THE RANGE AND MAGNITUDE OF ALCOHOL'S HARM TO OTHERS

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ERRATA SHEET

22 August, 2010

page	line	as printed	should be	comment
li	4 from bottom	Chikritzhs, Y.	Chikritzhs, T.	
64	18	(ABS) between August and December of 1995.	(ABS) between August and December of 2005.	
71	4 from bottom	lost output ($22.9 million)	lost output ($57.1 million)	This is the figure in Table 6.11, which is correct
78	23	(ABS) in 1995.	(ABS) in 2005.	
111	31	The significant economic costs, over $56 million,	The significant economic costs, over $671 million,	Out-of-home care services now included in this figure for "care for children".
114	Table 9.1	[Header for gender is Female then Male]	[Headers should be switched: Male then Female]	Headings reversed
149	2nd line below text headings	(Table 11.5). The average cost borne by each affected person for property damage was $1222 which occurred at a frequency of 1.75 times per annum.	(Table 11.5) – reported by these respondents an average of 1.75 times in the year. The average cost of property damage for each person reporting any cost was $1222 in the year.	Eliminating ambiguity
149	8th line below text headings	drinking of strangers. The average cost per affected person was $166 which occurred at a frequency of 2.5 times in the last year.	drinking of strangers, reported by these respondents as occurring on average 2.5 times. The average cost for those reporting any cost was $166.	Eliminating ambiguity
149	Table 11.5, label for 2nd row of figures	Average cost per affected person incident in a year	Average cost in a year per person reporting a cost	Eliminating ambiguity
149	Table 11.5	Average number of incidents per affected person in a year	Average number of incidents in a year for those with any	Eliminating ambiguity
177	26	costs of others' drinking are $13.43 billion.	costs of others' drinking are $13.52 billion.	Error in addition from Table 13.2
178	12	others around them about $13.43 billion	others around them about $13.52 billion	As for previous erratum
178	15	a figure of $14.2 billion is reached	a figure of $14.3 billion is reached	Correction flows from correction on line 12

Foreword

While there is no doubt about the value and importance of evidence, statistics, costs and systems analysis, it is what happens to real people in real situations that I find most compelling.

This report seeks to reveal some of the interconnections between areas such as child protection, health, law enforcement and others. It provides insight into how individual acts of alcohol misuse ripple through families and communities.

The harm caused to others by alcohol misuse has been the missing dimension in discussions about alcohol-related harm in our community.

Our siloed system of counting and measuring health, social or legal costs has failed to account for the real costs of alcohol-related harm that are often incurred in shamed secrecy.

It is no surprise that there is a paucity of evidence in relation to these hidden dimensions of alcohol-related harm. Researchers measure costs within systems where data can be linked to individual experiences: health systems, social welfare systems, law enforcement and justice systems are responsive to those they see, the individuals seeking help or support.

Researchers can readily document and describe case experience in these areas, usually in terms of the services used. However, rarely is data from different systems connected, compared or used to create a new picture showing how individual experiences in each of these systems may be inter-related.

This report extends what can be learnt from raw statistics and discusses the broader experience of people harmed by the drinking of others. It includes factors such as well-being and social problems, and is not constrained by body count statistics. The report draws on the harms we can identify within systems to create a bigger picture, one that most readers will find disturbing.

The authors of this report have produced an important report that adds further weight to the need for reform of current alcohol policies and practices in Australia.

If ever our leaders needed the courage to tackle the vested interests that resist effective alcohol policy reform in Australia, this report provides ample evidence that the ongoing tragedy of alcohol-related harm in the Australian community cannot continue unabated.

This is a commendable piece of research that demands more attention is paid to the human costs of alcohol misuse in our community.

Tim Costello
Chief Executive Officer
WORLD VISION AUSTRALIA

ABOUT THE AER FOUNDATION

AER is a not-for-profit company established in 2001 with a mandate to *change the way we drink*. AER was initially established with a Federal Government grant and is now a perpetual trust.

AER endeavours to:

- Prevent alcohol and other licit substance abuse, including petrol sniffing, particularly among vulnerable population groups such as indigenous Australians and youth;
- Support evidence-based alcohol and other licit substance abuse, treatment, rehabilitation, research and prevention programs;
- Promote community education encouraging responsible consumption of alcohol and highlighting the dangers of licit substance abuse.

ABOUT THE AER CENTRE FOR ALCOHOL POLICY RESEARCH

The AER Centre for Alcohol Policy Research is located within the Turning Point Alcohol and Drug Centre and is a joint undertaking of the Victorian Department of Human Services, the University of Melbourne and the Alcohol Education and Rehabilitation Foundation.

The AER Centre's research group reviews, conducts and promotes research in Australia relevant to alcohol policies. The Centre undertakes specific studies on policy-relevant questions through collating and reviewing the knowledge base for alcohol policy initiatives, by building capacity to assess, analyse, inform communities and provide leadership on alcohol policy issues, and by contributing to enhancing Australia's profile in international alcohol policy research. This includes studies of the effects of alcohol policies, population surveys on drinking attitudes, patterns and problems, and studies of social responses to drinking.

The Centre works with research teams and policy makers from The Australian Drug Foundation, VicHealth, Department of Human Services (Victoria) and The University of Melbourne as well as the National Drug Research Institute (Perth) and the National Drug and Alcohol Research Centre (Sydney), The Burnet Institute and a number of international organizations.

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- Professor Wayne Hall, School of Population Health, University of Queensland
- Associate Professor Paul Dietze, Centre for Population Health, Burnet Institute

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LIST OF ACRONYMS

AA	Alcoholics Anonymous
ABS	Australian Bureau of Statistics
ADIS	Alcohol and Drug Information System
AER	Alcohol Education and Rehabilitation
AIHW	Australian Institute of Health and Welfare
Al-Anon	Alcoholics Anonymous
AOD	Alcohol and Other Drugs
AR-DRG	Alcohol-Related Diagnosis Related Groups
ASGC	Australian Standard Geographical Classification
ATSB	Australian Transport Safety Bureau
ATSI	Aboriginal or Torres Strait Islander
BAC	Blood Alcohol Concentration
BAL	Blood Alcohol Level
BCS	British Crime Survey
BOCSAR	Bureau of Crime Statistics and Research
CASIS	Child and Services Information System
CATI	Computer-Assisted Telephone Interviewing
CCCC	Counselling, Consultancy and Continuity Care
CCD	Casualty Crash Database
CI	Confidence Interval
CRIS	Client Related Information System
CSO	Concerned or Significant Others
DACAS	Drug and Alcohol Clinical Advisory Service
DRG	Diagnostic Related Group
ED	Emergency Department
EEH	Employee Earnings and Hours
EFT	Equivalent Full-Time
EOC	Episode Of Care
EWP	Electronic White Pagers
FAE	Fetal Alcohol Effects
FAS	Fetal Alcohol Syndrome
FASD	Fetal Alcohol Spectrum Disorder
GDP	Gross Domestic Product
GENACIS	Gender, Alcohol and Culture: an International Study
GP	General Practitioner
HILDA	Household, Income and Labour Dynamics in Australia
HRQoL	Health-Related Quality of Life
ICD-9	International Classification of Diseases – version 9
ICD-10	International Classification of Diseases – version 10

IPV	Intimate Partner Violence
IQR	Inter-quartile range
NCSS	National Crime and Safety Survey
NDSHS	National Drug Strategy Household Survey
NHMRC	National Health and Medical Research Council
NICE	National Institute for Clinical Excellence
NSW	New South Wales
OLS	Ordinary Least Squares
OPE	Out-of-Pocket Expense
OR	Odds Ratio
PAAF	Partial Alcohol Attributable Fraction
PSS	Personal Safety Survey
PWI	Personal Wellbeing Index
PYLLs	Potential Years of Life Lost
QALYs	Quality Adjusted Life Years
RADL	Remote Access Data Laboratory
RDD	Random Digit Dialling
SA	South Australia
SE	Standard Error
SEIFA	Socio-Economic Indexes For Areas
SF-36	Short Form-36
SHORE	Social Health Outcomes Research Evaluation
TS	Trauma Service
VBDR	Victorian Birth Defects Register
WA	Western Australia
WHO	World Health Organization
WTP	Willingness To Pay

EXECUTIVE SUMMARY

This research provides both a broad overview and detailed insight into the problems the drinking of others has on Australians. The impacts from the drinking of others vary dramatically. At one end of the spectrum Australians are affected by nuisance inconveniences, such as street noise or having to avoid public parks, or petty costs from damaged property. At the other end harms can be severe, such as child abuse or physical violence or death. The public health impacts of alcohol from others' drinking are of major concern. This report addresses a number of critical questions: How many Australians are affected by others' drinking? Who is affected? What is the relationship between those who have been affected and the drinker? How are Australians affected or harmed? What are the costs for others – in trouble, in time, in money? This report provides a first set of answers to such questions.

Answers to these questions stem from a variety of data collected by social and health agencies, including police data, road crash morbidity and mortality data, death statistics, hospital records, child protection agency data, and alcohol and drug services and helpline data. Data from previous population surveys are also analysed. And much data in the study comes from a special survey of more than 2,600 Australian adults who answered detailed questions about their experiences and consequences from the drinking of others.

The results from social and health systems data across Australia

An estimated 367 people died and near 14,000 people were hospitalised because of the drinking of others in the year studied. In 2005, interpersonal violence resulted in 182 deaths, of which 42% (77 deaths) were estimated to be attributable to another person's drinking; a total of 1,802 potential years of life were estimated to be lost. A total of 277 deaths of people aged 15 years and over were estimated to be due to another's drinking and driving, with 31 of these being pedestrian deaths. Estimations from 2005 police data indicate that over 70,000 Australians were victims of alcohol-related assault, among which 24,000 people were victims of alcohol-related domestic violence. Using national child protection data and estimating from Victorian measures of alcohol involvement, almost 20,000 children across Australia were victims of substantiated alcohol-related child abuse in 2006/07.

367 people died and near 14,000 people were hospitalised because of the drinking of others.... [In 2005,] over 70,000 Australians were victims of alcohol-related assault, among which 24,000 people were victims of alcohol-related domestic violence.... Almost 20,000 children across Australia were victims of substantiated alcohol-related child abuse.

Scoping the range and magnitude of alcohol's harm to others in Australia in a year

Records-based		
Deaths due to another's drinking		*367*
Hospitalisations due to another's drinking		*13,699*
Substantiated child protection cases involving a carer's drinking		*19,443*
Alcohol-related domestic assault in police records		*24,581*
Alcohol-attributable assaults in police records		*69,433*
	Affected	
Survey-based	*a little:*	*a lot:*
Negatively affected by a co-worker's drinking	*496,700*	*120,400*
Had one or more children negatively affected by the drinking of a carer	*888,100*	*210,700*
Negatively affected by the drinking of a household member, relative or friend	*2,905,000*	*1,294,500*
Negatively affected by drinking of a stranger or someone not known well	*5,463,900*	*617,100*
Any negative effect of a stranger's drinking	*10,536,400*	

The alcohol's harm to others survey

The results of the survey revealed that almost three-quarters of the adult Australian population report having been affected in the last year as the result of someone else's drinking. A total of 16% of Australians have been affected by the drinking of someone they live with or are intimate with – a family member or romantic partner. Over one in ten Australians has been affected by a friend's drinking in the past year, and 5% have been affected by a co-worker's drinking. The substantial numbers of people affected and hours spent covering for others who are not at work because of their drinking quickly adds up. Five percent of the entire sample (including people who do not have children) reported that children they live with or have parental responsibility for have been affected by another's drinking.

almost three-quarters of the adult Australian population report having been affected in the last year as the result of someone else's drinking. A total of 16% of Australians have been affected by the drinking of someone they live with or are intimate with – a family member or romantic partner.

Seventy per cent of Australians have been affected by strangers' drinking. These harms range from minor annoyances, such as, those who report being kept awake, to more severe harms such as physical violence. Just over 40% of respondents reported that they had been threatened, physically assaulted, or had their property or belongings damaged as the result of a stranger's drinking.

In the small time frame of one year, a large proportion of the population have had an adverse experience in one way or another because of others' drinking. A substantial minority reports that they have been adversely affected 'a lot' by the drinking of others. It appears that younger Australian adults bear much of the brunt of the drinking of others: younger women are more likely to report harms

from the drinking behaviour of family members, whereas both younger men and younger women were more likely to report harms from the drinking of friends or strangers.

The types of harms experienced by the respondent when the drinker was someone known to them were quite diverse. The most common response (65%) was that the drinker had negatively affected social occasions the respondent was at. More than 50% reported that because of the drinker the respondent had been emotionally hurt or neglected, or involved in serious arguments, or that the drinker had "failed to do something they were being counted on to do". Over a third of those who reported that they had been negatively affected by the drinking of someone they knew reported that they had to stop seeing the person who had most affected them because of their drinking.

When respondents were asked which person, of those they knew, most negatively affected them because of their drinking, the most common answer was a friend or close family relative, and this person was typically a man. Women were more likely than men to report being negatively affected by the drinking of a household member or relative.

Drinkers they knew had affected social occasions they were at.... They had been emotionally hurt or neglected because of their drinking, or involved in serious arguments, or that the drinker had failed to do something they were counting on them to do.... Over a third ... had to stop seeing the person

How much does others' drinking cost Australians?

The most recent report from Collins and Lapsley (2008) tallies the cost of alcohol's harm in the billions of dollars, from the perspective of costs to the society, including to the drinker. In this report, alcohol's costs to others around the drinker are tallied for the first time, including many costs which were not included in the estimate by Collins and Lapsley. In terms of tangible costs reported by a representative sample of the Australian population, heavy drinkers have cost others around them in excess of $13 billion in out-of-pocket costs and in forgone wages or productivity. Hospital and child protection costs to the society due to another's drinking sum to a further $765 million. In addition, there are large intangible costs, estimated at a minimum of $6 billion dollars. These negative externalities or 'passive drinking' costs of alcohol need to be factored into debates regarding implementation of effective alcohol policies.

Situating the study

The study of 'Alcohol's Harm to Others' provides the most sustained effort anywhere of its kind, drawing on and analysing a wide variety of existing and newly developed data. The work has enumerated the various kinds of harm that can occur due to another's drinking, and the different kinds of relationship that exist between the drinker and the person harmed. Concrete descriptive data have been brought together on the various interactions and events which contribute to the experience of harm from others' drinking.

This study has not only quantified the amount of harm that has occurred because of alcohol in a given year, but has also been able to map the social location of the harm, both for the drinker and for the person adversely affected. This research has also developed novel methods for costing different aspects of alcohol's harm to others, and applied these methods to estimate costs to others from the alcohol-related behaviour of heavy drinkers. These research methods and tools will find further application in future studies.

The picture as seen through the frame of the general population survey is complemented with the pictures that appear through the frames of the social response agencies – the police, health services, treatment agencies, child protection agencies, helplines, and so on. These additional windows of data provide information about emergencies and those who respond to them by picking up and sewing up the pieces, and by counselling and assisting those in trouble.

Through the agency data, the study documents that the harm to others for drinking can be very severe. Through the survey data, the study demonstrates that harm from others' drinking is widespread and broad-ranging in the population. The substantial scope and magnitude of alcohol's harm, to others is an important consideration in making policy decisions about the availability and control of alcoholic beverages in Australia.

1: CONCEPTUAL FRAMEWORK

Introduction

Drinking often results in harm not only to the drinker, but also to others around the drinker. A traffic crash caused by a drinking driver may kill passengers, the other driver or pedestrians. An elderly couple walking home at night may be threatened by carousing teenagers. A child may be left stranded when an adult supposed to pick the child up from preschool instead overstays an after-work drinking session. A sober bystander attempting to separate two drunks fighting may himself be injured when they turn on him. An adult daughter may find herself at her wit's end over the drinking of her live-in father. A small firm may be driven into bankruptcy by mistakes or misdeeds of its employees when they have been drinking on the job. A pregnant woman may continue her heavy drinking and harm her baby. All of these instances are examples of ways in which someone's drinking may adversely affect someone else.

This report is concerned with the harm to others from drinking in Australia. Our aim is to open up the issue in its diverse manifestations, and to push forward both our measurement and our understanding of it. The report does not end up with a single figure, for instance of the total burden of disease and distress from others' drinking or of the total cost to others. In our view, such an effort would be premature, and in itself not very revealing. We are more interested in the details of the elements which would compose such a figure, and in what can be learned about their magnitude, their composition and their social location. Such detailed knowledge is much more likely to be useful to those who seek to prevent or diminish the harm to others from drinking.

To our knowledge, the only previous report which takes on the topic of "collateral damage" from alcohol in Australia in a holistic way is a two-page editorial (1998) which cited available statistics from a variety of sources in diverse areas, including crime, drink driving, family violence and other problems, and fetal alcohol effects. As we shall discuss below, economic studies of social costs of alcohol encompass the topic, but do not address it directly. Otherwise, the relevant literature primarily deals with particular components of the harm from others' drinking. These parts of the literature are considered in this report as we deal with each particular component of harm. In this introductory chapter we take into account relevant studies which have taken a holistic approach, measuring harm across different domains of life.

Behind the neglect of harm to others

In general, in the modern literature on alcohol problems the harms which are best measured are the effects of drinking on health. The term "alcohol" on PubMed, the best-known biomedical abstract database, generated 637,000 hits in August 2009. Estimates of the role of alcohol in each of a variety of diseases now draw on meta-analyses based in turn on dozens of prospective and case-control studies (e.g., Rehm, et al., 2010). The dominance in data and research of health studies reflects higher investments in many countries in health research than in research in such other areas as welfare or criminology. As well as a rich tradition of general-population health surveys, the studies draw on substantial investments in general medical record-keeping. In many countries, there is more than a century-long tradition of mortality and hospitalisation records, and increasingly databases also on health visits, prescriptions filled, etc., which are potentially valuable resources for research.

But health records usually focus on characteristics of an individual defined as the patient. The International Classification of Diseases is a catalogue built around the body of the individual patient. Even for injuries, where aspects of the environment are considered, the codes which are oriented to context pay attention primarily to the inanimate context of the injury: that it was from a bus or from an automobile, that it was this or that particular poison, that it was from a fall or a fire or by water. The classification, and the health records in which such classifications are used, is largely blind to the condition of other humans as an element of the context of the disorder.

The emphasis on harms to the drinker also arises from the general bias towards methodological individualism, with samples designed in terms of isolated individuals, in research methods and questions in developed societies. Population surveys typically interview only one person per household, and sample in such a way as to limit any cross-contamination of responses between respondents. Greater attention is often paid to the life history of the individual than to factors in the individual's social environment. Measuring alcohol's harm to others requires at a minimum measuring drinking and associated behaviours of one person and harm to another.

There are some realms of harm to others where there is more attention to social interactions and human elements of the environment. Police reports on homicides or sexual assaults typically pay detailed attention to potential perpetrators, and in general to the human context of the crime. Child welfare investigations parse all relationships and every member in the child's family. But the presence of drinking or intoxication is often only fitfully recorded in the case notes. Campaigns of the last few years to get Australian police to routinely record intoxication as an element in an assault have been so far only partly successful.

This general situation differs substantially from a century ago. At the height of the temperance movement, a marital partner's inebriety was an accepted ground for divorce, which meant that official statistics were available on the extent to which alcohol figured in the break-up of marriages. "Worker's compensation systems collected data on findings that the claimant had been drinking in connection with an incident on which a claim was based…. Life insurance companies routinely collected data on an applicant's 'drinking habits', used them to rate the applicant's insurability, and also included the data in studies of insurance experience" (Room, 1996). In general, the role of alcohol in social problems was more routinely recorded.

What happened in the interim were two big social changes. By the mid-20th century, there had been a strong generational reaction against the temperance movement. Alcohol's involvement in social problems – the adverse effects of the drunkard's drinking upon the family, the economic loss to business from employee drinking, the idea that it was alcohol which filled the prisons – had been a staple of temperance movement campaigns and rhetoric (Levine, 1983), and in the reaction against temperance there was a tendency to deny or turn away from this. One would not want to be thought to be a wowser. For more than a generation, textbooks on criminology, using a very stringent definition of causation, maintained that drinking was not a causal factor in violence or crime (Room and Rossow, 2001). The idea that alcohol caused harm to others came to be seen as an old-fashioned temperance idea, not to be mentioned by progressive thinkers. Even in the medical literature on alcohol's harm to the drinker, there was a wave of denial of relationships by respectable scholars, for instance of alcohol and liver cirrhosis (Herd, 1992), that now seem incredible or idiosyncratic.

The other change was in ideas and boundaries of privacy. Among the several social trends which contributed to the move to "no-fault divorce" in the 1960s and after, and thus to the loss of social statistics about alcohol's contribution to divorce, one change was an expansion in the realm of privacy, which the U.S. Supreme Court in 1965 elevated to the state of a constitutional right (http://en.wikipedia.org/wiki/Griswold_v_Connecticut). During the temperance period being a drinker or not had been, to a considerable extent, a matter of public status; the change in the boundary of the private meant that following the Supreme Court ruling whether and what one drank became a private matter. The idea of an insurance investigator asking the neighbours about the insurance applicant's drinking habits fell out of favour. More generally, one's drinking habits, so long as they were not flaunted in public, moved into the realm of the personal, something which was not anyone else's business. If a family member was distressed by another family member's drinking, it should be discussed with fellow-sufferers behind closed doors in Al-Anon, not made a public issue. In short, "as drinking was normalized in temperance-influenced societies, drinking-related problems were redefined more as private than as public matters (Gusfield, 1981), and drinking itself came to be seen as in the sphere of private life rather than as a matter of public interest" (Room, 1996).

These social changes have had a long persistence, even after the tide has clearly changed on recognizing the serious effects of drinking on the drinker him- or herself. One early breach in the neglect of alcohol's effect on others was in the area of drink driving. By the 1960s, the serious effects of drink driving on others were recognized and became arguments for policy change (Gusfield, 1981). In this aspect of responding to the effects of drinking on others, Australia has been one of the world leaders, with intensive random breath testing and other measures driving down the traffic casualty rates. In other areas, the recognition of harm to others from drinking has been much weaker, and the societal response much more halting. The feminist concern to counter intimate violence prevailed over norms of the privacy of home life and eventually led to some focus on the role of drinking, so that Victorian police, for instance, record alcohol's involvement more reliably for domestic violence than for street violence. But despite increasing public concern about "binge drinking" and street violence, direct police data on the contribution of drinking to violence in public places is still scanty.

Conceptualizing alcohol's harm to others

The harms from drinking are conventionally discussed in terms of health problems and social problems (e.g., Babor, et al., 2003). In fact, there is considerable overlap in the two domains, particularly concerning injuries. An injury arising from a drunken fight is a health problem from the perspective of the health system and a social problem, potentially a criminal problem, from the point of view of the police.

A loose equation is sometimes made between health problems as problems for the drinker and social problems as problems for others besides the drinker. But this is not an accurate equation. Some alcohol-related health problems occur to others than the drinker. This is the case for injuries, which, as noted, can be viewed as health or as social problems. It is the case for fetal alcohol effects, and for mental disorders to family members resulting from the drinker's behaviour. On the other side, a social problem may be a problem for the drinker, whether or not there is a problem for someone else: defaults in one's work because of drinking may result in the drinker being fired, whether or not there is a loss of productivity for the workplace.

However, most social problems with drinking involve some harm, perceived or tangible, to another person. Someone other than the drinker is perceived or perceives him/herself to be adversely affected by the drinking, and a social problem with drinking often involves some response by the other person which in turn adversely affects the drinker. Most social problems with drinking are thus inherently interactional.

It should be noted that in most circumstances human perception and definition are thus inherently involved in whether person *A*'s drinking is defined as harmful to person *B*. *A* may not perceive there to be a problem for *B*. *A* may not perceive his or her drinking to have any relation to it. For instance, *A* may agree there is a marital problem between him/herself and *B*, but may not agree that the drinking has anything to do with it. Or *A* may not know that *B* considers *A*'s drinking to have created problems for *B*. Naturally, *B* may have his or her own permutations on these possibilities. An observer may have a third set of perceptions and definitions. Thus, an old U.S. study of 252 domestic physical assaults where the police were called found that the putative assaulter was alleged by the complainant to have been drinking in 40% of the cases, but that the police judged that the person had been drinking in only 21% (Bard and Zacker, 1974).

The material used in the present project draws from a variety of perspectives on the occurrence of a problem and drinking's relationship to it. Data from police or hospital records are formally recorded by professionals or the relevant organization's clerical staff. They may represent professional observation. But they may also or instead reflect what is volunteered or answered by one or another party to a situation. Data from surveys reflect answers by a drinker or by someone adversely affected by a drinker, but built into the questions or answers may be the respondent's report of what someone else said.

A book edited by Klingemann and Gmel (2001) is the most sustained discussion yet of the nature of and data on social consequences of alcohol consumption. Chapters of the book on substantive domains cover harm to relatives; "friends and the close social environment"; the impact on work and education; public order and safety; and accidents, suicide and violence. Underneath these rubrics we can discern an organization partly in terms of major social roles (work, family, friendship), and partly in terms of major social institutions (welfare and child protection; the workplace; police; and accident and emergency services).

As we consider the traditions of research on social harms from drinking, versions of these two underlying dimensions of organisation – by major social roles and by major societal response institutions – are a recurrent theme. One reason the major social institutions figure heavily in the conceptual organization is that they are the main avenues of societal response to social problems, and thus generate the records on which most research on serious consequences is based. The major social roles look at social consequences instead from the perspective of the individual involved – usually the drinking individual: how has the drinking impinged on major areas of his or her life? The obverse of these social roles is sets of persons in interaction with the drinker: employer and workmates; spouse/partner, household members, relatives; friends, neighbours and acquaintances. What must be added to these sets is the indefinitely large set of strangers who may be affected by the drinker: those whose sleep is disturbed by the drunkard's noisy path home, passersby caught up in a drunken fight, owners of "lemon" automobiles supposed to be more commonly built when the weekend drinkers were missing from the assembly line. The adverse effect may come from collective acts or threats, or may come from an individual drinker. Thinking in terms of the individual drinker, many of these constituencies are affected by the drinker's comportment as an actor in public spaces (Goffman, 1959), carrying out what we may describe as a role as public person: someone expected to act with decorum and civil inattention, not disturbing the peace or intruding on others' space.

Figure 1.1 summarizes this view of the problems for others from a person's drinking in terms of the interactions between the drinker and five main constituencies, involving four main sets of roles. The left and bottom relationships might be thought of in terms of the sphere of private life, and the top and right relationships as in the sphere of public life. We will return to this conceptualization and build on it later in our discussion of population survey approaches to measuring harms to others from drinking.

Implicitly, the focus in Figure 1.1 and in this report is on problems at the level of the individual or the social interaction or relationship. Harm to others from drinking can also occur at the level of a larger collectivity, including a whole society. This phenomenon is easier to see in extreme cases in small societies; a number of examples can be found of serious consequences for the collectivity from prevalent heavy drinking by some members of the society (e.g., Room, et al., 2002, pp. 152-154, Sackett, 1977). Conceptually, the tradition of economic studies of the social cost of alcohol includes harm to the society as a whole in calculating as an "indirect cost" the lost productivity to the society from those who have died early due to alcohol-related illness. Except in discussing these studies, our attention here is focused on the individual and interactional levels: harms to particular individuals or small groups or settings from particular drinkers. In our analyses, harms to larger social aggregates remain largely unmeasured.

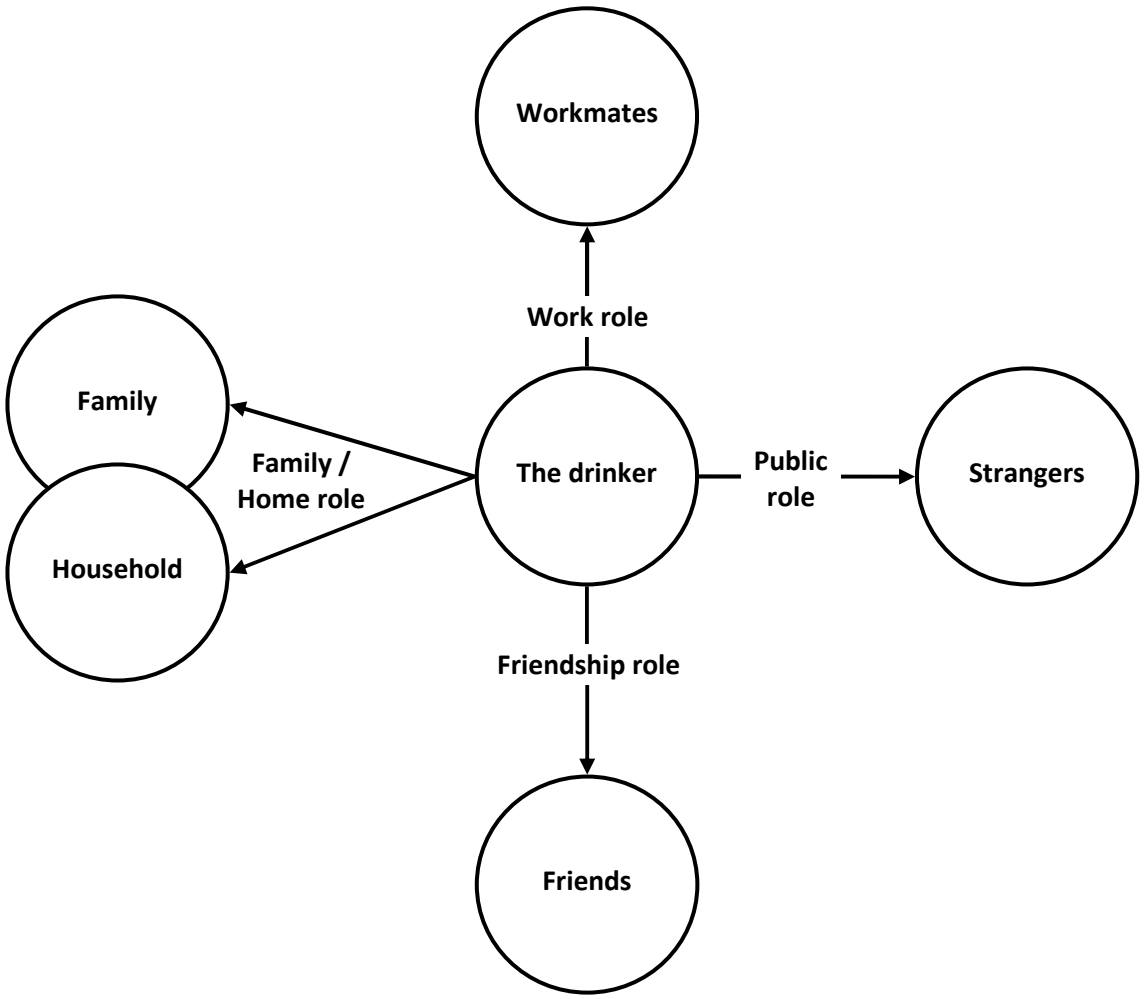


Figure 1.1: The drinker's impact on others: main type of relationships

Relevant comprehensive approaches to measuring harms from drinking

There are two main alcohol-specific literatures in which there have been attempts to be comprehensive about alcohol-related harms: the survey research tradition of asking about alcohol problems, and the tradition of "cost-of-illness" studies of the social costs of alcohol. The two literatures look at alcohol-related harms through very different windows.

Survey research traditions. The primary strand in the survey research tradition has asked the drinker about problems from his or her own drinking. These have included a wide range of problems, personal and social. As noted above, social problems from drinking tend to be inherently interactional, so that when a drinker is answering that his/her drinking has harmed his/her marriage or home life, for instance, it is very likely there is an other who considers him/herself to have been adversely affected by the drinking.

A typical listing of problem areas relevant here would include problems related to the respondent's drinking with a spouse/partner, with relatives, with friends or neighbours, on the job or with workmates, and with the police (Cahalan and Room, 1974, Room, 2000). Sometimes the first three of these categories have been combined in an "interpersonal consequences" score. Two further problem areas in this tradition, Problems with Finances and Belligerence (getting in arguments or fights, etc.), are also somewhat relevant.

Implicit in this survey research tradition is a conceptualization of social problems from drinking in terms of default in major social roles – the roles specified in Figure 1.1. The perspective is, of course, the limited perspective of the drinker. Many of the survey items ask about the drinker's perception of others' reactions, often without being tied to specific events or circumstances. Thus, even though it

gets scored as a "mild problem" with the spouse, we do not know what lies behind a positive response to the survey item, "My wife indicated I should cut down on my drinking" (Room, 2000). While the tradition of asking drinkers about their social problems with drinking is clearly relevant to drinking's harms to others, it is thus not a direct and precise way of measuring alcohol's harm to others.

Overlapping this tradition has been a line of analysis of patterns of informal social control of drinking – for instance, suggestions to the drinker to cut down drinking (e.g., Holmila, et al., 1990, Room, 1989). The potential harm to the other from the drinking is usually not explicit in these studies, although the drinker's problems to which the other is reacting can clearly be substantial (e.g.,Joosten, et al., 2009, Room, et al., 1996). Studies in this tradition have paid some attention to the patterning of suggestions and pressure between genders, and across generations within the family.

There are also growing traditions of survey studies which focus more on specific kinds of interpersonal problems – for instance, the literature on alcohol in partner violence (e.g., Wells and Graham, 2007). In studies in this area, specific data on adverse effects on a partner related to the other's drinking can be gathered from the victim as well as from the aggressor, although not usually in the same couple.

A secondary strand in the survey research tradition has looked at alcohol-related harms specifically from the perspective of the other – whether in the role of victim or (less often) of bystander. In this strand, while the relation of the drinker to the respondent is often not clear, the focus is not on fuzzily-defined "drinking problems", but instead squarely on harm experienced by the respondent from others' drinking. "The focus is usually explicitly on concrete events, whereas items in own-drinking problem series often concern conditions, or are commonly interpreted as indicators of a condition" (Room, 2000).

Analyses of the questions have often stayed at the item level (e.g., Eliany, et al., 1992, Mäkelä, et al., 1999), without consideration of problem domains. In the earliest modern study in this tradition, Fillmore (1985) did make an ad-hoc division into subscales: obnoxious behaviour, property damage, family and friend problems, violence, accidents, and employment threatened. The "obnoxious" subscale combines items about observation of public disorder and about a party being spoiled, regardless of whether there was an impact on the respondent, with items about the effect on the respondent's home life. Both the Mäkelä et al. and the Eliany et al. series confined themselves to harm directly to the respondent. Conceptually, analyses in this tradition have not distinguished clearly between the private and the public spheres.

In existing studies, the questions about harm from others' drinking have been a relatively minor part of a broad-ranging questionnaire. The range of topics to be covered has tended to mean only a shallow coverage of each one, particularly in the era of the 20-minute telephone interview. Among the most limited ranges of questions on harm from others' drinking have been those in the Australian National Drug Strategy Household Surveys (NDSHS), the main previous source of general responses about harm from others' drinking in Australia. While early surveys in this series asked a total of five questions, more recent surveys have asked only three questions concerning victimization: whether the respondent has in the last year been physically abused (3.4% in the 2004 survey), verbally abused (23.0%), or "put in fear" (11.5%) by someone "affected by alcohol". The first two questions were also asked concerning perpetration, with 5.4% reporting having verbally abused someone and 1.0% having physically abused someone. A reanalysis of the 2004 data (Wilkinson, 2008) found that males were more likely than females to give positive answers both as victims and as perpetrators for the abuse questions, while females were more likely to report being put in fear. For all the items, respondents in the age group 18-24 were considerably more likely than those in other age groups to respond positively. For each of the three victimization items, about half the instances involved persons unknown to the respondent. "Spouse or partner" was the next most common perpetrator category, and about one-quarter of the incidents occurred in the respondent's own home. The questions are thus picking up adverse effects of drinking in both the public and the private spheres. For the two abuse items, about half of those victimized had themselves been drinking at the time (about one-third for those put in fear).

Apart from the NDSHS, Australian survey data on drinking's harm to others is available only in specialized surveys such as criminological victim surveys, which in recent years have increasingly measured alcohol aspects of the problems they track.

The present report draws on analyses and reanalyses from the limited range of Australian general population surveys with data on the harm from another's drinking. In addition, we draw on results from a national adult survey conducted specifically to elicit wide-ranging and detailed information on harms the respondent has experienced from others' drinking (Wilkinson, et al., 2009).

In such a survey, we are asking about the harms to a single person, the respondent, from a range of drinkers. To increase the specificity and validity of the responses, minimising recall bias, we confined the time period to the previous twelve months. Different sections of the questionnaire covered drinkers in different forms of relationship with the respondent. The domains of relationship covered in the study are those of Figure 1.1.[1] Conceptually, the series of questions are thus organized as if Figure 1.1 were turned inside out. The drinkers identified in the answers are in each of the domains around the periphery of the diagram, with links from them to the affected respondent in the centre of the diagram.

The cost of alcohol tradition. The other main relevant broad-ranging tradition of work derives from the "cost of illness" tradition in economics. While, as its name implies, this tradition originated specifically with respect to disease and the health system (Rice, et al., 1985), from the first it took a broad view of the range of social costs involved, and thus it has been fairly readily adaptable to studies of the social costs of alcohol and other drugs – where much of the harm is not attributable to a disease (Single, et al., 1998). The basic building-blocks of cost of alcohol studies are derived from register data, that is, the records of case-by-case operation of the major institutions of societal response to problems – hospitals and the health system, the police and criminal court system, the unemployment and welfare systems, and so on. To these building blocks are applied estimates of the alcohol-attributable fraction of the caseload, either directly derived from alcohol codes in the system's records, or estimated on the basis of a variety of other data.

In principle, the focus is particularly on the costs to others than the drinker, defined in economic jargon as "negative externalities":

> Negative externalities occur when individuals or firms undertake actions which impose costs on other individuals or firms, while providing no, or insufficient, compensation to those who bear these extra costs. (Collins and Lapsley, 2008, p. 8)

However, in many cost of alcohol analyses some costs to the drinker are also included, with the argument that the drinker could or did not fully take into account these potential costs in his or her choices about drinking.

A small tradition within economics, critical of the cost-of-illness tradition discussed below, has endeavoured to confine the estimated costs to strictly-defined "external costs", that is, costs imposed on others by the alcohol consumption of the drinker (Heien and Pittman, 1992, Manning, et al., 1989). However, these studies have been quite rigid in excluding costs which they do not regard as true externalities. Thus Heien & Pittman (1992) exclude costs to others in the drinker's family on the grounds that these "are basically internalized within the family". They assume there is no external cost on the grounds that a family unit internalizes the alcohol harm that a member in the family causes. However, this case is only true if the family jointly owns all the resources. Each individual in the family is entitled to their own labour and time. When drinker *A* in the family harms family member *B*, resulting in a loss of output due to injuries or loss of time spent seeking services, those losses will only be internalized if *A* and *B*'s labour and time are jointly owned. In terms of property – be it money or belongings – even if it may be jointly owned no matter who bought it, there are civil and criminal laws that prohibit drinker *A* damaging it. In this example, if drinker *A* harms *B*, that harm is clearly not internalized.

[1] The study also includes questions about adverse effects of others' drinking on children for whom the respondent is responsible.

In their rigid approach to what constitutes an "externality", Heien and Pittman (1992) also exclude injuries to a passenger in a drink driver's car on the grounds the passenger "has accepted the risk of riding with an abuser". Costs of crime are excluded because, in their view, "the question of a causal relation between crime and alcohol abuse is tenuous at best". After such exclusions, the main cost left in Heien and Pittman's accounting is costs of fatalities and injuries of those in a drink-driving crash who are not in the drinking driver's car. Manning et al. (1989) take a slightly less rigid view, including also costs paid by governments and others for medical and pension costs of heavy drinkers. But basically it can be concluded that the rigid conceptual boundaries used in studies in this tradition make them peripheral to the task of estimating and understanding harms to others from a drinker's drinking.

The mainline cost of alcohol studies, operating in a broader frame, have tended to divide their estimates according to the societal response institutions from which their primary data mainly derive. The recent Swedish study categorized its main direct costs into: health care, social services, and crime (Johansson, et al., 2006, p. 71). The most recent Australian study by Collins and Lapsley (2008) subtracts welfare and adds costs of work defaults (and road accidents, elsewhere covered under crime). A Finnish study adds "material damage" from traffic accidents, fire and crimes to the basic list of health, welfare and crime (Gutjahr and Gmel, 2002, p. 136).

So far we have been dealing with what economists call the "direct costs" of alcohol consumption – costs of the major societal response institutions which, at least in a welfare-state society, are primarily borne by the society. To the extent this is true, those around the drinker – family, friends, victims, bystanders – are not much out of pocket for the actual costs which are measured – though they do contribute to paying them as taxpayers. However, in the economists' conceptualization, there are two categories of cost beyond what we have considered which do have a more direct impact on those around the drinker.

One of these is the indirect costs or the productivity costs – the loss to the economy from a drinker's early death or other incapacity to work. Typically these costs, primarily from early deaths, are the largest or second-largest component of cost of alcohol calculations (Johansson, et al., 2006, p. 95). The other category is intangible costs, in which a cost is assigned to pain and suffering, and more generally a diminished quality of life. The inclusion of both these categories in cost of alcohol estimates is controversial (Johansson, et al., 2006, pp. 14-15); the standard solution at present is to include indirect costs but not intangible costs.

If we consider these categories in terms of the harm of drinking to others, both have substantial implications, particularly for members of the drinker's immediate family or household. An early death or disability due to alcohol results in the reduction of net resources (wealth) used in paying for funeral expenses, health costs or legal proceedings – in essence direct costs. But the death or disability also removes from the family budget the earnings of the drinker, often substantially reducing the family's future earnings (i.e., indirect costs). Finally, early death and disability are also likely to cause distress in the family and impact on family members' quality of life (intangible costs). In these senses, what is measured as "lost productivity" is also an indication of harm to others. Likewise, there are likely to be substantial intangible costs of living with a heavy drinker. A substudy of the Swedish cost of alcohol study estimated the loss in terms of Quality-of-Life Years (QALYs) for those who reported someone close to them or living in their household having a drinking problem, and then assigned the standard costing used in Swedish economic studies to the QALYs. The estimated cost (27,168 million SEK) was almost as much as the total gross direct and indirect costs (29,379 million SEK; Johansson, et al., 2006, pp. 69,71).

These results underline a point made in the cost of alcohol study for England and Wales (UK Prime Minister's Strategy Unit, 2004). The study divided the main social costs into four categories: health; crime/public disorder; workplace; and family/social network (Figure 1.2). But concerning the last, the study was forced to state: "cost not quantified".

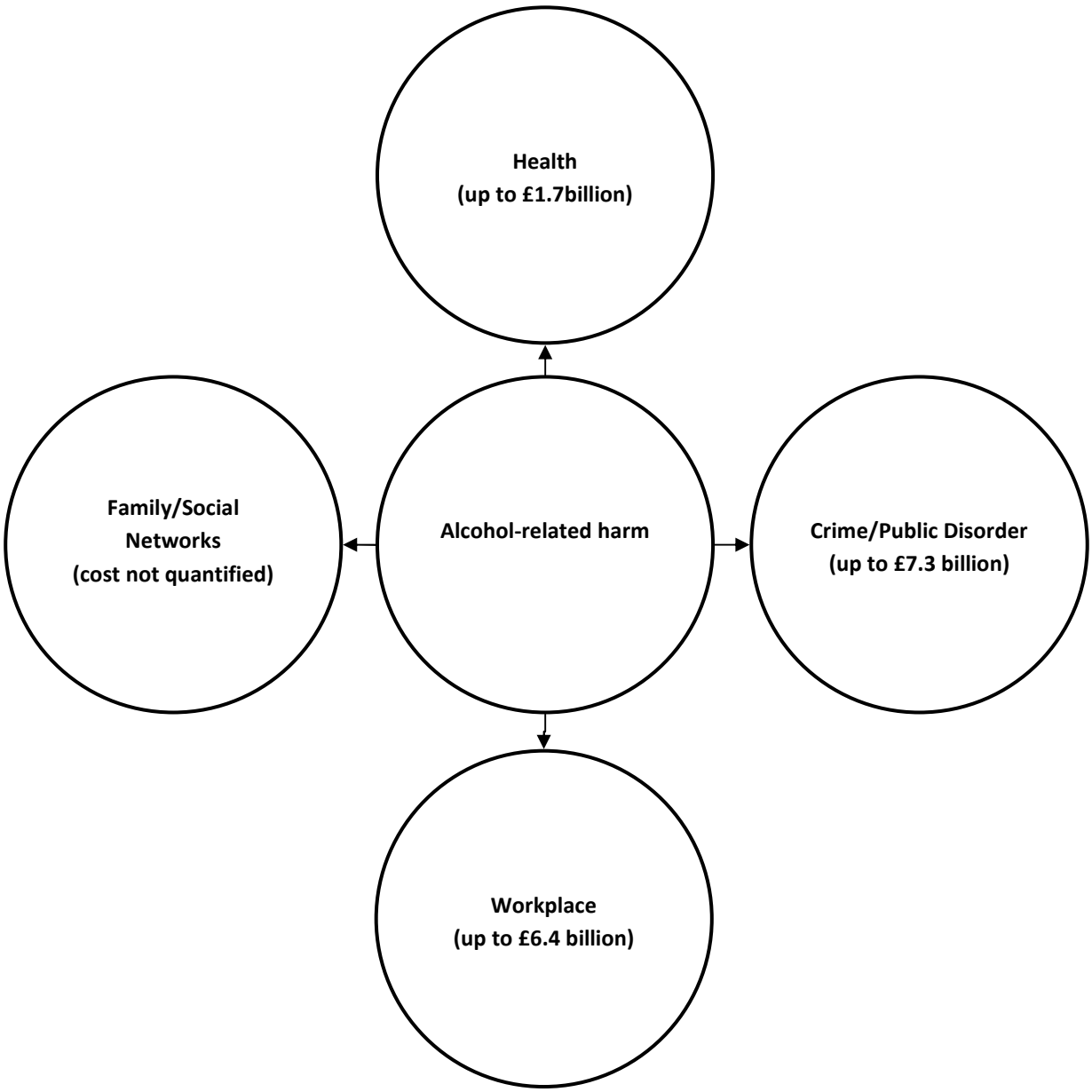


Figure 1.2. Domains of social costs of alcohol (according to the UK Prime Minister's Strategy Unit, 2004)

There are several sources of this lacuna in the cost of alcohol studies. Often (as in the English study) even costs in the welfare system are omitted. This is partly because the proportion of welfare caseloads which could be attributed to someone's drinking is not well measured anywhere, and not measured at all in most places. Also reflected are economists' rules on what counts and what does not count in a cost study, which exclude "transfer costs" (costs which do not add or subtract any wealth to the society), including most welfare payments.

Also involved in the neglect of family/social network costs is the old tradition in economics of treating the household as a consumer unit and as "the primary decision making unit in our society" (Heien and Pittman, 1992). As Johansson et al. (2006, p. 17) note, "arguments have been made that consumption decisions are made within the family, which would imply that no external costs could arise within a family" – although these authors reject this argument, noting that choices about drinking reflect among other things "the bargaining position of family members". Lastly, there is the problem of assigning costs to "intangible" dimensions such as quality of life, and an understandable hesitation of researchers to add together the tangible costs of running a societal response system and such intangible costs.

The conclusion, in the context of cost of alcohol studies, must thus be that "social harms, such as problems in family life and personal friendships and relationships, have not been well measured" (Johansson, et al., 2006, p. 11). Beyond this, it may be that a social-cost approach may not be the best way to quantify such harms.

Mainstream cost of alcohol studies often provide some subdivisions of the costs. For instance, (Collins and Lapsley, 2008, pp. 68-69) estimate that, of the $10.8 billion tangible social costs of alcohol in Australia in 2004/5, 25% are paid by governments – $1.3 billion by the federal government and $1.4 billion by state governments. But no attempt is usually made to split costs to others from costs to the drinker. In terms of direct costs (excluding productivity losses from early deaths), Collins and Lapsley estimate that, of the social costs of alcohol, 9.2% are for work absenteeism, 35.6% for health care, 29.4% for road traffic accidents, and 25.7% for crime (recalculated from Collins and Lapsley, 2008, pp. 60,64). If we take as costs not borne by the drinker all of the crime costs and one-third of the other direct costs in these estimates, we might guess that about one-half of the costs are costs which are not borne by the drinker. This rough estimation does not specify who is bearing these costs.

The approach in the present study

The frame of reference in the present study differs from the cost of illness studies. Our primary interest is not so much in costing the social effects of alcohol but rather in what data can be found or developed concerning the adverse effects of someone's drinking on specific others. The adverse effects on the other can be in terms of mental or physical health, of safety or security, or tangible or intangible costs. The effects can be as described by the other, as noted by a bystander or interested party, or as recorded in agency records. The data we use is drawn from multiple sources, which do not necessarily share common definitions or frames of reference. Thus we recognise that the harms we measure and in some cases cost are not necessarily mutually exclusive. We are, of course, interested in what can be said about overlap and potential double counting, and will return to this issue as appropriate in the report. A caution to keep in mind in reading and interpreting this report, however, is that the harms and the costs discussed here cannot validly be added together into a grand total, without facing the issue of possible double counting. A grand total is not the goal of this report.

Like the social cost studies, the study uses data collected in two main frames. One frame is that of surveys of the general population: the victimisation surveys, the National Drug Strategy Household Surveys, and data from a national survey conducted specifically for this study – the Alcohol's harm to others survey. The other kind of frame is that of agency records and includes police and ambulance files, hospitalisation and emergency department records, alcohol treatment agency casefiles, and mortality records.

Each frame has its own characteristics, advantages and drawbacks. The advantage of the population survey is that in principle it is inclusive of the whole range of experience in the population, including lesser problems and those which never come to official attention. The drawbacks include that really serious adverse effects are not very common, and it would take a very large sample of the population to cover them adequately. The picture of adverse effects drawn from a population survey is thus going to be dominated by the milder end of the continuum of severity of effects. A second drawback is that it is increasingly impossible to get an adequate representation of the whole population in a sample survey. Marginalised people are often missing from a sample based on households, and increasingly young adults are missing from survey samples defined by having a landline telephone. Also, response rates have fallen as a greater proportion of the population decline to be interviewed due to being over-burdened by commercial approaches and surveys. These deficiencies can to some extent be compensated for, but the end result is the survey data is not fully representative of the population.

Agency records have the advantage that they are likely to give a good picture of the more serious end of the continuum of severity, even if not all serious cases come to an agency's attention. In contrast to population studies one drawback is that less serious cases tend not to be included. A second drawback is that the data is usually collected as part of the agency's staff routine work activities; in many cases, the staff is involved in life-and-death situations, and accurate data recording will often

come lower on the priority list. Details like the involvement of someone's drinking in the situation may not be routinely recorded. Alternatively, if there is a required tick-box concerning this, the box will be filled out, but its validity may be questionable. What is recorded may also be shaped by how the staff member wants to present their daily work to their supervisors and others who may use the records.

Using data from both these two main frames gives us the opportunity for what might be called a binocular view of alcohol's harm to others,

Getting the right focus in a binocular view

In studying those whose drinking causes problems, one finds what has been called "two worlds of alcohol problems" (Room, 1977). Looked at through the general-population frame, alcohol problems are fairly widely dispersed, and, for most of those with problems, the problems are relatively mild. On the other hand, in populations showing up in institutional frames – hospitals, the police, social welfare agencies – the problems are often more serious and cumulative. Particularly in alcohol treatment agencies, those with alcohol problems are also often highly marginalized – much less likely to be in the workforce, to be stably housed, to be in a family relationship (Storbjörk and Room, 2008). The "two worlds" division may be less marked for those affected by others' drinking, but needs to be kept in mind as an issue in interpreting the results presented in this report. In seeking to combine the results from the case-files of societal response agencies with those from general population surveys, we may find that the attempt at binocular vision does not easily resolve into a clear three-dimensional picture. Problems reported in the general population with any frequency may be on average much less serious than the routine problems which appear through the agency window. Particularly for the worlds of intimate relationships, family and friendships, we are largely dependent on survey data, and a full understanding of serious troubles in these domains which do not come to official attention may still elude us.

Metrics of harm and measures of alcohol's involvement

Harm to an individual can occur in many forms, and can be measured in various metrics. Likewise, alcohol's involvement in the harm can be established or estimated in several ways.

Several different metrics of harm are used in this report.

