The Range and Magnitude of Alcohol’s Harm to Others: study methodology and measurement challenges

Claire Wilkinson¹,², Anne-Marie Laslett¹,²,³, Jason Ferris³,⁴, Michael Livingston¹,⁵, Janette Mugavin¹, Robin Room¹,², Sarah Callinan¹,³

¹ Centre for Alcohol Policy Research, Turning Point, Eastern Health
² Centre for Health and Society, Melbourne School of Population and Global Health, The University of Melbourne
³ Eastern Health Clinical Research School, Monash University
⁴ Institute for Social Science Research, University of Queensland
⁵ Drug Policy Modelling Program, National Drug and Alcohol Research Centre (NDARC), University of New South Wales

Email: clairew@turningpoint.org.au

Address: TurningPoint
54-62 Gertrude St
Fitzroy, 3065
Abstract

‘The Range and Magnitude of Alcohol’s Harm to Others’, or ‘Harm to Others’ (HTO) for short, is an Australian Project conducted collaboratively with researchers in New Zealand. The project studied the effects of alcohol on people other than the drinker using survey, registry and qualitative interview methodologies. The study commenced in 2008. This paper describes the methodologies as well as discusses some of the challenges in measuring alcohol’s harm to others. The HTO study is the first comprehensive study of alcohol’s harm to others. The project has contributed a different perspective to the measurement of alcohol-related harms and contributed to policy discussions.
The Alcohol’s Harm to Others Project

In 2008, the Centre for Alcohol Policy Research (then the AER Centre for Alcohol Policy Research) undertook the first comprehensive study of alcohol’s harm to others anywhere. The three year project documented harm from others’ drinking using registry and survey data and included costing harms\(^1\). A follow on study used qualitative interviews to explore in more depth harms attributed to another’s drinking\(^2\). In this paper we describe these methodologies and discuss some of the challenges in measuring alcohol’s harm to others. The results of the HTO Project are described in the accompanying paper [INSERT Laslett et al. REF] in this special edition.

What is Alcohol’s Harm to Others?

Alcohol’s harm to others (HTO) is that harm which occurs to people who are affected by another’s drinking. It can include negative effects on major social roles, including harms from family members, friends, co-workers, neighbours, acquaintances and strangers and necessitates institutional responses, e.g., from child protection agencies, police, emergency departments systems and alcohol and other drug treatment systems\(^1,\,^3\).

In our studies we have focused on HTO occurring between individuals or in groups. HTO also occurs at collective levels, e.g. lost productivity for an enterprise because of staff members drinking, but we have not measured HTO at such levels.

How do we measure alcohol’s HTO?

Compared to measures of how alcohol can harm the drinker, indicators of how drinking can harm others are generally lacking or poorly collected. Agencies responding to alcohol-related harm, such as those in the health and welfare sector, generally have very limited capacity to measure interpersonal influences on harms, such as how the drinking of others negatively affects the client. For example, emergency department staff may record a patient’s
alcohol consumption, but cannot record the consumption of the person who injured them. Thus, agency data often do capture the most serious cases, but there may be no indication of alcohol involvement. Relying on administrative data also leads to a range of less serious harms being overlooked. Using agency indicators alone, the prevalence of alcohol’s harm to others has therefore often been significantly underestimated\(^3\).\(^4\).

Another means of measuring alcohol-related harm is through survey research. By its nature, survey research provides a sample-specific view of such harms. A number of Australian representative national samples have included questions about the effects of others’ drinking on the individual and on public amenity e.g.\(^5\).\(^6\). In this tradition the respondents are asked about alcohol-related harms they may have experienced personally or witnessed. The type and number of harms vary by survey; they include harms occurring to the respondent directly (such as being physically abused), property damage, harm resulting from accidents (such as road traffic accidents) and nuisance behaviours (such as being annoyed by drinkers urinating in public). No existing surveys measure these external harms comprehensively, and together they give only a piecemeal picture of alcohol’s harm to others. One of the key contributions of the HTO study was the development of a comprehensive survey instrument to measure harm from others’ drinking.

