside additional controls on the supply and availability

of alcohol to increase their impact. Interventions which aim to have a specific effect on a type of harm can also be effective in reducing AHTO, for example drink-driving (68) or parenting interventions (71). Acting on AHTO can have an unintended positive impact on other harms – for example a measure to limit drinking among convicted drink-drivers also showed to reduce incidents of alcohol-related domestic violence (72).

Going forward, including AHTO as specific outcomes in research evaluating the effectiveness of policies and interventions could help guide evidence-based policy to reduce AHTO.

Implications for research

AHTO represents a diverse set of related experiences. The cross-sectional surveys reported in this review provide valuable estimates of the prevalence of different types of harm in different populations, identify those most affected, and are an important first step. Research needs to move beyond this to provide a more detailed assessment of individual harms. 'Family troubles' relating to another's drinking, for example, is vague and a better assessment in terms of the nature and severity would be helpful by using more precise questions, while measuring the frequency of harm rather than whether or not a harm occurred within the past 12 months would provide a fuller picture of the total burden of harm. For less common harms such as alcohol-related sexual assault, other study designs may be more appropriate and may have presented a different picture to that presented in cross-sectional studies. Prospective cohort designs would be better suited to measure causality (73), for example in relation to the temporal relationship between experiencing alcohol-related harm from another and one's own alcohol use. Certain populations such as the homeless are generally not captured by survey designs (74) but should be considered in future research in order to ensure the full range of experiences are captured and quantified. The surveys included in this review all focus on harm from the victim's viewpoint; studies which focus on the perpetrator's perspective would also be advantageous in terms of providing a more accurate assessment of harm, including providing a better understanding of the social interaction between the perpetrator and the victim (73). Triangulating survey results with findings from qualitative research would also be helpful in order to provide depth and to better understand contextual modifiers (75). Importantly, this rapid evidence review focused only on cross-sectional studies and is therefore more likely to elucidate findings that are more amenable to study by this type of research design.

Careful consideration of how questions are phrased in cross-sectional surveys and how this will influence the prevalence is necessary. For example, questions relating to drink-driving are often included but the exact nature of the question varies. Asking if a person has been in a car with a driver who had been drinking will provide different results to a question phrased in terms of being in a car accident where the driver had been intoxicated. The first question asks about the potential for harm but not harm itself (73).

To facilitate temporal and geographical comparisons, it would be highly advantageous for future cross-sectional surveys on AHTO to use a consistent methodology both in terms of the questions used to capture experiences of harm and the exact method of delivery which can affect how people respond (76). The WHO ThaiHealth project has designed a survey to measure AHTO to facilitate international comparison (1, 77).

Finally, studies which aim to estimate the economic burden of AHTO would be welcome. Ideally all the costs and benefits that fall on society and the economy because of alcohol consumption would be quantified. However, first research using appropriate methodologies or data is needed to accurately monetarise the impact of specific harms.

References

1. World Health Organization/ThaiHealth International Collaboration Research Project. The Harm to Others from Drinking. Geneva: World Health Organization; 2012. Available: [Accessed: 07.01.19]

2. Dale CE, Livingston MJ. The burden of alcohol drinking on co-workers in the Australian workplace. Med J Aust. 2010;193(3):138-40.

3. Taylor B, Irving H, Kanteres F, Room R, Borges G, Cherpitel C, et al. The more you drink, the harder you fall: a systematic review and meta-analysis of how acute alcohol consumption and injury or collision risk increase together. Drug and alcohol dependence. 2010;110(1):108-16.

4. Room R, Ferris J, Laslett A-M, Livingston M, Mugavin J, Wilkinson C. The drinker's effect on the social environment: a conceptual framework for studying alcohol's harm to others. International journal of environmental research and public health. 2010;7(4):1855-71.

5. Greenfield K, Ye Y, Kerr W, Bond J, Rehm J, Giesbrecht N. Externalities from alcohol consumption in the 2005 US National Alcohol Survey: implications for policy. International Journal of Environmental Research and Public Health. 2009;6:3205-24.

6. Navarro HJ, Doran CM, Shakeshaft AP. Measuring costs of alcohol harm to others: A review of the literature. Drug and Alcohol Dependence. 2011;114(2–3):87-99.

7. Sedgwick P. Cross sectional studies: advantages and disadvantages. BMJ: BMJ (Online). 2014;348.

8. Sedgwick P. Bias in observational study designs: cross sectional studies. BMJ. 2015;350:h1286.

9. Johnson TP. Sources of error in substance use prevalence surveys. International Scholarly Research Notices. 2014;2014.