The fact of an occurrence, for instance, a death or a traffic crash, can be viewed as an indicator of harm for the person affected. Thus, a count of deaths, or of potential years of life lost (PYLLs) short of a full life, are one set of metrics of harm to the individual.

Particularly in population survey data, we often use the respondent's report of an adverse occurrence – for example, something being damaged that mattered to the respondent – as an indication of harm to the respondent. The frequency and intensity of such harms were often also indicated by the respondent, when s/he was asked how often it happened, and whether the adverse effect was a lot or a little.

Another measure used of the degree of harm to the respondent was in terms of the respondent's report on items indicating a degree of wellbeing or of health disability (e.g,, impact on health-related quality of life, HRQoL), which could then be compared with the reports of others similarly situated.

For harms where it was possible, a monetary measure of the amount of harm was calculated. As will be discussed, this was measured in various frames of reference, depending on the harm: e.g., in terms of the wages which could have been earned in time which was lost, in terms of the loss of monetary value of something broken or damaged, in terms of the conventional monetary value assigned by econometric studies to an increment of health disability.

Some costs of someone else's drinking which are not paid by the affected person are also estimated in this report – costs which are paid collectively, usually by a government, such as

hospitalisation or policing costs. In these cases, the costs are estimated from data on the general cost of running the agency systems which handle the problems.

The definition of causation used concerning the alcohol involvement in this report is an epidemiological one (Room and Rossow, 2001): would the adverse event have happened in the absence of the drinking? The drinking is thus neither necessary nor sufficient for the event to have occurred, and other factors will often have also played a causal role. But, viewed from a policy perspective, the definition answers the crucial question: would removing the drinking have prevented the adverse event?

For most data drawn from population surveys, alcohol's causal involvement in the harm is measured directly by the attribution of the person affected. Thus a question like "How many times in the last 12 months were you physically hurt by them because of their drinking?" has built into a positive answer an attribution of the occurrence to the other's drinking.

For some harms, the alcohol attribution is made by the personnel of the health or social response system – for instance, a child protection worker coding that the parent's drinking is involved in a child endangerment case. Sometimes the attribution is built into the system's categorization of the case – for instance, a Fetal Alcohol Syndrome diagnosis, or a "drunk and disorderly" arrest.

For harms measured by the health system without any routine coding of alcohol involvement, meta-analyses of special studies are often relied on to measure a "population alcohol aetiologic fraction" (PAAF). PAAFs are usually concerned with the drinking of the person with the illness, and in the present case we use analogous fractions concerning the drinking of another, for instance, in estimating the proportion of child traffic deaths where another's drinking played a causal role.

In some analyses, concerning effects of personal wellbeing and health disability, the alcohol attribution is imputed from differences in wellbeing or disability scores between those similarly situated who are affected by heavy drinkers and those who are not.

All of these metrics of harm and means of assessing causality have a substantial base in the research literature. But the reader should be aware that all are the subject of continuing debate and discussion, as scientists continue to endeavour to improve concepts and measurement.

Definition of costs

The definition of the costs of alcohol harm to others used in this study is:

> "The value of harm affecting anyone due to/related to the drinking of someone else in a given year"

This includes a variety of costs such as economic costs, accounting costs, opportunity costs, out of pocket expenditures and intangible costs. These costs are not exclusive and some may overlap in definition. These are costs faced by victims in a given year as a result of the alcohol harm from someone else drinking.

Economic Costs – the value of net resources which is unavailable to the victims.

Accounting Costs – the value of explicit expenses accruing to the victims

Opportunity Costs – the value of the best alternative forgone by the victims

Out of pocket expenditures – these are financial expenses incurred by the victims and in this study are self-reported by respondents in the survey.

Intangible Costs – these are not usually 'exchanged private or public markets, such as fear, pain, suffering, and lost quality of life' (Cohen, 2005)

Costs to Whom?

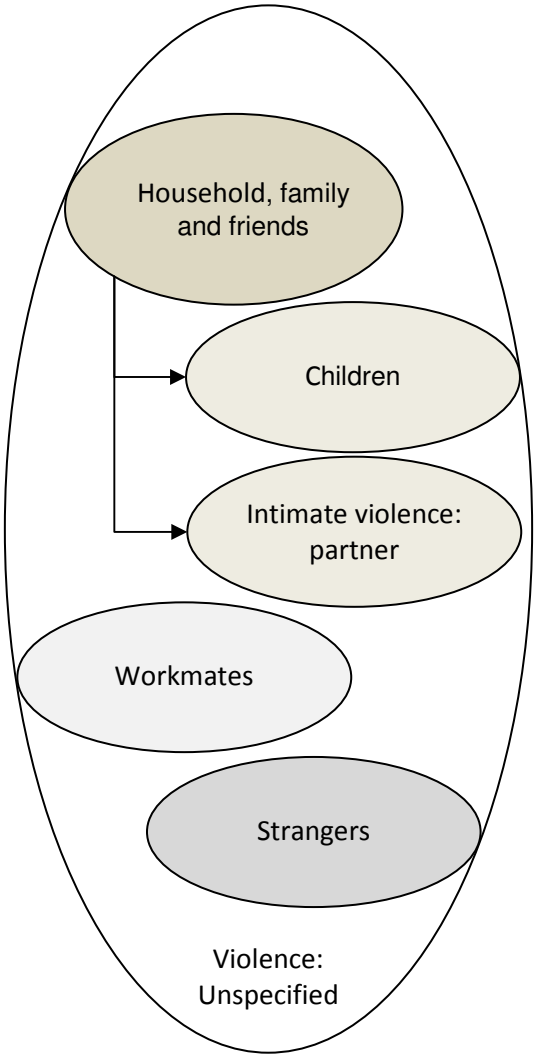
When a drinker causes harm, a cost pathway approach that follows the consequences of this harm can be used to identify costs that accrue, in this instance, to four broad categories of people. First, costs accrue to the drinker him/herself due to the harms experienced from his/her own drinking; second, to the victims, due to the harms they experience; third, to the service providers such as police, courts, hospitals etc who are responding to the drinker and/or the victim because of the harm; and fourth, to those who eventually bear some of the costs faced by the first three groups, e.g. taxpayers, families, friends, government, businesses etc. By actually looking at the four groups separately, one can understand the cost burden and harms faced by each group much better, enabling policy makers to explicitly understand the concerns of, and target, each group appropriately.

Total Cost

The basic costing approach undertaken was to cost the harms in each part of the study. In the last chapter, which costs might be combined, and their relations to the costs in Collins and Lapsley's (2008) study, are discussed, but the study's approach is not focused on arriving at a single cost figure. There are various types of costs involved, and they cannot be combined wholesale. The total cost can either be defined as a total economic, social, or general cost. Each cost is derived using methods and definitions specific to the cost study type. Before one can embark on a study to derive a total cost based on one of the approaches, it is important to note the various types of costs and ascertain how representative, comprehensive and consistent they are to the range of costs victims face due to someone else's drinking, to specify a consistent frame of costing, and to deal with problems of double-counting.

Structure of the report

We have taken a largely content-based approach to structuring the chapters contained within this report (see Figure 1.). After a discussion of methods (Chapter 2), Chapter 3, in the tradition of other morbidity and mortality analyses, examines the available data on the prevalence and cost of alcohol's harm to others using national death and hospitalisation data, drawn from the institutional frame of reference.



Population survey-based	Agency record-based
Chap 4: bird's-eye view Chap 5: quality of life Chap 9: drinkers with greatest effect Chap 12: service use	Chap 12: service use
Chap 8: survey data	Chap 8: welfare, hospitalisation & death data
Chap 7: victims surveys on partners	Chap 7: police data
Chap 10: survey data	
Chap 11: survey data	
Chap 6: victim surveys	Chap 3 & 6: police, death and hospitalisation

Figure 1.3: Schematic of chapters by relation to drinker and type of data

Chapter 4 shifts to the population survey frame providing a bird's-eye view of the reach in the population of different aspects of alcohol's harm to others. In Chapter 5 we continue in this frame with analysis of the comparative wellbeing and quality of life of those people who report being adversely affected by the heavy drinking of a household member, relative, or friend. Two well-validated measures of wellbeing and health related quality of life were used in these comparisons, and on the basis of one of these we have made an estimate of the intangible costs to the other party from the drinker's heavy drinking.

The sixth and seventh chapters focus on general violence and domestic violence. Unfortunately the datasets typically accessible in this field merge the spheres of public and private violence, so we have chosen to report estimates and analyse aggregated measures of violence in general, and then focus separately and more specifically on the subcategory of partner and other domestic violence where such information is available.

Chapter 8 addresses the effects of others' drinking on children. It includes relevant health morbidity and mortality data, touches on the Fetal Alcohol Syndrome but focuses largely on child protection data. Estimates from existing studies and the Alcohol's harm to others survey (Wilkinson et al., 2009) are presented and provide estimates of the number of children in Australia affected by the drinking of others, using a range of different definitions.

Chapter 9 is based only on the Alcohol's harm to others survey, providing a detailed description of adverse effects from drinkers known to the respondent — household and family members, other relatives, friends and co-workers. Respondents are asked to identify the person whose drinking has affected them most negatively in the last year. A series of questions about incidents and circumstances resulting from the person's drinking, along with the demographic details of that person and of the respondent, have been used to describe who is affected, how and by whom. Other sections of this chapter deal with the financial impacts from the drinker's drinking, and with the burdens experienced by the respondents as a result of the drinker.

The co-worker chapter, chapter 10, demonstrates the ways in which others can affect their co-workers and colleagues. The significant economic costs of others' drinking in this context are estimated. In addition, details about the number of "near miss" workplace accidents and the frequency that their work has been affected by their co-workers' drinking from the respondent are reported.

In Chapter 11, the range and the magnitude of harms that stem from the drinking of others in the community who are strangers to or not well known by the respondent are detailed. The impact of "strangers' drinking" is explored in great detail. This section not only highlights the prevalence of the problems in Australia due to the drinking of strangers, but also consolidates work in this area and begins to compare the international situation with that of Australia's.

Chapter 12 addresses the health, counselling, police, community and social services individuals may need as a result of others' drinking. This chapter serves two purposes: firstly, attention is focused on the absence of specific counselling and treatment services for others, and secondly the chapter describes part of the range of services, including emergency and primary care services, used by those affected by other people's drinking.

The last chapter provides a summary and synthesis of the report, and discusses the further research required to determine how best the policy and program and service needs of those affected by the drinking of others can be addressed.

2: METHODS

Introduction

Many sub-studies are combined in this report. Figure 2.1 describes schematically the sub-studies and data sources used in the Harm to Others project. Stage 1 of the project involved analysis of existing datasets and surveys in order to describe the range and magnitude of alcohol's harm to others. The large box on the left hand side of the page lists those surveys that have been undertaken for other or general purposes but have not previously been utilised to analyse the harm from others' drinking. Similarly the second large box from the left lists those secondary data government service agency sources that have been used in derivation and estimates of the proportion and numbers of cases or victims which can be attributed to the drinking of others.

After preliminary analyses of the secondary data sets and identification of the gaps in the research literature, the survey instrument for the specific-purpose Alcohol's harm to others population survey was developed with the intent to add substantially to the body of knowledge on alcohol's harm to others. This is depicted in the diagram as stage 2 of the project. In stage 3 of the project economic costing of the various sub-studies have been undertaken.

The data sources have been listed and briefly described in this chapter and then a section of the chapter briefly describes the methods used in the Alcohol's harm to others survey. More specific methods, including sub-samples and analyses relevant to each of the many separate sub-studies included in this report, are discussed within the relevant chapter alongside the results of these individual sub-studies. A final section of this chapter describes the materials and methods of the economic costing analyses.

Although the specific analyses and methods are contained within subsequent chapters, some general points can be made here. In general Stata 9 (StataCorp, 2007) and SPSS 16 (Statistical Package for the Social Sciences, 2008) were used for all analyses. Data analysis consisted of a variety of methods appropriate to the nature of the data. For example, analyses included simple presentation of crude numbers and percentages and rates of a range of incidents (family incidents, assaults) along with a number of descriptive analyses of the prevalence by age and sex. The majority of the analysis was descriptive, but a number of chapters have employed multivariate analysis of outcomes. Where possible the sub-studies have included a range of estimates and described caveats relating to the estimates obtained. Attributable fractions (see chapter 3 for more detail) for a range of harms across multiple public and private domains of Australian life were generated from the best available Australian data. It is recognized that many datasets (e.g., Victorian child protection and Western Australian police data) are local rather than national, yet where national data were not available state-based data have been used to produce national estimates with ranges and caveats.

Ethical approvals for all sub-studies were obtained from the Victorian Department of Human Services (Approvals Human Research Ethics Committee 108/07 and 20/08.). In addition all data holders, for example relevant government departments, provided written permission as required enabling access to data.

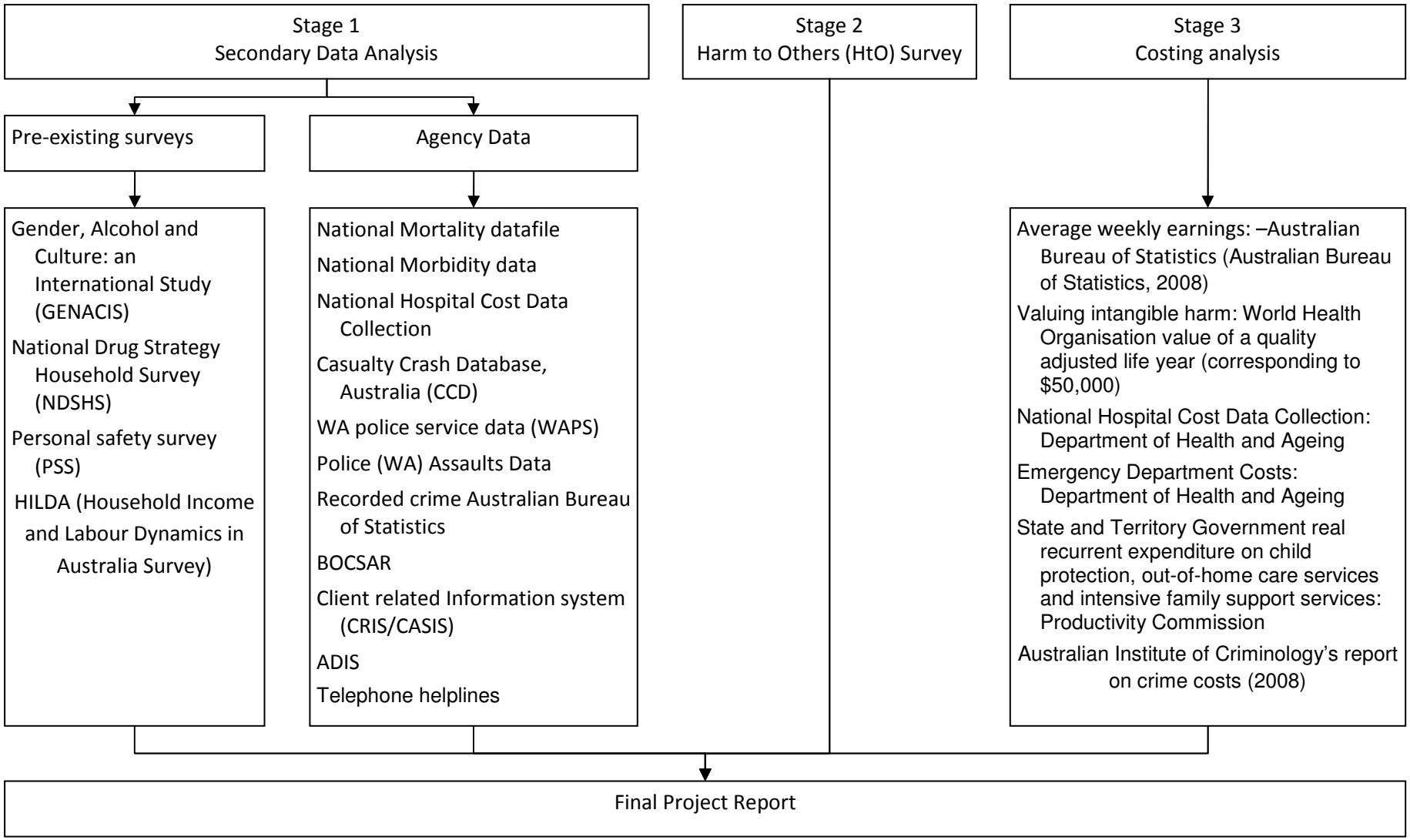


Figure 2.1: Data sources for Harm to Others (HtO) Project

Stage 1: Secondary data sources

The Harm to Others Project made use of data obtained from numerous sources, ranging from government departments to drug and alcohol treatment agencies. This methods section briefly describes the data sources and data manipulation methods underlying data generation in the chapters. Secondary data sources include both national surveys that have been re-analysed to determine harms to others and routinely collected service agency data.

Pre-existing surveys

GENACIS (Gender, Alcohol and Culture: an International Study), Turning Point Alcohol and Drug Centre

The GENACIS (GENder, Alcohol and Culture: An International Study) Study is part of a large international collaboration which includes general population studies from around 40 countries. The GENACIS collaboration was initiated to conduct cross-national comparisons relating to gender, alcohol consumption, drinking patterns and contexts, and alcohol related personal and social problems, with a special emphasis on interactions and problems in the family and other gendered relationships. There is a core set of questions that comprise the GENACIS questionnaire that have been administered across many countries.

The present project draws on the data collected in the state of Victoria, Australia. These data comprise a sample of 2,483 adults (aged 18 and over) living in private households in Victoria, stratified by a metropolitan/non-metropolitan divide. A Random Digit Dialling (RDD) sampling technique was used in combination with the Australian electronic white pages (EWP). Data was collected via CATI (Computer Assisted Telephone Interviewing) between May and December 2007. Individuals were sampled within the household on the basis of next birthday. Interviews were conducted in English only. All respondents answered a core set of questions, with additional items being asked of sub-samples of respondents. A cooperation rate of 38% was achieved, with an average interview length of 23 minutes. Data is post-weighted to the Victorian population aged 18 years and over using the 2006 census. The survey data was weighted to the achieved sample size, so as to reflect the age by sex by location distribution of adult Victorians. Data is also weighted by the number of eligible people in the household, as this will impact on a potential respondent's chance of selection.

HILDA (Household Income and Labour Dynamics in Australia Survey), Australian Bureau of Statistics

The Household, Income and Labour Dynamics in Australia (HILDA) Survey is a national household-based panel study which began in 2001. The HILDA Survey was initiated and is funded by the Australian Government. It collects information about economic and subjective well–being, labour market dynamics and family dynamics. Interviews are conducted annually with all adult members of each household, and all members are followed over time.

The Harm to Others Project draws on the data collected in Wave 5, undertaken in 2005. Households were selected using a multistage sampling approach, with areas (consisting of around 200 households) selected at random and then a number of households selected within each area. All residents within each selected household are included in the sample, with detailed interviews undertaken for residents aged 15 years or older. This design, in which all household members independently provide data, allows the analysis of how self-reported behaviour of household members relates to health-related quality of life (HRQoL) and life satisfaction of other household members.

The sample for Wave 5 included 9,037 households, of which full responses were collected for 6,495 (71.9%) households. Partially complete responses were collected for a further 630 households, but these were excluded from this study. There were 15,902 residents enumerated in the responding households, including 11,898 people aged 15 or older who were interviewed in detail. Full details of the HILDA study are provided in the HILDA user manual (Goode and Watson, 2007).

As the focus of the Harm to Others Project was the effect of heavy drinking on spousal relationships, only respondents who were married or in a de facto relationship (defined as "currently living with someone in a relationship") were included in the analyses (7,588 respondents in 3,794 households). Among these respondents, any couples in which at least one respondent did not answer the alcohol, HRQoL, or life satisfaction questions were excluded (1,368 respondents in 684 households). With these exclusions, the final sample was made up of 3,110 couples (6,220 respondents). This included a small number (n = 58) of people in same-gender relationships. A comparison of the respondents included in the final analyses and those excluded owing to missing data found no substantial differences in gender, age, income, or employment status.

National Drug Strategy Household Survey (NDSHS)

The National Drug Strategy Household Survey (NDSHS) is Australia's largest and most comprehensive national survey on licit and illicit drug issues. Formerly the National Campaign Against Drug Abuse, the survey has been conducted every three years by market research companies on behalf of the Commonwealth of Australia.

The 2007 NDSHS sampled people aged 12 years and over. The 2007 NDSHS employed a stratified multi-stage random sample design, used only self-completion (the majority, in a drop-and-collect method) and CATI methods of administration.

The sample size for the survey was 23,356 in 2007. The participation rate for the drop and collect method was 51.6% (n=19,818), and using the CATI method this rate was 39.3% (n=3,538). Full details of the survey methods for NDSHS are provided elsewhere (Australian Institute of Health and Welfare, 2008).

Personal Safety Survey (PSS), Australian Bureau of Statistics

The Personal Safety Survey (PSS) was conducted by the Australian Bureau of Statistics (ABS) between August and December of 2005. The ABS utilised a multi-staged sampling design to randomly select individuals living in a private household within urban and rural Australia. Data were primarily collected in person, and the information was collected by specifically trained interviewers. Data were collected from 16,500 respondents (11,900 women, 4,600 men) aged 18 years or older, with a response rate of 72%. The PSS was the first Australian population-based victimisation survey to capture a detailed account of both women's and men's experiences of different types of violence. It provides information on people's safety at home and in the community and, in particular, on the nature and extent of violence against men and women in Australia. It collected information about experiences of physical and sexual violence. More information can be found in the Personal Safety Survey: User Guide (Australian Bureau of Statistics, 2006a).

Routinely collected agency databases

Alcohol and Drug Information System (ADIS), Victorian Department of Human Services

The Victorian Department of Human Services funds a range of community-based agencies to provide specialist alcohol and drug treatment to people experiencing difficulties related with their own or someone else's substance use. The collection of client information is a mandatory requirement of the funding arrangement, and data are collected and managed through a central depository referred to as ADIS (Alcohol and Drug Information Service). The present report uses data derived from ADIS-contributing specialist drug and alcohol agencies (including community health centres) for the 2006/07 financial year (n=50,826 treatment episodes), This study analysed treatment episodes provided to clients concerned about someone else's alcohol use. A range of information is collected on these clients including demographic information and the type of services provided.

Basic Community Profiles, 2006 Census, Australian Bureau of Statistics

All Australian harm to others survey data were weighted using the most recent Australian population figures from the 2006 Census. The total estimated population of adults aged 18 to 98 years was 15,051,981 (Australian Bureau of Statistics, 2006).

Bureau of Crime Statistics and Research (BOCSAR)

This data set covers all offences recorded by the New South Wales police in 2006. Data incorporated a mandatory flag for alcohol involvement that was rolled out across the state in 2004/05. In addition, all offences have a mandatory flag assessing whether the incident was related to domestic violence. Data on assaults (n=152,976) were the focus of the harm to others analyses.

Casualty Crash Database (CCD), Australian Transport Safety Bureau (ATSB)

Up until 2001, the ATSB compiled a national minimum dataset on serious road crashes called the Casualty Crash Database (CCD). The most recent reliable data available from the CCD was used for data analysis. The CCD was the national database containing police reports of serious road crashes where, according to police, at least one person was admitted to hospital or at least one person died as a result of the crash. The CCD was organised as a hierarchical database. Data was drawn from the original police records at three levels: the crash, the vehicles involved in the crash and the persons travelling in each vehicle or (where they occur) pedestrians involved in the crash. In order to simplify the present analysis a single database joining all three levels of data – crash, vehicle and persons – was created. Data fields included in the combined dataset were restricted to those of relevance to the project: location variables, time and day, demographics, injury information and blood alcohol measures.

The data used for this analysis are from the 1999/2000 financial year. This was the most recent year for which comprehensive and reliable data was available. Unfortunately, the data quality after this year deteriorated; the data for non-fatal crashes in later years (especially for the larger states) is not considered to be reliable and the ATSB no longer continues this same 'serious' road crash collection (although there is now a dataset which includes only fatalities). Further, some States' data could not be used because of reliability issues even for the 1999/2000 data. Due to difficulties with data availability for NSW, the ACT and Victoria, and because of reliability issues subsequently identified with data from SA, only data from the remaining four jurisdictions have been used in these analysis.

Client Related Information System (CRIS) - Child Protection and Family Services, Victorian Department of Human Services

The Client Related Information System (CRIS), previously known as the Child and Services Information System (CASIS) database, contains de-identified data records for all child protection cases that existed or were subsequently notified to the Victorian Department of Human Services Child Protection Unit in the calendar years 2001-2005. Information on 188,063 cases and 97,684 clients (children concerning whom the department was investigating or acting) was available for analysis (i.e. clients were recorded as cases an average of 1.9 times in this period). Child maltreatment cases included exposure to physical, emotional and sexual abuse, as well as neglect and domestic violence, and the stage of involvement and the outcomes in the child protection process are held within the data set. The involvement of alcohol and other risk factors in Victorian child protection cases were recorded for all families (in particular, parents or carers), once cases had been substantiated. The social and demographic characteristics of these clients and their families (such as age, sex and postcode of the client), family type, income, accommodation type, other mental health issues and drug use were also available from the dataset for analysis.

DirectLine, Turning Point Alcohol and Drug Centre

The DirectLine database contains information from DirectLine – a 24-hour telephone counselling, information and referral services for Victorians to discuss alcohol and other drug-related issues. DirectLine is managed by HealthLink, a program of Turning Point Alcohol and Drug Centre. The Epidemiology and Surveillance Program has access to data from July 1998 and conducts a variety of analyses for drug trend monitoring in Victoria. Data were limited to valid DirectLine calls by removing all administrative, hoax, immediate hang-up or wrong number calls. HealthLink manages several addiction-related health information and referral telephone support services in Victoria and for other states or territories and calls for these services were also excluded from analysis. Specifically, telephone calls for the Youth Substance Abuse Service telephone counselling (YSASLine), Drug and Alcohol Clinical Advisory Service (DACAS), Family Drug Help, Youth Campaign calls and Gambler's Help, from Tasmania or from the Northern Territory, were eliminated. Data from 2007/08 were obtained from DirectLine and information on 2,455 calls from concerned or significant others in relation to alcohol were available for analysis.

Mortality Datafile, Australian Bureau of Statistics (ABS)

National mortality data for 2005 were sourced from the Australian Bureau of Statistics (ABS) Mortality Datafile, which is a detailed compilation of all Australian deaths obtained from state and territory Death Registries. The ABS Mortality Datafile codes age at death, sex, date of registration of death, date of death, cause of death and place of residence for all cases (according to Australian Standard Geographic Classification systems). Cause of death was recorded according to International Classification of Diseases 10th edition (ICD-10).

National morbidity data, Australian Institute of Health and Welfare (AIHW)

National morbidity data for 2004/05 were obtained from the Australian Institute of Health and Welfare's (AIHW) compilation of clinical information on hospital separations (referred to here as hospitalisations). This compilation codes information on age at admission, sex, and primary cause of admission using the ICD-10 classification system. Diagnostic related group (DRG) classification is also included.

Police (WA) Assaults Data /Western Australian police reported offence data

The Western Australian police service introduced a mandatory alcohol flag in early March 2005. This data set covers offences reported between July 2005 and June 2006 and includes 264,551 records for analysis. Information on time of incident, type of incident (e.g. assault, sexual offences, disorderly conduct, stealing, burglary, threat, restraining order offences, malicious damage, obstruction offences, drug and general offences) and geographic location were of interest for the Harm to Others Project. Among the assault category a range of offence types were included, for example; common, bodily, serious, wounding and grievous bodily harm.

Recorded crime victims, Australian Bureau of Statistics (ABS)

National data on the number of police reported cases of violent crimes was obtained from the Australian Bureau of Statistics' report on recorded crime committed in 2005 (Australian Bureau of Statistics, 2006).

Stage 2: Alcohol's harm to others survey

Study design

The Alcohol's harm to others survey was based on a national random sample of 2,649 Australians aged 18 years or older who responded to a computer-assisted telephone interviewing (CATI) questionnaire between October and December 2008. Eligibility was restricted to persons living in private households and able to be interviewed in English, with the specific respondent in the household selected by the next-birthday method. The co-operation rate was 49.7% and the response

rate was 35.2%, based on the standards of the American Association of Public Opinion Research (2006). The sample was generally representative of the national population (Wilkinson, et al., 2009), although men and young people were under-represented compared with the Australian population. Data were weighted inversely by sample selection probability and to reproduce the age, sex and geographic composition of the Australian adult population in the 2006 census, with the weighted total number set equal to the unweighted sample size.

The survey received ethics approval from the Victorian Department of Human Services, Human Research Ethics Committee.

Survey instrument

The survey instrument consisted of approximately 125 questions and requested information on heavy and episodic drinkers who were family members, household members, friends and work colleagues and, the degree to which the drinking behaviour of these individuals had negatively impacted upon the respondent. From those whose drinking had negatively affected the respondent, the respondent identified one individual whose drinking had the most impact in the last 12 months. A subsequent set of questions were asked concerning this identified drinker which covered social, physical, sexual and financial effects, roles and responsibilities in the family or household, drink driving, property damage and what the respondent had to do because of the drinking of the identified drinker. Other sections of the instrument addressed alcohol-related harm from strangers or people not well known to the respondent, community services used by the respondent due to someone else's drinking, and the identified drinker's and respondent's own socio-demographic information and drinking patterns.

Stage 3 Costing analysis methods and sources

Throughout the project a range of economic costing methods has been utilised. The adopted methodology was predominantly influenced by data availability and the type of harm being costed. . Details of the costing methodology are provided within each chapter and relevant sub-study. In general, two key cost categories were considered. First, costs borne by others and, second, response-institution costs borne mostly, though not entirely, by governments.

The first cost category considers: out of pocket expenses; opportunity cost of time lost/spent; and, intangible costs. Out of pocket expense is valued according to respondents' self-report values from the Alcohol's harm to others survey. Cost of time lost/spent is valued using respondents' self-reported data from the Alcohol's harm to others survey, measured in time, multiplied by the average hourly wage rate sourced from the Australian Bureau of Statistics (Australian Bureau of Statistics, 2008). Intangible costs measured in this study relate to the estimated value of the respondents' lost quality of life. This study used the methods developed by Dolan & Peasgood (2007) to measure economic and social costs of the fear of crime, based on data from the Alcohol's harm to others survey. The method for calculating the value of intangible loss relies on respondents' self-reported reduction in quality of life from the survey multiplied by a value in the generally accepted range for a quality-adjusted life year: $50,000 per QALY.

The second cost category considers: hospital/health service costs and child protection costs. Costs related to hospital/service admissions were valued by multiplying each alcohol-attributable hospital separation by the corresponding average cost for the diagnosis, using the Diagnosis Related Groups (DRGs) in the "Cost Report from the National Hospital Cost Data Collection" (Commonwealth Department of Health and Ageing, 2009). Hospital costs also consider the opportunity cost of time each adult patient spends in hospital. It is assumed that the bed days during hospitalisation equate to lost output. Lost output was costed using daily earnings calculated from weekly average earnings (Australian Bureau of Statistics, 2008), similar to the method described above for costing time lost/spent. Child protection costs were derived using State and Territory Government real recurrent expenditure on child protection, out-of-home care services and intensive family support services, obtained from the Productivity Commission's Report of Government Services 2008, multiplied by the proportion of substantiated cases that were alcohol-related.

It is important to note that a range of data sources have been utilised to derive cost estimates. Where data was not available, a decision was made to highlight data deficiencies and suggest appropriate courses of action to fill this void rather than base estimates on unsubstantiated assumptions. In this context the costing analysis is incomplete. However, the purpose of the study is not to derive a total cost but rather to shed light on the potential magnitude of harm, to identify available and deficient data and to provide a stepping stone to researchers who may be interested in conducting an economic and/or social cost study in future.

The following data sources and costing methods have been drawn on in the report.

Weekly average earnings, Australia Bureau of Statistics' (Opportunity Cost of Time)

The Australia Bureau of Statistics' (2008) collects data on weekly average earnings for all employees and full time non-managerial employees. Since those affected by someone else drinking include both full time and part time employees and managerial and non-managerial employees, the weekly average earnings of $957.90 for all employees were adopted. The weekly average number of work hours for full time employees, estimated at 39.7 hours, was adopted as that for all employees. Dividing this total dollar figure by the number of hours worked produces an average hourly earnings that is then estimated to be $24.17. The opportunity cost of time in this study is assumed to be this value.

Valuing intangible harm

The method for calculating the value of intangible loss relies on respondents' self-reported reduction in quality of life from the Alcohol's harm to others survey multiplied by the value of a quality adjusted life year (QALY). The value for a QALY used in these analyses is A$50,000.

The method for calculating the value of intangible loss relies on using respondents' self-reported loss of health related quality of life (QALY) from the Alcohol's harm to others survey using the EQ-5D score. Those who score 1 are in perfect health and those who score zero are dead. The difference in health related quality of life score (EQ-5D score) between those who reported being negatively affected a lot or a little by drinkers and those who reported no negative effects is then valued or multiplied by the value of a quality adjusted life year. The $50,000 figure used for the value of a QALY is within the range of values conventionally used by the World Bank and the WHO, and has been used throughout this report to value one year of a healthy person's life. Phillips notes, in a British publication explaining QALYs, about the valuation of a QALY that "there is a degree of consensus that it should generally be between £20,000 and £30,000" (Phillips and Thompson, 2009). In Australian dollars this translates to A$35,000 to A$53,000. It may be noted that $50,000 is close to the value of A$53,000 which is the most recent per capita GDP (gross domestic product) figure for Australia.

National Hospital Cost Data Collection, Department of Health and Ageing

As noted, for direct hospital costings each of the alcohol-attributable hospital separations was matched with the corresponding average cost by DRG using the "Cost Report from the National Hospital Cost Data Collection", which included private and public hospital cost data based on AR-DRG 5.1 classification (Commonwealth Department of Health and Ageing, 2009).

Emergency Department (ED) Costs of Hospitals in Australia, Department of Health and Ageing

The State/Territory average ED cost for the public sector seen in Table 2.1 was available for acute cases in a report on costs of hospitals in Australia (Commonwealth Department of Health and Ageing, 2009).

Table 2.1: ED costs of acute cases, by state/territory

State / Territory	Average
NSW	$205
Vic	$220
Qld	$184
SA	$160
WA	$132
Tas	$204
ACT	$180
NT	$239

As for the non-acute cases, data for the estimated number of presentations and costs was available for each State/Territory except for Victoria (Table 2.2). This included admitted and non-admitted cases. The average cost was derived.

Table 2.2: ED costs of non-acute cases, by state/territory

	Estimated Presentations	Estimated Cost	Average Cost
NSW	2,359,192	$777,625,910	$330
Vic	N.A.	N.A.	
Qld	1,472,575	$558,055,465	$379
SA	527,731	$159,773,974	$303
WA	806,790	$290,219,945	$360
Tas	136,533	$51,945,610	$380
NT	125,274	$57,156,182	$456
ACT	98,441	$59,048,724	$600
National	5,526,536	$1,953,825,807	$330

The lowest average ED cost for non-acute cases was $302.76 for Western Australia; that was adopted to represent the average ED cost of non-acute cases in Victoria. The average ED cost was then derived by averaging the average ED costs for acute cases and non-acute cases (Table 2.3).

Table 2.3: Average ED costs by state/territory: non-acute, acute, all

	Non acute	Acute	All
NSW	$330	$205	$267
Vic	$303	$220	$261
Qld	$379	$184	$281
SA	$303	$160	$231
WA	$360	$132	$246
Tas	$380	$204	$292
NT	$456	$180	$318
ACT	$600	$239	$419

State and Territory Government real recurrent expenditure on child protection, out-of-home care services and intensive family support services: Productivity Commission

State and Territory Government real recurrent expenditure on child protection, out-of-home care services and intensive family support services for 2008 was obtained from the Productivity Commission's Report of Government Services 2008 (Steering Committee for the Review of Government Service Provision, 2008).

3: HEALTH IMPACTS AND COSTS OF OTHERS' DRINKING: MORBIDITY AND MORTALITY

Introduction

The sheer numbers of people hospitalised or killed because of their own or others' drinking have been highlighted by Chikritzhs et al. (2003) and the Australian burden of disease study (Begg et al., 2007). The significant costs associated with hospitalisations and deaths have been tallied by Collins and Lapsley (2008). However the proportion of these statistics and costs attributable to others' drinking has not been examined.

This chapter uses traditional methods used in studies such as the burden of disease studies (Begg, et al., 2007), but adds a dimension that has either not been counted or has been subsumed in the overall costs of drinking. This chapter focuses on alcohol-attributable injuries and deaths for which there is currently sufficient supporting evidence that a substantial proportion are due to other people's drinking. This chapter begins to estimate both the prevalence and cost of hospitalisations and deaths associated with the drinking of others. The main categories included are:

Child abuse (0-14yrs)

Injuries sustained from interpersonal violence

Road crash injuries (pedestrian and non-pedestrian)

The externalities associated with others' drinking are brought sharply into focus when the deaths and hospitalisations for child abuse associated with others' drinking are examined. Alcohol's harm to others is also obvious when an intoxicated person is responsible for a road crash or other traffic 'accident' that results in the death or serious injury of someone else – someone who is a passenger in the car the drinker is driving, or who is in another car, or who is a pedestrian or other road user. While patterns of occurrence of alcohol-attributed interpersonal violence will be discussed in more detail in Chapters 6 and 7, the focus here is on injuries or deaths resulting from that violence.

The list is not exhaustive of all hospitalisations and deaths attributable to the drinking of others. One category which is included in the totals, but not tabulated in detail, is Fetal Alcohol Syndrome (FAS). In 2005, no deaths and only 3 hospitalisations were attributed to FAS. There are also other injuries such as falls, drowning, and fire injuries which may be attributable to the drinking of others; however, data for estimating the magnitude of such relationships is not yet available.

Estimates of the prevalence of morbidity and mortality from others' drinking have been divided into two sections, distinguishing between harm to children (0-14 years) and harm to those aged 15 years or more.

Alcohol-related road crashes

While interpersonal violence (Chapters 6 and 7) and child abuse (chapter 8) will be discussed in detail later in this report, alcohol-related road crashes are not covered elsewhere, and hence a general overview of alcohol's role in road casualties is included here.

Alcohol has a direct effect on road crash incidents, through increasing response times and increasing judgemental errors. Decreased alertness, increased sluggishness and loss of consciousness associated with drinking are also likely to play a role in serious road crashes. This report includes information generated for this project developed using the available state and national data from the Australian Transport Safety Bureau (ATSB) to develop estimates of serious road crash injuries and death caused by another's drinking.

In Australia in 2008, 1,464 people were killed in road crashes. Almost 700 were drivers, 300 were passengers, 245 were motorcyclists, 190 were pedestrians and nearly 30 were cyclists (Department of

Infrastructure, Transport, Regional Development and Local Government,2009). In 1998, 26% of all Australian drivers and motorcyclists and 45% of adult/youth pedestrians killed in road crashes had a blood alcohol concentration of 0.05gm/100ml or greater (Australian Transport Safety Bureau, 2000). More currently, in 2008 an estimated 28% of drivers and motorcyclists killed in Victoria had a blood alcohol level (BAL) over the legal limit (The Transport Accident Commission, 2008). The Northern Territory stands out with a proportion above the national average: 55% of road deaths were associated with high risk drinking in the Northern Territory (Northern Territory Department of Transport and Infrastructure, 2004). Estimates of the proportion of road deaths attributable to alcohol (the Population Alcohol Aetiological Fraction, PAAF) have commonly used the proportion of drivers identified as being above the legal blood alcohol limit (BAL), on the assumption that those driving above the limit where alcohol did not play a causal role will be balanced by those with some drinking but below the limit where alcohol did have a causal role. In this way English et al. (English, et al., 1995) attributed 37% of male road deaths and hospitalisations and 18% of female road deaths and hospitalisations to alcohol.

Road crashes are the second largest single cause of alcohol–related death (Australian Institute of Health and Welfare, 2005). Using the English et al. (1995) PAAFs, Collins and Lapsley (2008) estimate that the alcohol attributable road costs amount to $3.2 billion annually. Intuitively a large proportion of car crashes involve people who have not been drinking or who are passengers. A new development in this research is the estimation of what proportion of road crashes involve people who have been injured or killed in an accident because of someone else's drinking. This methodology has been included in Appendix A. This appendix includes the new PAAFs generated for this project, using the available state and national data from the Australian Transport Safety Bureau (ATSB) to develop estimates of serious road crash injuries and death caused by another's drinking. Inherent in this are gender, age and location analyses of road crashes caused by others' drinking, and the estimation of the prevalence of morbidity and mortality associated with others' drinking.

Deaths and hospitalisations from other's drinking

Methods

This section of the report relies on the 'aetiologic fraction' method for estimating mortality and morbidity attributable to the alcohol consumption of others. The WHO guide for monitoring alcohol consumption and related harm (World Health Organization, 2000) describes the standard aetiologic fraction approach for quantifying the contribution of alcohol to morbidity and mortality of drinkers in detail and will only be overviewed here.

The population alcohol aetiologic fraction (PAAF) for a particular illness or injury caused by drinking is the proportion of cases with that condition in the population that can be attributed to such drinking. Since routinely collected morbidity and mortality data provide no information about each individual's alcohol consumption, the only way to calculate the total number of alcohol-attributable illnesses or injuries in a population is to multiply the number of people with each particular condition by the PAAF specific to that condition, then to sum the results. For some conditions (such as alcohol poisoning and alcohol dependence), the PAAFs are 1, because such conditions are – by definition – wholly attributable to alcohol. For other conditions (e.g., assault, road crashes and stroke) the PAAFs are less than 1, because they are only partially attributable to alcohol. Alcohol-attributable conditions can be usefully divided into acute and chronic conditions. Chronic conditions are those that tend to develop over many years of alcohol misuse (e.g. Oropharyngeal cancer, chronic gastritis) and reflect degenerative disease states. Acute conditions are generally those that result from episodes of drinking to intoxication (e.g., assault, road injury, drowning), including – as is the focus of this report – from other people's drinking.

The estimated PAAFs for these conditions were derived from several sources. Fetal alcohol syndrome and alcohol poisoning are by definition wholly caused by alcohol consumption and are given a PAAF

of one.[2] For road crash injuries and fatalities, the proportion attributable to the drinking of others was determined from analyses of impaired driver road crash data collected by the ATSB for several states (see Appendix A).

For interpersonal violence among adults (15 years +), age-specific PAAFs for victims of violence were derived from analyses conducted on Western Australian police reported offence data (see Chapters 6 and 7). The PAAF for child abuse (0.27) was derived from the analyses undertaken as part of this research and is discussed in chapter 8. The ICD-10 codes used to identify and define each of these conditions are listed in Appendix B.

For alcohol-attributable deaths, person years of life lost (PYLL) were estimated using methods described in Mathers et al. (2001). PYLL factors by sex and age are summarised in Appendix C.

Data Sources

Mortality

National mortality data for 2005 were sourced from the Australian Bureau of Statistics (ABS) Mortality Datafile, which is a detailed compilation of all Australian deaths obtained from state and territory Death Registries. The ABS Mortality Datafile codes age at death, sex, date of registration of death, date of death, cause of death and place of residence for all cases (according to Australian Standard Geographic Classification systems). Cause of death was recorded according to International Classification of Diseases 10th edition (ICD-10).

Morbidity

National morbidity data for 2004/05 were obtained from the Australian Institute of Health and Welfare's (AIHW) compilation of clinical information on hospital separations (referred to here as hospitalisations). This compilation codes information on age at admission, sex, and primary cause of admission using the ICD-10 classification system. PAAFs were derived from ATSB data for road crashes (See Appendix A), CRIS data for child protection (Chapter 8) and Western Australian Police assault data for interpersonal violence (chapters 6 and 7) and then applied to ABS death and AIHW hospital data by ICD10 code.

Results: deaths and hospitalisations attributable to alcohol consumed by others

R.1 Deaths and hospitalisations of children (0-14 years) attributable to alcohol consumed by others

Table 3.1 presents information on the estimated number of deaths, and potential years of life lost (PYLL) attributed to the drinking of others amongst children aged 0-14 years old. Of an estimated seventy-five children killed in 2005, 13 children or 17% were killed because of the drinking of others, and a total of 387 PYLL were lost, as these children died far younger than they would otherwise have been expected to. Non-pedestrian deaths include child passengers who may have been in a car that was being driven by someone with a BAC (blood alcohol concentration) over 0.1mg/ml, or who were passengers in a car that was hit by another car where the driver was over the 0.1 mg/ml, as well as children who may have been riding bicycles that were hit by a drink driver. The PAAFs reported describe the percentage of all child abuse deaths that have been attributed to the drinking of others. An estimated 27% of child abuse deaths and 14% of road crash deaths involving children have been linked to the drinking of others (for more detail see methods section in this chapter and the child chapter).

[2] Initially a PAAF of one was applied to children aged 0-14 years, assuming that for children aged 0-14 years, poisonings were due to the actions of others (i.e., adult guardians), who enabled access to and consumption of toxic levels of alcohol by minors. For those aged 15 years and older alcohol poisoning was attributed to the drinker rather than a third party and therefore these cases were not included. However, further analysis of the data revealed that the majority of these cases were in children aged 10-14, where it can be argued the majority of harms arise because of the volition of the drinker. Since this work is not attempting to attribute cause to inadequate adolescent supervision, the PAAF was therefore set at 0 for alcohol poisoning of children.

Table 3.1: Estimated number of deaths among 0-14 year olds attributable to alcohol consumed by others, 2005

	Total deaths	Age-specific PAAF	Alcohol-Attributable deaths[5] (actual)	Alcohol-attributable PYLL[5]
Male				
Child abuse- assault[2]	10	0.270	3 (2.70)	81
Child abuse- neglect & maltreatment[3]	0	0.270	0 (0.00)	0
Road crash: non-pedestrian[4]	22	0.143	3 (3.15)	94
Road crash: pedestrian[4]	8	0.143	1 (1.14)	34
Total[1]	40	-	7 (6.99)	209
Female				
Child abuse- assault[2]	6	0.270	2 (1.62)	49
Child abuse- neglect & maltreatment[3]	1	0.270	0 (0.27)	8
Road crash: non-pedestrian[4]	25	0.143	4 (3.58)	108
Road crash: pedestrian[4]	3	0.143	0 (0.43)	13
Total[1]	35	-	6 (5.89)	179
Persons[6]				
Child abuse- assault[2]	16	0.270	5 (4.32)	130
Child abuse- neglect & maltreatment[3]	1	0.270	0 (0.27)	8
Road crash: non-pedestrian[4]	47	0.143	7 (6.72)	202
Road crash: pedestrian[4]	11	0.143	2 (1.57)	47
Total[1]	75	-	13 (12.88)	387

[1]Sum of all conditions for that group

[2]ICD-10 codes X85-Y09 (excluding Y06 & Y07) and Y87. Estimated PAAF for child abuse derived from Chapter 8

[3]ICD-10 codes Y06, Y07

[4]Estimated age-specific PAAF for fatally injured road crash passengers and pedestrians where at least one vehicle operator had a BAC ≥ 0.10mg/ml, see Appendix A

[5] Estimates shown in the table are rounded to the nearest whole number but totals are calculated on actual estimates to several decimal places this may give the impression of small discrepancies in totals.

[6] In this summary table, alcohol-attributable deaths and PYLL for 'persons' is the sum of male and female sub-groups

Table 3.2 presents information on the estimated number of hospitalisations and of bed-days attributed to the drinking of others amongst children aged 0-14 years old. An estimated 817 children were hospitalised because of the drinking of others, and these children spent 1,957 bed-days in hospital. A total of 277 children were hospitalised due to child abuse and 541 were hospitalised due to road crashes associated with others' drinking. More male children (157) than female children (120) were hospitalised due to child abuse associated with others' drinking, and more male children (368) than female children (173) were hospitalised due to road crashes involving others' drinking.

Table 3.2: Estimated number of hospitalisations among 0-14 year olds attributable to alcohol consumed by others, 2004/05

	Total hospitalisations	Age-specific aetiologic fraction	Alcohol-attributable hospitalisations[5]	Alcohol-attributable bed days[5]
Male				
Child abuse- assault[2]	378	0.270	102	207
Child abuse- neglect & maltreatment[3]	202	0.270	55	269
Road crash: non-pedestrian[4]	3253	0.099	322	509
Road crash: pedestrian[4]	461	0.099	46	211
Total[1]	4294	-	524	1197
Female				
Child abuse- assault[2]	257	0.270	69	205
Child abuse- neglect & maltreatment[3]	188	0.270	51	227
Road crash: non-pedestrian[4]	1444	0.099	143	227
Road crash: pedestrian[4]	304	0.099	30	101
Total[1]	2193	-	293	759
Persons[6]				
Child abuse- assault[2]	635	0.270	171	412
Child abuse- neglect & maltreatment[3]	390	0.270	105	496
Road crash: non-pedestrian[4]	4697	0.099	465	736
Road crash: pedestrian[4]	764	0.099	76	312
Total[1]	6486	-	817	1957

[1]Sum of all conditions for that group

[2]ICD-10 codes X85-Y09 (excluding Y06 and Y07) and Y87.1

[3]ICD-10 codes Y06, Y07

[4]Estimated age-specific PAAF for fatally injured road crash passengers and pedestrians where at least one vehicle operator had a BAC > 0.10mg/ml, see Appendix A

[5] Estimates shown in the table are rounded to the nearest whole number but totals are calculated on actual estimates to several decimal places this may give the impression of small discrepancies in totals.

[6] In this summary table, alcohol-attributable hospitalisations and bed days for 'persons' is the sum of male and female sub-groups

R.2 Deaths and hospitalisations among those aged 15 years and older attributable to alcohol consumed by others

Table 3.3 presents data on deaths from violence and from road crashes attributable to another's drinking for those aged 15yrs+, applying PAAFs derived from Appendix A. The deaths from violence include victims of homicide or manslaughter, whether in public or in private circumstances. Of a total of 182 interpersonal violent deaths in 2005, 42% (77 deaths) were estimated to be attributable to another person's drinking, and a total of 1,802 potential years of life were estimated to be lost (PYLLs).

A total of 277 deaths of those aged 15+ were estimated to be due to another's drinking and driving, with pedestrians forming a relatively small part of this total (31 deaths). Road deaths from another's drinking were more than three and a half times as common as deaths from violence attributable to another's drinking. For both deaths from violence and pedestrian deaths, there were twice as many male as female deaths, while there were over three times as many male as female deaths among non-pedestrian traffic deaths.

Table 3.3: Estimated deaths among those aged 15 years and older attributable to alcohol consumed by others, 2005[1,5]

	Total deaths	Alcohol-attributable deaths[6]	Alcohol-Attributable PYLLs[6]
Male			
Interpersonal violence[3]	120	51	1,171
Non-pedestrian road crash casualties[4]	895	192	4,692
Pedestrian road crash casualties[4]	123	22	478
Total[2]	1,138	265	6,341
Female			
Interpersonal violence[3]	62	26	622
Non-pedestrian road crash casualties[4]	287	54	1,300
Pedestrian road crash casualties[4]	64	9	197
Total[2]	413	89	2,119
Persons			
Interpersonal violence[3]	182	77	1,802
Non-pedestrian road crash casualties[4]	1,182	246	5,992
Pedestrian road crash casualties[4]	187	31	676
Total[2]	1,551	354	8,470

[1]Estimates sourced from Tables in Appendix D

[2]Sum of all conditions for that group

[3]ICD-10 codes X85-Y09 and Y87.1 (age 15+)

[4]Estimated age-specific PAAF for fatally injured road crash passengers and pedestrians where at least one vehicle operator had a BAC > 0.10mg/ml, Appendix A

[5]For interpersonal violence, it was possible to calculate accurate PAAFs for 'persons' as a *weighted* average of male and female PAAFs and to match it with age-specific PYLL applicable to 'persons' (i.e. average of male and female PYLLs). The 'person' PAAFs applicable to interpersonal violence are detailed in Table D.5 and 'person' PYLL given in Table C.1. Since the 'person' estimates for violence given in Table 3.3 were based on weighted 'person'-specific PAAFs shown in Table D.5 and person-specific PYLL given in Table C.1, adding together male and female deaths/PYLLs shown in summary Table 3.3 may only approximate the 'person' totals given in Table 3.3. Road crash 'persons' totals are equivalent to the sum of sex-specific rows.