Registry data

Government health, alcohol and drug treatment, child protection and police system data were utilised in the HTO study for selected states, years and problems\(^1\). Where national figures were not available state-level data were used, and national estimates were extrapolated. For example, national estimates were based on alcohol-related domestic-violence and general assault data from New South Wales and Western Australia and child
protection information from Victoria. In most states alcohol treatment and telephone help-line data systems collect information on who is affected, i.e., whether the client/caller is contacting them about their own drinking or someone else’s drinking. However, as this information is not transmitted to a national dataset, the national estimate was based on state data - in this case Victorian data from the Alcohol and Drug Information System (ADIS) treatment service database. For large health databases there is a history of using alcohol-attributable fractions (AAFs), a method based on findings from past studies which have indicated what proportions of cases have been caused by drinking above recommended limits. Existing AAFs were applied to annual national mortality, morbidity and police assault figures for 2005. New AAFs focusing on harm to those other than the drinker (e.g. passengers and pedestrians in road crashes) were developed as part of the study for road crashes and child abuse and then applied to overall mortality and morbidity datasets (See appendix D in the HTO study report for further details).

**Survey data**

The survey was developed specifically for the HTO study, drawing on the available literature, in consultation with the Centre for Social and Health Outcomes Research and Evaluation at Massey University, New Zealand. Many of the approaches and measures used in the survey were used for the first time, and there was no ready-made validation literature to draw upon. Developing the survey instrument began with gathering a comprehensive and broad pool of potentially relevant items from a number of existing surveys. Where no previous material existed, new items were developed. Following this, the research team undertook an iterative process of item selection and questionnaire development and refinement, followed by two formal pilot pre-tests of the survey. The final survey contained approximately 125 questions, was administered via computer-assisted telephone interviewing and took on average 18.4 minutes to complete.
Measuring the presence, severity and frequency of negative effects

We focused initially on the types of relationships the respondent had to heavy drinkers in their lives (e.g., family, friends and co-workers) and then those whose drinking adversely affected them. The relationship types were envisaged in terms of ever widening social circles with the individual at the core. Thus, the survey was designed to collect information about harm both from family and friends within the household and from family, friends, co-workers and strangers outside the household (see Figure 1). We used two questions to identify potentially harmful drinkers within each social circle: was there any-one within the specific social circle who the respondent considered to be ‘a fairly heavy drinker, or someone who drinks a lot sometimes’ in the last 12 months? And, secondly, does that persons’ heavy drinking negatively affect them in some way? Following this a most harmful drinker was identified and detailed questions about the specific types of adverse effects experienced due to that drinker were asked.

A range of approaches were taken to measure negative effects from other people’s drinking. Firstly, in a dichotomous measure, we have the presence or absence of harmful drinkers. Next we measured how many harmful drinkers respondents reported in their lives. The experience of harm was measured using an ordered scale by asking respondents if they considered themselves harmed ‘a little’ or ‘a lot’ or ‘not at all’. These scales were asked about the respondents overall experiences as well as from harm from different social circles (e.g., harm from strangers and harm from drinkers known to the respondent). This allowed us to compare harms experienced in different social milieus. Frequency of experience of specific incidents was also ascertained e.g., ‘How many times in the last 12 months did you feel threatened because of their drinking?’ In addition, information on respondents’ well-being
and health was collected using the Personal Wellbeing Index (PWI)\textsuperscript{11} and the EuroQol Group 5-Dimension Self-Report Questionnaire score (EQ-5D)\textsuperscript{12,13,14}. Inclusions of both the PWI and the EQ-5D measures allows us to compare variations in respondent’s health-related quality of life and subjective wellbeing score according to the number and the type of relationships they have with heavy drinkers. Furthermore, as they are standard measures they allow us to compare effects attributed with another person’s drinking to other types of impacts\textsuperscript{15}.

**Costing data**

Drawing on registry data, tangible costs for police assaults were calculated using the most recent and relevant research available at the time\textsuperscript{16,17} and applied to national estimates of alcohol-related assaults. For morbidity costs, direct hospitalisation costs per diagnosis (or diagnosis related group – DRG) and opportunity costs per days of hospitalisation calculated on average daily earnings were included for persons aged 15 and over. Mortality costs due to years of life lost were not included. Tangible child protection costs were based on Government reports available for service systems, and child protection costs were attributed proportionally to those cases where alcohol was involved\textsuperscript{1}.