10. Haby MM, Chapman E, Clark R, Barreto J, Reveiz L, Lavis JN. What are the best methodologies for rapid reviews of the research evidence for evidence-informed decision making in health policy and practice: a rapid review. Health research policy and systems. 2016;14(1):83.

11. Aveyard H. Doing a literature review in health and social care: A practical guide: McGraw-Hill Education (UK); 2014.

12. Grant M, Booth A. A typology of reviews: an analysis of 14 review types and associated methodologies. Health Information and Libraries Journal. 2009;26:91-108.
13. Booth A, Sutton A, Papaioannou D. Systematic approaches to a successful literature review: Sage; 2016.

14. Joanna Briggs Institute. The Joanna Briggs Institute Reviewers' Manual 2015: Methodology for JBI Scoping Reviews. 2015. Available: http://joannabriggs.org/assets/docs/sumari/Reviewers-Manual_Methodology-for-JBI-Scoping-Reviews_2015_v1.pdf [Accessed: 07.01.19]
15. Fink A. Conducting research literature reviews: From the Internet to paper: Sage Publications; 2013.

16. Ganann R, Ciliska D, Thomas H. Expediting systematic reviews: methods and implications of rapid reviews. Implementation Science. 2010;5(1):56.

17. Jesson J, Matheson L, Lacey FM. Doing your literature review: Traditional and systematic techniques: Sage; 2011.

18. Liberati A, Altman DG, Tetzlaff J, Mulrow C, Gøtzsche P, Ioannidis JPA, et al. The PRISMA statement for reporting systematic reviews and meta-analyses of studies that evaluate health care interventions: explanation and elaboration. PLoS Med. 2009;6.

19. Beynon C, Bayliss D, Mason J, Sweeney K, Perkins C, Henn C. Alcohol-related harm to others in England: a cross-sectional analysis of national survey data. BMJ open. 2019 Apr 1;9(5):e021046.

20. Quigg Z, Bellis M, Grey H, Ashton K, Webster J. Alcohol's harms to others: the harms from other people's alcohol consumption in Wales. Public Health Wales; 2016.

21. Beard E, Brown J, West R, Acton C, Brennan A, Drummond C, et al. Protocol for a national monthly survey of alcohol use in England with 6-month follow-up:'The Alcohol Toolkit Study'. BMC public health. 2015;15(1):230.

22. Sundin E, Landberg J, Galanti MR, Room R, Ramstedt M. Are differences in population prevalence of alcohol's harm to others related to survey administration mode? Drug and alcohol review. 2018;37(3):375-81.

23. Hope A, Curran J, Bell G, Platts A. Unrecognised and under-reported: the impact of alcohol on people other than the drinker in Scotland. Alcohol Focus Scotland; 2013. Available: www.alcohol-focus-scotland.org.uk/media/59857/Unrecognised-and-under-reported-summary.pdf [Accessed: 07.01.19]

24. Gell L, Ally A, Buykx P, Hope A, Meier P. Alcohol's harm to others. An Institute for Alcohol Studies Report. 2015. Available: www.ias.org.uk/uploads/pdf/ias%20reports/rp18072015.pdf [Accessed: 07.01.19]

25. Hope A. Alcohol's harm to others in Ireland. Dublin: Health Service Executive; 2014. Available: www.alcohol-focus-scotland.org.uk/media/59857/Unrecognised-and-under-reported-summary.pdf [Accessed: 07.01.19]

26. Ireland IADN. Drug Prevalence in Northern Ireland Key Facts – 2014/15. 2015. Available: www.health-ni.gov.uk/sites/default/files/publications/dhssps/all-ireland-dps-2014-15-bulletin-keyfacts.pdf [Accessed: 07.01.19]

27. Stanesby O, Rankin G, Callinan S. Experience of harm from others' drinking and support for stricter alcohol policies: Analysis of the Australian National Drug Strategy Household Survey. International Journal of Drug Policy. 2017;45:25-32.

28. Laslett, Room R, Ferris J, Wilkinson C, Livingston M, Mugavin J. Surveying the range and magnitude of alcohol's harm to others in Australia. Addiction. 2011;106(9):1603-11.

29. Ferris J, Devaney M, Davis G, Mazerolle L. Reporting of problematic drinkers and the harm they cause: Assessing the role of alcohol use, sex, and age of those affected by a problematic drinker. Experimental and clinical psychopharmacology. 2016;24(1):48.

30. Connor J, You R, Casswell S. Alcohol-related harm to others: a survey of physical and sexual assault in New Zealand. The New Zealand Medical Journal (Online). 2009;122(1303).

31. Casswell S, Harding J, You R, Hickle T. Alcohol's harm to others: self-reports from a representative sample of New Zealanders. The New Zealand Medical Journal (Online). 2011;124(1335).