[6]Estimates shown in the table are rounded to the nearest whole number but totals are calculated on actual estimates to several decimal places; this may give the impression of small discrepancies in totals

Table 3.4 shows the results for hospitalisations for the same three categories of injury. Hospitalisation among those aged 15+ was 36 times more common than death for injuries from these causes. This is due in large part because of all hospitalisations considered, violence accounts for over two-thirds and the fact that victims of violence are more likely to be hospitalised that to die from their injuries. Hospitalisations were more than twice as common among men as among women, although men were not so dominant among the pedestrian injuries attributed to another's drinking.

Table 3.4: Estimated hospitalisations among those aged 15 years and older attributable to alcohol consumed by others, 2005[1,5]

	Total hospitalisations[6,7]	Alcohol-attributable hospitalisations[6]	Alcohol-attributable bed days[6]
Male			
Interpersonal violence[3]	14,788	6,587	19,137
Non-pedestrian road crash casualties[4]	24,995	2,308	10,399
Pedestrian road crash casualties[4]	2,195	173	1,363
Total[2]	41,978	9,068	30,899
Female			
Interpersonal violence[3]	5,865	2,630	8,631
Non-pedestrian road crash casualties[4]	12,629	1,054	4,738
Pedestrian road crash casualties[4]	1,637	108	857
Total[2]	20,131	3,792	14,226
Persons			
Interpersonal violence[3]	20,653	9,209	27,821
Non-pedestrian road crash casualties[4]	37,624	3,362	15,137
Pedestrian road crash casualties[4]	3,833	281	2,220
Total[2]	62,110	12,852	45,178

[1]Estimates sourced from Tables in Appendix D

[2]Sum of all conditions for that group

[3]ICD-10 codes X85-Y09 and Y87.1 (age 15yrs+)

[4]Estimated age-specific PAAF for fatally injured road crash passengers and pedestrians where at least one vehicle operator had a BAC > 0.10mg/ml, Appendix A

[5]For interpersonal violence, it was possible to calculate accurate PAAFs for 'persons' as a *weighted* average of male and female PAAFs. The 'person' PAAFs applicable to interpersonal violence are detailed in Table D.6. Since the 'person' estimates for violence given in Table 3.4 were based on weighted 'person'-specific PAAFs shown in Table D.6, adding together male and female hospitalisations/bed days shown in summary Table 3.4 may only approximate the 'person' totals given in Table 3.4. Road crash 'persons' totals are equivalent to the sum of sex-specific rows

[6]Estimates shown in the table are rounded to the nearest whole number but totals are calculated on actual estimates to several decimal places this may give the impression of small discrepancies in totals

[7]Fractional adjustments are made to road crash hospitalisation numbers to adjust for potential under-reporting caused by ICD-9 to ICD-10 transition identified in Chikritzhs et al (2002) 'Alcohol-related codes: Mapping ICD-9 to ICD-10'

The costs of morbidity associated with others' drinking

In this section a general introduction to economic costing of morbidity and the methods used to produce the results in this chapter of the report have been included. Estimates of the cost of harm from others' drinking have then been divided into three sections relating to the prevalence of harm to children, harm from car crashes and harm from interpersonal violence associated with others' drinking. Prior to presentation of the economic findings in each of these sections, relevant morbidity costs are introduced. No attempt has been made to include mortality costs associated with deaths due to others' drinking.

Introduction

The morbidity costs included in this chapter are direct hospitalisation costs and opportunity costs due to hospitalisation. The methods behind the costs are detailed in chapter 2 of this report. Each day the patient spends in hospital, there is an additional opportunity cost of the time spent in hospital. If the patient had not been harmed due to someone else's drinking, the patient may not have spent any time in hospital. It is assumed that the bed days during hospitalisation equate to lost output. Even if the victim is not within the labour force before the road crash, the fact that the victim could have joined the labour force for just those days he/she was in hospital makes it plausible to assume the opportunity cost of the bed-days is lost output. The total and average hospitalisation cost by gender and age group was then obtained. Using the alcohol-attributable bed days, lost output was costed using daily earnings calculated from weekly average earnings (Australian Bureau of Statistics, 2008). For the age group 0-14 years, it is assumed that the opportunity cost of their time was not equivalent to lost output. For those within school age, the opportunity cost of their lost time is the benefit they lose in going to school for those number of days. Due to difficulties in measuring this, it was not included.

The total hospitalisation costs and total lost output costs were added to obtain the total morbidity costs.

Results

The results of these morbidity costings have been divided into three separate sections: the results relating to child victims, and those for youth and adult victims (15 years plus) of road crashes and interpersonal violence.

The economic costing of morbidity of child victims of others' drinking

The national morbidity data for children aged 0-14 years were obtained for child abuse, assault and road crashes involving pedestrians and non-pedestrians. The study attempted to derive morbidity costs for FAS and alcohol poisoning. However, as there were fewer than five cases FAS cases were not included in the costs. Alcohol poisoning cases aged under 15 years were as has been described in the first footnote of this chapter.

Table 3.5 presents morbidity costs for children attributed to three types of alcohol-related harm from others' drinking: child abuse, non-pedestrian and pedestrian road crash hospital costs. Non-pedestrian road crash morbidity costs for children comprised the largest amount of morbidity costs to children, estimated at $2.0 million. These costs are based on the hospitalisation costs only and have been determined using the DRG costings associated with the prevalence of these ICD-10 diagnoses.

Even though the number of cases of child abuse (210) was similar to that of non-pedestrian road crash cases (216), the morbidity costs of the latter were almost four times larger. The drinking behaviour of individuals imposes a significant morbidity cost burden on children who are victimised in child abuse or involved in road crashes.

Table 3.5: Morbidity costs – these relate to hospital costs of children involved in child abuse and road crashes.

Description	Total Morbidity Costs
Child abuse	$948,236
Non-pedestrian	$2,038,657
Pedestrian	$608,103
Total	$3,594,996

Limitations

Debility costs of long term health injuries sustained by children, associated morbidity costs and opportunity costs of the time spent in hospital by the child victims have not been included. These costs are difficult to compute, yet they represent the serious and significant impact others' drinking may have upon children's health, education, welfare and future. If these costs had been included, the estimated morbidity costs would have been greatly inflated. The intangible costs have also not been included; these costs can be even greater than hospitalisation costs, especially in cases of child abuse.

Research implications

The morbidity costs for FAS and child abuse need to be calculated and better prevalence and costing data on which to base estimates is required for this. The morbidity costs for this study for children included hospitalisation costs only. The other components of morbidity costs such as ED costs, intangible costs etc require substantial further research. Other hospital admissions of children potentially linked to the drinking of others such as child drowning and other injuries require further research.

The economic costing of road crashes associated with others' drinking

The total annual morbidity costs (calculated using the prevalence data from Table 3.4 and Appendix D, Table D.3) for non-pedestrian road crashes linked to others' drinking in Australia for those aged 15+ years were estimated at $27.1 million (Table 3.6). Hospitalisation costs of $24.2 million comprised just under 90% of the costs, with output losses of $2.9 million making up the remaining 10% of costs. Those within the age group of 15-24 years experienced the highest morbidity costs of about $13 million. The group with the second highest level of morbidity costs was the 25-34 year age group.

Table 3.6: Morbidity costs of non pedestrians in road crash cases associated with others' drinking

Age Group	Hospitalisation Costs	Lost Output Costs	Total Morbidity Costs
15-24yrs	$11,800,000	$1,258,623	$13,058,623
25-34yrs	$4,942,381	$585,535	$5,527,916
35-44yrs	$3,051,091	$433,839	$3,484,930
45-54yrs	$2,332,149	$300,642	$2,632,791
55-64yrs	$1,484,850	$210,982	$1,695,832
65+yrs	$626,421	$110,414	$736,835
Total	$24,236,892	$2,900,037	$27,136,929

The total annual morbidity costs for pedestrians were estimated (calculated using the prevalence data from Table 3.4 and Appendix D, Table D.4) at $3.2 million (Table 3.7). Hospitalisation costs of $2.8 million comprised 89% of the costs, and output losses of $0.43 million made up the remaining 11% of costs. Those within the age group of 15-24 years experienced the highest morbidity costs of about $1.2 million.

Table 3.7: Morbidity costs of pedestrians in road crash cases associated with others' drinking

Age Group	Hospitalisation Costs	Lost Output Costs	Total Morbidity Costs
15-24yrs	$1,063,053	$138,345	$1,201,398
25-34yrs	$558,241	$79,148	$637,389
35-44yrs	$333,183	$51,703	$384,887
45-54yrs	$384,952	$60,584	$445,536
55-64yrs	$267,548	$54,514	$322,063
65+yrs	$211,867	$41,055	$252,923
Total	$2,818,846	$425,353	$3,244,200

Discussion of key findings

The morbidity costs to other drivers, passengers and cyclists (non-pedestrians) and pedestrians associated with others' drinking are significant. Although far more non-pedestrians are injured in alcohol related accidents due to others' drinking than pedestrians the average hospitalisation cost for each pedestrian was higher at $10,031 compared to that calculated for non-pedestrians (including children) which was $7,209. The average output loss per hospitalisation for a non-pedestrian involved in a road crash that was alcohol related was $863 and that for a pedestrian was $1,512.

Youth victims of road crashes due to others' drinking between the ages of 15-24 years faced the most severe burden of morbidity costs. Morbidity costs of child pedestrian victims were indeed the second highest of all pedestrian victims. These estimated costs highlight the serious risks and costs that young adults and child pedestrians face from road crashes that are due to someone else's drinking.

Limitations

Due to a lack of data, this study did not include pre- or post-hospital costs such as emergency department costs, rehabilitation, re-admission or follow-up visit costs. The study did not cost assumptions that victims may have sustained long term health injuries, as data were not available. These injuries, if present, will not only increase morbidity costs due to debility costs but will also result

in greater intangible costs. Intangible costs have not been included, as data were unavailable, but are also associated with important costs.

Research implications

The morbidity costs to non-pedestrians and pedestrians who were injured in road crashes due to someone else's drinking should be measured by first setting up a morbidity cost pathway which starts at the point the victim encounters the accident and continues up to the post-discharge point. At each stage, the necessary data should be collected (and developed or estimated where not available) and costed.

The economic costing of assaults and interpersonal violence associated with others' drinking

The national morbidity data involving assault cases have been presented in Tables 3.4, Appendix D, Table D.6. The hospitalisation costs and lost output costs were derived using the methods described in the introduction to this section of the report and chapter 2.

The total morbidity costs of assault cases associated with others' drinking was estimated at $43.6 million (Table 3.8). The bulk of these costs were hospitalisation costs, equivalent to 88% of total costs or $38.2 million. Morbidity cost for male victims ($30.7 million) was more than double than that for female victims ($12.7 million) (table not shown). Those victims in the age group of 25-34 years faced the largest morbidity costs ($15.9 million). Young adults within the age group of 25-34 years face the largest proportion of the total morbidity costs (36.5%).

Table 3.8: Morbidity costs of assault cases

Age Group	Hospitalisation Costs	Lost Output Costs	Morbidity Costs
15-24yrs	$6,766,102	$750,073	$7,516,175
25-34yrs	$14,200,000	$1,674,880	$15,874,880
35-44yrs	$10,400,000	$1,494,800	$11,894,800
45-54yrs	$4,531,309	$871,889	$5,403,198
56-64yrs	$1,578,287	$244,063	$1,822,350
65+yrs	$754,471	$284,152	$1,038,623
Total	$38,230,169	$5,319,857	$43,550,026

Limitations

These morbidity costs include only hospitalisation costs. If ED costs, intangible costs, etc are included, then the morbidity costs will be higher. If the victims sustained injuries that had long-term health impact, then the morbidity costs will be higher due to debility costs. If there are any post-discharge medical costs, they will also make the morbidity costs higher.

Research implications

The morbidity costs of victims who were harmed by others' drinking should be tracked as pathways starting from the victim experiencing the harm up to post-discharge. Some of the data such as ED data, information on intangible harm, etc along the suggested pathway are missing and they need to be collected.

Conclusion

In this report hospitalisations and deaths linked to others' use of alcohol have been measured. The drinking of others is associated with large numbers of hospitalisations and deaths, and significant economic burdens. More adults died in road crashes attributed to others' drinking than died because of interpersonal violence, yet far more adults were hospitalised for assault than for road crashes linked to others' drinking. Amongst children the majority of deaths and hospitalisations caused by others' drinking occur in road crashes. The total morbidity costs described in this chapter (adding the costs for

children and adults) is $77,526,151. The numbers of people affected by the drinking of others who are killed and hospitalised and the associated costs are large, yet these figures do not include many people who may be unintentionally injured by the drinking of others, or where people drinking are in situations of supervision and responsibility, for example parents and carers, and managers in work and recreational situations.

The following areas should be the subject of future research:

- Child deaths due to others' alcohol use
- Work and injury related deaths due to others' drinking
- Hospitalisations due to others' alcohol use, e.g., from boating injuries, lack of supervision and falls, poisonings, work-related deaths and hospitalisations
- Emergency department presentations or ambulance attendances due to others' drinking.

4: THE ADVERSE EFFECTS OF OTHERS' DRINKING ON AUSTRALIANS: A BIRD'S-EYE VIEW

Introduction

This chapter gives a broad overview of the scope and extent of drinking's adverse effects on others. The frame of reference is the Alcohol's harm to others survey, a population survey of those aged 18 and over, who were asked in late 2008 a varied series of questions concerning the adverse effects in the previous 12 months of the drinking of others on themselves and on children for whom they had responsibility.

By its nature, the survey research window gives us a bottom-up view of problems from drinking – as experienced at the personal or interactional level by the drinker him/herself or the "other". Thus problems which exist only at aggregate levels – e.g., lost productivity in a workplace – may not appear at all. As discussed in Chapter 1, the survey research window also gives a better picture of problems at the less severe end of the spectrum than at the more severe end. While this may reflect some under representation of those at the more severe end, it mostly reflects the reality that really severe problems are rarer than less severe problems, so that only a very large population sample will give adequate numbers for analysis of severe cases.

The aim in this chapter is to give a bird's-eye view of the extent and social location of harm from others' drinking in Australia. The more detailed questions which were asked concerning problems from the other's drinking are analysed in other chapters of the report. Here we are concerned with the broad picture: what are the rates of reporting adverse effects from the drinking of those in different kinds of relationship with the respondent? How much do respondents report being affected by the drinking of different types of others? What is the demographic location in Australian society of those experiencing adverse effects from the drinking of various others?

As described in Chapter 2, a national sample of 2,649 adults was interviewed by telephone in late 2008. Respondents were asked about **household members and other relatives and friends** who they considered to be "a fairly heavy drinker, or someone who drinks a lot sometimes", with a follow-up question about whether that person's "drinking negatively affected you in some way in the last 12 months". A positive answer to both questions identified the person as someone whose drinking had negatively affected the respondent. These persons were identified in terms of gender, relationship to the respondent, and whether they lived in the respondent's household. Respondents were then asked which of these persons had affected them the most, the person's gender, approximate age and drinking patterns (including how often they drank 5+ standard drinks on an occasion), and to what degree the drinking had negatively affected them: a lot, a little, or not at all.

Those respondents currently employed were asked about some specific potential negative effects of **coworkers**' drinking on their own work during the last 12 months. They were then asked to what degree, in the last 12 months, the drinking of co-workers had negatively affected them. Respondents with children living with them or for whom they had some parental responsibility were asked four concrete questions indicating potential neglect or abuse of the children because of someone else's drinking, and then to what degree the drinking of others had **negatively affected** the **children** in the last 12 months. All respondents were also asked 14 concrete questions about adverse experiences in the last 12 months due to the drinking of "**strangers or people you don't know** very well", followed up with a question about the degree to which overall they were negatively affected by the drinking of such people.

The analyses below also make use of questions and codes on the respondent's own demographics and drinking patterns. Sociodemographic variables include respondent's gender, age, educational level, employment and occupational statuses, ethnicity (where most of the respondent's ancestors came from), and neighbourhood socio-economic index (SEIFA; Australian Bureau of Statistics, 2003) and rurality/urbanicity.

Proportions adversely affected by type of relationship of the drinker to the respondent

How many are negatively affected, looking across the whole span of types of relationship?

Table 4.1 shows, for gender and age groups and for the total sample, the percentages of respondents who report being negatively affected in the last year by the drinking of persons in various relationships with them. The table proceeds cumulatively outwards from the household, adding in effects of non-household relatives or a boy/girlfriend, then friends and co-workers, effects of others' drinking on the respondent's children, and lastly effects on the respondent of the drinking of strangers. It should be noted that the percentages are population proportions; those who do not report being adversely affected by a co-worker in the last 12 months, for instance, include those who have been unemployed in that period and thus do not have co-worker.

A total of 7% of the sample reports being negatively affected in the past year by the drinking of a household member. Younger respondents are generally more likely to report this, and females more than males. These trends mirror the fact that those in the heaviest drinking quadrant of the population, young males, are often the household members of young females.

A higher proportion of respondents, 11%, report that the drinking of a relative or boy/girlfriend who does not live in the household has negatively impacted on them. Again, females (14%) report this more often than males (8%). Among females, a similar age gradient appears for this as for drinking of a household member, but the pattern is less clear among males. Pooling responses concerning household members and relatives or boy/girlfriends, 16% of Australian adults report the drinking of at least one household member, relative or boy/girlfriend has negatively affected them in the last year. More than one-quarter of young women (27%) reported this, a rate more than twice the rate among young men (11%). The ratio between women and men decreases substantially for the older cohorts.

Eleven percent of respondents also reported that a friend's drinking negatively affecting them. Again, this was much more likely to be reported by younger respondents than older, but in this case men and women were about equally likely to report this at each age level. Younger and middle-aged men were more likely than others to report that a co-worker's drinking had negatively affected their own work, with 5% of respondents overall reporting this.

Pooling responses for all relationship types, more than one-quarter (28%) of Australian adults reported being negatively affected by the drinking of someone in these categories. The rate is about three times as high among respondents aged 18-29 as among respondents aged 60 and over, and slightly higher among women than among men.

In the population as a whole, 5% reported that someone else's drinking had been responsible for potential abuse or neglect of children for whom the respondent had some parental responsibility. This was about equally prevalent among male and female respondents, and, as might be expected, was more commonly reported by respondents less than 60 years of age. Pooling this with the previously discussed categories of relationship, a total of 30% of the population reported being negatively affected by someone who was in the circle of persons well known to them.

Table 4.1: Percentages negatively affected in last 12 months by drinkers in various relationships, by gender and age of the respondent

	Female				Male				Total*
	18-29	30-59	60+	Subtotal	18-29	30-59	60+	Subtotal	
(N)	(259)	(771)	(315)	(1345)	(281)	(731)	(273)	(1285)	(2630)
Negatively affected by drinking of ...									
Household member	12.9	9.0	3.7	8.4	5.7	5.4	2.2	4.8	6.6
Relative or intimate (not in household)	17.6	15.4	9.0	14.3	6.5	9.7	5.9	8.2	11.3
Household member, relative or intimate (pooled)	27.0	22.2	11.7	20.6	11.5	14.0	7.5	12.0	16.4
Friend	20.1	11.1	4.2	11.1	22.0	11.3	2.8	11.8	11.4
Co-worker	3.0	4.9	0.8	3.6	6.2	9.2	0.4	6.7	5.1
Friend, co-worker, other (pooled)	28.0	18.9	6.0	17.6	28.4	19.4	4.4	18.1	17.8
Household member, relative, intimate, friend, co-worker, other (pooled)	43.2	34.1	15.5	31.3	34.6	27.4	11.4	25.5	28.5
Respondent's child negatively affected by drinking of ...									
Someone responsible	6.0	6.4	1.1	5.0	6.1	6.8	0.4	5.3	5.1
Household member, relative, intimate, friend, co-worker, other, person responsible for child (pooled)	43.7	35.6	15.5	32.3	36.5	29.2	11.4	26.9	29.7
Stranger's drinking caused ...									
More serious harm: Abuse, threat, damage or worse	69.9	43.8	16.7	42.3	68.3	45.0	19.1	44.5	43.4
All harms: including noise, annoyance, avoidance or worse	86.7	74.1	42.7	68.9	83.8	74.4	48.3	70.8	69.8
Negatively affected:									
Any relationship type and more serious harms by strangers	77.3	58.9	26.1	54.6	75.3	56.5	24.1	53.6	54.1
Any relationship type and all harms by strangers	88.6	78.7	47.7	73.1	84.6	77.9	50.4	73.5	73.3

* Excludes 20 respondents uncodable on age for these categories

High proportions of Australians reported having been negatively affected in the last year by the drinking of a stranger or someone not well known to them. A total of 43% responded positively to one or more of 10 questions that indicate some degree of abuse, threat, damage or something worse. When four more questions relating to experiences of unwanted noise, nuisance behaviour, or avoiding drunk people or places were included in the analysis, the proportion of the population experiencing some level of inconvenience or disturbance attributable to the drinking behaviour of strangers reached the level of 70%.[3] Men and women were equally likely to have been troubled by strangers' drinking. Younger respondents were more than three times more likely than older respondents to respond positively to the more serious items, and were considerably more likely to have reported some level of inconvenience or disturbance (including all items). Counting adverse effects from any person's drinking whatsoever, whether the people were known to the respondent or not, 54% of Australian report having been negatively affected (limiting effects of strangers' drinking to the ten more serious items), and 73% with the most inclusive definition (when all 14 items concerning drinking by strangers are included). Again, male and female respondents in each age group were equally likely to report adverse effects. However, younger respondents were much more likely than older respondents to report being adversely affected by others, particularly when only more serious behaviour by strangers was included (approximately 75% vs. 25%).

How much are respondents affected by the others' drinking, for different types of relationship?

Table 4.2 presents results from a series of follow-on questions concerning each general type of relationship, asking how much the respondent was negatively affected by the drinking of persons in that category (in the case of members of the household, relatives and intimates, the question refers to the person whose drinking most negatively affected the respondent). Among adult Australians, altogether 9% report that they were negatively affected "a lot" by the drinking of a household member, relative or friend. A total of 28% were negatively affected at least "a little" by the drinking of someone in these categories. Compared to men, women were more likely to have been affected "a lot", but the differential between men and women in each age group was marginal for those reporting being affected "a little". Again, the general tendency was for higher prevalence among younger respondents, except that there was little difference by age among men at the level of "a lot". Negative effects that were considered to be "a lot" were fairly rare for children being affected by someone else's drinking, and for co-workers; but 1 in 20 respondents reported at least "a little" impact on children due to someone else's drinking. In both genders and across all age groups, respondents were much more likely to be affected "a little" than "a lot" by the drinking of strangers. Differences by gender and age were considerably less at the level of "a lot", but quite considerable by age for those who reporting being "a little" affected.

A summary score was constructed from the four "how much affected" variables: 0 points for "not at all", 1 point for "a little" and 3 points for "a lot". Therefore, a score of 3+ means being affected "a little" in at least three of the four domains or "a lot" in at least one. With 52% of adult Australians reporting a score of 1 or more, a majority of Australians report having been affected at least a little by someone else's drinking in the last year. In a pattern which has become familiar, being affected at least a little did not vary much by gender, but was more common among younger than older respondents. The proportions decrease considerably as the summary scores increase. Of the total population, 14% reported being affected in several (3+) domains or "a lot" in at least one. At this level of impact, age group differences are somewhat reduced, particularly between younger and middle-aged respondents, while rates are consistently a little higher among women than among men.

[3] The ten items: because of someone's drinking: verbally abused; physically abused; threatened; involved in a serious argument; felt unsafe waiting for or using public transport; felt unsafe in any other public place; been involved in a traffic accident; been forced or pressured into sexual activity; had house or property damaged; had clothes or other belongings damaged. The four milder items: because of someone's drinking: been kept awake at night or disturbed; been annoyed by people vomiting, urinating or littering; gone out of your way to avoid drunk people or places where drinkers are known to hang out; experienced trouble or noise because of drinkers at a licensed venue.

Table 4.2: Degree to which respondents have been negatively affected in the last 12 months by drinking of persons in various relationships, by gender and age.

	Female				Male				Total
	18-29	30-59	60+	Subtotal	18-29	30-59	60+	Subtotal	
(N)	(259)	(771)	(315)	(1345)	(281)	(731)	(273)	(1285)	(2630)
How much negatively affected by drinking of household member, relative or friend									
a little	29.0	22.4	7.5	20.0	24.7	20.1	8.0	18.5	19.3
a lot	13.9	12.2	7.6	11.5	5.4	6.4	3.5	5.5	8.6
How much child was negatively affected by others' drinking									
a little	4.3	8.9	1.2	6.1	3.0	8.6	1.2	5.8	5.9
a lot	2.1	2.4	1.4	2.0	1.1	0.7	0.0	0.6	1.4
How much negatively affected by drinking of co-worker									
a little	1.4	3.4	0.5	2.4	2.8	6.3	0.4	4.2	3.3
a lot	0.4	1.1	0.0	0.7	1.0	1.1	0.0	0.8	0.8
How much negatively affected by drinking of strangers or people you don't know well									
a little	55.1	38.5	15.2	36.1	51.6	36.6	20.8	36.6	36.3
a lot	6.1	4.6	2.8	4.4	5.7	3.7	1.7	3.7	4.1
Extent affected by others' drinking[1]									
0	24.6	41.0	72.0	45.3	35.8	49.2	71.7	51.1	48.1
1	40.3	28.0	15.4	27.4	36.8	26.0	18.6	26.9	27.1
2	16.2	13.0	1.6	10.8	13.8	10.7	4.4	10.0	10.4
3+	18.9	18.0	11.0	16.5	13.6	14.1	5.2	12.1	14.4

[1] "A lot" for each relationship-area scored at 3 points, "a little" at one point.

Characteristics of the household member, relative or friend whose drinking most adversely affected the respondent

Among the household members, relatives and friends whose drinking had adversely affected them in the last year, respondents were asked to identify which person's drinking had affected them the most. A total of 763 respondents identified a particular individual whose drinking had thus adversely affected them. Table 4.3 below shows some characteristics of the identified drinker. Given the smaller base of 763 respondents in this table, small percentage differences should be ignored. Overall, close family members were the most common category of relationship nominated – 37%, adding together spouse/partner, child, parent and sibling. Friends were the next most common category (28%). Extended family members and co-workers were less common (10% each). A spouse/partner was more commonly nominated by women than by men (15% vs. 8%), while friends (21% vs. 37%) and co-workers (5% vs. 16%) were more commonly nominated by men. Younger men were the most likely to nominate a friend, and middle-aged men a co-worker.

Generally, women were considerably more likely than men to report being negatively affected "a lot" by the nominated person's drinking (34% vs. 19%), while there was little gender difference at the level of "a little"; this means that men were more likely than women to decide in the end that they had been affected "not at all" (15% vs. 6%). Men outnumbered women more than two to one (71%) as the identified drinker, with little difference in this by the respondent's gender or age. As might be expected, younger respondents generally nominated a younger person than older respondents, though the average age of those identified centred around 40 years.

Respondents were asked to estimate the drinking patterns of the identified person on several dimensions. In terms of how many drinks on average the identified person drank when s/he drinks "fairly heavily or a lot", respondents reported quite high amounts – an average of 13 drinks, with little variation in the average by gender or age of the respondent. In terms of how often the nominated person drank at least five standard drinks, respondents gave an average estimate of four times a week. Again, there was little variation in the average by the respondent's gender or age.

Predicting who is negatively affected by others' drinking

Bivariate and multivariate logistic regressions were conducted to predict who among respondents are relatively seriously negatively affected by heavy drinkers, in terms of the overall score of the extent of adverse impact of others' drinking (Table 4.4). "Relatively seriously affected" was defined as being affected "a lot" by any category of heavy drinker, or being affected "a little" in at least three categories. Demographic variables used in these analyses include the respondent's gender, age group, employment status (employed, student, homemaker, etc.), the status of the respondent's main occupation in his/her lifetime (professional and managerial as "high", labourers and related workers as "low"), the socio-economic index (SEIFA) and the Australian Bureau of Statistics rurality index (cities, regional and rural) based on the respondent's postal code, the respondent's educational level, his/her ethnicity (which country most of the respondent's ancestors are reported to come from), and household income. In a second logistic regression, the respondent's own frequency of drinking 5+ drinks was added as a predictor.

Table 4.3: Percentages for characteristics of identified drinker among household members, relatives or friends whose drinking negatively affected the respondent the most in the last 12 months, by gender and age

	Female				Male				Total
	18-29	30-59	60+	Subtotal	18-29	30-59	60+	Subtotal	
(N)	(113)	(268)	(49)	(430)	(97)	(201)	(32)	(330)	(760)
relationship status									
Spouse/partner	18	14	13	15	5	9	9	8	12
Child, parent, sibling	20	30	36	28	12	20	43	20	25
Extended family	11	13	19	13	2	8	6	6	10
Friend	31	18	18	21	60	28	23	37	28
Co-worker	0	7	0	5	7	22	3	16	10
Other	19	15	13	16	14	12	15	13	14
How much negatively affected by the drinker									
a lot	30	35	39	34	11	24	7	19	27
a little	67	58	52	59	68	64	74	66	62
not at all, can't say	3	7	9	6	21	12	19	15	10
Gender of drinker									
Male	66	72	73	70	71	73	77	73	71
Drinker's average age: mean (CI)	30	44	48	41	28	42	44	39	40
	(28, 32)	(42, 46)	(44, 52)	(39, 43)	(26, 30)	(40, 44)	(38, 50)	(37, 41)	(38, 42)
Drinker's average amount of standard drinks when	14	12	11	13	15	14	11	14	13
drinking heavily: mean (CI)	(12, 16)	(12, 12)	(9, 13)	(13, 13)	(13, 17)	(12, 16)	(9, 13)	(14, 14)	(13, 13)
Drinker's average no. of days per week drinking 5+	3	4	5	4	3	4	4	4	4
standard drinks: mean (CI)	(3, 3)	(4, 4)	(5, 5)	(4, 4)	(3, 3)	(4, 4)	(2, 6)	(4, 4)	(4, 4)

Excludes 3 respondents uncodable on age for these categories (3 females). Ex-spouses, ex-partners and boy/girlfriends are included in "other".
CI = 95% confidence interval

Table 4.4: Odds ratios for predictions by respondent's demographics and frequent heavy drinking of a high score (3+) versus less than 3 on the extent of impact of others' drinking score (bivariate and multivariate logistic regressions)

	Predicting extent of impact of others' drinking, score 3+[1]		
	bivariate	Multivariate (model 1)	Multivariate (model 2)
Gender (ref.: female)			
Male	0.69**	0.65**	0.65**
Age group (ref.: 60+)			
18-29	2.12**	1.38	1.41
30-59	2.13**	1.30	1.32
Employment status (ref.: employed)			
Student	1.28	1.77(*)	1.76
Unemployed	1.12	0.86	0.85
Retired	0.36**	0.41**	0.41**
Homemaker	0.58*	0.39**	0.39**
Occupational Status (ref.: middle)			
High	0.99	0.98	0.98
Low	0.94	0.94	0.94
Neighbourhood status (ref: middle)			
Most advantaged	0.93	1.04	1.04
Most disadvantaged	1.05	1.20	1.20
Rurality (ref.: Regional)			
City	0.93	0.89	0.89
Rural	0.96	0.98	0.97
Education (ref: Secondary/Bach.)			
< secondary	1.07	1.21	1.21
Postgraduate	1.21	1.00	1.00
Ethnic background (ref.: British/Irish)			
ATSI	1.06	0.80	0.80
Southern Eur.	1.25	1.23	1.23
Asia	0.35(*)	0.64	0.63
Other	0.99	1.06	1.05
Income (ref.: 30,-110,000)			
<30,000	0.62**	0.81	0.81
110,000+	0.87	0.85	0.85
Freq. Resp. Drinks 5+ (ref.: up to 3x monthly)			
Weekly+	0.88		1.09
Never	0.99		1.07

** p ≤0.01, * p ≤ 0.05, (*) p ≤ 0.10

[1] Score derived as specified in footnote to Table 4.2.

In the bivariate analyses, low income makes a protective prediction, and youth and middle age an increased-risk prediction, but both of these disappear in the multivariate analysis. The predictors which carry through from the bivariate analysis to both of the multivariate analyses are being male, and being retired or a homemaker (compared to those employed). Respondents in all three of these categories are less likely to report a lower impact of others' drinking.

When the respondent's own heavy drinking is added as a predictor, there is no significant change in the results for any of the demographic variables. In accordance with this, the respondent's frequency

of heavy drinking does not significantly predict whether s/he will experience a high impact from others' drinking.

Conclusion

In this investigation of the adverse effects of others' drinking on Australian adults and their children, we have found that a very large proportion of Australians report having experienced some such negative effects during the previous 12 months. At their most extensive, our measures found 73% of the respondents had experienced some negative effect, and a majority (52%) reported that they had been affected at least a little. However, it appears that for a large majority of the respondents the effects were not severe. Only 14% reported effects in at least three domains of relationship or that they had been affected a lot in at least one domain. For some Australians, the effects of others' drinking are very severe indeed; however, as noted above, a general population survey is not the best window through which these severe effects can be studied.

Adverse effects of others' drinking were most commonly experienced from the drinking of strangers or people not very well known to the respondent, although the proportion affected a lot was not large. This domain is at least in part often discussed in terms of the impact of drinking on community amenity. The results of this survey corroborate findings and impressions from other sources – from the substantial current attention of the mass media to street nuisance, disturbance and violence associated with intoxication, and from the increased interest of local government planners and politicians in tackling such problems. One finding which might be taken into account in the public discussion of alcohol and community amenity concerns the age distribution of those affected. Public discourse emphasises that those creating the nuisance and disturbance tend to be young – particularly young adults. It is worth emphasising that young adults and students are also greatly overrepresented among those experiencing the negative effects. Interestingly, there is also some tendency towards a positive relation with social class: low income respondents are less likely to report these effects.

Adverse effects of others' drinking on the respondent's children and of co-workers' drinking on the respondent's work life were less commonly reported, although for those experiencing these problems the negative effects – and indeed on occasion the anguish – will be deeply felt.

The domain of private life is the other area in which very substantial numbers of Australians report experiencing negative effects of others' drinking. The average amount of drinking by the other which the respondent reports is quite high, in comparison to general population patterns. While more than 50% of others were reported to drink 5 or more drinks four times a week, in the 2007 National Drug Strategy Household Survey, for comparison, only 9.3% of males aged 14+ reported drinking 7 or more drinks at least once a week, and 6.2% of females reported drinking 5 or more at least once a week.

Household members, relatives and friends all make their contribution to these negative effects. In terms of relationships in the household and the family, it is striking how broadly spread through different kinds of relationships are the negative effects of others' drinking. In this domain, women report more negative effects than men, and young adults are much more likely to report them than older adults, although middle-aged adults are not very far behind. As with alcohol-related street disturbances, young adults may be overrepresented in causing them, but they are also overrepresented among the victims of negative effects of drinking in the household.

In the terms of the demographics of those substantially adversely affected by others' drinking, again the picture is of a broad and relatively even spread. Women are more likely to be affected than men, while those who are retired or in homemaker status are less likely to be affected. Otherwise, there were no significant differences – either by demographics, or in terms of whether the respondent him- or herself is a heavy drinker.

While, as discussed above, there has been some previous work in this area, no previous study has taken as broad and comprehensive a view of problems with others' drinking as reported in the general population. There are, of course, some limitations in the material. A telephone survey gives us a wide

reach into the general population, but the sample was based on landlines, and increasing numbers of Australians, particularly young adults, are no longer connected to a landline phone (Pennay and Bishop, 2009). Also, the response rate is considerably less than we would have liked. This raises the likelihood that, despite the best efforts of the sample designers and the fieldwork agency, the study's respondents are not fully representative of the whole population. If anything, these deficiencies probably mean that we are underestimating the rates of the negative effects of others' drinking which we are studying, but there is presently no clear way to estimate what the margin of error might be.

5: THE OVERALL IMPACT OF OTHERS' DRINKING ON HEALTH AND WELLBEING

Introduction

The majority of this report explores in detail the variety of ways in which peoples' drinking negatively affect other people. These specific harms take many forms, and include harms to people known to the drinker and to strangers and the community. Rather than focussing on these harms in great detail, the current chapter aims to estimate the overall impact of people's drinking on those around them. In particular, this section attempts to summarise how the drinking of other people well known to a person impacts on that person's general levels of health and wellbeing. This chapter summarises two Australian studies, both based on population surveys which use widely-used measures of health and wellbeing, but measures of heavy drinking with a relatively low threshold. The first examines drinking within spousal relationships (Livingston, 2009), while the second explores the relationship of knowing heavy drinkers both within and outside the household with the respondent's health and wellbeing. It is worth noting that these two studies are dealing with quite different definitions of heavy drinking, and thus their findings represent two different points on the continuum of effects from others' drinking, with the first looking at relatively moderate consumption (6 drinks per day for males and 4 drinks per day for females), while the second allowed respondents to define heavy drinking, with an average definition of 11 drinks on a heavy-drinking day. Both these studies are dealing with the effects of heavy drinking in the general population and are likely to miss the more substantial effects felt by the families and friends of drinkers who are in the treatment system or are socially marginalised, as these groups will be small or absent in population surveys. The chapter also provides an economic estimate of intangible harm experienced because of the drinking of others known to respondents in the Alcohol's harm to others survey, utilising the results from the health quality of life section of the survey.

Literature review

The range of health-related harms associated with alcohol consumption are increasingly well understood, with studies such as the Global Burden of Disease (Rehm, et al., 2003), which measures and quantifies alcohol's role in hospitalisation and mortality. Similarly, the tradition of studies focusing on the cost of alcohol to society, such as the Australian work undertaken by Collins and Lapsley (2008), provides a range of estimates of the impact of alcohol on health, crime, and other concrete problems such as property damage. However, it is widely acknowledged that alcohol consumption has other, less-tangible, harms associated with it, which are less well understood (Klingemann, 2001, Room, 1996). The impact of alcohol on family groups is of particular concern, and has been the emphasis of recent work undertaken by the Australian National Council on Drugs (Dawe, et al., 2007).

Alcohol consumption, health-related quality of life and subjective wellbeing

The relationship between one's own alcohol consumption and health has been well-examined, with studies generally finding that heavy drinkers have lower self-reported health. Early studies in this area examined single item measures of self-reported health, and generally found J- or U-shaped effects of alcohol consumption on health (Grønbaek, et al., 1999, Manderbacka, et al., 1999, Poikolainen and Vartiainen, 1999, Poikolainen, et al., 1996). In other words, in these studies, moderate drinkers reported better health than both abstainers and heavy drinkers. Increasingly, researchers are using standardised measures of self-reported health, known broadly as health-related quality of life (HRQoL) measures. For example, a study in the US utilised the Short Form-36 (SF-36) measure of HRQoL in a general population sample, finding that ex-drinkers and heavy drinkers reported lower levels of health than lifetime abstainers and moderate drinkers (Stranges, et al., 2006). This finding is supported by the similar results found in studies from Finland (Saarni, et al., 2008) and Australia (Petrie, et al., 2008), that used the EQ-5D measure of HRQoL. Two further studies have specifically examined the relationship between heavy episodic drinking and HRQoL, finding that regular heavy drinkers had substantially lower levels of health (Okoro, et al., 2004, Okosun, et al., 2005).

The reliance on measures of HRQoL in research that is attempting to assess overall quality of life has been criticised on ethical and practical grounds (e.g. Cummins, 1997). Thus, a number of researchers have developed supplementary measures of quality of life, built around the concept of self-assessed wellbeing (Cummins, et al., 2003, Kahneman and Krueger, 2006), which provides a broader frame for quality of life. Only a handful of studies have examined how alcohol consumption relates to these measures of subjective wellbeing. In a large Australian study, Cummins et al. (2008) found that people who drank every day reported the highest wellbeing. Contrastingly, those who reported the highest usual drinking amount had lower wellbeing, suggesting that moderate, regular drinkers were the most satisfied with their lives. Similarly, a study of six thousand people aged fifty or over in England found significantly lower subjective wellbeing amongst both lifetime abstainers and ex-drinkers than among drinkers (Lang, et al., 2007). Finally, a large US survey found that heavy drinkers (defined as men drinking more than two drinks per day and women drinking more than one drink per day) reported significantly lower life satisfaction than non-heavy drinkers (Strine, et al., 2008).

The impact of others on health and wellbeing

There is a significant body of research examining how other people impact on the health and wellbeing of those around them. In particular, there is reasonably clear evidence that people who are caring for others with chronic illnesses have substantially poorer health than the general population (O'Reilly, et al., 1996, Rees, et al., 2001, Vitaliano, et al., 2003). In addition, it has been repeatedly shown that individuals who are married rather than single or who have strong social networks report higher levels of health and wellbeing (Achat, et al., 1998, García, et al., 2005). Further evidence that characteristics of people close to you can impact upon your health comes from a study by Monden et al. (2003), which found that spousal education levels were significant predictors of health status even when a range of socioeconomic and demographic factors were controlled for.

With respect to alcohol, there has been a considerable amount of research into the impacts of extremely heavy drinking on family members, particularly spouses and children. These studies have largely been based on samples of dependent or very heavy drinkers (usually treatment-based samples), and have found significant negative impacts on the families of these drinkers (Finney, et al., 1983, Halford, et al., 1999, Kahler, et al., 2003, Orford, et al., 2002). Despite the general focus on very heavy drinkers, a small number of studies have explored the impact of spousal drinking on health amongst general population samples. For example, a series of studies have linked partner drinking to depressive symptoms, finding that alcohol consumption amongst husbands is significantly linked to depression amongst their wives (Cronkite and Moos, 1984, Homish, et al., 2006, Maes, et al., 1998, Tempier, et al., 2006). Leonard and colleagues have explored the various ways in which drinking within newly married couples relates to marital satisfaction, finding drinking congruency was the strongest predictor of satisfaction (Homish and Leonard, 2005, Kearns-Bodkin and Leonard, 2005, Roberts and Leonard, 1998).

The existing literature on the impact of drinking of other family members on a person, mostly from the U.S. or U.K., has thus focused primarily on spouses – either of very heavy drinkers, or in newly married couples. This chapter summarises two Australian studies, both based on population surveys which use widely-used measures of health and wellbeing, but measures of heavy drinking with a relatively low threshold compared to, for example, studies of treatment samples.

Relationships of volume of alcohol consumption and the spouse's health-related quality of life and life satisfaction

This study used data collected independently from 3,110 couples (6,220 individuals) on alcohol consumption and health-related quality of life (HRQoL) and attempted to determine how alcohol consumption, both the respondent's and the spouse's, related to HRQoL and life satisfaction across a number of domains. The study used a large general population sample, focused on amount of drinking rather than on problems, and incorporated controls for the respondent's own drinking.

Methods

This study used data from the fifth wave of the Household, Income and Labour Dynamics in Australia (HILDA) survey, which was undertaken in 2005. This longitudinal survey has been running annually since 2001 using a household-based sample. Households were selected using a multistage sampling approach, with areas (consisting of around 200 households) selected at random and then a number of households selected within each area. All residents within each selected household are included in the sample, with detailed interviews undertaken for residents aged 15 years or older. This design, in which all household members independently provide data, allows analyses of how self-reported behaviour of household members relates to HRQoL and satisfaction of other household members. The sample for Wave 5 included 9,037 households, of which full responses were collected for 6,495 (71.1%) households (Goode and Watson, 2007).

As the focus of this analysis was on the effect of relatively heavy drinking on spousal relationships, only respondents who were married or in a de facto relationship (defined as "currently living with someone in a relationship") were included in the analyses (7,588 respondents in 3,794 households). Excluding couples in which at least one respondent did not answer the main questions used in the present analysis, the final sample was made up of 3,110 couples (6,220 respondents). This included a small number (n = 58) of people in same-gender relationships. A comparison of the respondents included in the final analyses and those excluded owing to missing data found no substantial differences in gender, age, income, or employment status distributions.

Alcohol consumption was measured using the standard quantity-frequency questions. Respondents answer two questions—how often they drink alcohol and how many standard drinks they have when they drink. The responses of these questions are then converted into estimates of average weekly consumption by converting the responses of these questions into the number of drinking occasions per year and the average amount consumed at each drinking occasion. This method of estimating alcohol consumption has been shown to underestimate actual consumption (e.g. Gmel, et al., 2006, Stockwell, et al., 2004), but it still produces estimates of respondents' drinking levels in the correct rank order (Poikolainen, et al., 2002), which is all that was required for the current study.

Using these variables, respondents were classified into drinking categories based on the 2001 National Health and Medical Research Council (National Health and Medical Research Council, 2001) Australian alcohol guidelines. Males who drank less than 24 standard drinks per week and females who drank less than 12 standard drinks per week were classed as "low-risk drinkers." Males who drank between 24 and 41 standard drinks per week and females who drank between 12 and 23 standard drinks per week were classed as "risky drinkers." Males who drank 42 or more standard drinks per week and females who drank 24 or more standard drinks per week were classed as "high-risk drinkers." Respondents who had never consumed alcohol were classed as abstainers; those who had given up drinking were classed as ex-drinkers. A similar categorization was undertaken for each respondent's partner, meaning that the drinking status of both the respondent and the partner could be included in the final analyses.

HRQoL was measured using the SF-36, a widely used scale designed to measure HRQoL across eight domains (Ware and Gandek, 1998). The present analysis focused on three of these sub domains identified as particularly likely to be affected by a spouse's drinking: general health, social functioning and mental health. Norm-based scores for these sub domains were examined. The Australian norms used to transform the data were from the 1995 National Health Survey (Australian Bureau of Statistics, 1997). Full details of these scales and the transformation to norm-based scoring are available in Ware and Gandek (1998).

In addition, as the SF-36 predominantly measures HRQoL, two general satisfaction items were examined—one focusing on overall life satisfaction ("How satisfied are you with your life?") and one on the respondents' satisfaction with their relationship with their partners ("How satisfied are you with your relationship with your partner?"). The responses of both of these items were rated on a scale of 0 to 10, with 0 meaning "totally dissatisfied" and 10 meaning "totally satisfied."

The effects of heavy drinking on the SF-36 measures and on the two satisfaction measures were analysed using multiple linear regression. Other measures collected in the HILDA survey that were controlled for in the models were gender, age, household net income, labour force status (employed, unemployed, not in labour force), and whether there were children in the household. Further details on the variables and the analytical methods can be found in Livingston (Livingston, 2009).

Results

In multiple regressions on overall life satisfaction and satisfaction with the relationship with their partner, there was no significant relationship between the partner's level of drinking and satisfaction. For the three sub domains of the SF-36 HRQoL scale there were some significant effects from the partner's level of drinking. The partners of ex-drinkers scored significantly less than low-risk drinkers on general health and social functioning, partners of risky drinkers scored significantly higher in the social functioning domain, and partners of high-risk drinkers scored significantly higher in the mental health domain.

Conclusions

The results of the study differ substantially from previous work in this area, which has found significant relationships between heavy spouse drinking and adverse mental health (specifically depressive symptoms; (Homish, et al., 2006, Maes, et al., 1998). It is possible that the lack of association found in this study reflects the general stability of those who continue in the sample of the longitudinal HILDA survey, although the distribution of general demographic variables in this sample were not markedly different from cross-sectional studies. Furthermore, the use of relatively low thresholds for heavy drinking may have affected the results. There is some evidence from the qualitative work of Orford and colleagues (Orford and Dalton, 2005, Orford, et al., 2002) that close relatives of heavy drinkers are not necessarily negatively affected by their relative's drinking, instead deriving benefits from the positive moods and sociability brought on by their relative's drinking. This may provide an explanation for the significantly positive relationship between risky drinking and social functioning found in this study. As a general-population sample, the HILDA sample is very different from the treated populations on which much of the previous literature is based. It is likely that alcohol problems, rather than just the amount of alcohol consumed, are key in terms of the negative impact experienced by people close to the drinker.

The impact of problematic drinkers in the household and among friends on personal health and wellbeing

The second study explores how people's relationships with problematic drinkers in a broader range of relationships relates to comprehensive measures of their health and wellbeing.

The data used in this study come from the national Alcohol's harm to others survey undertaken for this project in November and December 2008, which collected a range of data on the impact of alcohol on people other than the drinker. Details of this survey have already been provided in Chapter 2. The final sample included 2,649 completed interviews, with a cooperation rate of 41.7%. Data were weighted to account for a respondent's probability of selection within each household and were post-weighted to population bench-marks based on age-group, sex and region. The post-weights were scaled back so that the weighted sample size was equivalent to the actual sample size. Full details of the survey methodology are available in Wilkinson et al. (2009). All results presented here are based on weighted data. A fuller exposition of the analysis is in Livingston et al. (2009).

Methods

Respondents that failed to provide sufficient information to calculate the dependent variables in this analysis were excluded from this study, leaving a sample of 2,422. A series of analyses comparing the reduced with the full sample found no major differences across the key socio-demographic variables utilised.

This main focus of this analysis is the impact of the respondents' relationships with heavy drinkers on their subjective wellbeing and health-related quality of life. The survey instrument included a series of

filtering questions asking respondents to identify whether they knew someone in various categories (household members, other family members, co-workers, friends, ex-partners and others) who 'is a fairly heavy drinker or who drinks a lot sometimes'. It was expected that close relationships with heavy drinkers (particularly living in the same household) would have more impact on health and wellbeing than more distant relationships, so two variables have been created to summarise the degree of involvement the respondent had with heavy drinkers: firstly, a count of the number of heavy drinkers identified by the respondent who live in the same household, and secondly, a count of the number of heavy drinkers identified who don't live in the respondent's household. It is worth noting that this measure is neutral in terms of how the heavy drinkers have affected the respondents. Thus it is plausible that some of heavy drinkers identified by respondents have a positive or neutral impact on their lives.

Subjective wellbeing was measured using the Personal Wellbeing Index (PWI), developed by Cummins et al. (Cummins, et al., 2003) and used widely to measure wellbeing (e.g. Davern, et al., 2007, Glatzer, 2006). The PWI measures satisfaction across eight domains (standard of living, health, life achievements, personal relationships, safety, community, security and spirituality) and combines the results to produce a well validated measure of overall subjective wellbeing with a theoretical minimum of 0 (complete dissatisfaction) and maximum of 100 (complete satisfaction). Full details of the scoring method used to create the PWI are available in the Personal Wellbeing Index manual (International Wellbeing Group, 2006).

Health-related quality of life (HRQoL) was measured using the EQ-5D, a standardised and non-disease specific measure (The EuroQol Group, 1990). This scale is a well validated and widely used measure of health-related quality of life (Rabin and de Charro, 2001). Respondents are required to self-rate their own health across five domains: mobility, self-care, usual activities, pain/discomfort and anxiety/depression, with three possible ratings (no problems, some problem or major problems). The responses for these five items have been converted into a combined utility score, with a score of 1 equivalent to full health and a score of 0 equivalent to death. This conversion was undertaken using weights derived from a large-scale UK study of health preferences (Dolan, et al., 1995) to take into account that problems in some domains are more burdensome than problems in other domains. This utility score was then multiplied by 100 to put it on the same scale as the PWI (0-100).

The respondent's drinking pattern was included in analyses to control for the impact of alcohol consumption on wellbeing and health (Grønbaek, et al., 1999, Manderbacka, et al., 1999, Petrie, et al., 2008, Poikolainen, et al., 1996, Strine, et al., 2008). Respondents were asked a series of questions relating to their alcohol consumption, including frequency of consumption and usual amount consumed, along with a question assessing how often they consumed five or more drinks in a session. For the purpose of this study, respondents' alcohol consumption was classified into four groups: non-drinkers, those who drink alcohol but never drink five or more drinks in a session, those who drink five or more drinks in a session less often than once a week and those who drink five or more drinks at least once a week.

A range of self-reported socio-demographic variables were included in the analyses as control variables, predominantly focussing on basic demography and socio-economic status, both of which have been strongly linked with both HRQoL and subjective wellbeing.

Multivariate regression models were developed examining socio-demographic variables and the respondent's drinking as explanatory variables, along with the two variables relating to the respondent's exposure to others' heavy drinking. The distribution of the PWI in the sample was approximately normal, so multivariate analyses were undertaken using ordinary least squares (OLS) regression. The distribution of the utility score derived from the EQ-5D was heavily skewed (around half of the sample reported perfect health), so the multivariate analysis of the EQ-5D utility score was undertaken using a tobit regression model, with the utility score censored at 1. This method deals with the analytical difficulties associated with the large group of respondents who report no health problems and thus have a utility score of 1 (see (Petrie, et al., 2008) for a discussion of the appropriateness of censored tobit models in analysing EQ-5D utility scores).