Novel to this body of research, the survey data was also used to estimate tangible and intangible cost components of alcohol’s harm to others. For example, national estimates of out of pocket costs and the cost of time spent seeking help from general practitioners and private psychological counsellors, were extrapolated from weighted HTO survey samples to estimate help seeking costs\textsuperscript{1}. Intangible cost estimates were based on the difference in the quality-of-life estimates using the EQ-5D between those harmed and not harmed by others’ drinking\textsuperscript{1,18}. 
The diverse survey and registry data sources used to estimate the range and magnitude of alcohol’s HTO are depicted in Figure 2.

[Insert Figure 2 about here]

**Qualitative data**

Data on alcohol’s harm to others was also collected via qualitative interviews. We followed up a sub-sample of survey respondents who reported harm to children to explore in more detail the role of alcohol in harm to children. Participant stories were often powerful and have the potential to influence policy makers and public opinion. In contrast to much qualitative research, sampling from the population survey meant that our study sample was not recruited via health or welfare programs and was less biased towards the very severe end of the spectrum. Incorporating whole of population survey research and the nuanced understanding provided through interpretation of in-depth qualitative interviews enables us to provide information on both the nature and extent of HTO. Thus the qualitative data gathered complemented the quantitative findings.

**Progress and limitations measuring HTO**

In developing new measures of alcohol’s harms to others we faced a number of issues. This section addresses some of these, focusing largely on the survey. The limitations of registry data in this area are also briefly discussed, for example, registry data is often less timely, with longer delays in gaining access to data. In the initial HTO report, the survey data was from 2008 while the registry data was primarily from 2005.

*Whose perspective and whose actions are we measuring?*

The focus of the project was to measure the harmful effects of others’ alcohol consumption. We elicited the perspective of individuals experiencing harms relating to the
drinking of others (including witnessing or observing), rather than the alternative perspective of individuals reporting how their own drinking had caused harms to others.

We asked the respondent to focus on a single heavy drinker among those they knew, the one who’s drinking had caused them the most harm in the previous year. We did this so that we could better understand the characteristics of harmful drinkers (we note that the survey would have been too lengthy if we asked about the socio-demographic characteristics of every heavy drinker). In doing this, our survey measures a range of harms from a single drinker among their relatives and friends, rather than the full range of harms the respondent experienced from all relatives and friends. Therefore estimates surrounding specific types of harm are only based on those harms attributable to a participant’s most harmful heavy drinker, not all heavy drinkers in their network. For harms from strangers, co-workers, and harms to children, however, prevalence can be established because we asked the questions of all survey participants, not only those who knew a heavy drinker.

**Attribution of harm to other’s drinking**

Attribution of the harm to the drinking of another is an area where this survey has broken new ground. By pulling together small numbers of items from various national surveys that have sought to measure harms to others, a comprehensive core set of items that measure HTO from people in different social relationships with the respondent has been established. Attribution of the harm to the drinking of another was phrased strongly as ‘because of their drinking’. The strong expression may result in a low estimate of harm from others’ drinking since the respondent may not know whether the other person has been drinking (particularly in relation to strangers). For example, in the US national victimisation surveys, about 30% of the victims of personal crimes answer that they do not know whether the offender had been drinking or using drugs\(^{20}\).
When we asked the respondent if they had any heavy drinkers among their family and friends no definition for ‘heavy’ drinking was proffered. Likewise no drinking level at which a drinker was likely to cause harm to those around them was overtly defined. Rather this was left to the individual respondent to define. This reflects the subjective nature of heavy drinking, and also varying levels of toleration for harms. Thus respondents self-defined ‘heavy drinking’ of others. Respondents were also asked to estimate how much the person who had most negatively affected them drank usually. These respondents reported that drinkers drank an average of 13 drinks, and at least 5 standard drinks 4 times a week, levels that are much riskier than current recommended guidelines.¹

While surveys rely on the respondent’s assessment of harm and their attribution of this harm to alcohol, registry datasets are subject to issues of attribution linked to professionals and experts, who have different biases. For example, interpretations by child protection workers are subjective and likely to vary depending on training, a worker’s own drinking patterns and level of experience in assessing such risk factors, along with the carer’s determination to conceal their drinking.²¹

Assessment of bias and validity

The most obvious concern, common to many recent population surveys, is whether response rates introduce substantial bias. The survey response rate was 35.2% and the cooperation rate was 49.7%.²² Despite the random sampling design, the sample demonstrated some deviation from the Australian population in relation to age and sex distribution - males and young people and young men in particular were under-represented. Hence the sample was post-weighted by age, sex and geographical location proportions from the ABS 2006 Census. A comparison with matched characteristics available from the 2006 Census illustrated that the survey with post-sample weights had a greater number of people employed.
and currently working, had an under-representation of people born outside of Australia, and had a similar proportion of people partnered and non-partnered.