32. Karriker-Jaffe K, Greenfield T, Kaplan L. Distress and alcohol-related harms from intimates, friends, and strangers. Journal of Substance Use. 2017;22(4):434-41.

33. Greenfield TK, Ye Y, Kerr W, Bond J, Rehm J, Giesbrecht N. Externalities from alcohol consumption in the 2005 US National Alcohol Survey: implications for policy. International journal of environmental research and public health. 2009;6(12):3205-24.

34. Karriker-Jaffe KJ, Greenfield TK. Gender differences in associations of neighbourhood disadvantage with alcohol's harms to others: A cross-sectional study from the USA. Drug and alcohol review. 2014;33(3):296-303.

35. Kaplan LM, Karriker-Jaffe KJ, Greenfield TK. Drinking context and alcohol’s harm from others among men and women in the 2010 US National Alcohol Survey. Journal of substance use. 2017;22(4):412-8.

36. Lewis-Laietmark C, Wettlaufer A, Shield KD, Giesbrecht N, April N, Asbridge M, et al. The effects of alcohol-related harms to others on self-perceived mental well-being in a Canadian sample. International journal of public health. 2017;62(6):669-78.

37. Gonzalez JMR, Connell NM, Businelle MS, Jennings WG, Chartier KG. Characteristics of adults involved in alcohol-related intimate partner violence: results from a nationally representative sample. BMC public health. 2014;14(1):466.

38. Laslett A, Jiang H, Room R. Alcohol's involvement in an array of harms to intimate partners. Drug and Alcohol Review. 2017;36:72-9.

39. Lund IO, Moan IS, Storvoll EE. Harm from others’ drinking: How problematic do people with and without experience of harm perceive it to be? International Journal of Drug Policy. 2016;38:43-9.

40. Seid AK, Grittner U, Greenfield TK, Bloomfield K. To cause harm and to be harmed by others: new perspectives on alcohol's harms to others. Substance abuse: research and treatment. 2015;9:SART. S23506.

41. Huhtanen P, Tigerstedt C. Women and young adults suffer most from other people's drinking. Drug and alcohol review. 2012;31(7):841-6.

42. Karriker-Jaffe KJ, Li L, Greenfield TK. Estimating mental health impacts of alcohol's harms from other drinkers: Using propensity scoring methods with national cross-sectional data from the US. Addiction. 2018.

43. Greenfield TK, Karriker-Jaffe KJ, Kerr WC, Ye Y, Kaplan LM. Those harmed by others' drinking in the US population are more depressed and distressed. Drug and alcohol review. 2016;35(1):22-9.

44. Casswell S, You RQ, Huckle T. Alcohol's harm to others: reduced wellbeing and health status for those with heavy drinkers in their lives. Addiction. 2011;106(6):1087-94.

45. Ferris JA, Laslett A-M, Livingston M, Room R, Wilkinson C. The impacts of others’ drinking on mental health. The Medical Journal of Australia. 2011;195(3):22.

46. Livingston M, Wilkinson C, Laslett A-M. Impact of heavy drinkers on others' health and well-being. Journal of Studies on Alcohol and Drugs. 2010;71(5):778-85.

47. Moan IS, Storvoll EE, Lund IO. Worries about others’ substance use—Differences between alcohol, cigarettes and illegal drugs? International Journal of Drug Policy. 2017;48:108-14.

48. Rognmo K, Torvik FA, Røysamb E, Tambs K. Alcohol use and spousal mental distress in a population sample: the nord-trøndelag health study. BMC public health. 2013;13(1):319.

49. Karriker-Jaffe KJ, Greenfield TK, Kaplan LM. Distress and alcohol-related harms from intimates, friends, and strangers. Journal of substance use. 2017;22(4):434-41.

50. Casswell S, Harding JF, You RQ, Huckle T. Alcohol’s harm to others: self-reports from a representative sample of New Zealanders. NZ Med J. 2011;124(1336):75-84.

51. Laslett AM, Jiang H, Room R. Alcohol's involvement in an array of harms to intimate partners. Drug and alcohol review. 2017;36(1):72-9.

52. Kaplan LM, Nayak MB, Greenfield TK, Karriker-Jaffe KJ. Alcohol's harm to children: findings from the 2015 United States National Alcohol's Harm to Others Survey. The Journal of pediatrics. 2017;184:186-92.

53. Jiang H, Callinan S, Laslett AM, Room R. Correlates of caring for the drinkers and others among those harmed by another's drinking. Drug and alcohol review. 2015;34(2):162-9.