Results

The bivariate relationships of the numbers of heavy drinkers in the household and among family members and friends outside the household with the two measures of health and wellbeing are presented in Table 5.1.

Table 5.1: Bivariate relationships of heavy drinkers in the household and among other family and friends with PWI and EQ-5D scores

Variable	n	%	Mean PWI	Mean EQ-5D utility score
Number of heavy drinkers identified in the household				
0	2015	83.2	76.87	85.94
1	344	14.2	74.88	85.03
2+	63	2.6	76.84	80.86
Number of drinkers identified among family and friends outside the household				
0	837	34.6	78.07	86.99
1	491	20.2	76.97	85.51
2	291	12.0	75.52	85.78
3	201	8.3	77.13	87.99
4	113	4.7	75.85	82.52
5+	490	20.2	74.26**	83.34

* p < 0.05; ** p< 0.01

The mean PWI wellbeing measure is significantly lower for those with more heavy drinkers among other relatives and friends, and marginally lower (.05<p<.10) among those with heavy drinkers in the household. The mean EQ-5D score does not vary greatly based on respondents' exposure to heavy drinkers.

The results of the two multivariate models are presented in Table 5.2. The coefficients in each model are estimates of the difference in the outcome variable between the population group in question and the reference category. For example, females score on average 2.65 points higher on the PWI scale than males, and just 0.07 points higher on the EQ-5D scale.

The first model focuses on the Personal Wellbeing Index. Other people's drinking had some impact on respondents' wellbeing, with each heavy drinker identified outside the household associated with a 1.08 point reduction in PWI. Contrastingly, there was no significant impact on wellbeing from living with heavy drinkers.

The second model in Table 5.2 is the Tobit model of the EQ-5D utility score. Other people's heavy drinking was strongly negatively related to health, for both heavy drinkers within and outside the household. Each drinker living in the respondent's household is associated with a reduction of 3.19 in the respondent's EQ-5D score, while each heavy drinker identified outside their household reduced the EQ-5D score by 0.81 points.

Table 5.2: Multivariate models of subjective wellbeing and health-related quality of life, as predicted by heavy drinking in and outside the household and characteristics of the respondent

	Model 1 - PWI		Model 2 - EQ-5D	
Variable	Coef.	95% CI	Coef.	95% CI
Gender				
(ref.: male)				
Female	2.65	(1.50 - 3.81)**	0.07	(-1.52 - 1.66)
Age group (in years of age)				
(ref.: 18-24)				
25-34	-4.79	(-7.42 - -2.16)**	-3.44	(-6.33 - -0.55)*
35-44	-2.69	(-5.26 - -0.11)*	-4.33	(-7.32 - -1.35)**
45-54	-4.69	(-7.31 - -2.07)**	-7.71	(-10.62 - -4.79)**
55-64	-2.97	(-5.74 - -0.19)*	-11.68	(-14.86 - -8.5)**
65-74	-0.51	(-4.07 - 3.05)	-7.46	(-11.81 - -3.12)**
75+	1.21	(-2.76 - 5.17)	-14.15	(-19.69 - -8.6)**
Employment status				
(ref.: working)				
Studying	-3.51	(-6.31 - -0.70)*	-7.62	(-10.97 - -4.28)**
Retired	0.60	(-1.61 - 2.81)	-7.43	(-10.53 - -4.34)**
Home duties	1.80	(-0.03 - 3.63)	0.16	(-2.76 - 3.09)
Other	-5.55	(-8.80 - -2.30)**	-19.19	(-22.57 - -15.82)**
Education				
(ref.: not high school)				
High school	0.94	(-0.96 - 2.84)	6.79	(4.53 - 9.06)**
Vocational education	2.04	(0.26 - 3.81)*	4.14	(1.78 - 6.49)**
University	1.41	(-0.22 - 3.04)	5.94	(3.71 - 8.18)**
Drink pattern				
(ref.: weekly or more 5+)				
5+ less than weekly	1.98	(-0.25 - 4.20)	2.33	(-0.03 - 4.7)*
Low-risk drinker	1.46	(-0.82 - 3.73)	0.51	(-2.04 - 3.07)
Non-drinker	1.78	(-0.84 - 4.40)	-0.59	(-3.51 - 2.34)
Household status				
(ref.: live alone)				
Couple household	7.25	(5.49 - 9.015)**	4.20	(1.33 - 7.06)**
Couple with kids	5.09	(3.14 - 7.03)**	2.12	(-0.83 - 5.07)
Single parent	0.46	(-2.24 - 3.17)	0.81	(-2.81 - 4.43)
Other type of household	2.92	(0.26 - 5.58)*	2.29	(-1.14 - 5.73)
Occupational status				
(ref.: never worked)				
Elementary clerical, services and labourers etc	-1.17	(-3.82 - 1.48)	-4.59	(-7.82 - -1.36)*
Intermediate clerical and service, intermediate production	-0.11	(-2.70 - 2.48)	-2.31	(-5.9 - 1.29)
Tradespersons etc, advanced clerical and service	0.50	(-2.00 - 3.01)	-1.20	(-4.57 - 2.17)
Associate professional	0.86	(-2.05 - 3.77)	-1.64	(-5.63 - 2.35)
Professional or manager	1.23	(-1.16 - 3.61)	-0.21	(-3.45 - 3.04)
Number of heavy drinkers identified in the household	0.59	(-0.47 - 1.65)	-3.52	(-4.59 - -2.45)**
Number of heavy drinkers identified outside the household	-0.36	(-0.59 - -0.13)**	-0.81	(-0.11 - -0.55)**
Constant	72.07	(67.51 - 76.64)	91.54	(86.42 - 96.66)

* p < 0.05; ** p< 0.01

Discussion

The results of this study highlight the impact that relationships with heavy drinkers can have on both health-related quality of life and subjective wellbeing. Knowing other people who drank heavily had significant impacts on measures of both health and wellbeing, with heavy drinkers related to both. Somewhat surprisingly, the number of heavy drinkers the respondent identified within their household was not related to measures of subjective wellbeing. It was, however, inversely related to health-related quality of life. Contrastingly, the analyses in the previous section did not find effects on health

from having a heavy drinking spouse. This difference may be related to the different approaches to measuring heavy drinking in the two surveys, and it is clear that respondents in the second survey who identify heavy drinkers are conceptualising heavy drinking at a level higher than that used in the HILDA study.

The mechanisms of these effects have not been the focus of this study, but there is a range of ways in which knowing heavy drinkers could impact on your health and wellbeing. For example, it is reasonably well established that the spouses of heavy drinkers have an increased risk of depressive symptoms and mental health issues (Homish, et al., 2006), while having extended family members or workmates who drink heavily is likely to impact on someone's subjective wellbeing in a number of ways, including extra work-related stress, disruptions of social events, or through failures in other roles (e.g. child-minding). In this context, the lack of a relationship between heavy drinkers in the same household of the respondent and wellbeing is surprising, although this does concord with the findings in the earlier section. Intuitively, one would expect that living with a heavy drinker would have a substantial impact on wellbeing. This result requires further investigation, and there may be issues beyond volume of drinking that are important within households. For example, a number of studies on married couples have highlighted drinking congruence as a more important factor than heavy drinking alone (Homish and Leonard, 2005, Ostermann, et al., 2005), and this may be worth further exploration.

These two studies provide mixed evidence of the impact of others' drinking on health and wellbeing, although the results from the second study suggests that personal relationships with particularly heavy drinkers can have substantial negative impacts on someone's health and wellbeing.

The economic impacts of problematic drinkers on other people's health and wellbeing

Aim and Background

This section builds upon the work in the previous section to provide a framework for costing the intangible harms people experience due to others' drinking. Intangible harm includes both non-health and health losses in quality of life. The former can be measured using revealed and stated preference studies, using willingness to pay, compensation awards and victims' desired compensation approaches. Most costing efforts to date tend to focus on measuring tangible aspects such as injury and adopt intangible estimates from other studies (Mayhew, 2003, Rollings, 2008). However, there is a growing body of evidence that has attempted to value the costs associated with intangibles (Dolan, et al., 2005, Dolan and Peasgood, 2007, Walby, 2004). Intangible costs are defined as costs not usually 'exchanged in private or public markets, such as fear, pain, suffering, and lost quality of life' (Cohen, 2005). While these assumptions are true in the direct sense, it is plausible to suggest that such intangible harm may impact directly on resource use by affecting labour and subsequent labour costs, which are market costs.

Although costs of intangible harm are assumed not to involve any resource use, the omission of partial or all intangible costs will grossly understate the true costs of harm. Intangible costs need to be measured for a variety of reasons (Mayhew, 2003). For example, intangible costs can be expected to exceed tangible costs in instances where intangible harm to the victim is substantial. In a study in UK on costs of domestic violence, pain and suffering constituted 75 per cent of all costs from domestic violence (Walby, 2004). Intangible costs can also exceed tangible costs in instances where tangible costs are very minimal. For example if the victim is materially less endowed in society either due to their socio-economic reasons or social roles, as children usually are, they are likely to suffer relatively more intangible harm than tangible harm arising from property and belongings being damaged or destroyed or from loss of income/wealth etc.

Crime cost studies (Mayhew, 2003, Rollings, 2008) or alcohol harm studies (Collins and Lapsley, 2008) in Australia have not derived estimates for intangible costs in a robust way for Australia, instead relying on foreign estimates. Further, most of the evidence is focussed on costing physical harm rather than psychological harm (Adler, 2004). This part of the study aims to cost victims' intangible

harm, using general loss in health as a proxy for intangible harm associated with heavy drinker/s in/outside the household in the last twelve months.

Data and Methods

This study used the methods developed by Dolan & Peasgood (2007) to measure economic and social costs of the fear of crime based on data from the Alcohol's harm to others survey described above.

To estimate the loss of health, data is required on health-related quality of life and length of time the person was in that health state. Dolan & Peasgood (2007) used a set of questions and matched the answers to a number of scores on the EQ-5D. They assumed each answer to be consistent with a health status score. They also made assumptions on the duration. Using these two figures, they then estimated health loss in Quality Adjusted Life Years (QALYs). These were then converted into monetary values using two approaches. The first approach was to use an implicit value of a QALY which was recommended by the National Institute for Clinical Excellence (NICE). The second approach was to use a public Willingness To Pay (WTP) based on survey data to avoid a particular road accident injury (Dolan, et al., 2005).

In the current study, using the mean EQ-5D scores obtained earlier, the difference in mean EQ-5D scores of those with no drinkers in the household and those with one or more drinkers in the household was calculated. This difference in mean EQ-5D scores represents the loss in health well-being related/due to the drinker/s in the household. This then is assumed to be a proxy for the intangible harm experienced by the respondent related/due to the drinker/s in the household.

The same was repeated for those with no drinkers outside the household and those with one or more drinkers outside the household. This difference in mean EQ-5D scores represents the loss in health well-being related/due to the drinker/s outside the household. This then is assumed to be a proxy to the intangible harm experienced by the respondent related/due to the drinker/s in the household. It should be noted that these analyses do not control for any of the other socio-economic or demographic factors used in the analyses previously and are based on simple means.

Since the survey questions asked the respondent about the last 12 months, the respondent is assumed to be in that health state for the full year. Hence the health state scores and the differences in the scores as described earlier are assumed to be for a full year. Therefore the health states scores and differences in the scores can be converted into QALYs.

To convert the QALY loss into monetary terms, a threshold value of $50,000/QALY was applied – a little less than the current Australian GDP per capita (see Chapter 2 for more detail).

Table 5.3: Intangible cost due to drinkers in household

		QALY score			Change in QALY scores			Economic cost		
Drinkers in household	Obs	Value	95% Lower CI	95% Upper CI	Value	95% Lower CI	95% Upper CI	Value	95% Lower CI	95% Upper CI
0	2190	0.857	0.848	0.865	-	-	-	-	-	-
1	363	0.854	0.833	0.876	-0.003	-0.015	0.011	$150.00	$0*	$750.00
2+	66	0.793	0.650	0.937	-0.064	-0.198	0.072	$3,200.00	$0*	$9,900.00

*values converted to $0 as the difference in QALY scores is positive

Table 5.4: Intangible cost due to drinkers outside household

		QALY score			Change in QALY scores			Economic cost		
Drinkers in household	Obs	Value	95% Lower CI	95% Upper CI	Value	95% Lower CI	95% Upper CI	Value	95% Lower CI	95% Upper CI
0	928	0.863	0.85	0.876	-	-	-	-	-	-
1	534	0.857	0.841	0.873	-0.006	-0.009	-0.003	$300.00	$150.00	$450.00
2	311	0.858	0.837	0.879	-0.005	-0.013	0.003	$250.00	$0*	$650.00
3	206	0.877	0.85	0.905	0.014	0	0.029	$0*	$0*	$0*
4	117	0.828	0.787	0.869	-0.035	-0.063	-0.007	$1,750.00	$350.00	$3,150.00
5+	523	0.833	0.806	0.859	-0.030	-0.044	-0.017	$1,500.00	$850.00	$2,200.00

*values converted to $0 as the difference in QALY scores is positive

Table 5.5: Intangible cost due to known drinkers, estimated for the Australian population

Drinkers in household	N	Mean cost ($)	Total cost ($m)	Drinkers outside household	N	Mean cost ($)	Total cost ($m)
0	12,615,289	$0	$0	0	5,372,620	$0*	$0
1	2,064,490	$150	$310	1	3,047,645	$300	$914
2+	372,202	$3200	$1,191	2	1,789,370	$250	$447
				3	1,173,382	$0*	$0
				4	671,605	$1,750	$1,175
				5+	2,997,358	$1,500	$4,496

*values converted to $0 as the difference in QALY scores is positive

Results

The difference in health for those who identified 1 drinker within the household relative to those who identified no drinker is 0.003 QALY (Table 5.3). The corresponding cost of loss of health was $150. When the number of identified drinker was increased to two or more, the difference in health increased to 0.064 QALY and the corresponding cost of loss in health increased substantially to $3,200.

The difference in health for those that identified 1 drinker outside the household relative those who identified no drinker is 0.006 QALY (Table 5.4). The corresponding cost of loss of health was $300. When the number of identified drinker increased to five or more, the difference in health increased to 0.03 QALY and the corresponding cost of loss in health increased substantially to $1,500.

When the survey data are weighted to the entire Australian population, these cost estimates result in total intangible costs to the Australian population of approximately $1.5bn due to living with heavy drinkers and $7.0 billion due to knowing heavy drinkers outside of the household (Table 5.5).

Discussion

Respondents were affected by drinkers they knew, both those who did and did not live within their own household. The intangible costs of these effects or harm was measured using the EQ-5D. Where two or more heavy drinkers where identified by the respondent within the household, the cost of the intangible harm was more than five times that when one heavy drinker was identified within the household. Where respondents identified that they knew heavy drinkers outside the household the intangible cost experienced by respondents generally increased at an increasing rate as the number of identified drinkers increased outside the household.

It should be noted that the costs derived in this section derive from survey data in which the differences, as described in the previous section of the chapter, are not all statistically significant. Furthermore, the economic estimation applied to these results itself had wide confidence intervals reflecting substantial uncertainty. Also, the analyses here have not controlled for socio-demographic factors which may mediate the effects of heavy drinkers, although significant effects were found in the previous section when these factors were controlled. These economic cost estimates of intangible harm are thus preliminary and uncertain.

However, the results suggest the importance of incorporating such costs into alcohol harm studies. Intangible harms may be broader than can be detected using measures of general health or life satisfaction, so the costs found in this section represent only a starting point in the direction of a fuller estimation.

To build upon this starting point, a better understanding and clearer definition of the various aspects of intangible harm is required. Methods to measure non-health related harms are also needed along with methods to cost these harms. While it has been shown here that the EQ-5D has some potential as a tool that can be used to derive the intangible health costs, an alternative utility instrument such as WHO Quality of Life (Hawthorne, et al., 2006) may be used to check how sensitively these estimates are able to measure intangible harm.

Conclusions

This chapter has presented two studies exploring how other people's drinking affects overall measures of health and wellbeing. The findings of the two studies contrast somewhat, with the first finding the amount of alcohol that someone's spouse consumed had no effect on their health and wellbeing. The second study focussed on 'heavy drinking' as defined by the respondent, rather than just drinking amount, which is likely to capture more problematic drinking, and found that the number of heavy drinkers in someone's life was significantly linked to their health and wellbeing. Thus it seems that drinkers can have substantial overall effects on others' lives, but that this impact depends more on problematic drinking than just on the volume of alcohol consumed.

Furthermore, an initial attempt to derive the economic impacts of these intangible effects has been presented, with an estimated of nearly $8.5bn of intangible harm from heavy drinkers. This cost may

be an underestimate of the intangible cost associated with problematic heavy drinkers, as respondents were simply asked whether they knew people who drank heavily. Thus the result is a net cost which may include some offsetting benefits from some heavy drinkers.

6: ALCOHOL-RELATED VIOLENCE

Introduction

Within Australia, there is a growing level of concern surrounding the extent and impact of alcohol-related violence. A Roy Morgan poll commissioned by the National Alliance Against Alcohol-Related Violence, and published in *The Australian* newspaper, estimated that one in five people had been affected or knew of someone who had been affected by alcohol-related violence (Lunn and Ryan, 2008). Furthermore, the poll revealed that 14 million Australians have concerns about alcohol-related violence, and that the level of concern had increased over the last three years for approximately 10 million Australians (Lunn and Ryan, 2008).

This chapter provides an overview of alcohol-related violence experienced within the Australian community. While violence takes many forms, this chapter largely focuses on alcohol-related physical assault. While alcohol is undoubtedly involved in sexual assault, only limited data are available from surveys or official statistics, so it has not been dealt with here in great detail. A subclass of violence, domestic violence, is further discussed in Chapter 7. Alcohol-related homicide is dealt with in Chapter 3 (mortality).

Drawing on two general population surveys and official police data, this chapter briefly describes the prevalence of alcohol-related violence within Australia. It begins with an examination of self-reported victimisation of broadly defined violence (including, for example, threats and verbal abuse), before examining progressively more serious levels of violence (self-reported physical assaults and then police-recorded assaults). Four main areas are focussed on: the prevalence of alcohol-related violence victimisation, the proportion of violence that is alcohol-related, the nature of alcohol-related violence (compared with non-alcohol related) and the cost to the victims of alcohol-related violence.

Literature review

Efforts to understand and address the connection between alcohol and harms such as violence continue to attract the attention of researchers, health professionals and policy makers. Alcohol is seen as involved both in the perpetration of violence and in increasing the risk of victimization by violence. In the frame of reference of this report, we are interested particularly in the role of alcohol in the perpetration of violence, but also in whether the “other” – the victim of violence – has been drinking. In violent events, in fact, often both perpetrator and victim have been drinking, sometimes in the same drinking group.

Much is already known about alcohol-related violence and associated risk factors, in particular gender, age, and drinking patterns. Studies both in Australia and overseas, mainly in Canada and the United States, consistently identify males, younger persons and younger males to be at greater risk of experiencing alcohol-related violence than women and older males (Felson and Burchfield, 2004, Teece and Williams, 2000, Wells and Graham, 2007, Wilkinson, 2008). In data from the 1994 National Drug Strategy Household Survey (NDSHS), being a drinker rather than a non-drinker, and being a heavy drinker rather than a light drinker, both predict victimization (Makkai, 1997). There may be an interaction between gender and drinking patterns in terms of risk of violence, although findings are mixed. For example, a study by Wells and Graham (2007) reported no interaction effect between gender and heavy episodic drinking in whether respondents experienced physical assault, whereas Felson and Burchfield reported that alcohol use is a greater risk factor for male victimisation compared to female victimisation (2004, p. 853).

Despite the vast quantity of literature on alcohol-related violence, the challenge of untangling the relationship between alcohol and violence is ongoing. And as Stockwell (1994) noted, “alcohol use is but one of a complex set of factors that contribute to violence, none of which is either a necessary or sufficient condition” (cited in Nicholas, 2004, p. 2).

In an analysis of 1998 NDSHS data, Teece and Williams (2000) found that the alcohol-related harm occurred outside the home for most of those who reported being physically abused. Just over half of victims could not identify the perpetrator. For those who could identify their perpetrator (just over 40%), one in five (17.6%) were assaulted by friends or acquaintances and one in eight (11.5%) by their current spouse or partner. While Teece and Williams (2000) did not report on the victim's alcohol use at the time the harm occurred, other research has indicated that alcohol has often been consumed by the victim as well as the perpetrator (Makkai, 1997).

One can argue that measuring the extent and magnitude of physical harm involved in alcohol-related violence is one of the more tangible parts of the picture, and that the occurrence of injuries provides a suitable gauge of severity. Within Australia, as in other countries, data on injuries are collected via population surveys, research studies, and hospital data, including treatment at accident and emergency departments. According to the 2007 NDSHS, approximately 5% of all Australians aged 14 years or older sustained an injury during a substance-related assault in the 12 months prior to the survey. Bruising or minor abrasions (39.1%) were the most common serious injury recorded for physical assault, and minor lacerations accounted for 10.3% of the injuries. Males were more likely than females to sustain injuries that required hospitalisation (4.2% compared to 3.7%). Also males were more likely to suffer lacerations (4.4%) or fractures (4.2%) as the most serious injury sustained, as compared to women (2.1% and 3.8% respectively). Furthermore, the NDSHS found that almost two in five (37.7%) people who experienced physical abuse during the previous 12 months did not report any injuries as a result of the incident (Australian Institute of Health and Welfare, 2008). The proportion of those physically abused who reported injuries was higher in this data than has been reported elsewhere. Thus results from a series of National Crime Victimization Surveys conducted in the United States between 1993 and 1998 indicate that approximately one in three victims of alcohol-related violence sustained an injury (Greenfeld, 1998).

Emergency department studies provide another view of alcohol-related injuries, usually with data on drinking by the victim rather than the assailant. A US emergency room study found that patients admitted with injuries sustained during a violent assault were more likely to have a positive breathalyzer reading than patients with other injuries (Cherpitel, 2006). Similar results have been found in Australia. In 2003-04, Griggs and colleagues (Griggs, et al., 2007) conducted a prospective toxicology study with patients triaged to one of two arms of the Royal Adelaide Hospital: the Trauma Service (TS) or the Emergency Department (ED). Assault and interpersonal violence (6.7%) was the third most common cause of injury for both hospital admissions and ED admissions, after motor vehicle crashes (70.2%) and falls (11.5%). However, a higher proportion of patients presenting to hospital with injuries inflicted during an assault test positive for alcohol and other drugs (72.2%), compared with patients injured during a motor vehicle crash (38.4%) or patients sustaining injuries from a fall (34%). This study also compared alcohol and drug-related incidents with those not alcohol-and-drug-related. The authors reported that alcohol and other drugs, both in combination and on their own, were "associated with an increased incidence of trauma, increased number of injuries, more severe injuries and a worse clinical condition on arrival at hospital" (Griggs, et al., 2007, p ix).

Police statistics provide another, again only partial, insight into alcohol-related violence. While physical assault is an offence under criminal law in all Australian states and territories, only a small proportion of assaults are reported to police, due to a combination of attitudinal and structural barriers (Bryant and Williams, 2000, Mouzos and Makkai, 2004). Secondary analysis of the 1998 NDSHS revealed that less than 10% of physical assaults were reported to police (Bryant and Williams, 2000). Negative perceptions associated with police response or lack of response, victims' fear of reprisal, and victims' own sense of shame or embarrassment are among the main reasons cited for not notifying police (Bryant and Williams, 2000). Also, the role of alcohol in the assault is thought to create an additional dimension which may persuade or discourage a person to contact police, although there has been little examination of how alcohol influences reporting rates. However, the majority of assaults reported to police, or requiring police attendance, tend to be alcohol-related, with estimates ranging from 73% (Arro, et al., 1992) to 80% (Ireland and Thommeny, 1993). Serious assaults reported to police predominantly involved alcohol to some extent, with estimates of 82% involvement (Arro, et al., 1992).

Overall, police reports continue to give only a limited insight into the prevalence of alcohol-related violence in the community.

Alcohol-related violence – 2007 National Drug Strategy Household Survey (NDSHS)

This section uses a large representative Australian population survey to examine self-reported experiences of three types of harm from someone affected by alcohol. The three measures include both criminal and non-criminal harms. There are benefits in examining the results, in that they give a measure of alcohol-related harm that may not be picked up in formal crime statistics.

Methods

The analysis uses data collected in the 2007 National Drug Strategy Household Survey (NDSHS), the ninth in the national survey series, focusing on alcohol-related harm items collected through 'drop and collect' self completion questionnaires (response rate = 47.8%). Full details of the survey methods are published elsewhere (Australian Institute of Health and Welfare, 2008). The main sample consisted of 17,922 respondents aged 18 years and over; an extra sample of those aged 12-17 (n=1,896) was used to examine the prevalence of alcohol-related harm for those under the legal drinking age. Three items asked about the respondent's experience of harm from someone affected by alcohol in the last 12 months. The items read 'In the last 12 months, did any person affected by alcohol verbally abuse you'; ... physically abuse you; ... put you in fear?' Respondents could respond yes or no.

Results

Overall, 24% of respondents reported being verbally abused, 12% reported being 'put in fear', and 4% reported being physically abused by someone affected by alcohol in the last 12 months (Table 6.1). These were a slight reduction from the proportions responding positively to these items in the 1998 NDSHS – 27% verbally abused, 15% put in fear, and 6% physically abused (Teece and Williams, 2000).

Table 6.1: Experiences of alcohol-related harm from someone affected by alcohol in the last 12 months, 2007 NDSHS: weighted sample (n = 17922)

Alcohol-related harm	n	%
Verbally abused	4358	24.3
Put in fear	2143	12.0
Physically abused	719	4.0
At least one type of alcohol-related harm	5018	28.0

The gender and age profiles of victims of alcohol-related harm are shown in Table 6.2. Men were more likely than women to report verbal and physical abuse, whereas women were slightly more likely than men to report being 'put in fear'. Young people aged 18 to 29 experienced the greatest occurrence of all three types of alcohol-related harm. Prevalence of experience decreased across the three age groups, with those aged over 60 years of age experiencing the least alcohol-related harm.

Table 6.2: Experiences of alcohol-related harm from someone affected by alcohol in the last 12 months by gender and age: weighted sample (n = 17922)

	Verbally abused		Physically abused		Put in Fear	
	N	%	N	%	N	%
Gender						
Males	2490	28.2	470	5.3	970	11.0
Females	1868	20.5	249	2.7	1174	12.9
Age						
18-29	1476	38.1	374	9.6	738	19.0
30-59	2446	25.2	312	3.2	1233	12.7
60 +	436	10.0	32	0.7	172	4.0
Total	4358	24.3	718	4.0	2143	12.0

Those under the legal drinking age showed similar levels of experiencing harm to adults (Table 6.3) and lower levels compared with those aged 18-29 years.

Table 6.3: Experiences of alcohol-related harm from someone affected by alcohol in the last 12 months. Respondents aged 12-17 years of age: weighted sample (n = 1896)

	n	%
Verbally abused	287	15.1
Physically abused	71	3.8
Put in fear	225	11.9
At least one type of alcohol-related harm	391	20.6

Discussion

According to the 2007 NDSHS nearly a third of Australians had experienced at least one form of alcohol-related harm in the preceding 12 months. More than 1 in 5 had experienced verbal abuse, 1 in 9 had been 'put in fear' and nearly 1 in 20 had been physically abused by someone affected by alcohol. Younger people reported especially high levels of alcohol-related harm. Men were more likely to experience verbal and physical abuse while women were more likely to be put in fear.

Alcohol-related violence – Personal Safety Survey

This section uses data collected in the Personal Safety Survey (PSS), a victimisation survey conducted by the Australian Bureau of Statistics (ABS) between August and December of 1995. The PSS was an extension of the Women's Safety Survey and was the first Australasian population-based victimisation survey to capture a detailed account of both women's and men's experiences of different types of violence. This section examines the contribution of alcohol during experiences of any type of violence (e.g., assault, attempt or threat of assault of either a physical or sexual nature) both in the past 12 months and since the age of 15 years. Following a presentation of prevalence data, a more detailed analysis of physical assault victimisation is presented, focussing on the severity of alcohol-related assaults as indicated by injuries sustained and contact with police, medical and other health services following the incident.

Methods

The PSS collected data from 16,500 respondents (11,800 women and 4,500 men) aged 18 years and over, with a response rate of 72%. A full description of the survey methods is available elsewhere (Australian Bureau of Statistics, 2006). Data were accessed using the ABS remote access data laboratory (RADL).

Measures

Within the PSS, experience of violence refers to assault, attempt or threat of assault of either a physical or sexual nature experienced since the age of 15 years. A summary variable was created aggregating all types of violence (including threats) experienced into a single measure. An indicator for experience of violence in the 12 months prior the survey was also created.

Alcohol consumption patterns were recorded using self-reported frequency of drunkenness.

To determine whether an incident was alcohol- and/or drug-related, respondents were asked a series of questions pertaining to their own use of alcohol at the time of the incident and whether or not the perpetrator was influenced by alcohol at the time of the incident. Alcohol and/or drugs were deemed to contribute to the incident if the victim or perpetrator were under the influence of alcohol or another substance at the time of the incident. The data made available did not distinguish between alcohol and drug involvement in assaults. However, unpublished data provided by ABS indicate that 84.9% of assaults related to the involvement of alcohol or drugs were **alcohol-related,** and the **perpetrator was drinking** in approximately 95% of the physical assaults. Thus, while the available measure does not precisely capture alcohol-related incidents, it provides a sufficient measure of alcohol's

involvement for the current study. For simplicity's sake, these incidents will be referred to as 'alcohol-related' for the rest of this analysis.

Analysis

The data were analysed in two phases. Initial analyses focused on all respondents and their overall experiences (or lack of experience) of violence and physical assault. The second phase of analysis focused on the detailed accounts of the actual incidents of violence provided by those respondents who had experienced physical assault.

Analyses in the first phase were based on data weighted by age, sex and area of usual residence to provide estimates of the prevalence of violent victimisation in the Australian adult population.

The second phase of analysis used unweighted data. In this section, the focus is on the specific characteristics of the most recent violent incident experienced by respondents who had reported being physically assaulted. Thus, the focus was not on estimating population prevalence, but rather on examining relationships between characteristics of violent incidents and their outcomes. All analyses were conducted using SPSS 16 (Statistical Package for the Social Sciences, 2008).

Results

In the 12 months preceding the survey, 8.3% of respondents experienced violence (of any type) and 5.3% experienced alcohol-related violence (any type) (Table 6.4). Among those that had experienced violence, 63.6% of respondents reported that alcohol was involved in the incident (results not shown).

Approximately 5% of respondents experienced physical assault in the past 12 months, and 3.3% experienced alcohol-related physical assault (Table 6.4). Thus, 69.6% of recent physical assaults were classified as alcohol-related (results not shown).

Table 6.4: Prevalence of experiences of violence in the past 12 months, Australia, PSS, 2005: weighted percentages

	Male (n = 4,500)	Female (n = 11,800)	Person (n=16,300)
Experienced violence, last 12 months			
Experienced violence (all types)	10.8%	5.8%	8.3%
Experienced physical assault	6.5%	3.1%	4.8%
Experienced physical threat	5.3%	2.1%	3.7%
Experienced sexual assault	0.6%	1.3%	0.9%
Experienced sexual threat	0.1%	0.5%	0.3%
Experienced alcohol-related violence, last 12 months			
Experienced violence (all types)	7.4%	3.2%	5.3%
Experienced physical assault	4.9%	1.8%	3.3%
Experienced physical threat	3.5%	1.2%	2.4%
Experienced sexual assault	0.4%	0.9%	0.6%
Experienced sexual threat	0.0%	0.3%	0.1%

Factors related to assault victimisation

The remainder of this section focuses solely on physical assault victimisation. The socio-demographic characteristics of the respondents who were physically assaulted in the past 12 months, and whether alcohol was a contributing factor in the assault, are summarised in Table 6.5. Males (6.5%) were twice as likely as females (3.1%) to experience physical assault in the past 12 months. Approximately three in four males (75.7%) who had experienced physical assault in the past 12 months reported that alcohol contributed to the incident, compared to 57.4% of women.

Respondents aged 18-30 years (12.7%) were more likely to experience physical assault than respondents aged 30-59 years (3.5%) or older respondents (0.6%). A greater proportion of young adults aged 18-30 years experienced alcohol-related physical assault than experienced non-alcohol-related physical assault (74.8%), as was true also for respondents aged 30-59 years (65%). Among

respondents aged 60 years and older the opposite trend was found, as a lower proportion of these respondents indicated that alcohol was a contributing factor to the physical assault (30.4%).

Frequency of drunkenness appears to have an impact on victim's experience of physical assault. Around one in six respondents (15.9%) who reported drinking to the point of intoxication at least once a week experienced physical violence, while 8% of respondents who reported getting drunk infrequently, and 2.4% of respondents who reported never getting drunk, experienced physical violence. Among the assault victims, respondents who reported getting drunk frequently were more likely to have been victims of alcohol-related assaults than of non-alcohol-related assaults (88.3% vs 11.7%). In contrast, the proportion of assaults which were alcohol-related was 49.7% for those who drank, but never got drunk.

Unemployed respondents were more likely to be victims of physical assault than respondents in full-time work (11.3% and 5.7% respectively). However, amongst victims, respondents who were unemployed were less likely than respondents employed full-time to consider the incident alcohol-related (60.5% compared with 75.7%). All differences in Table 6.5 were statistically significant.

Table 6.5: Alcohol-related and non-alcohol-related experiences of physical violence in the past 12 months (recent), Australia, PSS, 2005: weighted percentages (n = 16,100)

Variables	Experienced physical violence % of population category	Alcohol-related physical violence % of those experiencing violence
Sex	***	
Males	7	76
Females	3	57
Age	***	
18-29	13	75
30-56	4	65
60+-	1	30
Drunkenness status	***	
Never drinks	3	56
Drinks but never gets drunk	2	50
Gets drunk infrequently (few times a month or year)	8	76
Gets drunk at least once a week	16	88
Not determined	6	0
Labour force status	***	
Employed working full time	6	76
Employed working part time	6	66
Unemployed	11	61
Not in labour force	3	58

Differences were tested using a Pearson chi-squared test. *** $p < 0.001$

Incident level analysis

The following results relate to respondents who had been victims of physical assault in the past five years. Respondents who had been assaulted were asked a series of specific questions relating to the most recent incident, and this section examines how alcohol-related incidents differed from non-alcohol-related incidents. As shown in Table 6.6, there was little difference between respondent's perceptions of the incident, in terms of whether the assault was considered a crime or something wrong. Slightly more victims of alcohol-related assault considered the incident to be a crime (42.1%) than victims of non alcohol-related assault (37.1%). Compared to victims of non-alcohol-related physical assault, respondents who had experienced alcohol-related assault (36.7%) were more likely to report the incident to police, and a perpetrator was more likely to be charged (35.0%) as a result of the incident being reported. Where the physical assault was not reported to the police, more victims of alcohol-related assault (18.4%) did not notify police as they felt police would not do anything, compared with victims of assault where alcohol did not contribute (13.1%).

Table 6.6: Contact with police services following most recent incident of physical violence in the past 5 years, Australia, PSS, 2005

	Alcohol contributed		Alcohol did not contribute	
Variables	n	%	n	%
Perception of incident (n=1936)		*		
Perceived as a crime	485	42.1	291	37.1
Perceived as wrong but not a crime	315	27.3	252	32.1
Perceived as something that just happens	343	29.8	231	29.5
Police notified (n=1936)		***		
Police told	423	36.7	227	29.0
Police not told	729	63.3	557	71.0
Police action taken (n=650)		*		
Perpetrator charged	148	35.0	58	25.6
Perpetrator not charged	275	65.0	169	74.4
Main reason police not notified (n=1286)		*		
Did not regard it as a serious offence	213	29.2	143	25.7
Did not think police could/would do anything	134	18.4	73	13.1
Felt that they could deal with it themselves	225	30.9	204	36.6
Other	155	21.3	134	24.1

Differences were tested using a Pearson chi-squared test. *** p < 0.001; * p<0.05

As shown in Table 6.7, over half (58.8%) of the victims of alcohol-related assault were injured during the incident, compared with 46.9% of the assault victims where alcohol was not involved. In terms of injuries sustained, victims of alcohol-related assault were more likely to suffer injuries of a more serious nature such as cuts (28.8%) and fractured or broken bones (20.1%), compared to victims of non-alcohol-related assault (24.2% and 12.2% respectively). Victims of alcohol-related physical assault were less likely to seek professional help after the incident (73.0%) compared to victims of non-alcohol-related assault (66.0%).

Table 6.7: Severity of assault and contact with health services following experiences of physical violence in the past 20 years, Australia, PSS, 2005

	Alcohol contributed		Alcohol did not contribute	
	n	%	n	%
Injured in incident (n=1936)		***		
Physically injured	677	58.8	368	46.9
No physically injuries	475	41.2	416	53.1
Doctor consulted about injuries received (n=1045)		NS		
Doctor consulted	217	32.1	127	34.5
Doctor not consulted	460	67.9	241	65.50
Type of injuries received in incident		NA		
Scratches	189	27.9	87	23.6
Bruises	553	81.7	311	84.5
Cuts	195	28.8	89	24.2
Fractured or broken bones, penetrative injury/stab/gun shot	136	20.1	45	12.2
Other injuries	80	11.8	61	16.6
Professional help sought (n=2371)		NA		
Doctor	119	17.6	75	20.4
Counsellor	104	15.4	79	21.5
Minister or priest	11	1.6	9	2.4
No professional help sought	494	73.0	243	66.0

Differences were tested using a Pearson chi-squared test. *** p < 0.001; NS – not significant; NA – not applicable. Tests of significance were not produced for chi-squared tests where a multiple response variable was used.

Discussion

Based on the PSS, the prevalence of alcohol-related physical assault in the last 12 months was 3.3%, about the same as reported experiencing alcohol-related "physical abuse" in the 2007 NDSHS. Approximately two in three physical assaults experienced in the last 12 months were alcohol-related (i.e., the perpetrator at the very least had been drinking). This finding appears to be consistent with previous work (Arro, et al., 1992, Donnelly, et al., 2007), which found that the majority of assaults reported to police tended to be alcohol-related. In terms of the socio-demographic profile, males and younger males were more likely than their counterparts (i.e. women and older women) to report experiences of alcohol-related violence. Higher frequency of drunkenness by the respondents was also found to be associated with a higher prevalence of victimisation, and increased likelihood that the assault was alcohol-related.

Incident level analysis revealed that victims of alcohol-related assault were more likely to notify police than victims of non-alcohol-related assault. A higher proportion of perpetrators were charged as a consequence of the assault being reported to police for alcohol-related assaults, compared to non-alcohol related assaults.

Victims of alcohol-related assault were more likely to suffer an injury during the assault, compared with victims of non-alcohol related violence. Also, among those injuries, victims of alcohol-related assault tended to report more injuries of a serious nature than victims of non-alcohol related violence. Our results thus indicate that, compared to victims of non-alcohol related assaults, victims of alcohol-related assaults are more likely to experience harms which impact on the use of police and health services.

It should be kept in mind that the data in the study are retrospective and based on self reports, of incidents that could have been as long as 5 years before the survey was conducted in some analyses. Due to data sensitivities, the analyses are based on a variable where alcohol and drugs have been combined, although unpublished data suggests that alcohol-only related incidents were 90% of all incidents reported to be substance-related. Similarly, we were unable to distinguish between incidents where only the perpetrator had been drinking and those where the perpetrator and/or the victim had been drinking. Again, unpublished data provided an approximate measure of perpetrator's use of alcohol, and the high proportion of incidents (95%) involving perpetrators who had been drinking give the findings weight. Notable strengths of the PSS include its higher-than-usual response rate (73%) and the robust design of ABS commissioned studies.

Alcohol-related violence – Police data

Assaults that are recorded by the police represent the more serious end of violent incidents and are associated with substantial costs. However, reliable data on alcohol's involvement in police-recorded violence is scarce, with only two Australian states (New South Wales and Western Australia) systematically recording alcohol involvement in criminal incidents. This section briefly summarises data from these two states from 2005, and then develops estimates of the cost of police-recorded alcohol-related violence to Australian society.

Methods

Police records of assaults were collated for 2005 from Western Australia (WA) and New South Wales (NSW). These records included mandatory police-recorded measures of alcohol involvement, based on the judgement of the recording officer. While there is almost 100% compliance by police, these alcohol flags are fundamentally subjective and have not been formerly validated for accuracy. Not all Australian states and territories require that police record whether or not an offence was alcohol-related and, as far as we are aware, only the WA and NSW police have made such data available for research purposes. Both WA and NSW data were analysed, to provide a range of estimates for alcohol's involvement in assault.

The estimates produced from these data have been generalised to the remaining Australian states using data provided in the Australian Bureau of Statistics Recorded Crime publication (Australian Bureau of Statistics, 2006).

Results

Data summarising alcohol's role in recorded assaults in NSW and WA are provided in Table 6.8. The two states have similar results, with between 41.7% and 44.1% of assaults being flagged as alcohol-related.

Table 6.8: Alcohol involvement in recorded assaults, WA and NSW, 2005.

State	Total assaults	Alcohol involvement (%)
Western Australia	22,543	41.7%
New South Wales	76,505	44.1%

Table 6.9 presents a comparison of the proportion of assaults involving alcohol by the age and sex of the victim. There are few differences between males and females, but some age differences, with alcohol substantially less likely to be involved when the victim is under the age of 18.

Table 6.9: Alcohol involvement in recorded assaults, WA and NSW, 2005 by age and sex of victim.

	Male			Female		
State	Under 18	18-29	30+	Under 18	18-29	30+
Western Australia	18.0%	48.5%	42.9%	23.9%	45.6%	46.2%
New South Wales	16.2%	41.1%	47.3%	16.2%	42.9%	43.0%

Using the two alcohol-attributable fractions derived from Table 6.8 as upper and lower bounds of alcohol's involvement in police-recorded assaults, it is possible to produce estimates of alcohol-related assaults for Australia based on the number of assaults recorded in each state by the Australian Bureau of Statistics (ABS) (2006). These estimates are presented in Table 6.10.

Table 6.10: Estimates of alcohol-related assaults for Australia, 2005

	Proportion of assaults that are	Alcohol attributable assaults	
Total assault victims	alcohol-related	Lower	Upper
166,507	41.7% - 44.1%	69,433	73,430

Thus, based on police data there were between 69,433 and 73,430 alcohol-related assaults in Australia in 2005. It should be noted that this range only deals with the variation in the estimated involvement of alcohol in violence between the two states examined. There remains significant uncertainty around these estimates due to variation across other states and the uncertainty over how to interpret the alcohol involvement data collected by police.

Discussion

The number of alcohol-related assaults estimated from police data is likely to be a substantial underestimate for a two reasons. Firstly, the results of the previous section demonstrated that many assaults remain unreported to the police, with only 34% of victims of alcohol-related assaults reporting the crime to the police. Secondly, the estimates of alcohol involvement in assault are significantly lower in the police data than those provided by respondents in the Personal Safety Survey discussed above. Almost three-quarters of the survey respondents who had been victims of physical assault reported alcohol involvement, while data from the two police services suggest around 40% of assaults are alcohol-related. This disparity isn't easily explained, as survey respondents who reported their assault to the police were even more likely to consider it alcohol-related. This suggests either a higher threshold for the police to consider an assault alcohol-related: for example, police may be marking the alcohol flag only when they think alcohol is causally related to the incident, while the survey responses were related to people being under the influence of alcohol at the time of the incident. As noted in

Chapter 1, an old U.S. study similarly found that police were only half as likely as the complainant to report drinking as a factor in domestic physical assaults (Bard and Zacker, 1974).

Even with this conservative estimation, approximately 70,000 alcohol-related assaults were recorded by police across Australia in 2005. This represents a substantial burden on Australian society, the financial magnitude of which is estimated below.

Costing of police recorded assaults

This part of the study will evaluate the costs of police-recorded assaults in Australia. The costs considered include the opportunity cost of time spent calling police, emergency department (ED) costs, hospital costs, cost of lost/damaged property, cost of lost output and intangible costs. Costs for police, court time and corrective services associated with these offences are not included here.

Data and methods

Assault victims were divided into four broad categories: those who were hospitalised; those who were injured and attended an ED; those who were injured but did not get medical treatment; and those that were not injured. The proportion of hospitalised assault victims was estimated using the ratio of total estimated hospitalised assaults to total estimated number of assaults calculated by Rollings (2008) using police records and multipliers, and was found to be 2.52%. Using this information and the findings from the study by Poynton and colleagues (Poynton, et al., 2005) that 60% of St. Vincent Hospital's ED alcohol-related injury cases were hospitalised, it was estimated that 4.21% of all assault victims end up in the ED. The proportion of assault cases that did not require hospitalisation was estimated using the ratio of Rollings' (2008) total estimated number of injured assault cases that were not hospitalised to total number of assault cases. This was found to be 20.7%. Hence the proportion of injured assault victims who did not attend hospital or ED was estimated to be 16.47%. The remaining 76.8% of assault victims are estimated to have not been injured. Using these four classifications, the following costs were estimated.

Opportunity Cost of Time Spent Calling Police

The opportunity cost of time spent calling police is derived from the analyses described in Chapter 12 on service utilisation. From the survey data, it was found that those who were negatively affected by a drinker and who had called police in the last 12 months had incurred an opportunity cost of $31.70 for each call to the police. Since only 17.7% of victims called police, it is assumed that for every assault case, the average opportunity cost of calling police is $5.60. It is assumed here that the victim had only called police once for every assault incident.

Emergency Department Costs

Two sets of Emergency Department (ED) costs were obtained from the national hospital costs data (Commonwealth Department of Health and Ageing, 2009) which included one set of ED costs for non-acute and another for acute cases. The average ED cost was derived by averaging both sets of costs, amounting to $290 for the whole of Australia. The average ED cost for each State and territory was also obtained. These ED costs estimates were used for assault victims.

Medical Costs

The medical costs estimate for hospitalised assault victims is based on the data from the morbidity section (Chapter 3). Each hospitalised assault victim resulted in an average cost of $22,357 in medical costs. This is much higher than the $4,000 estimate obtained by Rollings (2008) based on US estimates. The average medical cost estimate of $1,000 used by Rollings (2008) for injured assault victims is adopted for medical cost for the two categories of injured victims who are not hospitalised. The average medical cost per assault case is $771.

Cost of personal belongings damage

It is assumed that some victims suffered from torn clothing or other minor property damage. Based on data from the Alcohol's harm to others survey reported in Chapter 9, 5.6% of respondents who had been harmed by another's drinking reported clothing damaged by drinkers, which they reported to have cost them $166 on average. Since there is no alternative data, this estimate is assumed to represent the cost of personal belongings damaged during assaults, with 5.6% of victims having their belongings damaged.

Cost of lost output

Cost of lost output was adopted from Rollings (2008): Hospitalised assault victims ($4,900), other injured assault victims ($1,900), assault victims with no injuries ($350). The average cost of lost output for an assault victim is estimated to be $800.

Counselling costs

Data from the Alcohol's harm to others survey showed that 4.1% of respondents who had been negatively affected by a drinker had sought counselling in the last 12 months and that the opportunity cost of their time was $195 (this analysis was parallel to that reported in Chapter 12). These estimates were used to estimate the cost of counselling for assault victims. It is assumed that each respondent was seeking that level of counselling due to a single case of victimisation.

Results

The estimated costs of alcohol-related assaults per victim are presented in Table 6.12. Each assault recorded by the police is estimated to cost $1,615.

Using these cost estimates and the estimates of the number of alcohol-related assaults provided in Table 6.10, total costs in a year for Australian victims of alcohol-related assaults are presented in Table 6.11.

Table 6.11: Total costs of alcohol-related assaults

	Mean	Lower estimate	Upper estimate
Costs to the respondent			
Opportunity Cost of Time spent calling police	$398,234	$387,095	$409,373
Cost of time spent seeking counselling	$140,576	$136,644	$144,508
Cost of personal belongings damage	$664,023	$645,449	$682,596
Cost of Lost output	$57,144,800	$55,546,400	$58,743,200
Health system costs			
ED costs	$1,273,979	$1,238,344	$1,309,613
Medical Cost	$57,644,817	$56,032,431	$59,257,203

Thus, alcohol-related assault costs, excluding intangible costs, across Australia have been estimated to be between $114 million and $121 million (midpoint is $117 million) in 2005. This range incorporates only the variation in alcohol involvement recorded in the NSW and WA police data, and excludes a variety of other uncertainties that feed into these estimates (e.g. uncertainty around cost figures derived from survey data, variation in police recording of assaults across Australian states etc). Thus, the range presented here should not be treated as a confidence interval. The health system costs total $58.92 million and account for half of the total costs included in this section. The other major contributor to the costs of assault is the lost output ($22.9 million) which includes values for time spent calling police and seeking counselling as well as time spent whilst in emergency departments and hospitals. Out of pocket costs for belongings damaged contribute a relatively smaller component of the total ($0.66 million).

Table 6.12: Costs per incident of alcohol-related assaults

	Probability	Opportunity cost: Time spent calling police	ED costs	Medical Cost	Cost of personal belongings damage	Cost of lost output	Cost of time in counselling	Average cost to victim in last 12 months - per incident
Hospitalised	2.52%	$31.7	$290	$22,357	$166.0	$4,900	$195	$27,940
Injured, ED only	4.21%	$31.7	$290	$1,000	$166.0	$1,900	$195	$3,583
Injured, no ED, no hospital	16.47%	$31.7	$0	$1,000	$166.0	$1,900	$195	$3,293
No injury	76.80%	$31.7	$0	$0	$166.0	$350	$195	$743
Average per case	100%	$5.6	$20	$771	$9.3	$800	$9	$1,615

Discussion

The cost of alcohol-related assaults in 2005 was more than $117.3 million. As discussed previously, this is likely to be a substantial underestimate, as the underlying data are based on police records, which capture around one-third of alcohol-related assaults. It is also worth noting that these cost estimates focus on the victims' experiences and thus exclude costs to police, the criminal courts and costs associated with prisons and prisoners, which combined make up more than 80% of the tangible costs of alcohol-related crime estimated by Collins and Lapsley (2008).

Conclusion

Alcohol is implicated in a high proportion of physical assault in Australia, with estimates varying between 40% (police data) and 70% (survey data). Consistent findings across two population-based surveys suggest that between 3.3% (PSS) and 4% (NDSHS) of the Australian adult population experiences alcohol-related physical assault in a 12 month period. Consistent with other studies (Wells and Graham, 2007), these analyses found that victims of alcohol-related physical assault are overwhelmingly male and generally younger. Based on the most conservative estimates, there were around 70,000 alcohol-related assaults reported to police in 2005 at a total cost of $117 million.

One of the major findings from the survey analyses was that alcohol-related assaults are more serious than non-alcohol related assaults: they're more likely to be reported to the police, more likely to result in injury and more likely to result in serious injury. These results, while preliminary, parallel those of Griggs et al. (2007) who found injuries sustained during alcohol-related interpersonal violence to be more severe. The accumulated harms associated with alcohol-related assaults identified in this chapter and the cost of these assaults to the victims suggest the need for continued efforts to develop appropriate cultural, health, and legal responses and to have evidence at hand to support alcohol policy decisions.

7: DOMESTIC VIOLENCE

Introduction

The purpose of this chapter is to explore the role of alcohol in domestic violence, with a specific emphasis on partner violence. Three data sources are drawn upon, including two Australian population surveys and administrative data from two Australian police services. The two population surveys, Gender, Alcohol, and Culture: An International Study (GENACIS) and the Personal Safety Survey (PSS) examine alcohol-related violence perpetrated by partners, in particular the severity of the assault. The police agency data enable us to report official responses to alcohol-related domestic violence.