While surveys are more likely to be completed by older and more educated respondents, registry data sets suffer from other forms of bias. Some groups in society are placed under more surveillance than others. Those who are poor and disadvantaged are more likely to be in current contact with welfare systems, and thus more likely to have their drinking, parenting and other behaviours scrutinised, resulting in a higher prevalence of some groups in registry data than others.

Finally, determining whether the individual measures in our survey have convergent or predictive validity is currently difficult as no appropriate external gold standard exists. One alternative was using standardised measures of health-related quality of life and subjective wellbeing (EQ-5D and PWI). In subsequent work respondents were asked to rate how adversely they were affected on a scale of 1 to 10, in addition to the ‘a lot/a little’ measure. Comparison of these two measures has found that the two measures are on the whole concordant, especially among those who considered themselves harmed a lot.

A note on measuring costs

Particularly in relation to social cost estimates, measurement is fraught, and subject to a range of criticisms. For instance, Mäkelä writes, “estimates that drinking imposes billions of pounds of costs on society are so value-laden and imprecise that their main value is as propaganda”. However, few alternatives exist, and studies of this type are in demand, and commonly used by government policy makers and advocates. The methods we used in the HTO study were simple, and do not include mortality costs, and a range of costs from other welfare services. Our study is one of the few studies that have incorporated a range of externalities due to others’ drinking beyond societal costs linked to drinkers’ problems. In
this sense the study has been radical and received criticism from corporate interests\textsuperscript{27}. In other areas our estimates are conservative, for example other studies have been more inclusive and identified much higher costs associated with child abuse and neglect\textsuperscript{28}. Collating diverse survey and system data is difficult to do without converting estimates of harm into crude comparable monetary units. Alternatives to costing studies include simple summed estimates of the proportion of people affected by different harms (e.g., least conservative estimates suggest 73\% of Australians have been harmed by other’s drinking in the last year) but unless differing levels of severity are taken into account, these tallies need to be interpreted with caution.

\textbf{Conclusion}

The HTO Project aimed to measure the magnitude of alcohol’s harm to others. To be as complete as possible we used both agency and survey data results in our estimate of harms and costs, including data from others in the general population and those more severely affected managed by government systems. Despite a number of limitations, the Harm to Others Project represents a significant advance into research on the social consequences of alcohol consumption.
Figure 1 - Conceptualisation of relationships to other drinkers who cause negative effects, HTO Survey 2008
Figure 2: Survey and registry data sources used to estimate the range and magnitude of alcohol’s HTO
Acknowledgements

The project’s advisory group were: Sally Casswell, Paul Dietze, Wayne Hall and Jurgen Rehm. The project is a collaboration with the National Drug Research Institute, Perth, and the National Drug and Alcohol Research Centre, Sydney. We also acknowledge our New Zealand colleagues led by Sally Casswell, with whom the interview schedule was developed, and the respondents who kindly agreed to be interviewed.

Funding Sources

The Harm to Others study was supported by the Foundation for Alcohol Research and Education (FARE), an independent, charitable organisation working to prevent the harmful use of alcohol in Australia: www.fare.org.au.

Declaration of Interests

None to declare
References


4 UK Prime Minister’s Strategy Unit. Interim analytical report, strategy unit alcohol harm reduction project. London: Prime Minister’s Office. 2004.


27 Room R, Chikritzhs T, Doran C, et al. A one-sided and often mistaken review: The authors of 'The range and magnitude of alcohol’s harm to others' respond to an Access Economics critique commissioned by the National Alcohol Beverage Industries Council. Fitzroy: AER Centre for Alcohol Policy Research, Turning Point Alcohol & Drug Centre. 2011.