54. Wolitzky-Taylor KB, Ruggiero KJ, Danielson CK, Resnick HS, Hanson RF, Smith DW, et al. Prevalence and correlates of dating violence in a national sample of adolescents. Journal of the American Academy of Child & Adolescent Psychiatry. 2008;47(7):755-62.

55. Laslett, Ferris J, Dietze P, Room R. Social demography of alcohol-related harm to children in Australia. Addiction. 2012;107(6):1082-9.

56. Mugavin J, Livingston M, Laslett AM. Seeking help because of others' drinking. Drug and alcohol review. 2014;33(2):161-8.

57. Huckle T, Wong K, Parker K, Casswell S. Increased use of police and health-related services among those with heavy drinkers in their lives in New Zealand. New Zealand medical journal. 2017;130(1455):102-10.

58. Bhattacharya A. Which cost of alcohol? What should we compare it against? Addiction. 2017;112(4):559-65.

59. Manton E, MacLean S, Laslett A-M, Room R. Alcohol's harm to others: Using qualitative research to complement survey findings. The International Journal of Alcohol and Drug Research. 2014;3(2):143-8.

60. Popova S, Lange S, Probst C, Gmel G, Rehm J. Estimation of national, regional, and global prevalence of alcohol use during pregnancy and fetal alcohol syndrome: a systematic review and meta-analysis. The Lancet Global Health. 2017;5(3):e290-e9.

61. ONS. Sexual offences in England and Wales: year ending March 2017. 2018. Available: www.ons.gov.uk/peoplepopulationandcommunity/crimeandjustice/articles/sexualoffencesinenglandandwales/yearendingmarch2017 [Accessed: 07.01.19]

62. Caetano R, Cunradi CB, Schafer J, Clark CL. Intimate partner violence and drinking patterns among white, black, and Hispanic couples in the US. Journal of substance abuse. 2000;11(2):123-38.

63. Van Der Vorst H, Vermulst AA, Meeus WH, Deković M, Engels RC. Identification and prediction of drinking trajectories in early and mid-adolescence. Journal of Clinical Child & Adolescent Psychology. 2009;38(3):329-41.

64. Mill JS. On liberty. A selection of his works: Springer; 1966. p. 1-147.

65. Herrnstadt E, Parry IW, Siikamäki J. Do alcohol taxes in Europe and the US rightly correct for externalities? International Tax and Public Finance. 2015;22(1):73-101.

66. Warpenius K, Tigerstedt C. Positioning alcohol's harm to others (AHTO) within alcohol research: A reinvented perspective with mixed policy implications. Nordic Studies on Alcohol and Drugs. 2016;33(5-6):487-502.

67. Babor T, Holder H, Caetano R, Homel R, Casswell S, Livingston M, et al. Alcohol: No ordinary commodity: research and public policy. Oxford: Oxford University Press; 2010.

68. Burton R, Henn C, Lavoie D, O'Connor R, Perkins C, Sweeney K, et al. A rapid evidence review of the effectiveness and cost-effectiveness of alcohol control policies: an English perspective. The Lancet. 2016;389(10078):1558-80.

69. OECD. Tackling Harmful Alcohol Use. 2015 2015. Available: www.oecd.org/health/tackling-harmful-alcohol-use-9789264181069-en.htm [Accessed: 07.01.19]

70. Quigg Z, Ford K, McGee C, Grey H, Hardcastle K, Hughes K. Evaluation of the Liverpool Drink Less Enjoy More intervention. 2016.

71. Tunnard J. Parental drug misuse: A review of impact and intervention studies: Research in Practice Dartington; 2002.

72. Kilmer B, Nicosia N, Heaton P, Midgette G. Efficacy of frequent monitoring with swift, certain, and modest sanctions for violations: Insights from South Dakota's 24/7 Sobriety Project. American Journal of Public Health. 2013;103(1):e37-e43.

73. Rossow I. How well do survey studies capture alcohol's harm to others? Substance Abuse Research and Treatment. 2015;9(S2):99-106.

74. Johnson T. Sources of error in substance use prevalence surveys. International Scholarly Research Notices. 2014;2014.

75. Manton E, MacLean S, Laslett A-M, Room R. Alcohol's harm to others: Using qualitative research to complement survey findings. International Journal of Alcohol and Drug Research. 2014;3(2):143-8.

76. Sundin E, Landberg J, Galanti M, Room R, Ramstedt M. Are differences in population prevalence of alcohol's harm to others related to survey administration mode? Drug and Alcohol Review. 2018;37(3):375-81.

77. Callinan S, Laslett A, Rekve D, Room R, Waleewong O, Benegal V, et al. Alcohol's harm to others: An international collaborative project. International Journal of Alcohol and Drug Research. 2016;5(2):25-32.