Domestic and partner violence as categories are, of course, subclasses of all violence. What is discussed in this chapter is thus a subclass of what has been covered in Chapter 6, and rates or costs from the two chapters should **not** be added together. Domestic violence usually means violence occurring between members of the same household. Partner violence can be defined to mean a subclass of domestic violence: violence, sexual or other, between sexual partners living in the same household. But often, as in this chapter, it is defined more broadly, to include a boyfriend and or girlfriend (in the words of the GENACIS survey question, persons in "a romantic relationship") and former partners, after separation. The data in this chapter uses definitions which assume a previously existing relationship; much of "date rape" for example would thus not be included. While obviously partners can be of the same gender, these relationships were excluded from the survey analyses reported in this chapter. It should be noted also that family violence involving children is addressed in Chapter 8.

One major distinction between partner violence and other instances of violence is that other violence is overwhelmingly between men, while partner violence as studied in this chapter obviously involves both men and women. The intergender nature of most partner violence is probably the major reason that it has been singled out for special attention in the literature on violence. In popular thinking, partner violence is often equated with "violence against women", and focusing on such violence and doing something about it was one of the earliest and most insistent concerns of the modern feminist movement.

And indeed, in terms of serious casualties from partner violence, in Australia as elsewhere, it is women who are most often the victims. As we shall discuss later in the chapter, women are three-quarters of the victims as recorded by police in domestic violence cases in New South Wales and Western Australia. At the most serious end of the continuum of partner violence, it is thus indeed women who suffer most.

When, under the impetus of the feminist movement, there began to be population surveys concerning marital violence in the 1970s, a different picture often emerged: the rates of men and of women as the perpetrator were much more even, and indeed in some surveys the rate for women was higher (e.g. Aarens, et al., 1977:549, Straus, et al., 1980:36). In some feminist circles, this finding was unpalatable, and much energy has been devoted to arguments that it could not be true (e.g. Dobash, et al., 1992, Stratton, n.d).

But the threshold for what is measured as violence in a population survey is considerably lower than what would come to the attention of police or become a case in an emergency department. Counting in threats as well as physical assault as aspects of violence, as surveys such as the Personal Safety Survey, discussed below, do, also stretches the net well beyond what would show up in the ED or otherwise come to official notice. And the less serious instances of violence will tend to dominate in the survey material. The limitations on sample size for even the most richly funded survey tend to mean that there are only few very serious cases in the material. The area of domestic violence is thus an instance of the kind of "binocular vision" discussed in Chapter 1: what is apparent in the records of

police, health and social agencies differs from what will be found in population survey material. Both kinds of data are needed to get a full picture, but the findings may differ between the perspectives.

This chapter of course also has an alcohol dimension. The role of alcohol in partner violence has also been a politically contentious issue in recent decades. Part of the discussion has been about causality, as with alcohol and violence in general: for a couple of generations, criminology, reacting against the temperance movement's tendency to regard alcohol as the panchreston, the explain-all factor, for crime, tended to impose unrealistic standards of causality, and then conclude that alcohol did not cause violence (Room & Rossow, 2001). Using the more restricted epidemiological criterion discussed in Chapter 1, there are in fact strong arguments that drinking (not only by a perpetrator, but also by a victim) plays a causal role in the occurrence of crime and violence.

However, some strands of feminist thought have been very resistant to recognizing a role for alcohol. The issues have revolved around questions of moral worth and responsibility. Acknowledging that someone who ends up as a victim was often drinking with the perpetrator was seen as potentially compromising the moral worth of the victim. Indeed there is some evidence of this effect in people's thinking in vignette studies among US college students (Dent and Arias, 1990). And paying attention to drinking on the part of the perpetrator was seen as potentially allowing him to evade responsibility for his actions (Aarens, et al., 1977, p. 554). However, the evidence here is that intoxication does not function very well as an excuse that will be accepted (Leonard, 2002).

In this report we take the view that the involvement of alcohol in domestic violence is a matter for empirical study, not subject to ideological pre-emption. That said, it should be acknowledged that the measures used in this chapter are subject to challenge in terms of their implications for causality. Respondents in surveys are giving the best answer they can manage to questions involving formulations such as "due to drinking" or "because of their drinking". In the latter part of the chapter, police officers are checking a box that indicates that in their view alcohol is involved in the domestic incident. By anyone's standard of causality, these are approximations. The material in this chapter should thus be taken as indicative rather than determinative of the size and scope of alcohol's role in domestic violence in Australia.

Literature review

Prevalence rates of alcohol-related domestic violence within Australia

Domestic violence and its impact on women's health has been widely studied in Australia (e.g. Ferrante, et al., 1996, Loxton, et al., 2006, Meuleners, et al., 2008, Vos, et al., 2006). To date, specific evidence about alcohol's role in domestic violence and the impact of alcohol-related domestic violence on victims within Australia is sparse.

Population-based surveys, such as the Australian National Drug Strategy Household Survey, provide a valuable analysis of alcohol-related violence at the population level. In the 12 months preceding the 2007 NDSHS, six percent of men and three percent of women had experienced physical abuse by someone affected by alcohol. For 43% of the females, the perpetrator of this physical abuse was a current or former spouse or partner, compared to nine percent of the men (Australian Institute of Health and Welfare, 2008). The Australian arm of the International Violence Against Women Survey, while focused exclusively on women's victimisation, provides a more detailed picture of partner violence, including the perpetrator's use of alcohol at the time of the incident, and the current partner's drinking patterns. Survey findings reported that approximately half of the sample (48%) had experienced physical violence from a partner since the age of 16, and 8% had experienced physical violence in the 12 months preceding the survey. For women who had a current or previous partner, 31% experienced physical partner violence during their lifetime and 3% of women experienced physical violence from a partner within the last 12 months. Approximately one in three (35%) incidents of partner violence experienced in the last year were alcohol-related, with women reporting that their partner was drinking alcohol at the time of the violent act. However, a further 50% of women indicated that their partner was not substance affected (neither by alcohol nor drugs) at the time (Mouzos and Makkai, 2004).

Detailed analyses also revealed that the woman's partner's frequency of drunkenness was a risk factor associated with physical violence (Mouzos and Makkai, 2004). Furthermore, the authors reported an "interaction effect for being married and the male's drinking behaviour, specifically if the woman is married and her partner gets drunk a couple of times a month or more the odds of experiencing physical violence are increased by a factor of almost three" (Mouzos and Makkai, 2004, p. 61). Overall, "women experienced higher levels of violence from a previous partner than a current partner" and "previous male partners are responsible for greater levels and more severe violence than current male partners" (Mouzos and Makkai, 2004, pp. 51-52).

International prevalence rates of alcohol-related domestic violence

Large scale general population surveys conducted in other countries report rates of alcohol-related domestic violence. However, it is difficult to draw comparisons between estimates due to methodological differences. For example, the 2007/08 British Crime Survey (BCS) reported that 37% of the domestic violence[4] incidents experienced in the previous year were alcohol-related.[5] Unlike the Australian surveys, the BCS included family members as well as partners as potential perpetrators of domestic violence (Hoare and Povey, 2008). In the United States, alcohol and/or drugs was involved in 41.8% of the violent incidents[6] between spouses (Bureau of Justice Statistics, 2005). The 2001 New Zealand National Survey reported that in approximately one in three incidents of partner violence, the victim believed the offender was affected by alcohol and/or drugs (Morris, et al., 2003). A national study on domestic violence conducted in Ireland found that approximately one in three (34%) victims of severe domestic abuse perceived alcohol as a likely trigger for aggression, and in 25% of severe abuse cases, "alcohol was always involved" (Hope, 2008, p. 23). Again, the survey adopted a different measure of abuse, rendering comparisons with other national surveys problematic.

To better understand the extent of violence across countries, a large collaborative international study, referred to as GENACIS, has used comparable tools and indicators to measure alcohol-related partner violence. Utilising the shared framework, Graham and colleagues reported concerning 10 countries in north and Latin America that being in a de-facto relationship was associated with a higher risk of partner violence compared with legally married couples. Furthermore, 'being divorced/separated' also emerged as an important risk factor (Graham, et al., 2008).

Perpetrator's and victim's alcohol use

For the most part, perceived alcohol use by the perpetrator is more common in non-partner violence incidents compared to partner violence (Hoare and Povey, 2008, Thompson and Kingree, 2004). However, separate analyses for females and males reveal that, among female victims, intimate partner violence (IPV) "incidents were almost twice as likely as non-IPV incidents to involve alcohol use by the perpetrator", whereas for male victims, "IPV incidents were about five times less likely than non-IPV incidents to involve alcohol use by the perpetrator", even after controlling for location (Thompson and Kingree, 2004, p. 71).

Studies examining the alcohol consumption of parties involved in domestic violence tend to suggest that the level of drinking is more important in understanding and predicting violence between couples than the regularity of drinking. For example, the GENACIS multicentre partner violence study found a positive association between high-quantity drinking per occasion by the victim and increased risk of physical assault. Overall, abstainers were less likely to report partner physical violence than drinkers (Graham, et al., 2008). General population studies also indicate that the frequency of a partner's drinking pattern appears to be a risk factor for partner violence (Graham, et al., 2004). Mutual alcohol use has also been examined in the context of partner violence, and where both the male perpetrator and the female victim were drinking at the time of the incident, the woman predominately has been found to drink less than the aggressor (Kantor and Asdigian, 1997).

[4] The British Crime Survey (2008) defines domestic violence as "wounding, assault with minor injury and assault with no injury which involves partners, ex-partners, other relatives or household members"

[5] This estimate is based on the victim's belief that the perpetrator was under the influence of alcohol at the time of the incident.

[6] Bureau of Justice Statistics (2005) define non-fatal "violent crime" as rape, sexual assault, robbery, aggravated assault and simple assault.

Severity of assault

Evidence from a longitudinal study of newlyweds found an association between husband's drinking and the severity of the violence. Specifically, the violence was more likely to involve severe physical episodes (38%) than moderately violent (11%) or verbal (3%) incidents when the husband was drinking (Leonard and Quigley, 1999). Further, an investigation on the relation of the occurrence of partner physical aggression to days of alcohol consumption found that incidents of male to female physical violence were approximately eight times higher on days when the male partner drank compared to days when the partner did not use alcohol (Fals-Stewart, 2003).

A number of studies have also suggested an association between alcohol use and severity of the violence (Fals-Stewart, 2003, Holtzworth-Munroe and Stuart, 1994). For example, Graham and colleagues found that alcohol-related partner violence (either both or one person was drinking) resulted in more severe violence, compared to incidents where neither person was drinking (Graham, et al., 2008). Furthermore, alcohol-related partner violence reported by female victims "rated the aggression by a male partner as more severe and causing greater anger and fear compared to ratings by male respondents about aggression by a female partner" (Graham, et al., 2004, p. 391). In summary, the authors reported that alcohol-related incidents, where one or both had been drinking, were regarded as more severe, causing greater anger and fear than non alcohol-related incidents (Graham, et al., 2004).

Personal Safety Survey and alcohol-related partner assault

We turn now to presenting new analyses of the role in Australia of alcohol in domestic violence, specifically physical violence perpetrated by heterosexual partners (current and previous) residing in the same or separate households. This section uses the Personal Safety Survey, a victimisation survey conducted by the Australian Bureau of Statistics (ABS) in 1995. This section examines the contribution of alcohol during physical partner assaults, the severity of alcohol related assaults as indicated by injuries sustained and experiences of anxiety or fear resulting from alcohol related incidents.

Methods

The method and data relating to the PSS are described in the previous chapter (see Chapter 6 – Alcohol-related violence). In brief, data were collected from 16,500 respondents (11,800 women and 4,500 men) aged 18 years and over, with a response rate of 72%. Data were accessed using the ABS remote access data laboratory (RADL). A comprehensive description of the methodology employed by the ABS is documented in the Personal Safety Survey Cat. No. 4906.0 (Australian Bureau of Statistics, 2006).

Measures

As noted in Chapter 6, a summary variable was created aggregating all types of violence (including threats) experienced into a single measure. An indicator for experience of violence in the 12 months prior to the survey was also created. The alcohol measures used in the previous chapter were used in this section as well. Alcohol-related violence was determined through two questions. The first question asked respondents if they thought alcohol or any other substance contributed to this incident. If the respondent said yes, alcohol or any other drug was involved, a further item inquired about the way in which the incident was alcohol-related. Fixed responses identified if the respondent was under the influence of alcohol, or if the person responsible was under the influence. Contribution of alcohol was recorded separately from other substances. Respondents were allowed to select more than one response. Data were only available using a generic measure which incorporated any involvement of alcohol or drugs. As mentioned in Chapter 6, unpublished data provided by ABS was used to indicate that 84.9% of assaults related to the involvement of alcohol or drugs were **alcohol-related,** and the **perpetrator was drinking** in approximately 95% of the physical assaults. Thus, while the available measure does not precisely capture alcohol-related incidents, it provides a sufficient measure of alcohol's involvement for the current study. For simplicity's sake, these incidents will be referred to as 'alcohol-related' for the rest of this analysis.

Analysis

The analysis is focused on any intimate partner (current and previous partner, including boyfriend or girlfriend). The data were analysed in two phases. Initial analyses present the prevalence of all respondents and their overall experiences (or lack of experience) of violence and physical assault perpetrated by any intimate partner, including violence specified as alcohol-related. Subsequent data focused on respondents' experience (or lack of experience) of violence and physical assault perpetrated by a current partner. The second phase of analysis focused on the detailed accounts of the actual incidents of violence provided by those respondents who had experienced physical assault by any intimate partner.

Analyses in the first phase were based on data weighted by age, sex and area of usual residence to provide estimates of the prevalence of violent victimisation in the Australian adult population (Australian Bureau of Statistics, 2005).

The second phase of analysis used unweighted data. In this section, the focus is on the specific characteristics of the most recent violent incident experienced by respondents who had reported being physically assaulted by any intimate partner. Thus, the focus was not on estimating population prevalence, but rather on examining relationships between characteristics of violent incidents and their outcomes. All analyses were conducted using SPSS 16 (Statistical Package for the Social Sciences, 2008).

Results

Personal-level analysis

In the 12 months preceding the survey, 1.5% of respondents experienced partner violence (of any type) and 1.0% experienced alcohol-related partner violence (any type) (Table 7.1). Among those that had experienced violence, approximately two thirds (66.2%) of the respondents reported that alcohol was involved in the incident (results not shown).

Approximately 1.0% of respondents experienced physical partner violence in the past 12 months, and 0.7% experienced alcohol-related partner physical assault (Table 7.1). Of those who had recently experienced domestic violence, 66.6% of assaults were described as alcohol-related (results not shown).

Table 7.1: Weighted percentage of alcohol-related experiences of violence and physical partner violence in the past 12 months, Australia, PSS, 2005

	Male %	Female %	Total %
(N)	7,478,125	7,693,134	15,171,259
Experienced violence, last 12 months			
Experienced partner violence (all types)	0.8	2.1	1.5
Experienced current partner violence (all types)	0.1	0.6	0.4
Experienced physical partner violence	0.6	1.4	1.0
Experienced physical current partner violence	0.1	0.4	0.2
Experienced alcohol-related violence, last 12 months			
Experienced alcohol related partner violence (all types)	0.5	1.4	1.0
Experienced alcohol related current partner violence (all types)	0.1	0.3	0.2
Experienced alcohol related physical partner violence	0.4	0.9	0.7
Experienced alcohol related physical current partner violence	0.0	0.2	0.1

Since the age of 15, 15.8% of respondents experienced partner violence (Table 7.2), and a large proportion of those respondents were physically assaulted (79%) (results not shown). In terms of alcohol-related partner violence, 8.0% reported this on a lifetime basis, and 6.6% had experienced an

alcohol-related assault (Table 7.2). Based on these data, it can be estimated that alcohol contributes to 50.3% of all partner violence, and 73.0% of physical partner assaults (results not shown).

Table 7.2: Weighted percentage of alcohol-related experiences of partner violence and physical partner violence since the age of 15 years, Australia, PSS, 2005

		Male %	Female %	Total %
	(N)	7,478,125	7,693,134	15,171,259
Experienced violence, last 12 months				
Experienced partner violence (all types)		7.8	23.6	15.8
Experienced current partner violence (all types)		0.9	2.0	1.4
Experienced physical partner violence		6.8	18.0	12.5
Experienced physical current partner violence		0.8	1.7	1.2
Experienced alcohol-related violence, last 12 months				
Experienced alcohol related partner violence (all types)		4.6	11.2	8.0
Experienced alcohol related current partner violence (all types)		0.4	0.9	0.7
Experienced alcohol related physical partner violence		4.2	9.0	6.6
Experienced alcohol related physical current partner violence		0.4	0.7	0.5

Socio-economic and demographic characteristics

Table 7.3 examines the relationship of demographic factors to experience of physical partner violence and to the involvement of alcohol in victimisation in the past five years. Females (2.1%) were more than twice as likely as males (0.8%) to experience physical partner violence within the past five years. A similar proportion of males (47.5%) and females (52.7%) who had experienced physical partner violence reported that alcohol contributed to the incident. Younger people tended to report higher proportions of experiences of partner physical violence. Over half the respondents aged 18-24 years and those aged 35-54 years reported that the incidents were alcohol-related.

Drinking to the point of feeling drunk appears to be related to victim's experience of physical violence perpetrated by a partner. Respondents who reported drinking to the point of intoxication were twice as likely to experience physical partner violence compared both with respondents who drank but didn't get drunk and with abstainers. Of assault victims, heavy drinkers were more likely to have been involved in alcohol-related assaults, with 57.6% of victims who occasionally get drunk and 74.7% of victims who get drunk every week citing alcohol involvement. Less than half of the abstainers and of respondents who drink, but not to the point of feeling drunk, reported that alcohol contributed to the physical assault.

Respondents who were either in a de facto relationship (2.1%) or not married (2.2%) were over twice as likely to be victimised by their partners as married respondents (0.6%). Furthermore, unemployed respondents were more likely to experience physical partner violence (4.4%) compared with employed respondents (2.1%).

Table 7.3: Alcohol-related and non-alcohol-related experiences of physical violence in the past 5 years, Australia, PSS, 2005

	Experienced partner violence % of population category	Alcohol-related partner violence % of those experiencing violence
Sex		
Male	0.8%	47.5%
Female	2.1%	52.7%
Age		
18-24	3.3%	52.5%
25-34	2.1%	48.1%
35-54	1.4%	53.1%
55 and older	0.4%	50.0%
Drunkenness status		
Never drinks	1.1%	43.1%
Drinks but never gets drunk	1.1%	41.6
Gets drunk infrequently (monthly or yearly)	2.1%	57.6
Gets drunk at least once a week	2.5%	74.7
Social marital status		
Married in a registered marriage	0.6%	38.5%
Married in a de facto marriage	2.1%	47.0%
Not married	2.2%	55.4%
Labour force and full-time or part-time status		
Employed working part-time	2.1%	57.4%
Unemployed	4.4%	46.4%
Not in the work force	1.5%	45.0%

Differences were tested using a Pearson chi-squared test and all were significant at $p < 0.05$.

Incident-level analysis

The following results relate to respondents who had been victims of physical partner violence during the five years preceding the survey. Respondents who had been assaulted were asked a series of specific questions relating to the most recent incident, and this section examines how alcohol-related incidents differed from non-alcohol-related incidents. As shown in Table 7.4, victims of alcohol-related partner violence were more likely to perceive the incident as a crime (46.6%) than victims where the violence was not alcohol-related. Conversely, victims of non-alcohol-related partner violence were more likely to perceive the incident as something that was wrong (35.6%) or something that just happens (27.4%), compared with victims of alcohol-related partner violence (34.1% and 18.2% respectively). Compared to victims of non-alcohol-related physical partner violence, respondents who reported that alcohol contributed to the assault were more likely than the non-alcohol-related cases to report the incident to police (33.1% vs. 24.7%), and the perpetrator was more likely to be charged in alcohol vs. non-alcohol cases (36.1% vs. 28.6%) as a result of the incident being reported.

Where the physical assault was not reported to police, victims of non-alcohol-related partner violence were more likely to believe they could deal with it themselves (43.3%), or the incident was not serious enough to warrant police involvement (25.6%), compared to victims of alcohol-related partner violence (19.4% and 32.8% respectively) (Table 7.4).

Table 7.4: Contact with police services following most recent incident of physical partner violence in the past 5 years, Australia, PSS, 2005

	Alcohol and/or drugs did contribute		Alcohol and/or drugs did not contribute	
	n	%	n	%
Perception of incident (n=737)		**		
Perceived as a crime	172	46.6	129	35.1
Perceived as wrong but not a crime	126	34.1	131	35.6
Perceived as something that just happens	67	18.2	101	27.4
Police notified (n=737)		**		
Police told	122	33.1	91	24.7
Police not told	247	66.9	277	75.3
Police action taken (n=213)		NS		
Perpetrator charged	44	36.1	26	28.6
Perpetrator not charged	78	63.9	65	71.4
Main reason police not notified (n=524)		**		
Did not regard it as a serious offence	48	19.4	71	25.6
Did not think police could/would do anything	43	17.4	32	11.6
Felt that they could deal with it themselves	81	32.8	120	43.3
Other	73	29.6	53	19.1

Differences were tested using a Pearson chi-squared test. ** p< 0.01. NS – not significant.

As shown in Table 7.5, approximately two thirds of partner violence involving alcohol resulted in the victim sustaining injuries, whereas a smaller proportion (52.5%) of the victims of assault where alcohol was not involved were injured. In terms of injuries sustained, victims of alcohol-related partner violence more likely to suffer injuries of a more serious nature such as fractured or broken bones (17.7%) compared to victims of non alcohol-related assault (11.7%). Apart from cuts, a higher proportion of victims of alcohol-related partner violence report one or more types of injuries. Victims of alcohol-related partner physical violence also reported that they were more likely to seek professional help from a doctor after the incident (21.3%) compared to victims of non alcohol-related partner violence (16.8%).

Respondents were also asked about any feelings of anxiety or fear in the 12 months following the most recent incident of partner violence. Over half the victims of alcohol-related partner violence experience anxiety or fear for their personal safety, compared with 42.9% of victims of non-alcohol-related partner violence.

Table 7.5: Severity of assault and contact with health services following most recent incident of physical partner violence in the past 5 years, Australia, PSS, 2005

	Alcohol and/or drugs did contribute		Alcohol and/or drugs did not contribute	
	n	%	n	%
Injured in incident (n=4276)		***		
Physically injured	604	66.2	480	52.5
Not physically injured	308	33.8	435	47.5
Doctor consulted about injuries received (n=2371)		NS		
Doctor consulted	196	32.5	148	30.8
Doctor not consulted	408	67.5	332	69.2
Type of injuries received in incident		NA		
Scratches	65	26.0	45	25.1
Bruises	222	89.2	157	87.7
Cuts	56	22.5	43	24.0
Fractured or broken bones, penetrative injury/stab/gunshot	44	17.7	21	11.7
Other injuries	27	10.8	20	11.2
Professional help sought		NA		
Doctor	53	21.3	30	16.8
Counsellor	67	29.6	50	27.9
Minister or priest	8	32.0	4	22.0
No professional help sought	151	60.6	116	64.8
Experienced anxiety or fear for personal safety in following 12 months (n=737)		***		
Experienced anxiety or fear	199	53.9	158	42.9
Did not experience anxiety or fear	170	46.1	210	57.1

Differences were tested using a Pearson chi-squared test. *** $p < 0.001$. Tests of significance were not produced for chi-squared tests where a multiple response variable was used. NS – not significant. NA – not applicable.

Discussion

The study found that women are more likely than men to experience any type of partner violence, including physical partner violence. Prevalence of alcohol-related partner violence in the past 12 months was 1.0% for all types of violence and 0.7% for physical partner violence. For both physical violence and any type of violence perpetrated by a partner, approximately two in three assaults experienced in the 12 months preceding the survey were alcohol-related. The findings that victims of alcohol-related physical partner violence were more likely to live alone than with other people, and that the victims tended to be unmarried, are consistent with other victimisation studies (Graham, et al., 2008, Mouzos and Makkai, 2004). Furthermore, this study found that victims who drank heavily were more likely to report that alcohol contributed to the assault.

Differences were also found between the severity of alcohol-related and non-alcohol-related physical partner violence. In particular, victims of alcohol-related physical assault at the hands of a partner were more likely to perceive the incident as a crime, as opposed to something wrong, and the assault was more likely to be brought to the attention of the police when alcohol was involved. The results also point towards an increased likelihood of victims sustaining an injury, and experiencing anxiety or fear for personal safety, as a consequence of an alcohol-related physical assault from a partner compared to a physical assault where alcohol was not involved.

GENACIS and alcohol-related partner assault

Drawing on data from the Victoria arm of the GENACIS study,[7] this analysis examines alcohol's involvement in partner violence from the perspective of both the perpetrator and the victim.

Method

The Australian arm of the GENACIS study comprised a sample of 2483 Victorian adults (stratified 50:50 by metropolitan - non metropolitan location). The sample was recruited through Random Digit Dialling (RDD) undertaken by a contracted survey research provider (Social Research Centre). A modified version of the core GENACIS Questionnaire was administered using Computer Assisted Telephone Interviewing (CATI) between May and December 2007. Individuals aged 18 years and over in private households who were proficient in English were eligible. All respondents answered a core set of questions, with additional items being asked of subsamples of respondents. A co-operation rate of 38% was achieved. Full details of the GENACIS survey methods are available elsewhere (Pennay and Van Dyke, 2008).

A subset of 1,915 respondents (unweighted) of the original sample who had been in a close personal relationship in the past two years were selected for analysis. Sample weights have been used for all analyses weighted to the Victorian population distribution and chance of selection in the household.

Outcomes

Physical aggression.

Victim: respondents were asked "what is the most physically aggressive thing done to you during the last 2 years by someone who is or was in a close romantic relationship with you?"

Perpetrator: respondents were also asked "what is the most physically aggressive thing you have done during the last 2 years to someone who is or was in a close romantic relationship with you?"

Response categories, in presumed order of severity, were the same for both questions: nothing, push, shove, grab, slap, punch, kick, beat up, thrown something, hit with an object, threatened, threatened with a weapon, used a weapon. The 'don't know, refused and not sure' responses were excluded from the analysis.

Correlates / Predictors

Severity score – respondents were asked "how would you rate this act on a scale of 1 to 10 where 1 is minor aggression and 10 is life-threatening aggression?"

City – Country: The City of Melbourne and Geelong in the state of Victoria are combined for the City category compared to the rest of the state. This is based on the Australian Standard Geographical Classification (ASGC) Aria scale (Accessibility Remoteness Index Australia) (Australian Bureau of Statistics 2001).

Alcohol consumption – each respondent reported both his/her own and the partner's frequency and quantity of alcohol consumption.

Gender, educational qualifications, marital status, and country of birth were additional socio-demographic variables examined.

[7] This section draws on a paper by Dietze, P., Matthews, S., Room, R., Chikritzhs, T., & Jolley, S., Attributed alcohol harms in Australia: Prevalence and key correlates in the GENACIS study, presented at the 35th Annual Alcohol Epidemiology Symposium of the Kettil Bruun Society, Copenhagen, Denmark, June 2009.

Analysis

A series of cross-tabulations were performed examining the relationship of the perpetrator/victim outcomes with the socio-demographic factors, severity score and alcohol involvement. Chi square where appropriate, was used to test independence. Significance levels were set at $p<0.05$.

A multivariate logistic regression model was used to predict victim status. Socio-demographic factors were included, as were the respondent's and the partner's alcohol consumption. Unfortunately only overall alcohol consumption can be examined in these models, and not alcohol involvement in a particular aggressive act, as numbers for the latter are too small. Men and women are analysed together in the multivariate analysis.

Results

Eight percent (n=158) of the population reported being a victim of physical partner aggression, while six percent (n=117) reported being a perpetrator of physical partner aggression. Similar proportions of men and women reported being a victim of this type of aggression (Table 7.5). While the prevalence was lower for being a perpetrator of physical aggression, there were no significant gender differences, and the proportion reporting being a perpetrator appeared higher among women. The severity of acts when a male was the perpetrator was slightly higher than when a female was, but the difference is not significant (Table 7.6).

Fewer than four percent of the population reported being both a victim and perpetrator of physical partner aggression, and no gender difference was evident. This equates to 34% of those who reported any partner physical aggression.

Table 7.6: Percentage of respondents who reported having been a victim or aggressor by sex, Victoria, GENACIS, 2007

	Female victim	Male victim	Female perpetrator	Male perpetrator
% of respondents	7.6%	8.6%	6.3%	5.6%
Chi sq (p)	0.42 (p>0.05)			0.53 (p>0.05)
Severity score of aggressive act				
Median	3	2	2	3
Range	1-10	1-10	1-6	1-10

Of the eight percent of the population who reported being a victim of physical partner aggression, the majority (59%) reported no alcohol involvement in the incident. Twenty-two percent of the victims said that both parties had been drinking, 16% said that only the perpetrator had been drinking, and 3% that the only drinker was themself. There was a strong gender difference in these reports. More male victims reported no alcohol involvement in the incident by either party, and higher proportions reported both parties drinking, whereas more female victims reported drinking by the other person only (Table 7.7).

Table 7.7: Reports by the victim of alcohol involvement in the incident

	Female (n=73)	Males (n=85)	Total (n=158)
No drinking reported	51%	68%	59%
Victim only	4	1	3
Other person only	29	5	16
Both	16	26	22

Chi sq. 19.08, p<.05

Of the six percent of the population who reported being a perpetrator of physical partner aggression, overall the majority (71%) reported no alcohol involvement in the incident. Nine percent reported having been drinking prior to the incident, and 16% reported both parties had been drinking. There was a significant gender difference. More male perpetrators reported alcohol involvement (Table 7.8).

Table 7.8: Reports by the perpetrators of alcohol involvement in the incident

	Female respondents (n=61)	Male respondents (n=55)	Total (n=116)
No drinking reported	72%	69%	71%
Perpetrator only	5%	13%	9%
Other person only	8%	0%	4%
Both	15%	18%	16%

Chi sq. 6.8 p>.05

Social location and alcohol consumption

Table 7.9 examines the correlates of reporting being a victim of partner physical aggression. The unadjusted odds ratio (OR) reflects the bivariate analysis. Only age, marital status and partner's alcohol consumption had significant relations with being a victim of partner physical aggression. Adjusting for all other socio-demographic factors reduces the size of the relationships, but the same ORs remain significant except for those aged 45-54 years. Adding the respondent's and the partner's alcohol consumption into the model again reduces the list of significant relations to those aged 18-24 and 25-34 and those who are divorced or separated and those who never married. The odds ratios for the two younger age groups are still above 3, for the divorced or separated above 5, and for those never married above 2.5. The respondent's own drinking pattern does not predict being a victim of physical aggression, while the partner's alcohol consumption does significantly predict the respondent being a victim: every increase of one drink per week in the partner's drinking raises the risk of being a victim by 4%.

Table 7.9: Multivariate analysis: Relative odds of being a victim of physical aggression adjusting for socio-demographic factors, and for own and partner's alcohol consumption

	Unadjusted OR	Adjusted social location	Adjusted social location & consumption
Gender			
(ref.: females)			
Males	1.14	1.13	1.43
	(0.83-1.58)	(0.80-1.59)	(0.91-2.24)
Age group in years			
(ref.: 55+)			
18-24	7.42	3.30	3.86
	(4.17-13.20)	(1.52-7.14)	(1.51-9.96)
25-34	4.55	2.80	3.04
	(2.63-7.89)	(1.49-5.28)	(1.56-5.92)
35-44	2.44	2.03	1.83
	(1.34-4.42)	(1.10-3.75)	(0.95-3.52)
45-54	2.26	1.84	1.88
	(1.22-4.18)	(0.98-3.45)	(0.98-3.60)
Rurality			
(ref.: city)			
Country	0.87	1.08	1.38
	(0.60-1.26)	(0.73-1.62)	(0.88-2.17))
Educational qualifications			
(ref.: university degree or higher)			
High school (or less)	1.04	0.89	0.76
	(0.68-1.57)	(0.59-1.33)	(0.47-1.23)
TAFE[1]/Apprenticeship	1.05	1.14	1.23
	(0.61-1.81)	(0.70-1.85)	(0.71-2.12)
Marital status			
(ref.: married)			
De facto	2.49	1.82	1.64
	(1.50-4.14)	(1.05-3.14)	(0.93-2.89)
Widowed	0	0	0
Divorced-separated	5.22	4.72	5.44
	(2.81-9.68)	(2.47-8.99)	(2.39-12.38)
Never married	5.00	3.00	2.62
	(3.41-7.32)	(1.72-5.25)	(1.32-5.24)
Country of birth			
(ref.: Australian born)			
Not Australian born	1.10	1.37	1.62
	(0.76-1.61)	(0.91-2.07)	(1.02-2.57)
Own alcohol consumption	1.01		1.00
(drinks per week)	(0.99-1.03)		(0.97-1.03)
Partner's alcohol consumption	1.03		1.04
(drinks per week)	(1.01-1.05)		(1.01-1.06)

[1] TAFE – Technical and Further Education institutions providing a wide range of predominately vocational tertiary education courses in Australia.

(ref): reference category to which categories are compared.

Discussion

These analyses examined self-reports of being a victim and perpetrator of physical partner aggression. The contribution of alcohol consumption to these situations is difficult to gauge in the models as the alcohol consumption variables relate to general consumption and not specifically to the incident. Although respondents were asked about alcohol involvement in the incident, numbers are too small to use this subgroup for the multivariate analysis. However, partner alcohol consumption in general does have a significant relation to the partner's aggression in the relationship, as shown in the logistic regression model for victims.

There are a number of limitations associated with these data that require a mention. A low response rate will introduce bias. The achieved sample will inevitably be a compliant sample. Being a telephone

interview introduces additional biases, since it reaches only those with landline telephones, therefore omitting certain subgroups of the population, particularly the socio-economically disadvantaged and young people, who may have only mobile phones. Interviewing in English only is a limitation, as all those who do not speak English or lack sufficient fluency to be interviewed are excluded.

The actual measure of physical aggression may be problematic; it may be interpreted and reported differently across genders. That women appear to have a higher prevalence of being the perpetrator could support this. This is also consistent with findings in the Canadian GENACIS study.

Police records of domestic violence

Using the same data sources discussed in the previous chapter, this section will derive estimates of the scope of alcohol-related domestic violence dealt with by the police in Australia. Police records provide data on only a fraction of the actual incidence of domestic violence, with between 25% and 33% of incidents of physical partner violence reported to the police by respondents in the Personal Safety Survey (see above). Alcohol involvement in domestic violence incidents is systematically recorded in New South Wales and Western Australia and, as in the previous chapter, data from these states will be used to derive national population alcohol aetiological fractions (PAAFs). These PAAFs will then be used to estimate the national prevalence of alcohol-related domestic violence and subsequent estimates of costs will be presented. Note that the data presented here are basically a subset of the data laid out in the previous chapter, which included all physical assaults.

Data and methods

The same data are used in this chapter as were used in the previous general violence chapter. Both New South Wales and Western Australia police data systems include a marker for whether an incident of violence was a domestic incident. Similarly to the alcohol marker, this is a compulsory field and is well-utilised, but the precise meaning of this field has not been the subject of any rigorous study, and thus the results of this section should be treated with some caution. As with the previous chapter, the WA and NSW estimates of alcohol-involvement in domestic violence were used to provide a range for the PAAFs used to produce national estimates. Furthermore, as there are no national estimates of the prevalence of domestic violence-related physical assaults recorded by the police, the proportion of assaults classified as domestic incidents by the two police forces were used as upper and lower bounds for the proportion of assault offences in the Recorded Crime (Australian Bureau of Statistics, 2006) data that could be considered domestic violence incidents

Results

Data summarising the proportion of assaults classified as domestic violence in New South Wales and Western Australia are provided in Table 7.10, along with the proportion of these domestic incidents that were classed as alcohol-related. The two states have similar results, with between 34.9% and 38.1% of assaults being flagged as domestic incidents, and between 42.3% and 49.9% of these incidents flagged as alcohol-related.

Table 7.10: Alcohol involvement in domestic violence incidents, NSW and WA, 2005

State	Total assaults	% of assaults classed as domestic violence	% of domestic violence classed as alcohol-related
Western Australia	22,543	38.1%	49.9%
New South Wales	76,505	34.9%	42.3%

Around three-quarters of domestic violence victims in both states were women, and more than half were over the age of thirty. There was little variation in alcohol involvement based on the gender of the victim, but older victims were more likely to have been involved in an alcohol-related domestic incident (Table 7.11).

Table 7.11: Proportion of domestic violence incidents with alcohol involved, by age and sex of victim NSW and WA, 2005

	Victim: Male			Victim: Female		
State	Under 18	18-29	30+	Under 18	18-29	30+
Western Australia	26.5%	49.8%	56.4%	38.8%	48.4%	54.1%
New South Wales	23.8%	39.9%	46.9%	24.7%	40.4%	47.0%

Using the data presented in Table 7.10, it is possible to produce estimates of alcohol-related assaults for all of Australia based on the number of assaults recorded by the Australian Bureau of Statistics (ABS) (2006) in each state. The lower bounds are calculated by utilising the New South Wales figures (34.9% of assaults are domestic violence related, and 42.3% of these are related to alcohol), while the upper bounds are calculated by utilising the West Australia data (38.1% and 49.9%). These estimates are presented in Table 7.12.

Table 7.12: Estimates of alcohol-related assaults for all Australian states and territories, 2005

		Alcohol attributable domestic assaults	
State/Territory	Total assault victims	Lower	Upper
Australian Total[8]	166,507	24,581	31,656

Thus, based on the best estimates available using official police data, there were between 24,581 and 31,656 alcohol-related domestic assaults reported to the police in Australia in 2005. It should be noted that this range only deals with the variation in the estimated involvement of alcohol in violence between the two states examined. There remains significant uncertainty around these estimates due to variation across other states and the uncertainty over how to interpret the alcohol involvement data collected by police.

Discussion

The estimates presented above undoubtedly underestimate the actual scope of alcohol-related domestic violence in Australia due to under-reporting of these incidents to police. Estimates provided above from a large victimisation survey suggest that at most one-third of domestic violence offences are reported to the police, implying that the scope of the problem is at least three times as large as that reported here. As with the previous chapter, the estimates of alcohol involvement in domestic violence are significantly lower in the police data than those provided by respondents in the Personal Safety Survey discussed above, suggesting alcohol's involvement could be even higher than recorded in police statistics. Even with this underestimation, approximately 30,000 alcohol-related domestic assaults were recorded by police across Australia in 2005. This represents a substantial burden on Australian society, the financial magnitude of which is estimated below.

Costing of police recorded domestic violence

This part of the study will evaluate the costs of police-recorded domestic violence in Australia using a similar approach to that used for general violence in the previous chapter. The costs considered include the opportunity cost of time spent calling police, emergency department (ED) costs, hospital costs, cost of lost/damaged property, cost of lost output and intangible costs. The costs of the police and the court and corrections systems dealing with these incidents have not been included here.

Data and methods

This section uses the same basic costing approach outlined in the previous chapter.

[8] Note that the assault data compiled by the ABS is not directly comparable across states and thus this composite national estimate should be treated with caution.

Results

The estimated costs of alcohol-related assaults per victim are presented in Table 7.13. Each assault recorded by the police is estimated to cost a total of $1,615. Using these cost estimates and the estimates of the number of alcohol-related assaults provided in Table 7.13, total costs of alcohol-related assaults are presented in Table 7.14.

Table 7.13: Costs per incident of alcohol-related assaults

	Probability	Opportunity cost: Time spent calling police	ED costs	Medical Cost	Cost of personal belongings damage	Cost of lost output	Cost of time in counselling	Average cost in last 12 months, per incident
Hospitalised	2.52%	$31.7	$290	$22,357	$166.0	$4,900	$195	$27,490
Injured, ED only	4.21%	$31.7	$290	$1,000	$166.0	$1,900	$195	$3,583
Injured, no ED, no hospital	16.47%	$31.7	$0	$1,000	$166.0	$1,900	$195	$3,293
No injury	76.80%	$31.7	$0	$0	$166.0	$350	$195	$743
Average per case		$5.6	$20	$771	$9.3	$800	$9	$1,615

Table 7.14: Total costs of alcohol-related domestic assaults

	Mean	Lower estimate	Upper estimate
Costs to the respondent			
Opportunity cost of time spent calling police	$156,892	$137,042	$176,742
Cost of time spent seeking counselling	$263,405	$230,078	$296,731
Cost of personal belongings damage	$261,604	$228,505	$294,702
Cost of lost output	$22,513,200	$19,664,800	$25,361,600
Health system costs			
ED costs	$498,910	$435,787	$562,033
Medical cost	$22,710,191	$19,836,867	$25,583,514

Thus, alcohol-related domestic assaults are estimated to have tangible costs across Australia of between $40 million and $52 million in 2005. Again, the ranges shown here account for only a small proportion of the uncertainty around this estimate, and should not be treated as 95% confidence intervals.

Discussion

The cost of alcohol-related domestic violence in 2005 is estimated to have been around 50 million dollars of tangible costs. As discussed previously, this is likely to be a substantial underestimate due to underreporting of domestic violence to police. As with the last chapter, these cost estimates focus on the victims' experiences and thus exclude costs to police, the criminal courts and costs associated with prisons and prisoners, which combined make up more than 80% of the tangible costs of alcohol-related crime estimated by Collins and Lapsley (2008).

Conclusion

The results presented in this chapter are similar to those presented previously for general violence, with survey-based estimates producing substantially higher prevalence estimates of alcohol-related domestic violence. According to the Personal Safety Survey, around 1.5% of Australian adults experienced partner violence in the year prior to that survey being undertaken, with 1.0% experiencing physical assault from a partner. The GENACIS survey estimates produced higher prevalence rates, with around 8% of respondents reporting victimisation (over the previous two years). The experience of physical partner violence by males and females differed between the two victimisation surveys analysed. In the PSS, females were substantially more likely than males to experience physical partner violence, whereas slightly more males than females reported having been a victim of physical partner aggression in the GENACIS study. The gender differences of victims in the police data were the most substantial, with females making up 75% of domestic violence victims. These differences are likely to relate to the differing levels of severity across the different datasets. The GENACIS study includes a quite broad definition of violence, and thus has the highest prevalence rate and the lowest proportion of female victims. The PSS includes a relatively broad range of incidents under the definition of 'violence', but the questions are framed so that respondents are likely to consider more severe incidents than those included in GENACIS. Thus this survey finds a lower prevalence of domestic violence and a higher proportion of female victims. Finally, the incidents which come to the attention of the police are likely to be the most severe, and within these incidents three-quarters of victims were female. Thus, these three studies add weight to the previous findings that when violence is defined broadly, rates of victimisation don't differ greatly between males and females, but women are much more likely to be victims of more severe incidents.

There was greater consistency on measures of alcohol involvement, with around 40% of victims in the GENACIS and 50% of victims in the PSS reporting that alcohol was involved in the incident of violence. These findings were reasonably consistent with police data, which suggested that between 40% and 50% of domestic violence was alcohol-related. The PSS data also pointed to heightened seriousness when alcohol was involved in a domestic assault, with higher probabilities of injury and police involvement than non-alcohol-related domestic assaults, while results from the GENACIS study suggested a higher risk of victimisation for someone whose partner drinks heavily.

Based on conservative estimates from police data, there were around 30,000 alcohol-related domestic assaults in 2005, at a total cost of around $46.4 million excluding intangible costs. It is worth reiterating that this estimate is likely to be substantially lower than the true costs due to the low proportion of domestic violence reported to police and the limited areas of cost examined.

8: EFFECTS OF DRINKERS UPON CHILDREN

Introduction

The drinking of others can impact on children in many ways. Prior to birth alcohol can have effects on the developing child, and Fetal Alcohol Syndrome (FAS) or Fetal Alcohol Spectrum Disorder (FASD) may result. Alcohol can play a role in accidental child deaths, murder, manslaughter, assault, negligence, and child abuse, and alcohol's role in these incidents is investigated medico-legally on a case by case basis. The public and the media are incensed when those we have the most responsibility to protect are hurt, for example when an intoxicated person physically assaults a child or is responsible for a road crash that results in the death or serious injury of a child. The result is strong punitive reactions to such relatively rare high-profile cases involving children. But reactions also need to be informed by an analysis of much more prevalent but less dramatic individual and societal behaviours, conditions and outcomes. Whilst the most dramatic incidents inform our reactions and laws and other government responses, the less newsworthy everyday alcohol-related harms to children also require attention. Policy and media responses should flow from calm analysis: the complex issues should be highlighted, but at the same time the negative effects of increasingly stigmatizing drinkers and their families should be kept in mind. Wherever possible, relationships should be strengthened within families, including where possible those relationships between drinkers and others.

The range of ways in which children may be affected by the drinking of their carers or parents is vast, and abuse occurs along a spectrum of severity. At one end of this spectrum, drinking affects the ability of parents to supervise their own children at one-off social functions, and at the other end in an ongoing way their drinking affects their parental role over years of their child's development. Neglect may also range in its degree of severity: parents may be unable to take children to organized early morning sports matches because they are hung over, or they may be unable to adequately feed, clothe and meet the biological and medical needs of their child because of their drinking. Where cut-offs are made between adequate, good and neglectful or abusive parenting is arbitrary, and alcohol's impact upon different parts of this spectrum is little analysed.

Drinkers can have both immediate and long term effects on children. Consequential effects in terms of poorer educational outcomes, mental ill-health, and development of alcohol and other drug problems later in life can stem from being exposed to the adverse effects of parents' drinking such as neglect or violence and from observation and modelling of parents' drinking behaviours. Children may also suffer a range of ill effects because of the drinking of others besides their carers, including the drinking of other family members or relatives, of their own friends, of siblings, schoolmates or strangers. As children enter adolescence, the level of social control parents and guardians have over them gradually decreases. Although parents remain legally responsible for their children until they reach adulthood, the child's independence increases with increasing age, and the roles of peers' drinking behaviours expand. These peer effects have not been included in this work.

This study selects a few key markers of drinkers' effects on children. A major focus of this chapter is the child abuse statistics available for Victoria that include recorded alcohol involvement: all substantiated cases and cases as they increase in severity and progress through the system will be analysed. Death and hospital figures are briefly reported upon, although these figures have already been summarized in Chapter 3. State-based estimates of fetal alcohol syndrome (FAS) have been included. The final key indicator data set draws on the national survey of the range and magnitude of alcohol's harm to others. In the concluding section of this chapter estimates of the numbers of children living with heavy drinkers have been included, although the assumption that there must be harm associated with this drinking is not necessarily the reality.

Literature review

Fetal alcohol syndrome

Alcohol consumption during pregnancy has been shown to increase the risk of negative birth outcomes, such as low birth weight (Larroque, et al., 1993), miscarriage, stillbirth and premature birth (O'Leary, 2004), slower infant reaction times and cognitive processing speeds (Burden, et al., 2005), as well as causing the rarer Fetal Alcohol Syndrome (FAS) (Aase, 1994, O'Leary, 2004). Furthermore, a Queensland longitudinal study has demonstrated that maternal drinking during pregnancy may increase the risk of alcohol disorders in the child in early adulthood (Alati, et al., 2006).

Fetal alcohol syndrome (FAS) is diagnosed when a child who has been exposed to alcohol during pregnancy is born with growth retardation, abnormal facial features, and central nervous system anomalies (Elliott and Bower, 2004). Although it is widely acknowledged that underestimation of the problem is common (Elliott and Bower, 2004), the prevalence of reported FAS ranges from 0.2 per 1000 live births in Western Australia, to 39 per 1000 in the Western Cape Province of South Africa. Although reported rarely, FAS may be "the beginning of a lifelong and intergenerational pathway to physical, social and mental ill-health," particularly when the consequences at birth are overlaid with predisposing and post-hoc factors, such as poor maternal education, poor housing, low socio-economic status, physical abuse and domestic violence and marginalization (Allen, et al., 2007, Elliott and Bower, 2004).

Though the existence of FAS is well established, it is primarily associated with very heavy drinking episodes on the part of the mother during gestation. Well-conducted meta-analyses report no evidence of an increase in fetal malformations at or soon after birth with moderate maternal alcohol consumption and no evidence that low-moderate drinking is associated with miscarriage, stillbirth, prematurity, intrauterine growth restriction and birth defects including FAS (Henderson, et al., 2007). There is no evidence available that even relatively heavy drinking episodes (six drinks or more), short of very heavy levels, influence rates of prematurity, miscarriage, stillbirth, low birthweight, intra-uterine growth retardation, or birth defects including FAS, with the possible exception of neurodevelopmental outcomes over and above total drinking volume (Henderson, et al., 2007).

A range of conditions are discussed in the literature that do not fulfil the criteria for FAS, but which constitute neurological, behavioural and growth disorders caused by prenatal alcohol exposure. Several terms have been used for these, including: fetal alcohol effects (FAE), fetal alcohol spectrum disorder (FASD), and partial FAS; which have been related to a range of effects that continue into adulthood and include a lack of age-appropriate socialization skills or communication skills, behavioural issues, mental health problems, chemical dependency and legal problems (National Health and Medical Research Council, 2009). The prevalence of these alcohol-related disorders such as FASD is reportedly much higher than the prevalence of FAS (Allen, et al., 2007), but no estimates are available for Australia.

Although FAS is rare, the existence of a range of alcohol-related birth defects, including FAE and FASD and partial FAS and other neurological and behavioural growth disorders, and the potential long term consequences of these conditions is a strong argument for policies and interventions that diminish the prevalence of these conditions.

Child abuse or maltreatment

Child abuse or maltreatment includes exposure to physical, emotional or sexual abuse, as well as neglect. Abuse of children is under-reported and under-recognized (Creighton, 2004) . The image of an iceberg is commonly used to describe the severity and prevalence of child abuse, with the most serious cases reported to protective services being all that is visible above the waterline. The child abuse rate for Australia in 2005 was estimated at 6.7 substantiated cases per 1,000 children aged 0-16 years (Australian Institute of Health and Welfare, 2008). A decision to substantiate means that there is significant harm or risk. Cases are not classified or substantiated lightly, and abuse is under-reported (Van Haeringen and Dadds, 1998).

Research theories suggest that alcohol is implicated in mistreatment of children by its impact on family functioning, causing conflicts, social isolation and role reversal by disrupting parenting (Rossow, 2000). The effect on family functioning may be contextual; for instance the financial impacts of a family member's heavy drinking may increase stress on families already under pressure. Or the effect may be more direct, through disinhibition of behaviour under the influence of alcohol, resulting in increased levels of adult physical and sexual abuse (Rossow, 2000) . It is difficult to disentangle the impact of alcohol in complex dysfunctional families with individual, familial and community resource deficits (financial, educational and social).

The Victorian Department of Human Services describes a range of ways that children in families may be affected by alcohol or other drug use, including that: "a parent's overriding involvement with alcohol or drugs (AOD) may leave the parent emotionally and physically unavailable to the child; a parent's mental functioning, judgement, inhibitions, and/or protective capacity may be seriously impaired, placing the child at increased risk of all forms of abuse and neglect; a parent may disappear for hours or days, leaving the child alone or with someone unable to meet the child's basic needs; excessive responsibility may be placed on young children to care for themselves and/or young siblings; a parent may spend the household budget on alcohol and drugs, depriving the child of adequate food, clothing, housing and health care; and consistent exposure in the home may contribute to the child eventually developing AOD problems" (Victorian Department of Human Services, 2002).

Alcohol is implicated in a varying proportion (30-70%) of child abuse cases across Australian states. Thus, for Victoria, it is reported that "Approximately half of all child abuse and neglect cases investigated by Child Protection in Victoria involve some degree of problematic alcohol or other drug use by the child's parents" (Victorian Department of Human Services, 2002), with a third of all cases involving alcohol. In NSW the figure that has been quoted is 80% (Burke, et al., 2006). However, such figures depend on summary decisions made by social workers in recording cases; the alcohol involvement has not been estimated precisely using comparable or reliable survey methods.

Reports from other countries with similar levels of alcohol consumption have found figures in the same general broad range, though again the basis for the individual judgements underlying the statistics is opaque. In Canada, 18% of female caregivers and 30% of male caregivers in substantiated child abuse statistics had confirmed diagnoses of alcohol abuse (Trocme, et al., 2005). In the US, 13% of perpetrators of child abuse were reported to be intoxicated at the time of the event (Gil, 1970) in (Combs-Orme and Rimmer, 1981), though these data were from 1970. The Child Welfare League of America and Caughy (1990) reported that between 50% and 80% of child maltreatment reports involve substance abuse, and in 64% of these cases alcohol was the primary substance (U. S. Dept of Health and Human Services, 1993). The most recent US national report on child abuse reported that 14-61% of notified caregivers in New Mexico abused alcohol (U.S. Department of Health and Human Services, 2008); national reporting was absent. Dore et al. (1995) reported that between one third and two thirds of maltreatment cases in the United States involved parental alcohol and other drug use, and that alcohol involvement was more prevalent in court-involved cases.

Child deaths and hospitalisations

Alcohol is potentially involved in child deaths by assault, fire, drowning, traffic crash and a range of other injuries including falls. However, intoxication of the person responsible for an incident in which a child dies is not routinely captured by secondary data sets such as the National Coroner's Information System or the Australian Bureau of Statistics cause of death data, although intoxication of the victim at the time of death, if determinable, may be. For example, a child who drowns in a bathtub or falls from a height may not have been adequately supervised at the time of the incident because the carer was intoxicated. Although in routinely collected data there is a flag for victim intoxication at the time of death, this will not be completed for the child, and a field will not exist for others involved. Text fields and case notes, with descriptions of events, may hold further information on cases such as this and have been examined in NSW and to a lesser extent in Victoria. In 2003 in New South Wales, 68 deaths of children aged 0-17 years were investigated, and in 19% of these cases carers with a history of alcohol abuse were identified (NSW Child Death Review Team, 2003). In Victoria a similar review

panel exists that investigates all child deaths where the child was a client of Child Protection Services, Victoria. Of the sixteen children who died in 2008-2009, parental substance use was identified in 86% of cases; there was no breakdown by type of parental substance use in this report and the substance use was not necessarily related to the death per se (Victorian Child Death Review Committee, 2009).

Currently in Australia, for road traffic, fire injuries and child abuse an attributable fraction is used in estimates of alcohol's role in the burden of disease to apportion a fraction of all cases aged 0-14 years to alcohol (English, et al., 1995, Ridolfo and Stevenson, 2001). Alcohol's direct effect on road crash incidents, through such effects as increasing response times and judgemental errors, is well documented, and decreased alertness, increased distraction and loss of consciousness may affect others' ability to supervise children or prevent a range of injury types.

In road injuries, fractions developed for adults are applied to child deaths and hospitalisations, whilst in other cases, there is no attribution to alcohol for any injuries in children, e.g., drowning and falls, although there may well be a level of unrecorded alcohol consumption by others linked to the incident. Though some 41% of all fire injuries of children aged 1-14 years are attributed to alcohol in standard epidemiological estimates, this estimate is not well founded on a direct Australian empirical base (Ridolfo and Stevenson, 2001). Currently in Australia for road traffic crashes, an estimated 33% of male child deaths, 11% of female child deaths, 25% of male child hospitalisations and 11% of female child hospitalisations for road traffic injuries in Australia are attributed to alcohol (Collins and Lapsley, 2008, Ridolfo and Stevenson, 2001). These figures have been updated as part of this project (see Appendix A for the new road traffic PAAFs). Currently in Australia and internationally, the Burden of Disease studies (Begg et al., 2007) link alcohol with violence and child abuse, generally apportioning 16% of child abuse hospitalisations and deaths to alcohol (English, et al., 1995, Ridolfo and Stevenson, 2001), although Schultz et al. (1991) apportioned almost half of child battering cases to alcohol in the United States. The 16% figure was primarily based on U.S. child protection figures from the 1970s (English et al., 1995). Again, these figures have a shaky empirical base, in terms of evidence on whether they properly apply to Australia, and have been updated as part of this project (See the results from Table 8.6 later in this chapter for the updated child abuse PAAFs).

In a 2003 summary publication, 463 deaths of children aged 0-14 years were identified as alcohol-caused between the years 1992 and 2001, an average of 51 child deaths per year. A total of 11,169 hospitalisations for alcohol-attributable causes were recorded for the same age group in the years 1993/94 – 2000/01, on average 1396 hospitalisations per year (Chikritzhs, et al., 2003). The only causes of alcohol-attributable death of children in these age groups were due to road traffic injuries, alcohol poisonings, fire injuries and child abuse. In applying PAAFs for deaths and hospitalisations to yield these figures, it was assumed that the rate of drinking-related accidents involving children was the same as for drinking-related accidents in adults. Further analyses are required to determine whether in fact much larger PAAFs should be applied to deaths and hospitalisations involving children.

The scope and range of alcohol's harm to children

There is a literature (Dawe, et al., 2007) where researchers have extrapolated harmful drinker prevalence figures to estimate the number of children exposed to heavy drinkers. Based on the number of children aged 12 years or less living in Australia (1,755,343 males and 1,666,031 females in this age group, totalling 3,421,374 children), Dawe et al. estimated that 13.2 per cent or 451,621 children are at risk of exposure to binge drinking in Australian households by at least one adult. This type of estimate in some ways forms the upper limit of children who may experience negative effects because of household members' drinking, although the assumption that all heavy drinkers cause their children significant harm is not sustainable.

Until recently there has been little Australian work on the specific impacts of alcohol consumption on the drinker's children, apart from a small study in Canberra demonstrating that problem drinkers have children with lower life satisfaction (Devine and Braithwaite, 1993). However in a small but comprehensive mixed methods action research study of children whose parents were in treatment for their drug or alcohol dependencies, Gruenert et al. (2004) found that the parents themselves reported that during times of active alcohol or drug use they were more irritable, intolerant or impatient toward

their children, that they used harsher discipline, were less responsive to their children's needs, yelled more, and let go of routines (including getting their children to school), and that they let their children take on adult roles, including caring for younger siblings. This study did not examine differences in parenting strengths and deficits between drinkers and other drug users.

Dawe et al. (2007) have summarized the largely international literature on the developmental, social and emotional and health and safety impacts parents' and carers' drinking may have on their children. Very little work has attempted to understand how others' drinking might be harming children from either the child's view or that of other parental carers in contact with the children and the drinker. Using a parent child conflict scale, Strauss and Hamby (1998) asked parents to self-report punishment styles, some of which may be interpreted as child maltreatment: these range from imposing a time out to slapping, kicking, stabbing and even shooting. But rates of these 'punishments' within households that do and do not contain problematic drinkers have not been compared.

Fetal alcohol syndrome

The incidence of fetal alcohol syndrome (FAS) is relatively rare in Australia overall, although higher in indigenous populations (O'Leary, 2004). In Table 8.1 results have been compiled from those states where surveillance has been conducted. Seventeen indigenous children fulfilled the diagnosis for FAS in the top end of the Northern Territory between 1990 and 2000, resulting in a prevalence of 0.68 per 1000 live births, or if an additional 26 children born in this time period were included where records were incomplete, the prevalence might be as high as 1.7 per 1,000 indigenous live births (Elliott and Bower, 2004). In Western Australia retrospective case analysis revealed an additional 21 cases taking the rate of FAS from 0.13 to 0.18 per 1000 births (Elliott and Bower, 2004). In Victoria the incidence of FAS reported to the Victorian Birth Defects Register (VBDR) was 0.006 per 1,000 live births (Allen, et al., 2007). An audit revealed no further definitive FAS cases, but four possible cases which, when added, increase the rate to 0.014 per 1,000 live births. In the paediatric population of Aboriginal communities in Far North Queensland, the prevalence of fetal alcohol spectrum disorder (FASD) was reportedly at least 15/1000 children (Rothstein, et al., 2007).

Table 8.1: The incidence of fetal alcohol syndrome diagnoses in Australia by state

	Victoria	Western Australia	Northern Territory
Year	1995-2002	1980-1997	1990-2000
N cases	<5	77	17
Rate per 1000 live births of FAS	.006-0.014	0.02-2.76*	0.68-1.7*

*For Aboriginal children

Examination of Australian hospital data in Table 8.2 reveals that very few children are hospitalised for FAS in any given financial year. Only the first ICD-9/10 code diagnosis is examined in extracting FAS cases; very few FASD cases are recorded.

Table 8.2: Hospitalisations among 0-14 year olds attributable to alcohol consumed by others, 2004/05

	Total hospitalisations	Alcohol-attributable hospitalisations	Bed days
Fetal alcohol syndrome	<5*	<5	<5

* Cannot be tabulated when less than 5 cases

Child abuse client data results

The main data used in this report on alcohol's role in child abuse are the child abuse records for Victoria, which include a mandatory code concerning whether there was alcohol involvement in the case, that is whether a carer's drinking was seen by the welfare worker as involved in the abuse. All substantiated cases are analysed to determine how commonly carer alcohol problems are identified as a risk factor, and the association of alcohol involvement with the severity of the case is also investigated.

Child Protection Data

For this research de-identified data records were obtained for all child protection cases notified to the Victorian Department of Human Services Child Protection Unit which were entered on the Client Related Information System (CRIS) database in the years 2001 to 2005. Information on 188,063 cases concerning whom the department was investigating or acting was available for analysis. An investigation concerning a particular child (client) constituted a case. However, there was often more than one investigation of a particular child, and a total of 97,684 clients were recorded as cases an average of 1.9 times in this period. Child protection cases in Victoria pass through five main phases, starting with entering the system as a report or notification (Figure 8.1) which if necessary is investigated. Cases are then categorized: not substantiated; substantiated and no further action required; or substantiated and further protective intervention needed. If further intervention is needed, this triggers the protective intervention phase. This usually involves implementation of a plan (commonly involving other services, sometimes just involving extended family) to address issues by agreement with the family, and assessment of the plan's viability. Outcomes (or service dispositions) following substantiation include provision of ongoing child welfare services; referrals to other services; placement of children in out-of-home care; or application to child welfare courts for an order, which often results when the parent/s contest the decision or when the placement is not with other family members. Following substantiation, a decision whether to issue a protective application is made. In these more serious cases a decision to issue a Protection Order may be made by the Children's Court, which triggers the Protection Order phase. This phase also involves supervision of the Order (and any associated conditions, e.g. placement of the child in state care or other family care alternatives) imposed by the Children's Court.

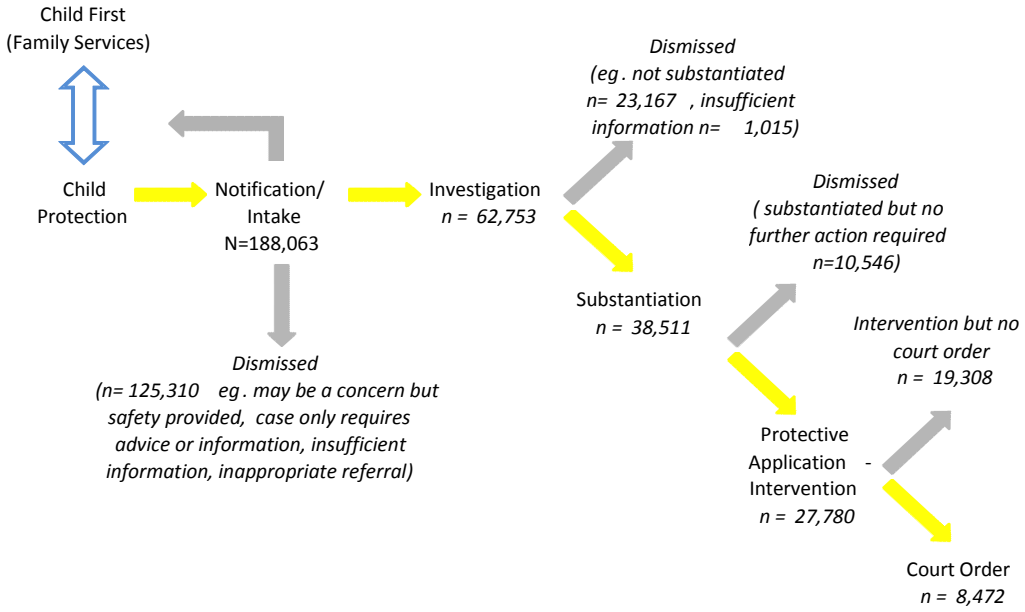


Figure 8.1: Stages of surveillance in the Child Protection system in Victoria, Australia, 2001-2005

As adequate information is only recorded once the case is substantiated, only substantiated cases have been used in these analyses. Progression through later stages of the child protection system will be compared with those baseline cases that are substantiated. The two outcome variables examined will be progression through to the protective intervention phase and then further progression through to the court order phase.

The type of primary harm has been grouped according to the main categories: physical harm, sexual abuse, emotional or psychological harm, and physical development or health affected (assumptively by neglect of some kind).

Alcohol involvement is mandatorily recorded in the data system as a parental characteristic (Yes vs. No or Don't know) once the case has been substantiated during the investigative stage. For example alcohol is recorded in 33.2% of all substantiated cases. A range of other variables is also captured in the data base, including age, gender, family type, accommodation category, income type and other risk factors. The risk factors coded include (other) substance use, domestic violence, parental history of child abuse as a child, parental mental health and the current level of risk or urgency.

Analysis

In the 2001-2005 dataset, 38,511 substantiated cases of child abuse were analysed. Descriptive statistics were generated for substantiated cases of child maltreatment involving alcohol, and then associations between alcohol and type of child maltreatment, child protection outcomes, gender of child, child's age, housing, income and family type were examined. The involvement of a number of risk factors such as substance use and domestic violence was also examined. All analyses were conducted using Stata 9 (StataCorp, 2007).

Results

Rates of substantiated alcohol-involved child abuse.

The rate of substantiated child abuse cases in the total Victorian child population is depicted in Figure 8.2. Over the 5-year period the rate declined slightly from 7.1 to 6.7 per 1000 children aged 0 to 16 years. Table 8.3 describes alcohol involvement in various stages of the child protection process in Victoria. Alcohol was recorded as a risk factor in 25.4% of cases where the case was substantiated but did not require further intervention, i.e. substantiation was the most serious outcome. Alcohol was identified in 33.8% of those cases that progressed through to the protective intervention phase but not to a protection order phase and 41.7% of court orders involved alcohol. Alcohol was recorded as a factor in 33% of all these cases (and all cases were, at least, substantiated). The rate of substantiated cases with reported alcohol involvement is also depicted in Figure 8.3 and hardly varied, from 2.4 to 2.3 per 1000 children. Of total cases in the five year period, 33.2% substantiated cases involved alcohol. (This figure is used in the section on national estimates later in this chapter.)

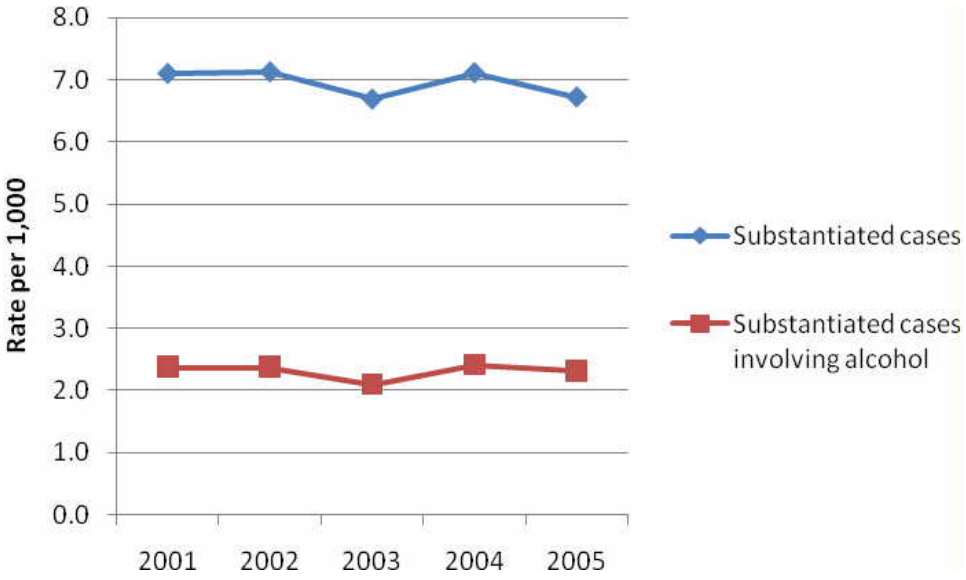


Figure 8.2: Child protection cases aged 0-16 years per 10,000 per annum in Victoria, Australia, 2001-2005

Table 8.3: Alcohol involvement by current most serious stage in Child Protection Process 2001-2005

	Child Protection Stage 2001-2005			
	Substantiated Investigations	Protective interventions	Protection orders	Total
Alcohol involvement (n of most serious outcome)	2,723	6,526	3,531	12,780
% of most serious outcome	25.4%	33.8%	41.7%	33.2%
Total (n most serious outcome)	10,737	19,304	8,470	38,511

Alcohol involvement in different types of cases

In Table 8.4, the main types of primary harm to the child are shown: physical harm, sexual abuse, emotional or psychological harm, and neglect (physical development or health affected). Alcohol was identified as a factor in 12.3% of sexual abuse, 27.0% of physical harm, 38.9% of emotional or psychological harm and 35.0% of neglect cases. Alcohol was most likely to be identified in families where parents were deceased or incapacitated, and also more likely to be found in cases where emotional or psychological harm was substantiated. Alcohol was less commonly identified in cases of substantiated sexual abuse.

Table 8.4: Alcohol involvement in substantiated cases by type of primary harm, 2001-2005

	Child abandoned	Parents deceased or incapacitated	Physical harm	Sexual abuse	Emotional or psychological harm	Neglect - physical development or health affected	Total
N of cases with alcohol involved	246	246	2,556	385	6,666	2,681	12,780
% alcohol involvement	38.0	55.5	27.0	12.3	38.9	35.0	33.0
Total	648	443	9,484	3,124	17,154	7,658	38,511

Alcohol and other risk factors

Multiple risk factors were commonly identified in substantiated cases. Table 8.5 describes the relationships between alcohol and other risk factors for child maltreatment. Alcohol was identified in 47.6% of substantiated cases involving domestic violence, 36.3% percent of cases involving parental psychological or mental ill health, 41.3% of cases where a history of parental child abuse as a child was identified, and 55.0% of substance use cases. All of these bivariate associations were significant at the $p<0.001$ level.

Table 8.5: Relationships between alcohol and other risk factors amongst substantiated cases of child maltreatment, 2001–2005

	Alcohol was identified as a risk factor
Domestic violence involvement	
No (17,989)	16.7%
Yes (20,489)	47.6%
Mental health problem	
No (29,928)	32.3%
Yes (8,559)	36.3%
Parental history abuse	
No (30,297)	31.0%
Yes (8,190)	41.3%
Substance use	
No (24,908)	21.3%
Yes(13,579)	55.0%

Discussion

Alcohol was recorded as a factor in 33.2% of all substantiated cases of child maltreatment. This percentage is higher than that reported for Victoria in 1993 and 1994 in a study of case notes, in which it was reported that in 21% of child abuse cases in Victoria alcohol was recorded as a family characteristic (Victorian Department of Human Services, 2001). This suggests that more cases tend to be identified with mandatory reporting and coding. It is similar to that reported in 2002 on some of the same data, where approximately one-third of child protection cases involved alcohol (Victorian Department of Human Services, 2002). It is considerably higher than the figures used by English et al., where 16% of child maltreatment cases are attributed to alcohol (English, et al., 1995). Child maltreatment statistics show an increased prevalence of an alcohol dimension in those child protection cases which require greater intervention, and child death reviews conducted in Victoria (NSW Child Death Review Team, 2001, Victorian Child Death Review Committee, 2009) provide evidence that alcohol and other substances may be involved more commonly in more serious cases, as is also implied by the present analysis. Abuse of children is under-reported and under-recognized (Creighton, 2004). A measure of alcohol involvement is not mandatorily collected across Australia, so Victorian figures have been used in this research. Arguably Victoria has some of the lowest rates of both per capita alcohol consumption (Catalano, et al., 2001) and child abuse in Australia (Australian Institute of Health and Welfare, 2008) and may provide an underestimate of the situation.

An estimate of 33% is relatively consistent with figures from Canada, where 18% of female caregivers and 30% of male caregivers involved in child abuse cases reportedly had confirmed diagnoses of alcohol abuse (Trocme, et al., 2005). It is also consistent with figures from the most recent US national report on child abuse, where it was reported that 14-61% of caregivers in New Mexico abused alcohol (U.S. Department of Health and Human Services, 2008), and older studies from the United States (Dore, et al., 1995) which reported that between one and two thirds of maltreatment cases in the United States involved parental alcohol and other drug use, and that alcohol involvement was more prevalent in court-involved cases. This is consistent with our findings that alcohol was more commonly identified as a parental factor as the level of child protection intervention increased.

Our data indicate that alcohol was identified more commonly in cases where children's parents were deceased or incapacitated, where children were abandoned and where emotional or psychological

harm was recorded. A greater percentage of neglect cases was also associated with parental alcohol problems; again, this is consistent with Canadian findings (Trocme, et al., 2005).The level of alcohol involvement was similar to that identified in Canada overall, although the percentage of physical abuse cases that involved alcohol was substantially higher in Victoria, Australia than in Canada (Trocme, et al., 2005).

The results of this research provide better data than had been previously available for attributing alcohol involvement for Australian child abuse hospitalisations and deaths. Previous estimates used child protection data from the United States. As hospitalised cases were expected to be more likely to involve physical abuse and because this figure was more conservative than that for all cases, the figure for physical abuse was identified as the most appropriate indicator of what proportion of child abuse cases should be apportioned to alcohol. This research (see Table 8.6) demonstrates that 27% of cases of substantiated physical abuse involved alcohol. Although it may be argued that the likelihood of alcohol involvement would increase as the cases progress further into the system, again the more conservative figure has been used. Further discussion with hospital data holders has revealed that the majority of cases that end up in hospital are cases of physical abuse. Medical neglect cases are also identified in the hospital data records and it is recommended that a new population alcohol aetiological fraction (PAAF) of 35% be applied to these cases in future analyses. It was not possible to distinguish between these two types of cases in this analysis, so again the more conservative estimate of a PAAF of 27% has been used.

A limitation of this study is that alcohol involvement in child maltreatment is not well recorded. There is a need to define what social workers mean by “involvement”: was there intoxication at the time or did a pattern of dependent or binge drinking exist? Future research will survey protection workers and make recommendations regarding how alcohol recording can be improved within the system.

National estimates

The rate of substantiated child abuse for Australia 2006/07 was 7.0/1,000 children aged 0-16 years, a total of 58,563 cases across Australia (Australian Institute of Health and Welfare, 2008). Using the available data from Victoria that 33.2% of substantiated child abuse cases involved alcohol, it may be estimated that 19,443 cases of child abuse involved alcohol across Australia. As noted, this is most likely an underestimate, as Victoria has the lowest rate of per capita alcohol consumption (Catalano, et al., 2001) and the third lowest rate of substantiated child abuse (Australian Institute of Health and Welfare, 2008) of all the Australian states.

Child deaths and hospitalisations due to alcohol

This section of the report focuses on hospitalisations and deaths of children attributed to the alcohol use of others in Australia. These cases provide a picture of some of the most serious outcomes associated with the drinking of others. It is argued here that where children are under 15 years of age alcohol-attributable effects are largely due to others’ drinking, whether in instances of child abuse or in interpersonal violence or road crash injuries. Alcohol-attributable effects due to poor supervision by parents who may have been drinking (e.g. an unknown percentage of bath drownings) have not been included. Furthermore, alcohol poisonings by toddlers and other aged children have not been included, as this is technically not the drinking of others, although alcohol would not have been present in homes where toddlers lived unless parents or others were drinkers.

Chapter 3 describes the numbers and economic costs of deaths and hospitalisations of children that have been attributed to the drinking of others. Earlier in this chapter we have described how new analyses have informed the development of new PAAFs to estimate harm to children from others’ drinking. Only a very brief summary of these results from Chapter 3 have been included here to enable the chapter to stand alone.

Results

Alcohol-attributable deaths and hospitalisations attributable to alcohol consumed by others, summary for 0-14 yr olds

Using currently developed standard methods for attributing alcohol causality 5 child abuse deaths, 2 pedestrian and 7 non-pedestrian child road injury deaths were attributed to alcohol across Australia in 2005 (Table 8.6).

Table 8.6: Estimated number of deaths among 0-14 year olds attributable to alcohol consumed by others, 2005

	Total deaths	Age-specific PAAF	Alcohol-attributable deaths	Alcohol-attributable PYLL
Persons				
Child abuse- assault[2]	16	0.270	5	138
Child abuse- neglect & maltreatment[3]	1	0.270	0	8
Fetal alcohol syndrome	0	1	0	0
Road crash: non-pedestrian[4]	47	0.143	7	202
Road crash: pedestrian[4]	11	0.143	2	47
Total[1]	75	-	13	387

[1]Sum of all conditions for that sub-group
[2]ICD-10 codes X85-Y09 and Y87.1
[3]ICD-10 codes Y07, Y06
[4]Estimated age-specific PAAF for fatally injured road crash passengers and pedestrians where at least one vehicle operator had a BAC > 0.10mg/ml, see Appendix A.

Table 8.7 presents the estimated number of hospitalisations of children attributed to the drinking of others for a small range of injury types and conditions in Australia during the financial year 2004/05. Non-pedestrian road injuries, the majority of which involve child passengers in car crashes, result in the highest numbers of hospitalisations, although significant numbers of children are also hospitalised for physical or medical neglect, or sexual assault child abuse cases and pedestrian accidents. The incidence of FAS identified in hospital datasets is small and may be better examined using perinatal data birth defect registers and specific follow-up studies of infants.

Table 8.7: Estimated number of hospitalisations among 0-14 year olds attributable to alcohol consumed by others, 2004/05

	Total hospitalisations	Age-specific aetiologic fraction	Alcohol-attributable hospitalisations	Alcohol-attributable bed days
Child abuse- assault[2]	635	0.27	171	412
Child abuse- neglect & maltreatment[3]	390	0.27	105	496
Fetal alcohol syndrome	3	1	3	9
Road crash: non-pedestrian[4]	4697	0.099	465	736
Road crash: pedestrian[4]	764	0.099	76	312
Total[1]	6489		820	1966

[1]Sum of all conditions for that sub-group
[2]ICD-10 codes X85-Y09 and Y87.1, PAAFs from Table 8.6
[3]ICD-10 codes Y07, Y06, PAAFs from Table 8.6
[4]Estimated age-specific PAAF for fatally injured road crash passengers and pedestrians where at least one vehicle operator had a BAC ≥ 0.10mg/ml, see Appendix A.

Discussion

Child deaths are fortunately rare yet act as key critical indicators of the consequences others' drinking may have. The NSW Child Death Review committee regularly reports the proportion of child fatal assaults where families have a history of alcohol abuse. Prior to 2004 this information also included neglect and suspicious child deaths (NSW Child Death Review Team, 2001, 2003).. In Victoria (and

other states) each case is subjected to a coroner's inquiry, the findings of which are made public, although only those cases that are currently involved with Child Protection, or had been in the last three months have been collated in Victoria (Victorian Child Death Review Committee, 2009). Other states do not report such findings (NSW Child Death Review Team, 2001).

There are still significant issues regarding use of the alcohol attributable fractions established in 1995. For example the PAAF developed for child abuse is based largely on one US study of the proportion of child protection cases involving alcohol in one state in the United States (English, et al., 1995). It is assumed that the fraction established for hospitalisations, based on child welfare statistics, can be applied to deaths as well as hospitalisations. The PAAFs for child hospitalisations, although based on greater numbers which have been updated with respect to the Victorian Child Protection statistics, are likely to vary substantially by state, particularly in those states with higher rates of child abuse and alcohol consumption. In order to get a better estimate of alcohol's contribution to child deaths and hospitalisations a program of research is required to update these PAAFs for a range of medical and injury conditions as well as child abuse statistics.

The wide-reaching approach taken by the NSW Child Death Review teams should be implemented in other states. Future research should investigate where possible child hospitalisations and emergency presentations and the alcohol involvement of others' drinking in these incidents. It is recommended that coroner's reports consider widening the investigation process to include whether problematic parental alcohol or substance use was ongoing or in evidence at the time of the event. The purpose of such investigations should not be to lay blame and stigmatise grieving parents and carers but to improve the knowledge base regarding how much others' drinking can increase the level of risk. The implications of alcohol use for the ability of parents and carers to supervise is underestimated, and wider dissemination of these potentially fatal consequences should be considered in the context of injury prevention campaigns.

Alcohol's harm to others survey data

Introduction and methods

This section of the chapter focuses on drinkers' harm to children and uses data from the Alcohol's harm to others survey. Respondents with children living in the same house or for whom they have some parental responsibility were asked questions eliciting potential neglect or abuse of the children because of someone else's drinking, and how much the drinking of others had negatively affected the children in the last 12 months. The respondent was also asked whose drinking had this adverse effect. These questions loosely mirror types of primary harm, excluding sexual harm, commonly substantiated by Australian child protection services (Australian Institute of Health and Welfare, 2008).

All respondents with children or who had parental/carer responsibility for children were asked five specific questions. The questions used were "How many children [aged 0-12 and then 13-17] live in your household? If a number was given respondents were included in this denominator. Furthermore, all respondents were asked "Are there any children 17 or younger NOT living in the household for whom you have some parental responsibility?" Again those respondents who indicated this was the case were included in the denominator. The five items then asked were:

- How many times was one or more [children] left in an unsupervised or unsafe situation because of someone else's drinking?
- How many times was one or more yelled at, criticised or otherwise verbally abused because of someone else's drinking?
- How many times was one or more physically hurt because of someone else's drinking?
- How many times did one or more of these children witness serious violence in the home because of someone else's drinking?
- How many times was the child protection agency or family services called because of someone else's drinking?

In addition, respondents were asked to assess the overall negative impact that other people's drinking had on these children via a question worded: "How much has the drinking of other people negatively affected (this child / these children) in the last 12 months?" The response options were a lot, a little or not at all. It should be noted that respondents were not asked about adverse effects on the children due to the respondent's own drinking. To this extent, the rates reported in the survey are an underestimation of total rates.

Data analysis was undertaken using the survey module in Stata 9 (StataCorp, 2007). The survey was weighted according to the inverse of the respondent's probability of selection into the sample. Post-weights were also applied to reflect the age and sex composition in each geographic sampling stratum. All the results reported here are based on the weighted data.

Results

This section of the chapter presents data from 1,155 respondents who were currently living with children or who had parental responsibility for children.

Of those respondents that reported either that they lived in a household with children (under 18 years) or that they had responsibility for children but did not live with them (e.g., a father or mother not currently living with child), 12% reported that these children had been affected in one or more ways by the drinking of others (Table 8.8). Respondents most commonly reported that children were yelled at, criticized or verbally abused because of others' drinking; smaller percentages reported witnessing domestic violence or that children were left unsupervised or in unsafe situations because of others' drinking. Very small numbers reported that children were physically hurt or that Family Services were called.

When respondents (carers) were asked a generic question: "How much has the drinking of other people negatively affected your children/the children you are responsible for?" 17% reported that the drinking of others had affected them a lot or a little. Three (3.1) percent reported that others' drinking had affected them a lot and 13.6% reported that their drinking had affected them a little. The discrepancy between the listed harms and the response to this general question suggests that respondents may be aware of other negative affects aside from the specific items listed in Table 8.8 that result from others' drinking.

Table 8.8: Harms experienced by respondents with children (% of those with children in or out of the household, n=1155)

	Male	Female	Total
"Because of someone else's drinking how many times in the last 12 months….."			
Were children yelled at, criticised or verbally abused? One or more times	9	8	8
Did children witness serious violence in the home? One of more times	3	3	3
Were children left in an unsupervised or unsafe situation? One or more times	3	4	3
Were children physically hurt? One or more times	1	1	1
Was a protection agency or family services called? One or more times	<1	0	<1

Respondents were most likely to report that a parent's drinking (other than themselves) was responsible for negatively affecting a child they were responsible for (58 parents; 8 step-parents or partners of a parent; less than 5 guardians). Respondents also reported that their children were negatively affected by the drinking of other family members (12 siblings; 19 other relatives), family friends or people their child was in contact with, such as a coach, teacher or priest (25 cases), and by others (11 cases). Some respondents reported cases in more than one category.

Discussion

As noted above, Dawe et al. estimated the number of dependents aged under 15 who were living with a high-risk drinker in Australia (using the 2001 NHMRC guidelines – more than 6 per day for males

and more than 4 per day for females). According to this estimate, 2.4% of children under the age of fifteen live with a parent who drinks at high-risk levels and 9.3% children live with a binge drinking parent (Dawe, et al., 2007) This is an underestimate, as there will be some children whose dad (for example) is a heavy drinker, yet the child's mum will have answered the NDSHS.

The Alcohol's harm to others survey in a sense provides the reverse information, that is what percentage of parents and those living with children report that their children have been negatively affected by others' drinking. It is apparent that 17% report that their children have been affected in some way by others' drinking (and this does not include that proportion that may have been affected by the respondent's own drinking), and three percent report that their children have been negatively affected a lot.

Costing the effects of others' drinking on children

A brief description of two costing studies included follows. A description of the costing of morbidity has been included in chapter 3 already, so this area is only briefly mentioned. Although very high figures for costs for each case of FAS have been determined, better prevalence data is needed to provide sensible economic estimates of costs. Hence no attempts to estimate of the costs of FAS have been attempted in this report. The most detail has been provided on the costing of child protection services for Victoria, as these costs have not previously been included in social cost estimates and provide a significant advancement on costing studies in this area. Finally child protection costs and morbidity costs have been added to produce an overall estimate.

Hospital or morbidity costs

Costs associated with morbidity and mortality of children has been estimated for children injured or killed in road crashes and due to child abuse and detailed in Chapter 3. Non-pedestrian (passengers or bike riders) morbidity costs for children constituted the largest amount - an estimated figure of $2.0 million. Most of these costs were associated with crashes involving male children and these morbidity costs were an estimated $1.47 million while the costs associated with crashes involving female children was estimated at $569,000. The second largest morbidity cost for children was associated with child abuse hospitalisations and totalled an estimated $948,000. Costs associated with hospitalisations of children due to road crashes associated to others drinking involving child pedestrians amounted to $608,000. All of the morbidity costs included add to $3.59 million.

Costing child protection services, out of home care services & intensive family support services

Introduction

When a drinker affects a child such that the child has to go through the child protection process, there are a range of costs incurred by numerous parties. The child's "opportunity cost" is the time he or she could have spent alternatively on formal education, informal learning and leisure. The child also experiences intangible costs such as anxiety, diminished academic capacity and loss of 'childhood' where children are 'parentified' at inappropriate ages and take on roles looking after younger siblings. The child also faces lifetime costs as the impact is not only in the immediate term. This opportunity cost was estimated to be around $3.0 billion for children who were newly involved with child protection services in 2007 (Taylor, et al., 2008). The various service providers within the child protection process also are required to allocate resources to these cases and there are substantial opportunity costs attached to these resources. The various service providers include child protection services, out of home care services, intensive family support services, police, medical experts and children's courts. Child protection services are defined as "the functions of government that receive and assess allegations of child abuse and neglect, and/or harm to children and young people, provide and refer clients to family support and other relevant services, and intervene to protect children". Out of home care services include "care for children placed away from their parents for protective or other family welfare reasons". Intensive family support services are "specialist services, established in each jurisdiction, that aim to prevent the imminent separation of children from their primary caregivers as a

result of child protection concerns and to reunify families where separation has already occurred". Better estimation of the costs faced by these various service providers will enable better understanding of the burden and pressure on the child protection system which is described as being in crisis (Taylor, et al., 2008).

This section of the study looks at the costs involved in child protection services, out of home care services, intensive family support services and children's courts services for cases which are related to someone else's drinking in order to understand the burden that this drinking imposes on an already over burdened system.

Data and Methods

State and Territory Government real recurrent expenditure on child protection, out-of-home care services and intensive family support services for 2008 was obtained from the Productivity Commission's Report of Government Services 2008 (Steering Committee for the Review of Government Service Provision, 2008). In our study, we found that 33% of all substantiated cases within Victoria were alcohol-related. There were no data available to identify what proportion of notifications (the first stage of child protection) were alcohol-related. However, personal communication with the Victorian Department of Human Services suggested that a reasonable estimate is that the same proportion – 33% – of all child protection notifications are alcohol-related. NSW data indicated that 10.9% of reported cases involved alcohol alone, 20.4% involved drugs and alcohol and 11.6% involved drug issues only. Using this information it was assumed that 31.3% (10.9% + 20.4%) of child protection cases are alcohol-related, which is close to the Victorian estimate. Due to a lack of data for the other states and territories, a conservative approach was adopted and an assumption made that 31.3% of child protection cases nationwide were alcohol-related. Real recurrent expenditure was obtained on state and territory government child protection services, out-of-home care services and intensive family support services and the proportion of these cases and their expenditure that were alcohol related was estimated using the best available data using the standard figure of 31.3%.

Results

The cost of alcohol-related child protection services is estimated Australia-wide at $221 million (see Table 8.9). Out-of-home care services costs related to alcohol were the highest at $393.8 million, followed by child protection services at $221.4 million. Intensive family support services were costed at $56.4 million. The total costs for all of these costs for Australia sum to $671.6 million. For all three types of costs, NSW faced the highest costs.

Table 8.9: State and territory cost estimates of child protection, out of home care and intensive family support services that are alcohol related

State	Child protection services	Out-of-home care services	Intensive family support services	Total
NSW	$87,526,020	$143,805,900	$21,580,960	$252,912,880
Vic	$39,100,050	$73,116,780	$13,642,200	$125,859,030
Qld	$59,790,623	$90,216,109	$18,867,421	$168,874,153
WA	$12,654,820	$37,786,210	$1,098,640	$51,539,670
SA	$10,738,710	$26,485,780	$538,780	$37,763,270
Tas	$5,000,610	$8,039,540	$65,410	$13,105,560
ACT	$3,074,270	$5,996,020	$443,610	$9,513,900
NT	$3,515,400	$8,390,150	$140,120	$12,045,670
Australia	$221,400,503	$393,836,489	$56,377,141	$671,614,133

The costs of the three types of services for cases related to alcohol were significant. The drinking of carers and parents that affects children to the extent that they require child protection services places severe financial strain on the child protection system. NSW and then Queensland incur the highest costs for all three types of services.

Limitations

Child protection cases that involve alcohol are not necessarily wholly alcohol caused. Child abuse is a contributory cause along with other factors. The total costs estimated here are conservative. The costs themselves are expenditure costs and therefore accounting costs. A costing taking account of suffering and of future disadvantage and loss of productivity would be much higher.

Research implications

The cost of child protection cases that are alcohol-related should be measured at each stage of the process and estimated over the lifetime of the child and not simply estimated on current service use. These costs should by measured and understood by state and territory governments and be taken into account when policies are developed and implemented. The costs to the children, their immediate families and/or carers and service providers, i.e., government, should all be looked at individually and summed. There is a dearth of good quality data to accurately estimate expenditures in this critically important area; more research is required to obtain better estimates.

The economic cost that alcohol-related child protection cases impose on court services needs to be estimated for all States and Territories.

When the morbidity and child protection costs incurred because of the impacts of others' drinking on children are added an estimated total cost of $675 million is calculated. This is a highly conservative figure. It does not even begin to count the intangible suffering experienced by children affected by others' drinking.

Conclusion

In this report child hospitalisations and deaths linked to others' use of alcohol have been measured and associated with significant economic burdens. Most importantly these statistics demonstrate the most severe consequences alcohol can have on children's and their families' lives. Estimates of Fetal Alcohol Syndrome (FAS) and Fetal Alcohol Spectrum Disorders (FASD) in selected Australian states provide further rare but profound and long term examples of how a child's lifetime opportunities and outcomes may be affected by alcohol.

Alcohol was recorded as a factor in 33.2% of all substantiated cases of child maltreatment. The rate of substantiated child abuse for Australia 2006/07 was 7.0/1,000 children aged 0-16 years, a total of 58,563 cases across Australia (Australian Institute of Health and Welfare, 2008). Using the available data from Victoria that 33.2% of substantiated child abuse cases involved alcohol, it may be estimated that 19,443 cases involved alcohol across Australia. The significant economic costs, over $56 million, required to care for children at risk of child maltreatment because of others' drinking have not previously been factored in to the alcohol policy debate.

This figure of 33.2% is considerably higher than the figures used by English et al. (1995), where 16% of child maltreatment cases are attributed to alcohol. Child maltreatment statistics show an increased prevalence of an alcohol dimension in child protection cases which require greater intervention, and child death reviews conducted in New South Wales and Victoria also provide evidence that alcohol may be involved more commonly in more serious cases. These estimates will inform future estimates of the global burden of disease and may be incorporated into revisions of alcohol attributable fractions used internationally and in Australia.

In the survey conducted as part of the study, the prevalence of perceived markers of child maltreatment (excluding sexual abuse) was assessed in the general population, including the number of times each occurred in the last year. Although the severity of the harm or risk to the child was not asked, this survey does for the first time provide an indication of how commonly children may be neglected or ill supervised, or physically or emotionally affected in similar ways (although arguably less serious) to those cases reported to child protection agencies. The rate of substantiated alcohol-related child abuse in the Victorian population has been estimated using Child Protection client data as 2.3

per 1,000 children aged 0-16 in 2005, i.e., alcohol-related child abuse (including, physical, emotional, sexual abuse and neglect cases) was substantiated in 0.23% of children in 2005 in Victoria. By way of comparison, the Alcohol's harm to others survey finds that 12% of parents or carers reported that one or more of their children (aged under 18 years) had been physically hurt, emotionally abused (yelled at), left unsupervised, or exposed to domestic violence because of someone else's drinking, in the past year, although not to the extent that child protection services were involved. When asked about negative effects more generally, 17% of parents and carers indicated that their children had been negatively affected by the drinking of others. It becomes apparent that the system data forms the tip of an iceberg, and in reality a much larger percentage of children are affected in the community. The general level of seriousness in the general community will be much lower than in the identified cases in the child protection system, but the potential level of harm is nevertheless of substantial concern. It is thus of concern that more than 17% carers reported that one or more of their children had been adversely affected by others' drinking.

The other striking findings of this work are the high economic costs related to the effects on children of the drinking of others. Costs accrue when children are exposed to alcohol prior to their birth, when children enter the child protection system and when they are injured and hospitalised. This study has only just begun to assess these costs and they already amount to a total of $675 million across Australia, excluding court costs and the intangible costs associated with the effects on the lives of children exposed passively to the problems associated with others' drinking.

This information will be useful to child protection and alcohol treatment policy makers and planners. It is evident that alcohol is a factor in explaining more severe child protection outcomes. This contributes to the overall debate on the externalities and harm to others from alcohol, and supports supply reduction policies for legal substances that may include licensing, availability, and price options. These results also support the need for comprehensive coordinated multi-sectoral services for families with multiple risk factors. Future analyses should also incorporate additional variables such as social support and family service or alcohol and drug treatment system variables and develop models for distinct types of primary harm, e.g., emotional harm or neglect.

The drinking of others affects many Australian children in a range of significant, heartbreaking and costly ways. Alcohol involvement in cases appears to increase as the level of involvement of child protection increases and a third of cases in the child protection system involved alcohol. This chapter includes only a proportion of immediate effects on children and has not begun to measure and count the long-term effects of others' drinking upon children. The following areas should be the subject of future research:

- Child deaths due to others' alcohol use
- Hospitalisations due to others' alcohol use, e.g. lack of supervision
- Emergency department presentations or ambulance attendances
- Long term health outcomes of children (medical, mental health and wellbeing outcomes)
- Economic costs (intangible costs to children and more detailed direct and complete social costs)
- Longitudinal analyses and cross-sectional analyses that incorporate examination of licensing patterns and other potential causal links

9: IMPACTS FROM THE KNOWN DRINKER WITH THE GREATEST ADVERSE EFFECT

Introduction

This chapter details the adverse effects from drinkers well known to the respondents – drinkers who are household members, family members, friends or co-workers. Drawing on data from the Alcohol's harm to others survey, the focus is on a particular drinker: the one whose drinking is designated by the respondent as having had the most adverse effect on the respondent in the last 12 months. The aim is to give a detailed picture of the consequences of the heavy drinking that respondents experience because of the drinking of people they know. This research provides this information for a representative sample of Australian adults. What did those close to the respondent do because of their drinking, how did this effect the respondent and what actions did respondents subsequently take? What were the costs for respondents in terms of out-of-pocket expenses and in terms of the time they spent looking after these people because of their drinking? Were they, and if so how much were they, worse off in terms of their quality of life, i.e., what were the implied costs of intangible harms?

While we acknowledge the harms discussed are not exhaustive, as would be the case in detailed qualitative studies, the harms range from those most would consider to be minimal (e.g., inappropriate behaviour at a social occasion) to harms most would consider to be extreme (sexual coercion).

This chapter is divided into three main sections: the first focuses on the types of harms or events that have been experienced by an individual as the result of another's drinking. The second focuses on the incurred costs – both financial and time – that have been experienced. The last section explores the economic cost dimension of the findings. The chapter ends with a discussion drawing upon the data from these three areas.

Methods – Alcohol's harm to others survey

A core component of the Alcohol's harm to others survey is to explore in detail the harms experienced because of other people's heavy drinking. In order to collect detailed demographic data information was sought on one 'other' person. To identify this 'other' person respondents were presented with a series of questions that spanned the 12 months prior to interview. Firstly, respondents enumerated the number of 'fairly heavy drinkers' known to them (this included those who drank a lot sometimes). For each person enumerated respondents indicated whether, as a result of the person's drinking, the person had 'negatively affected them in some way'.

The questionnaire was structured in such a way that respondents could identify such drinkers from a range of familial and social categories: household members, family members, work colleagues, friends, ex-partners and other persons well known to the respondent. If more than one person was identified, the respondent was asked to identify which person's drinking had negatively affected them the most. This identified person became the subject for a series of questions about the harms experienced as a result of his or her drinking – and is referred to here as the 'known drinker'.

In the survey 14 questions (detailed in Table 9.3) regarding harms and events of varying severity were asked of respondents that may have been experienced as a result of the known drinker. Respondents were asked to indicate if any of the harms had been experienced during the previous 12 months, and where an affirmative answer was provided they were then asked to quantify the number of times the particular harm occurred. Four of the questions in Table 9.3 (indicated by an *) were asked only of respondents who indicated that the known drinker was someone living within their household. In addition to these questions, respondents provided responses both in terms of their own socio-demographics and the socio-demographics of the known drinker.

Who is the drinker most adversely affecting the respondent?

Of the 2,649 respondents completing the survey 763 people (28.8% of the sample; 329 men and 434 women) identified at least one known drinker from their familial and social networks whose drinking had negatively affected them; the results from this subpopulation are reported. As noted, the respondents were then asked to designate whose drinking had most negatively affected them in the past year, i.e. *the known drinker*. As Table 9.1 shows, there was considerable variation in the relationship between the respondent and the known drinker. Only 8.0% of the whole sample designated someone in their household; nearly three times as many (20.8%) identified someone outside their household. A total of 5.1% named a spouse, an ex-spouse or ex-partner, or a boy/girlfriend; another 5.8% named a parent, child or sibling; 5.0% named another relative, the remaining respondents (12.9%) named someone else, a housemate, a friend or a workmate.

Table 9.1: Percentage reporting negative effects in the last year from the drinking of particular types of relatives or intimates, by gender and age

	Female				Male				Total
	18-29	30-59	60+	Subtotal	18-29	30-59	60+	Subtotal	
(N)	284	731	276	1290	258	776	320	1354	2644
Negatively affected by drinking of ...									
Household member*	9.8	6.3	3.8	6.5	14.8	9.5	5.0	9.4	8.0
Spouse/partner	0.8	2.3	1.1	1.7	5.5	4.6	2.0	4.2	3.0
Ex-spouse/ex-partner	2.1	1.1	0.4	1.2	5.0	1.6	0.3	2.0	1.6
Parent	3.1	1.1	0.0	1.3	3.4	3.1	0.0	2.4	1.9
Brother/sister	1.1	2.7	0.2	1.8	5.2	3.0	1.2	3.0	2.4
Child	0.0	0.6	3.6	1.1	0.0	1.9	3.1	1.8	1.5
Other relative	0.6	4.0	2.7	3.0	5.6	8.3	4.9	7.0	5.0
Other housemate	3.8	0.6	0.0	1.2	0.6	0.0	0.0	0.1	0.6
Boy/girlfriend	0.8	0.2	0.0	0.3	3.4	0.2	0.0	0.8	0.5

* Household member overlaps with other categories; the other categories are mutually exclusive

The focus in Table 9.2 shifts to the subsample of 763 who identified a known drinker. In this frame, it can be seen that household and family members together account for 48.2% of the designated drinkers. If ex-partners are added in, the total reaches 54.3%. Friends account for another 27.1%, co-workers for 9.7%, with a scattering in "other" relationships.

The two younger age groups were more likely to identify that they had been negatively affected by a drinker in the majority of relationship types although older respondents were more likely to be affected by family members not in the household. Younger respondents were more likely to be affected by friends, and young women were more likely to report being affected by an ex-partner. Men, and younger men particularly, were more likely to have been adversely affected by a friend's drinking, while women were more likely to have been most adversely affected by a household or family member.

Table 9.2: Percentage identifying the relationship to the known drinker whose drinking had the most significant negative effect on the respondent (n=762†)

	Male				Female				
	18-29	30-59	60+	All	18-29	30-59	60+	All	Total
(N)	97	201	32	330	113	270	49	432	762
Household member‡	4.8	12.7	19.1	11.0	22.8	21.9	21.5	22.1	17.3
Family members not in the household*	13.8	27.1	44.9	24.9	27.4	35.9	52.0	35.5	30.9
Co-worker	7.3	21.9	3.3	15.8	0.4	7.9	0.0	5.0	9.7
Friend	59.7	26.0	21.6	35.5	30.8	17.3	16.2	20.7	27.1
Ex-partner	6.3	4.2	3.4	4.7	14.2	5.0	2.0	7.1	6.1
Other	8.2	7.0	6.0	7.2	3.0	9.3	8.3	7.5	7.4
Refused	0.0	1.2	1.7	0.9	1.4	2.7	0.0	2.0	1.6

†One person did not report age

‡Excludes friends, others, and refused status of an identified household member – these are included in the categories below.

* includes parents, brothers, sisters, other relatives, boy/girlfriends

Note: denominator is all those who identified one or more drinkers who had negatively affected them

Concrete adverse effects in the last 12 months

Tables 9.3 and 9.4 provide a breakdown of concrete adverse effects from the known drinker by sex and age. Table 9.3 includes the ten items that were asked of all respondents who identified a known drinker. Table 9.4 includes an additional four items that were only asked of respondents who identified a known drinker who resided in the household.

When respondents were asked about concrete adverse effects from the known drinker the most common harm, indicated by 493 (65.0%) respondents, was that the drinker had "negatively affected a social occasion" (Table 9.3). As a result of the known drinker's drinking, more than 50% of the group indicated that the drinker had "emotionally hurt or neglected" them, that they had had "a serious argument without physical violence" and that they had "failed to do something they were being counted on to do". One-third of these respondents reported stopping seeing the drinker. Almost 30% of this subpopulation reported "feeling threatened" as a result of the other person's drinking; 37 (4.9%) reported physical violence. Less than three percent of this group reported that the drinking behaviour of the identified drinker had resulted in sexual coercion.

For male respondents, the top five harms experienced as a result of the drinking of the known drinker were "negatively affecting a social occasion" (n=211; 64.9%), "a serious argument without physical violence" (185; 56.2%), "failing to do something they were being counted on to do" (155; 48.5%), feeling "emotionally hurt or neglected" (153; 46.5%), and having to "stop seeing" the drinker (103; 31.8%). For female respondents the top five harms echoed that of the men – although the third and fourth items were reverse. Thus, the top five were "negatively affecting a social occasion" (282; 65.2%), feeling "emotionally hurt or neglected" (274; 64.3%), "failing to do something they were being counted on to do" (235; 57.2%), "a serious argument without physical violence" (236; 54.9%) and having to "stop seeing" the drinker (151; 36.1%).

For the younger cohort (those 18-29) the top five harms reported were "negatively affecting a social occasion" (n=145; 70.5%), a "serious argument without physical violence" (140; 66.7%), feeling "emotionally hurt or neglected" (136; 64.6%), "failing to do something they were being counted on to do" (107; 52.6%) and having to "stop seeing" the drinker (77; 37.2%). For respondents aged 30-59 the pattern varied slightly. The top harm remained "negatively affecting a social occasion" (304; 64.7%) but "failing to do something they were being counted on to do" (247; 54.7%) was ranked second instead of fourth. In order, the final three items were feeling "emotionally hurt or neglected" (251; 54.0%), having a "serious argument without physical violence" (244; 52.2%) and having to "stop seeing" the drinker (157; 34.3%). For respondents aged 60 and over the top five harms again varied slightly to that of the other two age groups. "Negatively affecting a social occasion" (43; 53.3%) was the item most reported, the remaining four included "being emotionally hurt or neglected" (39; 49.7%), "failing to do something they were being counted on to do" (35; 47.9%), having a "serious argument without physical violence" (35; 44.1%) and having to "stop seeing" the drinker (19; 25.1%).

With respect to the additional items asked only of those who indicated that the known drinker lived in the household (n=212) Table 9.4 adds more to the picture of alcohol's harm to others. The most reported item was that the known drinker "did not do their share of work around the household" (77; 37.5%) which was followed closely by "there being less money for household expenses" (72; 34.8%) as a result of the known drinker's drinking. For both male and female respondents that the order of these items was similar however the percentage of women reporting each of the four items was typically one-third greater than that of the men. For example, 42.0% of women (n=51) reported that the known drinker "did not do their share of the work around the house" compared to 31.0% of men (n=26). This difference between women and men was observed for all age groups.

With respect to age alone, those 18-29 were more likely to report each of the four items compared to the other age cohorts. The most salient of these differences was observed for “less money for household expenses” with 51.3% (n=33) of those aged 18-29 years reporting this item compared to 26.2% (n=31) of respondents aged 30-59 years of age and 32.0% (n=8) of respondents 60 years of age and over. Also, striking was that 30.9% (n=20) of those aged 18-29 years reported “having to leave home to stay somewhere else” compared to 9.7% (n=12) of those aged 30-59 years and 11.3% (n=3) of those aged 60 years and over.

Table 9.3: Percentages of the ten harms experienced in the previous 12 months by sex and age groups for all respondents who identified a known drinker.

	Male				Female				Total			
	18-29	30-59	60-99	All	18-29	30-59	60-99	All	18-29	30-59	60-99	All
(N)	97	201	32	330	113	270	49	432	210	471	81	762
Did they negatively affect a social occasion you were at	67.5	67.1	43.2	64.9	72.9	62.9	59.9	65.2	70.5	64.7	53.3	65.1
Emotionally hurt or neglected	52.7	43.9	44.0	46.5	74.9	61.7	53.5	64.3	64.6	54.0	49.7	56.5
Serious argument that did not include physical violence	68.9	50.9	50.9	56.2	64.9	53.2	39.5	54.8	66.7	52.2	44.1	55.4
Did they fail to do something they were being counted on to do	38.6	54.5	41.8	48.5	65.1	54.8	51.9	57.2	52.6	54.7	47.9	53.4
Did you have to stop seeing them	33.0	32.4	24.0	31.8	40.9	35.7	25.7	36.0	37.2	34.3	25.1	34.1
Feel threatened	39.2	27.8	23.0	30.7	34.1	24.9	19.5	26.7	36.4	26.2	20.9	28.5
Did they break or damage something that mattered to you	22.4	16.1	16.2	18.0	23.4	12.4	14.9	15.6	22.9	14.0	15.4	16.6
Were you put at risk in the car when they were driving	18.4	7.0	9.5	10.6	12.6	2.8	4.0	5.5	15.2	4.6	6.2	7.7
Physically hurt	5.9	2.7	6.8	4.1	8.0	4.7	4.4	5.5	7.1	3.9	5.3	4.9
Were you forced or pressured into sex or something sexual	1.3	1.3	0.0	1.2	7.0	1.8	2.4	3.2	4.4	1.6	1.4	2.3

Table 9.4: Percentages of the four harms experienced in the previous 12 months by sex and age groups for respondents who identified a known drinker in the household.

	Male				Female				Total			
	18-29	30-59	60-99	All	18-29	30-59	60-99	All	18-29	30-59	60-99	All
(N)	28	46	10	84	38	74	16	128	66	120	26	212
Did they not do their share of work around the house	22.1	38.1	23.5	31.0	54.9	36.0	40.0	42.0	40.5	36.8	32.9	37.5
Was there less money for household expenses	37.1	24.2	22.9	28.4	61.9	27.4	38.1	38.9	51.3	26.2	32.0	34.8
Could you not bring friends home	15.4	10.9	0.0	11.0	29.9	17.6	43.9	24.6	23.8	15.0	25.9	19.1
Did you have to leave home to stay somewhere else/	25.9	8.1	0.0	13.0	34.4	10.7	18.7	18.8	30.9	9.7	11.3	16.5

The pattern of harms reported differed depending on whether the known drinker was a household member or not (Table 9.5). When the known drinker was a household member the top five harms reported were a "serious argument without physical violence" (n=148; 70.1%), feeling "emotionally hurt or neglected" (136; 65.7%), "negatively affecting a social occasion" (122; 57.6%), "failing to do something they were being counted on to do" (110; 53.6%) and "feeling threatened" (63; 29.8%). By comparison, for non-household members the top five harms were "negatively affecting a social occasion" (371; 67.9%), feeling "emotionally hurt or neglected" (291; 53.1%), "failing to do something they were being counted on to do" (280; 53.3%) having a "serious argument without physical violence" (273; 49.9%) and "having to stop seeing them" (208; 38.7%).

When the known drinker was a household member, women were more likely than men to report feeling "emotionally hurt or neglected" (77.5 vs 48.3%); being "forced or pressured into sex or something sexual" (7.9 vs 4.1%) and being physically hurt (7.2 vs 1.9%). Men on the other hand were more likely to report they had to "stop seeing them" (27.8 vs 19.1%) due to their drinking. Interestingly, the differences between female and male respondents were not so salient when the known drinker was someone outside the household. More women than men reported feeling "emotionally hurt or neglected" (58.9% vs 45.9%), and that they had to "stop seeing them" (43.2 vs 33.2%). In contrast more men than women reported "being put at risk in the car when the drinker was driving" (11.1% vs 5.5%).

Table 9.5: Percentages of the ten harms experienced in the previous 12 months by household status for respondents who identified a known drinker

	Male		Female		Total	
	household member	non-member	household member	non-member	household member	non-member
(N)	84	246	128	304	212	550
Did they negatively affect a social occasion you were at	60.9	66.3	55.5	69.2	57.6	67.9
Emotionally hurt or neglected	48.3	45.9	77.5	58.9	65.7	53.1
Serious argument that did not include physical violence	69.4	51.7	70.6	48.1	70.1	49.7
Did they fail to do something they were being counted on to do	44.2	50.0	59.8	56.0	53.6	53.3
Did you have to stop seeing them	27.8	33.2	19.1	43.1	22.6	38.6
Feel threatened	27.1	32.0	31.6	24.7	29.8	27.9
Did they break or damage something that mattered to you	17.8	18.1	24.7	11.7	22.0	14.5
Were you put at risk in the car when they were driving	9.0	11.1	6.2	5.2	7.3	7.9
Physically hurt	1.9	4.8	7.2	4.9	5.1	4.8
Were you forced or pressured into sex or something sexual	4.1	0.2	7.9	1.2	6.4	0.8

Table 9.6 and Table 9.7 provide a breakdown of concrete adverse effects from the known drinker but this time by sex and relationship status. Table 9.6 includes the ten items that were asked of all respondents who identified a known drinker whereas Table 9.7 includes the additional four items that were only asked of respondents who identified a known drinker who resided in the household.

The three categories listed are partner (including spouse, de-facto spouse, boyfriend, girlfriend and ex-partner), family (which includes all extended family members) and other (which includes friend, co-worker and other persons not specified). When the identified drinker was the partner the top 5 harms reported were "serious argument without physical violence" (n=106; 78.8%), feeling "emotionally hurt or neglected" (104; 77.3%), "negatively affecting a social occasion" (91; 67.6%), "failing to do something they were being counted on to do" (67; 52.1%) and "felt threatened" (51; 38.0%). Where the drinker was a family member the top 5 harms included feeling "emotionally hurt or neglected" (165; 63.8%), "negatively affecting a social occasion" (166; 62.9%), "serious argument without physical violence" (147; 56.0%), "failing to do something they were being counted on to do" (128; 51.6%) and "stop seeing them" (93; 36.8%). For 'other' the top 5 harms were "negatively affecting a social occasion" (228; 65.6%), "failing to do something they were being counted on to do" (192; 56.1%), a "serious argument without physical violence" (159; 45.8%), feeling "emotionally hurt or neglected" (154; 44.0%) and "stopping seeing them" (114; 33.2%).

When comparing the differences between male and female respondents for the three relationship types, there were some obvious yet interesting results. For example, female respondents were much more likely to report that their partner's drinking had resulted in: being "emotionally hurt or neglected" (88.1 vs 53.0%), a "serious argument without physical violence" (83.5 vs 68.0%), "put at risk in the car when the partner was driving" (12.8 vs 6.1%), and they had been "forced or pressured into sex or something sexual" (10.8 vs 5.2%). The differences between male and female respondents were marginal when the identified drinker was a family member, the most interesting differences being that: men were more likely to report a "serious argument without physical violence" (65.7 vs 51.4%) and women being more likely to have reported not being able to "bring friends home*" (14.8 vs 6.1%).

As mentioned, Table 9.7 focuses on the additional four items asked of respondents who indicated that the known drinker lived in the household. Of respondents who indicated a partner or other family member as the known drinker over 40% reported that the known drinker "did not do their share of work around the house". When the drinker was a partner 42.3% (n=41) of respondents indicated that as a result of the drinker's drinking "there was less money for household expenses". Smaller percentages were reported when the drinker was a family member (n=22; 27.5%) or someone else (n=6; 22.1%). For all four items, if the known drinker was a partner, women were more likely to provide an affirmative response than men. In one case "could not bring friends home" this differences was almost three-fold (33.6% vs 11.6%). When the known drinker was a family member men (n=13; 47.7%) compared to women (n=20; 39.4%) were more likely to report that the drinker "did not do their share of work around the house". Interestingly 24 men compared to fewer than 5 women indicated that the known drinker was someone other than a partner or household member.

Discussion

Troubles which might become apparent outside the home or the respondent's circle, to police or other authorities, such as being physically hurt, being forced into something sexual, or being put at risk in a car, were the least prevalent of the events and circumstances asked about. More common harms, reported by a quarter to one-third of those adversely affected by someone else's drinking were feeling threatened, having to stop seeing the (known) drinker, and (for household members) that there was less money for household expenses and that the drinker did not do their share around the house. The most frequently reported events and circumstances, all reported by more than half of those affected, were serious arguments and three items that indicated the drinker's failure in social or personal roles expected by the respondent: that is, the respondent reported being emotionally hurt or neglect, that the other had failure to do something they were being counted on for, and that their behaviour spoiled a party or other social occasion. These items were common, but not very amenable to being turned into an economic cost. However the performance in every day social roles in relationships are part of

the warp and woof of our everyday lives – how members of families and households support each other and keep functioning critically affect the ongoing quality of relationships . It appears these roles have been commonly affected by others' drinking. The responses give us a sense of how disruptive the drinking of a family or household member or friend can be to social life.

Table 9.6: Percentages of the ten harms experienced in the previous 12 months by relationship type for all respondents who identified a known drinker*.

	Male			Female			Total		
	Partner†	Family‡	Other^	Partner†	Family‡	Other^	Partner†	Family‡	Other^
(N)	41	85	200	94	178	151	135	263	351
Did they negatively affect a social occasion you were at	69.1	61.5	64.9	67.0	63.5	66.5	67.6	62.9	65.6
Emotionally hurt or neglected	53.0	60.4	39.7	88.1	65.6	49.8	77.3	63.9	44.0
Serious argument that did not include physical violence	68.0	65.7	49.1	83.5	51.4	41.5	78.8	56.0	45.8
Did they fail to do something they were being counted on to do	28.8	48.0	53.2	62.5	53.3	59.9	52.1	51.6	56.1
Did you have to stop seeing them	30.2	42.2	28.1	33.6	33.9	40.2	32.5	36.6	33.2
Feel threatened	33.7	23.4	33.7	39.8	22.1	25.3	38.0	22.5	30.1
Did they break or damage something that mattered to you	11.4	14.1	21.3	23.4	13.4	13.7	19.8	13.6	18.0
Were you put at risk in the car when they were driving	6.1	3.3	14.8	12.8	1.4	6.1	10.8	2.0	11.0
Physically hurt	6.7	0.8	5.0	10.1	3.7	5.2	9.1	2.7	5.1
Were you forced or pressured into sex or something sexual	5.2	0.0	0.9	10.8	0.0	2.5	9.1	0.0	1.6

* Observations are slightly fewer than the above tables as 12 respondents did not indicate relationship status
†Partner includes all intimate partners and ex-partners
‡Family includes household and extended family members
^Other includes friends, co-workers and other people not specified

Table 9.7: Percentages of the four harms experienced in the previous 12 months by relationship type for all respondents who identified a known drinker in the household*.

	Male			Female			Total		
	Partner†	Family‡	Other^	Partner†	Family‡	Other^	Partner†	Family‡	Other^
(N)	30	28	24	67	56	2	97	84	26
Did they not do their share of work around the house	33.7	47.7	9.9	45.8	39.4	40.7	42.0	42.3	12.8
Was there less money for household expenses	30.8	23.8	24.4	47.6	29.3	0.0	42.3	27.5	22.1
Could you not bring friends home	11.6	6.1	17.0	33.6	14.8	40.7	26.5	11.9	19.2
Did you have to leave home to stay somewhere else	14.4	18.6	5.5	20.1	17.8	27.8	18.3	18.1	7.6

* Observations are slightly fewer than the above tables as 12 respondents did not indicate relationship status
†Partner includes all intimate partners and ex-partners
‡Family includes household and extended family members
^Other includes friends, co-workers and other people not specified

Costs experienced because of the drinking of others' known to the respondent

There is a paucity of information highlighting the individual or household cost of alcohol as the result of someone else's drinking. More apparent, is the absence of literature that has attempted to calculate the costs of drinking in terms of time.

In the qualitative literature by researchers such as Orford and others (Orford, 2005) time 'lost' due to someone else's drinking can be inferred from commentary such as "I had to spend the day cleaning up after him because of his drinking" or "every night she goes out I have to wake up at 3 in the morning to pick her up from the disco". However, the time lost is never really quantified and as such there exists very little research on the personal time lost by an individual as the result of someone else's drinking.

This section focuses on the individual costs (both financial and time) of someone else's drinking – that is the designated known drinker. The following section is divided into the two areas: financial costs and time costs; both areas have their own methods and results. Relative to the drinking behaviour of the known drinker, financial costs examine the reported out of pocket expense (OPE) experienced by the respondent, whereas time costs examine the cumulative amount of time lost[9] as a consequence of the known drinker's drinking.

Financial costs

Methods

This section identifies the perceived financial burden experienced by the respondent where the identified drinker who has impacted them the most was someone within the household and someone outside of the household.

The financial cost of alcohol from the known drinker was determined by two lines of questioning within the survey; both relating to the 12 months prior to the interview. The first line of questioning referred to a total of out-of-pocket expenses (OPE) as a result of repairs or replacement for items that 'mattered' to the respondent that were broken or damaged because of the known drinker's drinking. Respondents were asked the number of times something was damaged, and then to quantify the total OPE from such damage. The second line of questioning was more open but focused specifically on the loss in available money for expenses as a result of their drinking. Respondents were first asked "Was there less money for household expenses?" as a result of the known drinker's drinking. If yes, respondents indicated the number of times this had occurred and then provided a dollar estimate for this.

Results

Of the 763 respondents who identified a known drinker, 125 (16.5%) people (58 men and 67 women) indicated the drinker had broken or damaged something that mattered to the respondent. The range of OPE for those incurring any cost (n=92; 12.7%) was $5 to $25000.

For those respondents who indicated a known drinker, the average number of times respondents reported the drinker breaking or damaging their property was 1.1 (95% CI 0.2-1.9), and the average OPE for the damage was $204 ($89-320) (see Table 9.14). Thirteen respondents indicated that the expense was incalculable but sentimental; 20 respondents refused to provide a value. For respondents who indicated some financial cost the average number of times in the 12 months respondents reported the drinker breaking or damaging their property was 6.3 (95% CI 1.6-11.0), and the average OPE for the damage was $1610 ($766-2455).

[9] For the sake of determining the impact of someone else's drinking in terms of time, time is considered 'lost' if the respondent had to act as a result of the drinker's drinking. The authors acknowledge that for some respondents this time would not be considered lost.

Out of pocket expenses were also reported by those who indicated that the known drinker was a member of the household. For this group the average number of times respondents reported the drinker breaking or damaging their property was 2.4 (95% CI 0*-5.2) [10], and the average OPE for the damage was $328 ($0*-697). Five respondents indicated that the expense was incalculable but sentimental; 11 respondents refused to provide a value. For respondents who indicated some financial cost the average number of times in the 12 months respondents reported the drinker breaking or damaging their property was 11.1 (95% CI 0*-23.6).

As mentioned, those who reported that the known drinker was a household member were also asked to quantify both the frequency of times money was not available for household expenses and the average amount of money that was unavailable as a result of the drinker's drinking. Of the 212 respondents reporting that the known drinker was a household member, 59 people (29.6%; 18 men and 41 women) reported less money. The estimated range of money not available for other expenses of those incurring any loss was $13-$10000. The average number of times these respondents indicated a loss in available money in the previous 12 months was 8.0 (4.0-11.9), and the average estimate of that lost was $388 ($231-547). For respondents reporting some amount of lost wealth the average number of times this occurred was 26.4 (13.7-39.1), and the average estimate of total wealth lost was $1314 ($862-17656).

Discussion

The impact from someone else's drinking on individuals is not just personal. As the result of someone else's drinking many individuals typically also face a financial impact. For a number of people these financial impacts are not trivial. Financial impacts can stem, for example, from the damage or destruction of a car, vehicle or house, or items with unmeasurable sentimental value. And, for a number of people such financial impacts are not one-off incidents.

Time costs

The following section centres on time lost as a result of the respondent tending to or caring for the known drinker. In the literature this seems to be the most understudied measure of the impact on individuals as the results of someone else's drinking. As a result of someone else's drinking, a person can lose time (leisure or work) due to injury (when they are laid up in bed or hospital), due to disturbances (such as loss of sleep time due to people being drunk in the street), or because they are tending to or caring for the drinker (e.g., taxiing to or from a pub, staying home to nurse their hangover). Literature that addresses lost time typically comes from qualitative research (Orford, 2005). While often rich and informative, trying to extrapolate these data to large populations is difficult. The value of quantitative data is that, while less detailed they can be generalised to and costed for the entire population. This provides significant insight into the widespread under-estimated nature of alcohol's harm to others.

Method

Time lost was measured in the previous 12 months by five questions about the known drinker: "How many times did you have to spend time caring for *them* because of their drinking?"; "have to take on extra responsibilities caring for children or others because of *their* drinking?"; "clean up after *them* because of their drinking?"; "have to take them somewhere or pick them up because of *their* drinking?" and "have to leave home to stay somewhere else because of *their* drinking?" (The last question was only asked of those who lived with the identified drinker). Each time a respondent indicated undertaking a particular action the respondent was asked to provide an estimate for how much time it took out of his or her normal routine: this is here taken to be lost time.

[10] Due to small observations and some skewness in the data intervals less than zero have been truncated to 0

Results

Results are reported both dichotomously (yes, no) and as frequencies or counts. Results are presented for each of the five actions as a summary of proportions. The frequency data provide both a count of how many times each of the five actions occurs and an estimated cumulative estimate of time lost for each of these actions.

Of the 763 respondents who identified a known person (see Table 9.8), over two-thirds (n=519; 68.0%) of all respondents reported some form of lost time. A slightly larger percentage of men than women (69.1% vs 67.2%) reported that they had spent or lost time because they were caring for others because of their drinking.

The most common action that respondents reported undertaking that resulted in a substantial loss of time was driving (or taxiing) the drinker because of their drinking (n=309; 40.8%). On the whole men reported having to do this more than women (43.8% vs 38.6%) as did the younger age groups. The second most common action that respondents reported spending time doing was caring for the drinker (n=270; 35.7%). Whilst the overall difference in reporting lost time between women and men was minimal (35.6% vs 35.9%) there was a very notable difference between women and men for those 60 years of age and over (22.1% vs 3.3%). Perhaps surprisingly, the percentage of men reporting lost time as a result of cleaning up after the drinker was roughly equivalent to that reported by women (32.2% vs 31.8%) and this pattern was observed across the three age groups. With respect to time lost due to caring for others women were more likely to report this (21.6% vs 17.8%). The greatest differences were observed for the younger age group who more commonly reported caring for others compared with other age groups (20.3% vs 12.3%).

The percentages of respondents reporting spending (losing) time caring for known drinkers within their household are presented in Table 9.8. An additional item 'Staying elsewhere' (that is, "did you have to leave home to stay somewhere else because of *their* drinking?") was included. More than three-quarters (n=162; 76.3%) of respondents reported that caring for the identified drinker was associated with some lost time or time spent caring. Women were almost ten percentage points more likely to report this (79.9% vs 71.0%).

As before, the most common action resulting in lost time was taxiing the known drinker (n=104; 49.9%); yet unlike the data for all respondents who identified a known drinker, women were more likely to report having to do this for household members than men (51.8% vs 47.1%). While the overall difference for men and women who reported caring for the drinking was marginal (37.3% vs 35.3%) the pattern across the age groups for both men and women was striking. Female respondents aged 18-29 were more likely to report having to care for the drinker (46.1% vs 31.3%) yet men aged 30-59 years were more likely to report this (49.4% vs 28.7%).

When the known drinker was a resident in the household women were more likely to report having to clean up after the drinker (40.5% vs 28.4%) and this was most notable for women aged 18-29 compared to their male counterparts (62.9% vs 35.1%). Women were also more likely to report having to care for others as a result of the known drinker's drinking (28.5% vs 19.1%) and these differences were most notable for the women aged 18-29 and women aged 60 and over. Having to stay elsewhere was least reported (n=35; 16.5%); yet typically women reported this more often than men (18.8% vs 13.0%) and the greatest percentage difference was between women and men aged 60 years and over.

Table 9.8: Time spent caring (= time lost) for the known drinker, total and those in the household

	Males				Females				
	18-29	30-59	60-99	Subtotal	18-29	30-59	60-99	Subtotal	Total
Any time lost for those who identified a known drinker									
(N)	97	201	32	330	113	270	49	432	762
Caring for the drinker	43.0	37.6	3.3	35.9	52.1	30.8	22.1	35.6	35.7
Caring for others	12.3	20.7	16.2	17.8	20.3	23.5	14.7	21.6	19.9
Cleaning up	50.0	26.1	15.1	32.2	52.5	25.7	16.4	31.8	32.0
Taxiing the drinker	52.8	41.9	27.1	43.8	47.6	35.9	33.8	38.6	40.8
Any time lost	77.4	68.3	48.4	69.1	81.5	64.2	50.6	67.2	68.0
Any time lost for those who identified the known drinker as a household member									
(N)	28	46	10	84	38	74	16	128	212
Caring for the drinker	31.3	49.4	0.0	37.3	46.1	28.7	40.3	35.3	36.1
Caring for others	8.0	28.6	7.8	19.1	30.7	28.7	22.6	28.5	24.8
Cleaning up	35.4	26.9	15.7	28.4	62.9	32.0	25.2	40.5	35.8
Taxiing the drinker	51.1	49.2	23.6	47.1	47.1	53.3	57.1	51.8	49.9
Staying elsewhere	25.9	8.1	0.0	13.0	34.4	10.7	18.7	18.8	16.5
Any time lost	76.3	77.6	28.1	71.0	85.1	74.4	92.2	79.9	76.3

As mentioned the data collected from respondents for time lost were open ended. That is, respondents indicated how many times in the previous twelve months they undertook each action. Furthermore, when a respondent indicated they had lost time due to the drinker's behaviour, they provided a cumulative estimate for how much time was lost.

Table 9.9 presents the frequency with which respondents had to take time out from their normal routine to engage in particular events: frequencies for both known drinkers in general and known drinkers who reside in the household are presented. Respondents affected by known drinkers reported being affected on average by 19.4 events (standard error (SE) = 2.2) which in turn took considerable time out of their normal routine. The most frequent actions reported were caring for the drinker (mean 5.8 times) and then taxiing the drinker (mean 5.6 times). During the previous twelve months women reported caring for others more often on average than men (means 23.3 vs 14.3 times). Women reported having to care for others more commonly than they reported other activities. Women reported caring for others they knew because of their drinking an average of 7.4 times a year. Women also reported taxiing others somewhere an average of 7.2 times a year. Men reported having to care for the drinker an average of 5.1 times a year and the second most common caring activity men reported was having to taxi the known drinker around (mean 3.5 times per year).

When the drinker resides in the household and the frequency of time spent caring for others is examined the story develops further. When the drinker lived within the household respondents reported caring for the drinker an average of 33.8 times (SE = 6.1), roughly twice as often as reported for those drinkers that did not live with them, taking a tremendous amount of time out of the respondents' normal routines. The most frequent action undertaken was taxiing the drinker (mean 10.4 times) which was followed closely by cleaning up after the drinker (mean 9.7 times) and caring for the drinker (9.2 times). During the previous twelve months women spent time caring for others almost twice the number of times that men did (means 41.3 vs 22.5 times). For women the most frequent activity they reported doing because of the other's drinking was taxiing the drinker around (14.1). This was seconded by caring for the drinker which women reported doing on average 12.2 times a year. For men the most frequently reported activity was cleaning up after the drinker (mean 7.7 times). Men also reported taxiing the drinker (mean 4.8 times per year), caring for the drinker (mean 4.6 times) and caring for others (mean 4.5 times). For both men and women having to stay elsewhere was least commonly reported although men were more likely to report doing this more often than women (means 2.3 vs 0.6 times).

Whereas Table 9.9 presented the number of times respondents were unable to attend to their normal routine as a result of the known drinker's drinking, Table 9.10 presents the average amount of time spent caring for the drinker (as reported using all five items). This equates to lost time for the respondent (in hours). Where respondents reported time lost in days or weeks (as opposed to hours) this time has been calculated using an 8 hour day. For example, if someone indicated they had to clean up after the drinker and it took all day this was not calculated as 24 hours but as 8 hours.

On the whole, over the previous twelve months each respondent who reported that they had been negatively affected by a drinker that they knew reported spending spent almost ninety hours (mean= 89.3 hours, SE=16.0) caring (including all five items) for someone they knew because of their drinking. Most time was spent generally caring for the drinker (33.9 hours) followed by having to care for others (29.1 hours). For these respondents, on average, almost 24 hours of the year was lost taxiing the drinker around (23.1 hours). On the whole women reported losing more time due to the known drinker than men, although this difference was marginal (91.3 hours vs 86.7 hours). The main two activities women reported spending time doing were caring for the drinker (36.3 hours) and caring for others (32 hours). This was echoed by men who spent on average 30.8 hours caring for the drinker and 25.3 hours caring for others because the drinker was not able to.

When time spent caring for drinkers residing in the household is examined there is a marked increase in the number of hours lost compared to the overall sample caring for drinkers (Table 9.10). On the whole 150 hours were lost by this subgroup caring for others in any of the five ways mentioned. Again caring for the drinker (mean 54.4 hours) and caring for others (mean 48.6 hours) were the two

activities that contributed to the most amount of lost time. The differences between women and men were also striking. Female respondents reported, on average, during the previous twelve months, that 175 hours were lost or spent caring for a member of their household because of their drinking. In comparison men only reported losing 111 hours of time. For women caring for the drinker (72.5 hours) and caring for others (56.2 hours) made up a large proportion of this lost time. Conversely, for men, caring for others (29.4 hours) and taxiing the drinker (29.4) were the two major activities that resulted in time lost caring for others.

As the number of hours on average can only be calculated for those who reported being affected and spending time caring for others because of their drinking, a distorted view of the average number of hours spent caring for others may develop. Table 9.11 details the amount of time lost as the result of a known drinker's drinking using the whole sample as the denominator (assuming that those who did not report negative effects of others' heavy drinking did not spend time caring for others because of their drinking). In the previous 12 months on average 25.8 hours (SE=4.7) per person were spent caring or lost as the result of someone else's drinking. Overall, women reported more hours spent caring or lost than men (mean difference 7.1 hours). Women reported spending 2.5 times as many hours caring for others because of their drinking as did men (4.6 hours compared to 1.8 hours).

Table 9.9: Counts of times spent caring for a known drinker (total and in the household) by type of caring activity

	Men			Women			Total		
	Mean	Standard Error	IQR	Mean	Standard Error	IQR	Mean	Standard Error	IQR
Number of time lost events for those who identified the known drinker									
Caring for the drinker	5.1	1.6	2	6.3	1.5	2	5.8	1.1	2
Caring for others	2.8	1.0	0	7.4	2.0	0	5.4	1.2	0
Cleaning up	3.2	1.4	1	4.4	1.0	1	3.9	0.8	2
Taxiing the drinker	3.5	0.6	3	7.2	1.3	3	5.6	0.8	3
All of the above	14.3	3.2	9	23.4	3.1	14	19.4	2.2	11
Number of time lost events for those who identified the known drinker as a household member									
Caring for the drinker	4.6	2.6	2	12.2	4.2	3	9.2	2.7	2
Caring for others	4.5	2.9	0	9.8	4.0	2	7.7	2.7	0
Cleaning up	7.7	5.4	2	10.9	3.4	4	9.7	3.0	2
Taxiing the drinker	4.8	1.3	5	14.1	3.1	8	10.4	2.0	6
Staying elsewhere	2.3	1.6	0	0.6	0.2	0	1.3	0.7	0
All of the above	22.5	10.3	18	41.3	7.3	34	33.8	6.1	24

IQR = Inter-quartile range

Table 9.10: Average amount of time spent caring/lost (hours) for a known drinker, total and in the household, by type of caring activity

	Men			Women			Total		
	Mean	Standard Error	IQR	Mean	Standard Error	IQR	Mean	Standard Error	IQR
Amount of time lost for those who identified the known drinker									
Caring for the drinker	30.8	13.2	2	36.3	10.4	4	33.9	8.2	3
Caring for others	25.3	10.0	0	32.1	9.6	0	29.1	6.9	0
Cleaning up	7.1	2.7	1	14.4	8.6	1	11.3	5.0	1
Taxiing the drinker	24.2	14.9	3	22.2	10.4	3	23.1	8.8	3
All of the above	86.7	29.6	15	91.5	16.9	22	89.4	16.0	18
Amount of time lost for those who identified the known drinker as a household member									
Caring for the drinker	27.1	22.4	5	72.5	31.7	4	54.4	21.1	4
Caring for others	37.1	25.1	0	56.2	27.7	0	48.6	19.5	0
Cleaning up	14.2	8.7	1.25	43.1	29.0	3	31.9	18.1	2
Taxiing the drinker	29.4	25.6	6	44.3	29.9	10	38.4	20.7	7.5
Staying elsewhere	4.4	2.3	0	4.7	1.5	0	4.6	1.3	0
All of the above	111	78.1	19	175	47.8	45.3	150	42.4	40

IQR = Inter-quartile range

Table 9.11: Descriptive statistics of the average amount of time lost due to a known drinker for the whole sample

	Men		Women		Total	
	Mean	Standard Error	Mean	Standard Error	Mean	Standard Error
Time lost for those who identified the known drinker						
Caring for the drinker	7.8	3.4	11.5	3.3	9.7	2.4
Caring for others	6.4	2.6	10.2	3.1	8.3	2.0
Cleaning up	1.8	0.7	4.6	2.7	3.2	1.4
Taxiing the drinker	6.1	3.8	7	3.3	6.6	2.5
All of the above	22.1	7.7	29.2	5.5	25.8	4.7

Note: IQR's are removed as all results are 0 due to majority of respondents not having a value for each question

Economic costing for those impacted by someone else's drinking

The previous analyses e.g. time in hours, from this chapter have been used as a basis for estimating the costs in a year to Australian adults for caring for drinkers they report have most adversely affected them. These costs relate to the care of one drinker only and may underestimate the time spent caring for all drinkers known to respondents.

Method

In this study the EQ-5D was used as a proxy to estimate a loss in one's Health-related quality of life (HRQoL) in terms of quality adjusted life years (QALYs). As mentioned elsewhere in this report the EQ-5D is a standardised and non-disease specific measure of HRQoL (The EuroQol Group, 1990). The standardised difference in quality of life scores between those who have been negatively affected a lot or a little by drinkers they know compared with those who have not is multiplied by the value used to cost a healthy person's quality of life for a year.

Out-of-pocket costs incurred by respondents as a result of a known drinker's drinking have been calculated earlier in this chapter in the section on financial costs.

Lost productivity costs are calculated based on the amount of time lost as a result of the respondent having to take time out of his or her normal routine due to the drinking of someone they know. The numbers of hours calculated are multiplied by the average hourly rate determined for Australian employees (see chapter 2 for more details).

Results – intangible cost as a result of harms experienced

Table 9.12 details the estimated cost of intangible harms based on the sample population and using these details estimates costs for the Australian population as a whole in Table 9.13..

Table 9.12 presents the mean QALYs and the accompanying 95% confidence intervals of these means for the 1,883 respondents who did not identify a person whose drinking had negatively affected them plus, the 66 respondents who identified a known drinker who had impacted the respondent but deemed the severity of the impact to be null. The mean QALY score for this 'base' group was 0.864 (95% CI 0.853-0.874). The following two rows represent the mean QALYs for those who were affected a little by the known drinker (n=475; QALY=0.831) and those affected a lot (n=208; QALY=0.788). Under the title 'Change in QALY scores' is the calculated difference in the mean and confidence intervals between each of the two response options a little and a lot against the base group. The final section 'Economic cost of intangibles' provides a mean estimate of the cost of intangible harm experienced by the sample population: this is simply the product of the mean change in QALY score multiplied by $50,000. For example -0.014*$5000=$700. $50000 represents the effect of a 1 point change in a QALY score (See chapter 2).

As observed in Table 9.12, as the perceived severity of the impact increases, there is a corresponding drop in respondents' QALY scores. On average, the intangible economic cost for those reporting a little negative affect as a result of the known drinker's drinking equates on average to $700 per person; whilst for those who report being negatively affected a lot this intangible cost is $3,800 per person. Table 9.13 applies these intangible costs to the whole population. The results in Table 9.13 suggest that, compared to those reporting no negative effects due to the drinking of others, those who report being negatively affected a little suffer an intangible cost burden of nearly $1.9 billion, and those who report being negatively affected a lot suffer an intangible cost burden of $4.5 billion.

Table 9.12: Sample estimates of economic costs of intangible harms as a result of the known drinker's drinking

		QALY Scores			Change in QALY scores			Economic Cost of Intangibles		
Severity of harms	Obs	Mean	Lower 95% CI	Upper 95% CI	Mean	Lower 95% CI	Upper 95% CI	Mean	Lower 95% CI	Upper 95% CI
Not negatively affected by a drinker	1949	0.864	0.853	0.874						
Affected a little by the known drinker	475	0.85	0.831	0.869	-0.014	-0.022	-0.005	$ 700	$ 250	$ 1,100
Affected a lot by the known drinker	208	0.788	0.754	0.822	-0.076	-0.099	-0.052	$ 3,800	$ 2,600	$ 4,950

Table 9.13: Population estimates of economic costs (in '000s) of intangible harms as a result of the known drinker's drinking

		QALY Scores			Change in QALY scores			Economic Cost of Intangibles		
Severity of harms	Obs	Mean	Lower 95% CI	Upper 95% CI	Mean	Lower 95% CI	Upper 95% CI	Mean	Lower 95% CI	Upper 95% CI
Not negatively affected by a drinker	11071995	0.864	0.853	0.874						
Affected a little by the known drinker	2700565	0.85	0.831	0.869	-0.014	-0.022	-0.005	$ 1,890,396	$ 675,141	$ 2,970,622
Affected a lot by the known drinker	1183996	0.788	0.754	0.822	-0.076	-0.099	-0.052	$ 4,499,185	$ 3,078,390	$ 5,860,780

Results – out of pocket costs

In the Alcohol's harm to others survey, the out-of-pocket costs that are covered are those that result from something being broken or damaged, and because money is spent on drinking leaving less money for household expenses. Table 9.14 provides estimates of these costs both at the sample level and for the general population.

For the study sample 729 respondents indicated some measure of out of pocket expense associated with others' drinking ranging from 0 dollars to $25,000. An additional 33 people suggested that the OPE was of sentimental value or refused. At the sample level the mean OPE for this group was $204 ($89-$320). When estimates for the general population were calculated the out of pocket costs incurred by those because of the drinking of someone they knew totalled $845,851,032. Similar calculations can be derived when the known drinker resides in the household. Of the 197 respondents providing some measure of OPE (including $0) the mean OPE was $328 ($0-$700).[11] When a general estimate for the population was calculated this equalled $ 366,641,385.

A measure of direct costs for respondents who indicated that the known drinker lived in the household was also calculated using the question 'was there less money for household expenses?' Table 9.15 illustrates that at the sample level an average of $388 (95% CI $231-546) was not available for household expenses as a result of the drinker's drinking. The general estimate for the population calculated equals $ 437,716,313.

[11] Due to small observations and some skewness in the data intervals less than zero have been truncated to 0

Table 9.14: Sample and population estimates of out of pocket expenses as a result of the known drinker's drinking (total, and in the household)

	Sample economic direct cost				Population economic direct cost ('000s)			
	Obs	Mean	Lower 95%CI	Upper 95%CI	Obs	Mean	Lower 95%CI	Upper 95%CI
A known drinker								
Males	316	294.7	40.9	548.5	1796908	$ 529,549	$ 73,494	$ 985,604
Females	412	134.9	74.7	195.2	2343333	$ 316,116	$ 175,047	$ 457,419
Total	729	204.3	88.7	319.9	4140240	$ 845,851	$ 367,239	$ 1,324,463
A known drinker in the household								
Males	82	545.6	0	1424.1	463329	$ 252,792	$ 0	$ 659,827
Females	115	173.8	72.5	275.1	654821	$ 113,808	$ 47,475	$ 180,141
Total	197	327.9	0	700.2	1118150	$ 366,641	$ 0	$ 782,929

Table 9.15: Sample and population estimates of loss of money for household expenses as a result of the known drinker (in the household)

	Sample economic direct cost				Population economic direct cost ('000s)			
	Obs	Mean	Lower 95%CI	Upper 95%CI	Obs	Mean	Lower 95%CI	Upper 95%CI
A known drinker in the household								
Males	79	248.1	64	432.2	449162	$ 111,437	$ 28,746	$ 194,128
Females	119	481.5	255.4	707.5	677811	$ 326,366	$ 173,113	$ 479,551
Total	198	388.4	230.8	546	1126973	$ 437,716	$ 260,105	$ 615,327

Results – indirect costs as a function of lost time

The data presented in tables 9.9-9.11 provide the reader with detail about time lost by the respondent as a result of the known drinker's drinking. Reduced productivity costs were calculated using the lost time spent caring for others as respondents had to take time out from their normal activities to care for drinkers they knew. The calculated lost time presented in the previous tables in this chapter is multiplied by an hourly rate ($24.12) obtained from the Australian Bureau of Statistics (Australian Bureau of Statistics, 2008). Due to the skewed nature of reported lost time (results not shown) where a negative lower 95% confidence interval was calculated this was truncated to zero.

Table 9.16 shows that if 86 hours of the male respondents' time is lost due to the known drinker's drinking this equates to just over $2,000 dollars in lost productivity costs. The range in lost productivity costs is from $171 to $743. When generalised to the Australian male population lost productivity costs totalled $3.9 billion. When the focus is only on those who identified a known drinker in the household the average lost productivity costs equal $2,672. When this is generalised to the population the lost productivity costs equal $ 1.3 billion.

A similar interpretation can be derived from the female respondents in Table 9.17. With a total of 91.5 hours of time lost due to the known drinker the indirect cost at the sample level equates to $2,207. When this is generalised to the population level the estimated lost productivity cost is $ 5.4 billion. When focusing on lost productivity costs only for women who indicated that the known drinker was someone in the household the sample based lost productivity costs equal $4,228. After estimation to the general female population level this equates to $ 3 billion ($3,075 million).

Table 9.16: Lost productivity costs (for the sample and the population) as the result of time lost by men who reported a known drinker (total, and in the household)

	Average time lost			Sample economic indirect cost				Population economic indirect cost ('000s)			
	Mean	Lower 95%CI	Upper 95%CI	Obs	Mean	Lower 95%CI	Upper 95%CI	Obs	Mean	Lower 95%CI	Upper 95%CI
Time lost for those who identified a known drinker											
Caring for the drinker	30.8	5.0	56.6	327	$ 743	$ 121	$ 1,365	1856598	$ 1,379,259	$ 223,906	$ 2,534,613
Caring for others	25.3	5.8	44.8	328	$ 610	$ 140	$ 1,081	1862815	$ 1,136,757	$ 260,600	$ 2,012,913
Cleaning up	7.1	1.9	12.4	325	$ 171	$ 46	$ 299	1844611	$ 315,893	$ 84,535	$ 551,701
Taxiing the drinker	24.2	0.0	53.5	326	$ 584	$ 0	$ 1,290	1851224	$ 1,080,567	$ 0	$ 2,388,856
All of the above	86.7	28.6	144.8	330	$ 2,091	$ 690	$ 3,493	1872162	$ 3,915,072	$ 1,291,477	$ 6,538,666
Time lost for those who identified the known drinker as a household member											
Caring for the drinker	27.1	0.0	71.0	83.9	$ 654	$ 0	$ 1,713	476936	$ 311,750	$ 0	$ 816,763
Caring for others	37.1	0.0	86.3	83.3	$ 895	$ 0	$ 2,082	473566	$ 423,772	$ 0	$ 985,755
Cleaning up	14.2	0.0	31.2	80.3	$ 343	$ 0	$ 753	456017	$ 156,188	$ 0	$ 343,173
Taxiing the drinker	29.4	0.0	79.6	82.5	$ 709	$ 0	$ 1,920	468606	$ 332,302	$ 0	$ 899,702
Staying elsewhere	4.4	0.0	8.9	83.9	$ 106	$ 0	$ 215	476936	$ 50,616	$ 0	$ 102,383
All of the above	110.8	0.0	264.0	83.9	$ 2,672	$ 0	$ 6,368	476936	$ 1,274,610	$ 0	$ 3,036,977

Table 9.17: Lost productivity costs (for the sample and the population) as the result of time lost by women who reported a known drinker (total, and in the household)

	Average time lost			Sample economic indirect cost				Population economic indirect cost ('000s)			
	Mean	Lower 95%CI	Upper 95%CI	Obs	Mean	Lower 95%CI	Upper 95%CI	Obs	Mean	Lower 95%CI	Upper 95%CI
Time lost for those who identified a known drinker											
Caring for the drinker	36.3	15.8	56.8	429	$ 876	$ 381	$ 1,370	2438307	$ 2,134,874	$ 929,229	$ 3,340,519
Caring for others	32.1	13.2	50.9	430	$ 774	$ 318	$ 1,228	2441369	$ 1,890,235	$ 777,293	$ 2,997,288
Cleaning up	14.4	0.0	31.3	430	$ 347	$ 0	$ 755	2444603	$ 849,079	$ 0	$ 1,845,568
Taxiing the drinker	22.2	1.8	42.7	429	$ 535	$ 43	$ 1,030	2438775	$ 1,305,876	$ 105,882	$ 2,511,753
All of the above	91.5	58.3	124.7	432	$ 2,207	$ 1,406	$ 3,008	2455262	$ 5,418,715	$ 3,452,580	$ 7,384,850
Time lost for those who identified the known drinker as a household member											
Caring for the drinker	72.5	10.3	134.7	127	$ 1,749	$ 248	$ 3,249	720622	$ 1,260,152	$ 179,029	$ 2,341,276
Caring for others	56.2	1.9	110.6	127	$ 1,356	$ 46	$ 2,668	721419	$ 977,915	$ 33,061	$ 1,924,508
Cleaning up	43.1	0.0	100.0	127	$ 1,040	$ 0	$ 2,412	721490	$ 750,040	$ 0	$ 1,740,233
Taxiing the drinker	44.3	0.0	102.8	126	$ 1,069	$ 0	$ 2,480	715026	$ 764,017	$ 0	$ 1,772,933
Staying elsewhere	4.7	1.8	7.7	128	$ 113	$ 43	$ 186	727145	$ 82,432	$ 31,570	$ 135,048
All of the above	175.3	81.6	269.0	128	$ 4,228	$ 1,968	$ 6,488	727145	$ 3,074,541	$ 1,431,161	$ 4,717,921

Conclusion

This chapter has provided the reader with a detailed picture of the nature and frequency of specific harms from another's drinking at the individual level. Whilst there exist a handful of studies which broach the area of what harms an individual experiences due to a particular person's drinking, (Australian Institute of Health and Welfare, 2009), the range of harms specified are limited and/or little understanding of who the identified drinkers are is provided. Within the Australian context this chapter draws upon the first national survey data that was designed specifically to address this void. This chapter first explores the frequency of particular harms experienced by the respondent as the result of someone else's drinking (across a select array of socio-demographics). The Alcohol's harm to others survey, through a systematic filtering process, allowed the respondent to identify the drinker whose drinking had the greatest impact on the respondent, and to describe in detail how and how often they had been affected. These data were used to project how many Australians this was happening to. Similarly, across selected socio-demographic characteristics the individual costs – both in terms of out of pocket expense and loss of wealth – experienced by the respondent as a result of the known drinker have been highlighted. Adding substantially to the literature on alcohol's harm to others, the chapter also described how much time was spent or lost because of others' drinking. Finally, an attempt has been made to cost the intangible costs of worry, pain and suffering to the individual as a result of the known drinker's drinking.

These results are a large step forward for research into alcohol's harm to others, although a number of limitations must be acknowledged. The data in this chapter refer to only one drinker known to the respondent, and thus miss measuring effects of other known drinkers. The respondent has told us their drinking had less effect, but it may still have been considerable. Concerning the single drinker asked about, the fourteen items used to determine harms (and hence intangible costs) utilised in this study are not exhaustive. To cover the breadth of harms an individual may have experienced due to someone else's drinking would be impractical for a quantitative national survey and should be addressed through rich, in-depth qualitative methods. For example, approximately 5% of respondents did not report any particular harm although they had indicated a known drinker adversely affecting them. Notwithstanding, the fourteen items used provide a good first approximation upon which to calculate intangible costs and conduct further studies.

Only two selected items were used to address out of pocket expenses (due to broken or damaged belongs and loss of household income), and the number of these items could be expanded. The two items used nevertheless provide some insight into the direct costs experienced by an individual as a result of the known drinker.

10: THE IMPACT OF OTHERS' DRINKING IN THE WORKPLACE

Introduction

The impact of alcohol in the workplace is multi-faceted and considerable. Alcohol can cause additional cost in several ways: through reduction in the productive workforce from premature mortality or morbidity, through absenteeism due to alcohol-related sickness and through reduced productivity while at work. Australian studies investigating the issue have focused on the cost to the Australian workplace from absenteeism and premature mortality or morbidity of the drinker. In addition to these costs, there are substantial impacts in the workplace felt by those working with heavy or problematic drinkers. This chapter examines these third-party impacts within the workplace.

Literature review

Studies of the impact of alcohol in the workplace have largely focussed on effects on the drinker, and the costs of these effects borne by the community. In particular, studies from a number of jurisdictions have attempted to estimate the cost of absenteeism due to alcohol consumption. For example in Australia, Pidd et al. (Pidd, et al., 2006) investigated the cost of alcohol-related absenteeism in the workforce using two different approaches with data from the 2001 National Drug Strategy Household Survey. The first method relied on self-reported drinking absenteeism, while the second applied an alcohol attributable fraction to self-reported absenteeism due to any illness or injury. Both methods produced considerable costs, resulting in estimates of alcohol related absenteeism of $437 million and $1.2 billion respectively. Collins & Lapsley (Collins and Lapsley, 2008) have replicated the first Pidd et al. method using more recent data from the 2004 National Drug Strategy Household Survey, estimating a $368 million absenteeism cost. In New Zealand, Jones (1995) calculated the cost of lost productivity to be $57 million per year. This estimate was based on self-declared absenteeism and reduced efficiency days due to drinking in a survey of 2,638 drinkers in paid employment. In the United Kingdom (UK), the cost alcohol misuse to the workplace was calculated to be as much as £6.4 billion per annum, with up to 17 million days a year lost due to alcohol-related absence. This figure includes £1.8 billion due to alcohol-related absenteeism, £2.2 billion due to reduced employment and £2.5 billion due to premature mortality (UK Prime Minister's Strategy Unit, 2003). Similar studies in North America (Single, et al., 1998, Wiese, et al., 2000) have produced cost estimates in excess of $1 billion in Canada and the USA due to absenteeism and reduced productivity from alcohol.

Similarly, studies examining the role of alcohol in workplace accidents have focussed on the alcohol consumption of people injured or killed while at work. For example, an Australian study (Hollo, et al., 1993) examined coroner's records from 1737 fatal workplace injuries, finding sixteen percent of the victims had alcohol in their system at the time of the accident.

Both the approaches discussed above relate to harm experienced by the drinker themselves. Our study takes a new perspective on the cost of alcohol in the workplace and measures the self-reported burden on workers from colleagues who drink heavily. Heavy drinkers may plausibly cause an additional burden on co-workers in a number of ways. For example, their drinking may lead to accidents affecting other workers, their absenteeism may cause additional work for those who 'cover' for them or their reduced productivity or sub-optimal quality of work could create a burden for those who work with them. The aim of this study is to quantify the cost of this additional burden and to estimate the economic costs of it where possible.

Methods

The analysis in this chapter makes use of data from the Alcohol's harm to others survey, which collected data on the impacts of alcohol on the lives of 2,649 adult respondents from across Australia (see Chapter 2 for details). This section focuses on respondents who were currently employed or doing unpaid voluntary work (n= 1,677). These respondents were asked whether any of their co-workers were fairly heavy drinkers or drank a lot sometimes. Those who identified at least one heavy-drinking co-worker were then asked whether their co-worker's drinking had negatively affected them.

All respondents in the workforce were also asked about three specific issues. The three items were: "Because of your co-worker's drinking, how many times in the last twelve months: i) Has your ability to do your job been negatively affected? ii) Were you involved in an accident or close call at work? iii) Have you had to work extra hours?" Respondents who had worked extra hours because of a co-worker's drinking were asked to make an estimate of the total time involved. In addition, respondents were asked to assess the overall impact that other people's drinking had on their work life.

Along with these questions assessing the impact of co-workers' drinking on their work lives, working respondents were asked how much time they had needed to take off work to deal with the consequences of someone else's drinking. In a separate section of the questionnaire, respondents were asked about household income and the proportion of it that they personally contributed.

Data analysis was undertaken using the survey module in Stata 9 (StataCorp, 2007). The survey was weighted according to the inverse of the respondent's probability of selection into the sample. Post-weights were also applied to reflect the age and sex composition in each geographic sampling stratum. All the results reported in this paper are based on the weighted data.

Economic estimates were made for two specific items: the cost of the extra hours worked due to a co-worker's drinking and the cost of absenteeism due to the consequences of someone else's drinking. These costs were calculated by multiplying the number of hours affected (either hours extra worked or hours absent) by an estimate of the hourly wage for each individual. The hourly wage was calculated from the proportion of the household income contributed by the individual (assuming a standard working week of 37.5 hours for 47 weeks in the year).

The effects of co-workers' drinking

Almost a third of the working population reported having a co-worker who they considered to be 'a fairly heavy drinker or someone who drinks a lot sometimes'. Amongst those reporting a heavy drinking co-worker the mean number of co-workers reported was 5.8 (95% CI 4.6 – 7.0) although the modal response was one. A smaller percentage of the working population, 8.1% (95%CI 6.7% – 9.6%), reported being negatively affected in some way by their co-worker's drinking.

The prevalence of specific problems experienced due to co-workers' drinking are outlined in Table 10.1.

Table 10.1: Prevalence of having a heavy drinking co-worker and being negatively affected by them during the past 12 months in the working population (n=1677)

	n	%	95% CI
Ability to do job negatively affected by co-worker's drinking	70	4.2	(3.2-5.4)
Involved in an accident or close call due to co-worker's drinking	10	0.6	(0.3-1.2)
Worked extra hours because of co-worker's drinking	59	3.6	(2.6-4.9)
Had to take at least one day off work due to others' drinking	83	4.9	(3.8-6.1)

Less than one twentieth (3.6%; 95%CI 2.6% – 4.9%) of the working population reported having to work extra hours because of their co-worker's drinking. On average these workers reported having to work extra hours 20.9 (95% CI 11.7 – 30.1) times in the year, although the modal response was twice. This amounted to an additional 48.1 (95% CI 31.6 – 64.7) hours worked in the year. A slightly larger percentage (4.2%; 95%CI 3.2% - 5.4%) of the working population reported that their work was negatively affected by a co-worker's drinking. On average, respondents reported their work was negatively affected 16.7 times (95% CI 8.9 – 24.6 times) in the last twelve months. A very small percentage (0.6%; 95% CI 0.3% - 1.2%) of the working population reported being involved in at least one accident or close call due to drinking by co-workers, with each respondent affected reporting an average of 3.1 (95% CI 0.2 – 6.1) accidents or close calls in the last twelve months. Finally, 4.9% (95% CI 3.8% – 6.1%) of the workforce reported taking at least one day off due to someone else's drinking. The average number of days taken off work due to someone else's drinking was 11.1 days (95% CI 1.8 – 20.4 days).

The cost of the extra hours worked and the time taken off work due to other people's drinking was estimated based on the reported wages of the respondents affected. Hourly pay rates were calculated based on the reported household income, the proportion of the household income the respondent reported being responsible for, and a standard working week of 37.5 hours for 47 weeks in the year). Using these data, the average annual cost of extra time worked due to someone else's drinking was $1,933 ($952 - $2913) per individual working extra hours. When these costs were weighted up to the Australian working population, the corresponding total annual population cost was $453 million ($202 million - $703 million). The average annual cost of absenteeism due to someone else's drinking was $997 ($444 - $1550). This represented a total cost to the Australian economy of $348 million ($134 million – $563 million). If these costs are considered mutually exclusive, this represents a total estimated cost of $801 million in the workplace due to other people's drinking.

Conclusion

The annual cost at the population level of extra hours worked by workers because of a co-worker's drinking is estimated to be very large at $453 million. This figure is comparable with estimates of absenteeism made by Pidd et al. (2006) and Collins & Lapsley (2008): $437 million and $368 million, respectively. However, ours is a different measure and as such caution is advised in making such direct comparisons. In our study it is not possible to identify the reason why co-workers are working additional hours for heavy drinkers. It may be to make up for the absenteeism of the heavy drinker but it may also encompass other reasons such as reduced productivity on the part of the heavy drinker, mistakes or lower quality work. The most likely scenario is that it is a combination of several factors that is also likely to vary between respondents. Collins & Lapsley (5) state that it is not possible to quantify loss in on-the-job productivity due to alcohol; although they believe that if measured such costs would be considerable. We feel, despite its limitations, that our study goes some way to addressing this gap by taking the new approach of asking co-workers to estimate the amount of extra work they are taking on due to others' drinking.

In addition, the results of our study add an important measure of alcohol-related absenteeism to the broader literature on absenteeism due to one's own drinking. The results of this study suggest that the cost of absenteeism due to someone else's drinking ($348 million) is almost as large as that due to one's own drinking ($368 million, from Collins & Lapsley(2008). This is a cost of alcohol that has not previously been considered when assessing the impact of drinking in the workplace.

We also found that the effects of other's drinking in the workforce are distributed unequally across the workforce, with just 4.3% of the working population contributing all the extra work and 4.9% absent from work due to others' drinking. Roche et al. (2008) found that young employees and males were more likely to report alcohol-related absenteeism than older workers and females. Perhaps surprisingly, we also found that those working extra hours were significantly more likely to be male and younger (results not shown). Contrastingly, females were more likely to have taken time off work due to someone else's drinking. However, caution is advised interpreting this as our numbers were small and the study was not designed for this purpose.

As well as the harms discussed above, the study also found an additional small percentage of respondents whose work performance was negatively affected by the drinking of their co-workers, and a very small proportion whose health and safety were put at risk through accidents or close calls. This study did not attempt to attribute economic costs to these harms, although they are likely to be substantial. Thus, while our estimate of cost of alcohol to others in the workplace is large, it may in fact represent an underestimate, with the true cost in reality being considerably greater. In addition, there remains a substantial proportion of respondents who report being negatively affected by co-workers' drinking, but who do not report any of the three specific effects (working extra hours, work performance affected or accidents). It is possible that this group suffer less tangible effects: for example, they may be worried about safety or performance in the workplace because of their heavy drinking co-worker, or they may experience problems due to their co-worker in the social sphere rather than at work per se (for example they may suffer from poor working relations with the heavy drinking

co-worker and feel uncomfortable or stressed as a result). Unfortunately, in the absence of further research, it is only possible to speculate on how this group is negatively affected.

This study suffers from a number of limitations in its attempt to measure the cost of alcohol consumption in the workplace. Our reliance on proxy respondents is a key benefit of the study — as it allows triangulation of results produced with other methods – but also a key limitation. There is clearly a potential bias as proxy respondents may simply be wrong about their co-workers' drinking behaviour, or alternatively wrongly attribute problems in the workplace to it. Furthermore, there is a potential recall bias with respect to estimates of the number of times and number of extra hours worked. The 12 month recall period is long, and it is likely that respondents will make errors recalling the true amount of additional time worked. Our assumption of a standard working week of 37.5 hours for 47 weeks in the year is somewhat arbitrary. According to the Australian Bureau of Statistics, the average Australian working week was 33.7 hours in 2009, reflecting the contribution of part-time and shift workers. It is very likely that some of our respondents were also part-time or shift workers; however in the absence of detailed information about this we chose to use an approximation to a full working week in order to render our estimates more conservative. The absolute number of respondents reporting working extra hours because of a heavy-drinking co-worker is low, and this is reflected in the wide confidence intervals for our estimates of the population cost. Finally, the Alcohol's harm to others survey had a less than desirable response rate, raising some doubt as to the generalisability of these findings. However, the study appears to be relatively representative of the population across a number of socio-demographic variables (including employment status) and has been weighted to correct for obvious variations from the population structure.

11: ALCOHOL-RELATED HARM FROM STRANGERS

Introduction

Individuals can be negatively affected from drinkers they do not know in a number of ways. These include being annoyed by litter, alcohol-related violence, property damage, noise and fear of alcohol-related violence and intoxicated individuals. The purpose of this chapter is to bring together information about people's experience of alcohol-related harm from people they do not know. The chapter begins with a brief literature review and then explores the issue using existing datasets as well as the Alcohol's harm to others survey.

Literature review

Information on how people are affected by drinkers they do not know comes from a number of sources. This includes from the range of agencies which may be called upon to respond to the harm, such as councils, law enforcement, judicial systems and health services. For example, the Victorian Alcohol and Drug Association have estimated that $17 billion worth of property is damaged as a result of alcohol each year (Gannon, 2009). This information, however, has rarely been the focus of academic research but is contained in agency reports and budgets. There are a few exceptions. Two studies in which the police were interviewed about alcohol involvement in incidents they were called to respond to found both noise complaints and street offenses were two common incidents often involving alcohol occurring in the community (Davey, et al., 2000, Ireland and Thommeny, 1993). Such incidents, by their nature, are likely to stem from individuals not known well or at all to those making the complaint to the police.

There are a few examples of research on alcohol and alcohol-related harm where issues of amenity and community are explored. For example, a study around the community of Port Hedland in Western Australia found alcohol was linked to anti-social behaviour, litter and graffiti (Midford, et al., 2005).

However, the main source of information on how people experience alcohol-related harm from people they do not know is in general population surveys. A number of such surveys include questions relating to the individual's experience of alcohol-related harm which could be considered to sit within the realm of community and the public arena. Often a selection of both criminal and non-criminal harms are included. Fillmore (1985) reported that the majority of the respondents in a Californian community general population survey had experienced obnoxious behaviour from other drinkers in the past year, 42% had had property littered or damaged by someone who had been drinking, 13% had experienced violence, 4% accidents and 1% employment problems due to someone else's drinking. Allen et al. (1998) found that the most common problems reported by Canadian respondents were noise or the behaviour of a drinker (34%), humiliation (27%), and serious arguments (22%). These were experienced by at least one in every five respondents. Rossow & Hauge (2004), in a Norwegian population survey, found Norwegians experienced a range of harms from one or several intoxicated persons. More severe harms such as 'being physically hurt' were less common than less severe harms such as 'being kept awake at night' (experienced by 3% and 21% of the population respectively).

Fillmore (1985) reported that women and younger people were more likely to experience the harms related to the drinking of others. Controlling for socio-demographic factors, there was notably also an association with the respondent's own drinking, in that the harms were reported to an increasing extent with increasing alcohol consumption and frequency of heavy drinking occasions. Allen et al. (1998) found that young adults aged 18 to 34 were the most likely group to experience each of the harms. Females were more likely to experience two or more problems (38%) than males (31%). Similar age and gender differences were identified in other studies in Canada (e.g. Kellner, et al., 1996). In line with this, Mäkelä et al. (1999) reported that nuisance caused by other people's drinking was more often reported by those with high average consumption levels and those who were frequently intoxicated. Survey research with American college student samples has also found that

heavy episodic drinking puts students at heightened risk of social harms (Dowdall, et al., 1998, Wechsler, et al., 2002, Wechsler, et al., 1995).

Aside from demographic and drinking behaviours which may put people at risk of harms from others' drinking, contextual dimensions of risk of harm include the amount of time spent in public drinking contexts (Rossow and Hauge, 2004). People who had a higher education level and higher annual income, as well as more frequent episodes of intoxication, and more frequent visits to public drinking places, were also more likely to score highly on harm from others' drinking (Rossow and Hauge, 2004). Characteristics related to the respondent's neighbourhood are also significantly related to alcohol-related harm. For example, Donnelly et al., (2006) found trouble related to both density and accessibility of licensed venues.

In Australia, the National Crime and Safety Survey (NCSS) (Australian Bureau of Statistics, 2005) and the National Drug Strategy Household Survey (NDSHS) both provide information on alcohol harms in the public domain. A multilevel modelling analysis of the NCSS illustrated that that respondents who lived closer to liquor outlets were more likely to report problems in their neighbourhood from drunkenness and property damage, controlling for socio-demographic factors (Donnelly, et al., 2006). Analysis from the NDSHS found a high incidence of Australians reporting alcohol-related physical and verbal abuse and people being put in fear from people affected by alcohol (Wilkinson, 2008).

The survey literature has illustrated that a range of alcohol-related harms where the perpetrator is not necessarily known by the victim are reported. The prevalence of these incidents varies by country and severity of the harm. The experiences of alcohol-related harm from people not known to the respondent well have not been examined thoroughly in Australia before, but have been limited to three items from the NDSHS on physical and verbal abuse and being put in fear by strangers. This chapter seeks to push forward our knowledge of alcohol-related harm from strangers by supplementing the most recent NDSHS with the results of the Alcohol's harm to others survey.

Methods

In the first analysis, data came from the three alcohol-related victimization items from the 2007 NDSHS. The sample used in the analysis included all those individuals aged 18 years or older (n=16,466). Only data collected using the drop and collect method (response rate = 47.8%) were used. Those experiencing illicit drug-related harm were removed in order to identify only those who reported having had experienced alcohol-related harm from a stranger.

In the second analysis, data from the Alcohol's harm to others survey were used to describe the prevalence and types of harms that individuals experienced because of the drinking of strangers and others they do not know very well. All respondents (n=2649) to the Alcohol's harm to others survey were included in this analysis and asked a series of questions regarding both personal harm, harm to respondents' property and behaviours they may have been offended by, e.g. urinating in public. The level of seriousness inherent in these harms varied and included items that asked whether the respondent had been physically assaulted, forced or pressured into sexual activity, or involved in a traffic accident, as well as questions on being annoyed by vomit, urination or litter, troubled by noise related to a licensed venue, ad kept awake at night because of the drinking of strangers. Two follow-up questions asked about the material costs due to damage to property or personal belongings of the respondent because of drinking. Descriptions of harm items have been shortened to keywords and full question formats are available from the technical report (Wilkinson, et al., 2009).

Both surveys were analysed with bivariate and multivariate statistics, specifically examining differences in experience by gender and three different age groups (18-29, 30-59, 60+ years) and each data set was weighted to ensure the results were representative of the Australian population.

Results

National Drug Strategy Household Survey

Whilst a large number of NDSHS respondents reported physical, verbal abuse or fear from someone affected by alcohol (either known or unknown – see chapter 6) overall, 87% of those who had experienced alcohol-related harm (physical, verbal or fear) reported that it had been perpetrated by someone not known to them. This represents 15% of the total survey sample population (n=2493). Table 11.1 shows, for gender and age for the total sample, the percentages of respondents who reported being negatively affected in the last year by a stranger affected by alcohol.

Table 11.1: Experiences of alcohol-related harm committed by a stranger by gender and age (n= 16466)

	Female				Male			
	18-29	30-59	60+	Total	18-29	30-59	60+	Total
(N: weighted[1])	1762	4532	2119	8413	1780	4413	1861	8054
Experienced the following because of the drinking of strangers[2]								
Verbally abused	15	9	3	9	28	17	10	17
Physically abused	1	0	0	0	6	2	0	2
Put in Fear	12	7	7	6	9	7	2	6

[1]Total weighted n does not add to 16,466 because of missing age and gender cells
[2] Less than 2% of responses were missing for physical abuse

Table 11.1 illustrates that the harm was mostly experienced by younger adults. Younger men were more likely than women to experience verbal and physical abuse, while younger and older women were more likely to be put in fear by someone affected by alcohol.

Results of the multivariable model are presented in Table 11.2. The odds ratios (ORs) in each model are estimates of the difference in experiencing each of the alcohol-related harms between the population group in question and the reference category. For example, females were 50% less likely than males to experience verbal abuse from a stranger affected by alcohol, while those aged 18-29 were more than five times more likely to experience verbal abuse than those aged 60 years or older.

Table 11.2: Multivariate model: odds ratios of experiences of alcohol-related harm by age and gender

	Verbal Abuse			Physical Abuse			Put in Fear		
	OR	95% CI	P	OR	95% CI	P	OR	95% CI	P
Gender (ref.: male)									
Female	0.5	0.4-0.5	<.001	0.2	0.1-0.2	<.001	1.1	0.9-1.2	.420
Age In years (ref.: 60+)									
18-29	5.3	4.5-6.3	<.001	33.9	12.8-89.6	<.001	5.9	4.6-7.6	<.001
30-60	2.8	2.4-3.3	<.001	8.9	3.4-23.7	<.001	3.7	2.9-4.7	<.001

The multivariate model supports the findings of the bivariate analyses: verbal and physical abuse are experienced significantly more often by males. While females report more experiences of being put in fear, this was not found to be significantly different from males. Individuals in the younger age categories were significantly more likely than those aged over 60 years of age to experience all forms of alcohol-related harms.

Alcohol's harm to others survey

Table 11.3 indicates the percentage of respondents who reported having experienced the various kinds of harms at least once during the past 12 months by gender and age.

Table 11.3: Percentage who reported having experienced the various kinds of harm at least once during the past 12 months, by gender and age: weighted sample (n =2649)

	Female				Male				(N) Total
	18-29	30-59	60+	Total	18-29	30-59	60+	Total	missing
(N: weighted)	(258)	(776)	(320)	(1354)	(284)	(731)	(276)	(1291)	
Experienced the following because of the drinking of strangers ...									
Avoid drunk people or places where drinkers are known to hang out	60	45	23	43	52	45	29	43	(40)
Kept awake and disturbed at night	50	44	24	40	34	41	18	34	(5)
Annoyed by vomit, urination or littering	49	28	11	28	42	29	9	28	(7)
Felt unsafe in a public place	48	27	7	26	37	23	7	23	(10)
Trouble or noise related to licensed venue	36	20	9	20	38	24	10	24	(7)
Felt unsafe using public transport	44	19	6	21	31	17	8	18	(8)
Verbally abused	37	15	3	16	38	21	7	22	(4)
Being Threatened	19	8	2	8	30	13	4	15	(3)
Serious argument	21	7	5	9	29	12	4	14	(1)
Property damage	19	9	4	9	20	9	3	10	(15)
Personal belongings damaged	16	2	1	5	13	6	1	7	(3)
Physically abused	7	2	1	3	14	4	1	5	(3)
Forced or pressured into sexual activity	3	0	0	1	2	1	0	1	(2)
Traffic accident	2	1	0	1	3	1	0	1	(0)

Source: Alcohol's harm to others survey 2008 (n= 2649)

Women were more likely than men to report being kept awake or disturbed at night (40% vs. 34%) and women more commonly reported that they felt unsafe in a public place (26% vs. 23%) because of strangers' drinking. Men were significantly more likely to report being verbally abused (22% vs. 16%), physically abused (5% vs. 3%), being threatened (15% vs. 8%), being in a serious argument (14% vs. 9%), and experiencing trouble or noise related to licensed venue (24% vs. 20%). Most harms decreased in prevalence by age. An exception, being kept awake at night or disturbed, was reported more by males aged 30-59 than those aged 18-29 years (see Table 11.3 on previous page).

Table 11.4 illustrates how many times respondents reported that they had been affected by each harm item. On average the number of times respondents report being kept awake at night because of someone else's drinking was 12. As the distribution pattern of count data is typically right-skewed, with relatively few high frequencies reported, medians are also presented. The most commonly reported frequency that respondents were affected by for these items was 1 or 2 times and the medians are all between 1 and 4 times. There are quite large variations in the response ranges, from 1 to 999. The maximum number of times respondents reported that they had been kept awake was 999 times (approximately three times a night). Where respondents reported that they had been affected 365 times this indicates that they were affected on a daily basis.

Table 11.4: Measures of spread of response frequencies to each of the 14 alcohol-related harms due to the drinking of strangers or people the respondent didn't know very well.

	Max	Mean	Median	Mode
Kept awake or disturbed at night	*999	12	3	2
Verbally abused	365	8	2	2
Physically abused	52	4	1	1
Threatened	*200	5	2	1
Serious argument	48	4	2	1
Felt unsafe using public transport	200	5	2	1
Felt unsafe in a public place	365	7	2	1
Avoid drunk people/places	365	18	4	2
Annoyed by vomit, urination or littering	365	13	4	2
Trouble or noise related to licensed venue	365	10	3	2
Traffic accident	5	1	1	1
Forced or pressured into sexual activity	*20	3	1	1
Property damage (eg. clothes, car)	12	2	1	1
Personal belongings damaged	12	3	1	1

*The maximum response frequency was an extreme value compared to the rest of the data. The response maximum for being kept awake at night or disturbed by drunken noises is the maximum response allowed in the CATI system.

Costing harm from strangers

The direct cost of property damage due to someone else's drinking

One tenth of the sample reported that they had their house, car or property damaged at least once in the previous 12 months because of the drinking of strangers (Table 11.5). The average cost borne by each affected person for property damage was $1,222 which occurred at a frequency of 1.75 times per annum. When the population weights are applied to the average cost of $1,222, the total replacement cost at the population level due to property damage was derived as $1.5 billion per annum.

A total of 5.6% of the population reported damage to their clothes or other personal belongings because of the drinking of strangers. The average cost per affected person was $166 which occurred at a frequency of 2.5 times in the last year. At the population level, the total replacement cost due to personal belongings damage is estimated at $119 million (Table 11.5). Since personal belongs such as clothes cost less than property such as house and car, the costs are considerably lower than those estimated for property damage.

Overall, the cost of all damage to property and belongings is estimated to be large, at $1.6 billion.

Table 11.5: Costs due to property and personal belongings damage: calculating national cost

Type of damage	Property damage	Personal belongings damage
Number of affected persons	262 (10.0%)	149 (5.6%)
Average cost per affected person incident in a year	1222 (CI: 633,1812)	166 (99, 232)
Average number of incidents per affected person in a year	1.7 (1.5,2.0)	2.5 (2.1,3.0)
Total replacement/repair cost for Australia in a year (95% CI)	$1,500,000,000 ($777,004,910, $2,224,222,586)	$119,000,000 ($70,969,880, $166,313,253)

Intangible costs of harm from strangers' drinking

The intangible costs of harms from strangers is estimated, using parallel methods to those used in Chapter 9 to cost the harm from the known person whose drinking most adversely affected the respondent. Tables 11.6 and 11.7 detail the estimated cost of intangible harms from strangers in the sample population and the Australian population, respectively. The first row provides the QALY scores for the sample who indicated that during the previous 12 months they had not experienced any

adverse effects as the result of stranger drinking (n=761) plus those who had experienced some harm but deemed they were not negatively affected by the harm (n=815). The mean QALY score for this group is 0.862 (95% CI 0.852-0.872). The second and third row of data reflect the mean number of QALYs for those who were affected a little by the drinking of strangers (n=962; QALY=0.850) and those affected a lot (n=108; QALY=0.795). The 'Change in QALY scores' shows the calculated difference of the mean and confidence intervals between each of the two responses options – a little and a lot – against the base group. The last section, 'Economic cost of intangibles' provides a mean estimate of the cost of intangibles for the sample population: this is simply the product of the mean change in QALY score by $50000. For example -0.012*$50000=$600. $50,000 represents the conventionally estimated worth of one QALY, that is, one full-quality year of life (see chapter 2).

The data presented in Table 11.6 depict that as the perceived severity of harms increases there is an accompanying decrease in the respondents' QALY scores. Compared to the base group, on average, the economic cost of intangibles for those reporting being negatively affected "a little" equates to $600; for those reporting being negatively affected "a lot" it equates to $3,350. Table 11.7 provides an estimate of these intangible costs for the Australian population. The results in Table 11.7 suggest that compared to those reporting no negative effects due to a stranger's drinking the cost burden for those who would report being negatively affected a little is over $ 3 billion. Similarly, the cost burden for those who would report being negatively affected a lot is over $ 2 billion.

Discussion

The results of this study highlight the range of adverse effects individuals can experience from drinkers they do not know. The NDSHS found 15% of the Australian population had experienced verbal or physical abuse or being put in fear by a stranger in the last 12 months. The Alcohol's harm to others survey found 71% of the population reported experiencing one of fourteen harms from a stranger within the last 12 months (see Chapter 4). As noted by Rossow and Hauge (2004), measuring alcohol-related harm through surveys is not a precise measure, and the overall prevalence of those reporting the harms will vary by the number of harms being included.

Results from the two studies converge in the gender and age characteristics of those experiencing alcohol-related harm. There was little difference between men and women in the proportions experiencing these adverse effects from drinkers they knew little or not at all. The exception here was violent, physical harm, where men were more likely to experience these types of harm than women. There were also big differences by age. Those aged 18-29 years report experiencing the more serious harms to a much larger degree than those aged 60 or more years. The costs from strangers' drinking to property and belongings from strangers' drinking sum to $1.6 billion and if the intangible costs of alcohol's harm due to the drinking of strangers are totalled these intangible costs amount to $5.3 billion.

Table 11.6: Sample estimates of economic costs of intangible harms as a result of the stranger's drinking

		QALY Scores			Change in QALY scores			Economic Cost of Intangibles		
Severity of harms	Obs	Mean	Lower 95% CI	Upper 95% CI	Mean	Lower 95% CI	Upper 95% CI	Mean	Lower 95% CI	Upper 95% CI
Negatively affected by a drinker:										
Not at all	1576	0.862	0.852	0.872						
A little	962	0.850	0.833	0.866	-0.012	-0.019	-0.006	$ 600	$ 300	$ 950
A lot	108	0.795	0.744	0.846	-0.067	-0.108	-0.026	$ 3,350	$ 1,300	$ 5,400

Table 11.7: Population estimates of economic costs of intangible harms as a result of the stranger's drinking

		QALY Scores			Change in QALY scores			Economic Cost of Intangibles		
Severity of harms	Obs	Mean	Lower 95% CI	Upper 95% CI	Mean	Lower 95% CI	Upper 95% CI	Mean	Lower 95% CI	Upper 95% CI
Negatively affected by a drinker:										
Not at all	8955980	0.862	0.852	0.872						
A little	5465325	0.850	0.833	0.866	-0.012	-0.019	-0.006	$ 3,279,195	$ 1,639,598	$ 5,192,059
A lot	612720	0.795	0.744	0.846	-0.067	-0.108	-0.026	$ 2,052,612	$ 796,536	$ 3,308,688

Conclusion

This chapter has presented two studies exploring how other people's drinking effects the prevalence of alcohol-related harm in the general population. The findings of the two studies support each other, with the first and the second finding similar demographic profiles on a large range of alcohol-related harms. The costs tallied in this chapter using the Alcohol's harm to others survey data are large; counting costs associated with property damage and personal belongings alone, the total estimated is $1.6 billion dollars and the intangible cost total $5.3 billion.

12: SERVICE USE FOR OTHERS

Introduction

This chapter provides an overview of utilisation of the range of services sought by people affected by the drinking of others, such as specialist alcohol and drug treatment and emergency services. Economic costs, based mainly on time-related opportunity costs associated with service utilisation are also documented. Data are mainly sourced from agency registries related to alcohol and other drug (AOD) services provided in Victoria. These data focus on services provided to people concerned about, or affected by someone else's drinking. This chapter also draws on responses from the Alcohol's harm to others survey, which asked respondents about any services they had accessed due to someone's drinking. The survey results provide limited but important information on general emergency and community services that may be accessed by families and friends of drinkers. This chapter does not attempt to provide a comprehensive account of all types of services accessed and required by others affected by someone else's drinking. The information presented does however contribute to a better understanding of specific services received and the opportunity cost of time spent by individual who accessed particular services.

Literature review

It is widely acknowledged that significant others can be affected by the drinking of someone close to them (Orford, et al., 1975, Templeton, et al., 2007, Velleman, et al., 2008). Negative effects may manifest as physical, psychological and social stressor (Copello, et al., 2005), resulting in the need for services (Svenson, et al., 1995) such as psycho-social support, medical care, or legal services. For example, the stress and strain of living with a drinker may lead a significant other to seek counselling or other ongoing support for depression or anxiety. Furthermore, someone who sustained an injury after they were hit by a drinker may require medical care, either at a hospital or medical health centre. In instances where individuals feel annoyed or fearful due to a noisy party of drinkers the police may be called. This review provides a brief summary of the literature on treatment and health services provided to significant others, primarily family members, affected by the drinking of others. The literature spans primary care services, specialist addiction services as well as mutual support.

Primary care

Within the tradition of family therapy, the focus in involvement of family members in treatment has been on improving treatment outcomes for alcohol and other drug users, without much concern for the needs of significant others (Copello and Orford, 2002). Recent developments have, however, acknowledged the view that family members of problematic drinkers and substance users require help and support in their own right (Orford, 1994, Velleman, et al., 2008). This shift reflects a move away from the disease and illness paradigm, which labelled people as "sick or bad" if they were in a relationship with a problematic drinker (Krestan & Bepko, 1991 cited in Holmila, 1994) towards a more social approach (Hands and Dear, 1994). Consequently, studies have looked beyond the husband-wife relationship, and investigated the effects, and service needs of children, parents and other significant persons affected by a substance users (Copello, et al., 2005, Velleman, 2004). Despite the increased body of literature, the extent of the phenomenon (e.g., family members suffering problems as a result of living with a drinker) is still relatively unknown, especially in terms of service utilisation patterns.

According to Copello and colleagues, primary care services in the UK are "increasingly becoming the focus of treatment for a variety of psychological problems including alcohol and drug misuse" (2000, p. 331). While the actual number of people presenting to services with problems related to the drinking of others is unknown, the authors suggest it would be sizeable given that "a high proportion of the general population is registered with a GP, and primary care professionals are seen as credible sources of information" (Copello, et al., 2000, p. 331). The study also indicated that while family members may "receive treatment for their physical or psychological symptoms" from primary care services, "the cause of these symptoms often remain undetected" (Copello, et al., 2000, p. 329). In

part this may be due to the lack of a theoretical framework and specific training to help practitioners to "conceptualise and respond" to the needs of family members trying to cope with a problematic/heavy drinker. In response to this knowledge gap, a family focused intervention based on the stress-stain model (Orford, et al., 2001) was developed in the UK to help service providers respond more effectively to family members negatively affected by another's substance use (Copello, et al., 2000). Feasibility studies within primary care settings have reported positive responses from service providers in terms of increased confidence, and reduced levels of stress for family members (Copello, et al., 2000). The authors acknowledge that while the model appears to be both acceptable and effective, integration into general practice has been slow.

Specialist addiction services

In the context of specialist AOD services, treatment provided to those affected by substance users is often perceived as secondary to that of the user and not central to the addiction service's core business (Copello and Orford, 2002). As is the case with primary health care, AOD treatment involving family members has been viewed as an adjunct, and the needs and experiences of individual family members have been overlooked (Copello and Orford, 2002, Hands and Dear, 1994, Templeton, et al., 2007, Velleman, et al., 2008). For example, a two day audit of a large alcohol service in the UK indicated that 2.8% of client contacts were family members who received treatment in their own right, and a further 1.7% of cases involved couples receiving therapy (Copello and Orford, 2002).

A similar picture has been reported in Australia. The Victorian Department of Human Services (2000) indicates that the main types of support services accessed by family members of a drinker are AOD services, telephone crisis services and mutual help support groups. At the national level, non using clients seeking treatment (any drug) represent less than five percent (6,850 episodes of care in the fiscal year 2006-7) of the total number accessing specialist AOD services (Australian Institute of Health and Welfare, 2008). The most common type of treatment provided to this group is counselling, with more than 70 per cent of the episodes, and the other types of treatment being case management as well as information and education. Non-using clients accessing specialist AOD services tend to be older than people seeking treatment for their own use, and also twice as likely to be female as to be male. These services are not primarily aimed at treating the family and friends of a drinker, so the people accessing these services are likely to be only a small fraction of the number of people who may require help.

People seeking treatment because of someone else's drinking are also known to access telephone services (DHS, 2000). Telephone services providing alcohol and drug counselling and referrals exist in all States and Territories across Australia, and *DirectLine* and *Family Drug Help* are the two main services operating in Victoria. These services are designed to offer a range of services such as counselling, support, information dissemination, and operate on a 24 hour basis. Whilst their study was not specific to people affected by someone else's drinking, Coman et al (2001) undertook a review of telephone services in Australia and found that generally telephone services were helpful and that across the literature the most frequently reported benefits of these services were the immediacy of access, improved access, anonymity, empowerment and the possibility for referral to face-to-face services.

Mutual help and support groups

Mutual help and support groups also play an important role in providing help for significant others affected by someone's substance use. The notion of mutual help and support groups for people affected by someone else's drinking began with the founding of Al-Anon in the United States in the 1930s (formally organised in the 1950s) (Orford and Harwin, 1982). In the wake of the growth of its sister organisation, Alcoholics Anonymous (AA), which provides support for drinkers themselves. Al-Anon grew quickly in the US and internationally. Currently there are 24,000 established Al-Anon groups worldwide, with many groups in each State and Territory of Australia (Al-Anon Australia, 2009). Youth specific support groups, called Alateen, target teenagers who are affected by someone else's drinking, or who are concerned about their own drinking have also been established. Whilst Al-Anon is a well known source of support for people with concerns relating to someone else's drinking, there

is a range of other groups and organisations in Australia that also provide this kind of support such as Family Drug Support, the Ted Noffs Foundation and Family Drug Help. These groups vary in their focus, for example they might have an advocacy function, but all have some kind of mutual support element.

Despite the substantial rollout of Al-Anon services, there is very little published specifically about support groups for people affected by someone else's drinking. In the context of the United States, Straussner (1994) found that the availability of mutual support groups was very important for the family members of a drinker. Furthermore, Galanter (2001) indicates that these groups are the most common type of support accessed by family members of a drinker in the United States. An Australian qualitative study of Al-Anon found that attending the group was very helpful to the female participants, because they learnt about "the values of autonomy and self-responsibility" enabling them to detach from the alcoholic whilst still caring for them (Zajdow, 2002). While there is little concrete evidence available about the effectiveness of mutual support groups, for many people affected by someone else's drinking such groups may be the only obvious option available to them (Department of Human Services, 2000).

Service utilisation patterns and costs

Given the limitations of data collection for people accessing services in relation to other people's drinking, information on service utilisation patterns and costs is scarce. Two studies that have examined health care utilisation patterns, and associated health care costs for family members of substance users, provide useful information though they are not alcohol-specific.

In an early study, Svenson et al. (1995) used a health care database capturing medical information for residents of a Canadian province to compare health care claim histories for patients who had a family member with a substance use disorder with a matched sample from the community. Findings indicated that patients with a substance-using family member had a higher morbidity risk, specifically relating to mental disorders, digestive conditions and obstetrical problems. Compared with the control sample, patients with a substance-using family member also used more health services, namely visits to specialists, laboratory tests, and non-referred appointments. There was however, no statistically significant difference in the number of visits to a GP, hospital nor emergency department between the two samples. Results also revealed a 'multiple doctoring pattern' as patients with a substance-using family member saw "twice as many different specialists and twice as many different GPs" (Svenson, et al., 1995, p. 1492). According to the authors these findings "could reflect the inability of practitioners to identify the underlying cause of morbidity correctly, patient dissatisfaction with services or (given the high rates of anxiety and depression disorders) prescription drug use" (Svenson, et al., 1995, p. 1492). In terms of costs, patients with a substance-using family member had a greater mean cost for specialists ($94.16 versus $44.48) and laboratory services ($5.55 versus $3.67). The difference in the mean cost for GP visits for the two samples was not statistically significant.

Using a similar, though more robust, study design, Ray et al. (2007) examined the prevalence of diagnosed conditions, and estimated the medical costs of health care provided to family members of individuals with and without an alcohol or drug (AOD) diagnosis who attended a large health service in the United States. To reduce the potential of confounding effects from AOD treatment provided to the substance users, the authors based their analyses on health care information recorded in the two years before an AOD diagnosis was given to the relative of the study population. Cost estimates were calculated for hospitalisations, emergency department presentations, and outpatient appointments (e.g. primary care visits, psychiatric services). Families with a substance using member had higher medical costs, for each service type examined, than the comparison group, who did not have a family member with a known AOD diagnosis. Overall, the annual cost of health services was approximately $460/person more for a family with a substance using relative. Prevalence of 15 medical conditions (e.g., asthma, behavioural problems, depression, trauma) was also examined for family members of patients with a substance use diagnosis and comparison families. Logistic regression models indicated that adult relatives and children of AOD users were significantly more likely than comparison family members to be diagnosed with selected conditions. For both adults and children, the largest

difference between the two samples was in the likelihood of having depression (odds ratio [OR] 2.2 for adults, 2.8 for children) and having a substance use diagnosis (OR 1.9 for adults, 2.8 for children). Overall the study provided evidence that having a family member substance misuse problem increases the health care use of other family members.

Alcohol and drug services

Two sets of agency data relating to the provision of specialist AOD services in Victoria are reported in this section: the Alcohol and Drug Information System (ADIS), which records information for the Victorian specialist AOD service system as a whole; and the second data source is for an AOD-specific telephone helpline – DirectLine. While both services provide treatment for alcohol and other drugs for both users and people affected by others' use, this chapter specifically addresses alcohol and treatment provided to clients due to someone else's drinking.

Alcohol and Drug Information System (ADIS)

The Victorian Department of Human Services funds approximately 136 alcohol and other drug treatment agencies and outlets to provide specialist treatment to people experiencing difficulties related with their own or someone else's substance use (Australian Institute of Health and Welfare, 2008). A broad range of services are offered through specialist AOD agencies such as counselling, withdrawal and information and support. Along with generalist services, there are AOD treatment and harm reduction interventions tailored specifically for families, such as the Parent Support Program, as well as for Koori communities, which work with people who are affected, either directly or indirectly by alcohol and/or other drugs (Department of Health, 2009). As part of the funding agreement between the government and service providers, agencies are mandated to collect client information. This information is stored and managed through ADIS. On an annual basis approximately 48,000 closed (or completed) treatment episodes of care (EOC)[12] are delivered by Victorian AOD services and alcohol is the primary drug of concern in 40% of episodes. Episodes provided to people seeking treatment in relation to another person's alcohol or other drug use accounts for approximately 5% of the treatment provided.

Method

This section primarily examines treatment episodes delivered by Victorian specialist AOD services during the 2006/07 financial year. The focus of the analysis is treatment provided to families and others, referred to as non-using clients, who sought treatment due to someone else's drinking. Only episodes where the relationship to the user was known were included (i.e. unknown and 'other' not specified were excluded). Also, the analysis is limited to episode of care (EOC) where alcohol was the primary drug of concern. This sub-sample equates to 1,015 closed (or completed) EOCs, which make up approximately 2% of all treatment episodes provided in 2006/07.

Descriptive statistics are used to summarise the characteristics of the non-using clients affected by, or concerned about someone else's alcohol use. Variables of interest include: age, sex, living arrangement, employment status and the relationship of the client to the user. While the characteristics relate to the person, the data are reported for EOCs. An analysis of the types of treatment received by non-using clients, where the principal drug of concern is alcohol, was also undertaken. ADIS data from two additional years (05/06 and 07/08) are included in this section. As the socio-demographic profile of clients/EOC was similar across the three reporting periods, and for

[12] "A closed treatment episode refers to a period of contact, with defined start and end dates, between a client and a treatment agency. It is possible that more than one treatment episode may be in progress for a client at any one time, therefore the number of closed treatment episodes captured in ADIS does not equate to the total number of persons in Victoria receiving treatment for alcohol and other drugs" Australian Institute of Health and Welfare, 2008. Alcohol and other drug treatment services in Victoria: Findings from the National Minimum Data Set (NMDS) 2006–07. AIHW, Canberra..

simplicity's sake, socio-demographic information only relates to the 2006/07 financial year. All analyses were conducted with SPSS 16 (Statistical Package for the Social Sciences, 2008).

Service costs

Drug treatment services provided are funded through a purchaser-provider model, whereby the Victorian Government purchases services from independent agencies. Given the mix of clinical skills and practices associated with different treatment types, the cost of an episode of care also differs by treatment type. The Department of Health computes a unit price based on the input costs required to deliver an episode of care through different drug treatment types. The cost per episode of care used in this section is based on service prices as at February 2004, reported by the Department of Health (Department of Health, 2009). These unit costs were used to calculate the cost per EOC for non-user presenting to drug treatment services during the 06/07 financial year. Based on the Victoria data, costs were extrapolated to a national level. This estimate has been crudely based on a per-capita basis for the Australian population,[13] which assumes similar treatment profiles and costs across Australia. This is likely to be an underestimate due to the higher rates of problematic drinking and the higher cost of treatment in areas like the Northern Territory.

Results

During 2006/07 the Victorian specialist drug and alcohol services provided 50,826 EOCs and 1,015 (2.0%) of these were provided to clients concerned about someone else's drinking (i.e. non-using clients[14] - 55.8% males; 44.2% females). Friend, parent and spouse/partner (28.0%; 26.0%, 26.0% respectively) were the most common relationship types among the non-using client group. Approximately one in ten episodes were provided to a sibling (12.0%) seeking help due to their brother's or sister's alcohol use. Few EOCs were provided to children (7.0%) seeking help in relation to their parent's alcohol use. Parents and spouses were more likely to be female (66.9%; 74.7%) than male (33.1%; 25.3%), however clients seeking help because of a friend's drinking were more likely to be male (73.8%).Half of the non-using clients were aged 30-59 years (50%), and approximately one in four (25.5%) were aged 17 years and under. Clients aged 0-17 years were more likely to be male (62.0%) than female (38.0%), and the gender split was relatively even for clients aged 18-29 (55.9% male; 44.1% female). Two in three clients aged 30 years and older were female (67.1%, 30-59 yrs; 68.8% 60 years and older).

Approximately one in four (26.5%) non-using clients self-identified as being of Aboriginal or Torres Strait Islander (ATSI) descent, and ATSI clients were more likely to be male (59.8%) than female (40.2%). One in three non-using clients were employed (32.0%), and a slightly smaller proportion of clients was either unemployed (27.6%) or a student (24.5%).

The majority of non-using clients lived with family (83%); 62% of these clients were female. A small proportion of clients lived alone, and among these clients 67% were males. All differences in Table 12.1 were statistically significant.

[13] Population estimate as at December 2006 (Australian Bureau of Statistics, 2006)

[14] Non-using clients excludes the category 'other' as it was unclear whether these episodes were provided to users or non-users. Other was not defined.

Table 12.1: Socio-economic and demographic characteristics of the non-using treatment sample, 2006/07 (n=1015)

	Males (n=446)1		Females (n=563)		Total	
	n	%	n	%	n	%
Clients relationship to the drinker (n=1009*)						
Friend	211	73.8%	75	26.2%	286	28.0%
Parent	87	33.1%	176	66.9%	263	26.0%
Spouse/partner	66	25.3%	195	74.7%	261	26.0%
Sibling	56	45.5%	67	54.5%	123	12.0%
Child	25	33.3%	50	66.7%	75	7.0%
Age groups (n=948*)						
0-17	150	62.0%	92	38.0%	242	25.5%
18-29	85	55.9%	67	44.1%	152	16.0%
30-59	156	32.9%	318	67.1%	474	50.0%
60 and older	25	31.3%	55	68.8%	80	8.4%
ATSI Status (n=979*)						
Not self identified as ATSI	268	39.7%	434	60.3%	720	73.5%
Self identified as ATSI	155	59.8%	104	40.2%	259	26.5%
Employment status (n=978*)						
Student	141	59.2%	97	40.8%	238	24.5%
Employed	102	32.9%	208	67.1%	310	32.0%
Unemployed	153	57.1%	115	42.9%	268	27.6%
Home duties	8	7.5%	99	92.5%	107	11.0%
Other	29	60.4%	20	40.0%	49	5.0%
Living arrangements (n=871*)						
Lives alone	29	33.3%	58	66.7%	87	10.0%
Lives with family	275	38.2%	444	61.8%	719	82.5%
Lives with others	36	55.4%	29	44.6%	65	7.5%

* Unknown data is excluded from analysis

[1]Other includes outpatient withdrawal; rural withdrawal, peer support, outdoor therapy; post withdrawal linkage, residential withdrawal, A&D supported accommodation, and client education. For each of these services, one, and to a small extent two or more, EOCs were recorded

Treatment types received

As Table 12.2 shows, counselling (56.1%) was the most common treatment type provided to non-using clients concerned about someone else's alcohol use, with women (66.0%) more likely to receive this treatment type than men (34.0%). One in five (19.5%) of the non-using clients engaged with an Aboriginal A&D Worker, and men (57.7%) were more likely than women (42.3%) to receive this treatment type. Fourteen percent (13.8%) of non-using clients received outreach. Parent Support was received by few clients (5.3%), and the majority clients were women (80.0%).

Table 12.2: Treatment types provided to non-using clients by gender for 2006/07 (n=1006)

	Males		Females		Persons	
	n	%	n	%	n	%
Treatment type provided (n=1006)		***				
Counselling Consultancy and Continuity Care	192	34.0	372	66.0	564	56.1
Aboriginal A&D Worker	113	57.7	83	42.3	196	19.5
Outreach	88	63.3	51	36.7	139	13.8
Aboriginal A&D Resource Service	38	71.7	15	28.3	53	5.3
Parent Support	9	20.0	36	80.0	45	4.5
Other[1]	4	44.4	5	55.6	9	0.9

Differences were tested using a Pearson chi-squared test - *** p< 0.001

[1]Other includes outpatient withdrawal; rural withdrawal, peer support, outdoor therapy; post withdrawal linkage, residential withdrawal, A&D supported accommodation, and client education. For each of these services, one, and to a small extent two or more, EOCs were recorded.

While counselling, consultancy and continuity care (CCCC) is the most common treatment type provided to non-using clients affected by someone's drinking, the proportion of EOC varies over the period 2005/06 to 2007/08 (Figure 12.1). The percentage of EOC involving an Aboriginal A&D Worker also varied across the three reporting periods. In 2006/07 Aboriginal A&D Worker was the second most common treatment, with 19.5% of EOC receiving this treatment type; however, in the previous and following year, Aboriginal A&D Worker represented less than 10% of all treatment types provided. Outreach remained relatively stable, and apart from 2006/07, it was the second most common treatment type provided. Aboriginal A&D Resource Service, as a treatment type, increased over the years and Parent Support was the least most common treatment type provided.

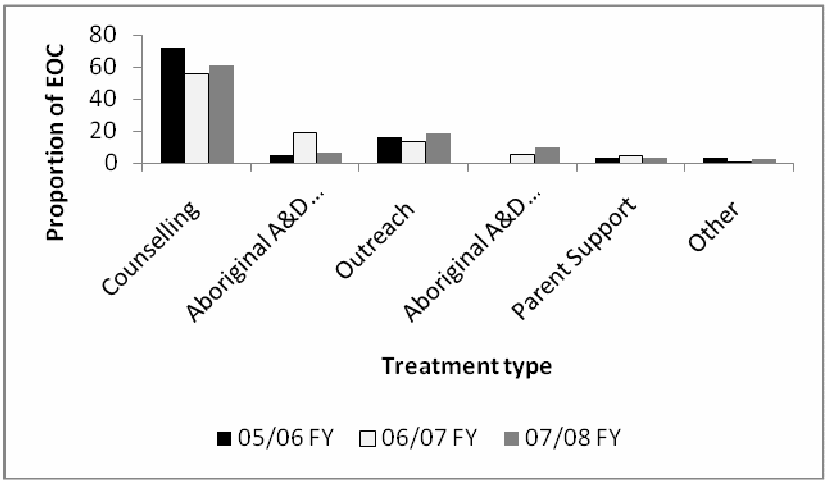


Figure 12.1: Trends in treatment types provided to non-using clients, 2005/06 to 2007/08

Note: Other includes outpatient withdrawal; rural withdrawal, peer support, outdoor therapy; post withdrawal linkage, residential withdrawal, A&D supported accommodation, and client education. For each of these services, one, and to a small extent two or more, episodes of care were recorded.

Service costs

Based on a cost of $655.81 per EOC, the cost of providing 564 EOC of Counselling Consultancy and Continuity Care treatment to non-using clients concerned about someone else's alcohol use is estimated to be $369,877. The cost of providing 1,006 EOC to non-using clients concerned about another person's drinking is estimated to be $706,003 (Table 12.3). Based on these Victorian data, a national estimate of the cost of providing treatment services to non-using clients of $2,857,665 has been derived. As noted previously, this estimate has been crudely based on a per-capita basis for the Australian population,[15] which assumes similar treatment profiles and costs across Australia. This is likely to be an underestimate due to the higher rates of problematic drinking and the higher cost of treatment in areas like the Northern Territory.

[15] Population estimate as at December 2006.

Table 12.3: Service treatment types provided to non-using clients by gender for 2006/07 (n=1006)

	No. of EOCs	Cost per EOC $	Service Cost $
Treatment type provided (n=1006)			
Counselling Consultancy and Continuity Care	564	655.81	369,876.84
Aboriginal A&D Worker[1]	196	655.81	128,538.76
Outreach[2]	139	1087.57	151,172.23
Aboriginal A&D Resource Service[3]	53	447.94	23,740.82
Parent Support[1]	45	655.81	29,511.45
Other[4]	9	351.45	3,163.05
Total	1006		706,003.15

[1]Cost per EOC is based on cost per EOC for Counselling Consultancy and Continuing Care

[2]Cost per EOC is based on Youth Outreach

[3]Non-Residential Services are costed on the basis of EFTs (equivalent full-time positions).

[4]Other includes outpatient withdrawal; rural withdrawal, peer support, outdoor therapy; post withdrawal linkage, residential withdrawal, A&D supported accommodation, and client education. For each of these services, one, and to a small extent two or more, episodes of care were recorded. The cost per EOC for outpatient withdrawal was used to calculate Cost per EOC for 'Other'.

Source: Cost per Episode of Care are based on current service prices as at February 2004 (Department of Heath, 2009 http://www.health.vic.gov.au/drugservices/about/ab_funded.htm)

Discussion

The analysis of ADIS provides a snapshot of the Victorian treatment population seeking help and support due to another person's drinking. In particular, the data demonstrates that a variety of relationships are affected by the drinking of others and males are equally as likely as women to engage in treatment. However, the profile of male non-using clients appears to differ to that of female non-using clients.

Males seeking support from specialist AOD service providers operating in Victoria tend to be concerned about friends and are younger, either employed or studying, and living with people other than their family. Whereas female clients are more likely to be engage in treatment because of a family member's drinking. Female clients tend to be older, living alone or with family and are either employed or engaged in home duties.

Counselling Consultancy and Continuity Care is the most common treatment type provided, and women are more likely to receive this type of treatment than men. Aboriginal A&D Worker was also a common treatment type, especially in 2006/07, where it was the second most common form of treatment.

The total cost required to deliver 1006 episodes of care to non-using clients experiencing difficulties due to another person's drinking was estimated to be $706,003. When this cost was extrapolated to all of Australia, an estimate of $2,857,665 was derived, representing the cost to provide all the treatment services utilised by non-using clients due to someone else's alcohol problems in Australia.

Telephone helplines

DirectLine provides a state-wide 24/7 AOD telephone helpline and referral service, managed by Turning Point, an AOD specialist service in Victoria. Trained AOD counsellors provide counselling, information and referrals to substance users, and person's affected by, or concerned about someone else's substance use who call the service. From this point forward, this latter group will be referred to as concerned or significant others (CSO). Service utilisation data are recorded by DirectLine, and the database captures information on caller's characteristics as well as the services provided. Based on a micro level costing approach, this section also attaches a dollar figure to the time spent by individuals calling DirectLine. In economic terms, the time spent seeking services such as DirectLine is considered a time-related opportunity cost. Such opportunity cost estimates are not currently available in the literature. The inclusion of an opportunity cost of time recognises that harm can continue beyond a single event such as a dispute or assault.

Method

This section examines service utilisation data collected by DirectLine for the 2005/06 financial year. A sub-sample of 2253 calls relating to concerned or significant others (CSO) who accessed the service due to the drinking of someone else is described. Data were provided in aggregate form, hence statistical analysis is limited. A series of socio-demographic variables including gender, age, and the caller's relationship to the drinker are reported. Information relating to the service provided (e.g. counselling, or referral) by DirectLine is also reported by gender.

The costing component adopts a bottom up (micro level) approach and uses opportunity costs, which is the value of the best alternative forgone by the victim. To derive the time-related opportunity cost three key measures were used: mean wait time and mean duration of the call; and cost per minute of an individual's time.

The average time callers had to wait before they were able to speak with a DirectLine phone counsellor was sourced from a recent study. A wait time of 53 seconds was reported based on all calls received by the DirectLine service between the period May 2006 until June 2007 (Swan and Tyssen, 2009). The average duration of the call was based on the 2253 calls from CSO during the 2005/06 financial year. The mean call duration was 16 minutes and 11 seconds (median 12 minutes).

The cost per minute of an individual's time was extrapolated report from the Australian Bureau of Statistics (ABS) which estimated Australian employee earnings and hours (Australian Bureau of Statistics, 2008). ABS collects data on the weekly average earnings for all employees and full time non-managerial employees. Since those affected by someone else drinking include both full time and part time employees and managerial and non-managerial employees, the weekly average earnings of $957.90[16] for all employees was adopted. The weekly average number of work hours for full time employees estimated at 39.7 hours was adopted as that for all employees, which should have been slightly higher, was not available. The average hourly earnings is then estimated to be $24.17 (or $0.402 per minute). The opportunity cost of time in this study is assumed to be this value.

A total call time cost was computed using the average wait time, average call duration and cost per minute estimate. Based on the total number of calls from CSO contacting DirectLine about someone else's drinking during 2005/06, this section estimates the time related-opportunity costs of each relationship type group, all well as the total number of calls received. This cost refers to indirect harm.

The cost of DirectLine having to allocate resources to answer calls from CSO because of someone else's drinking was also computed. Financial expenditure was based on DirectLine's cost centre budget for 2009/10. This amount includes salaries and wages, and cooperate overheads. Costs excluded from this amount include recruitment costs, job separation costs (e.g. resignations) and corporate overheads that did not accrue during 09/10 but which accrues periodically across years. Using the cost centre budget and proportion of calls received from CSO because of someone's drinking for 05/06, a resource allocation cost was derived. This cost refers to direct harm.

While data used in this section relate to a Victoria service, costs were extrapolated to a national level. This estimate has been crudely based on a per-capita basis for the Australian population,[17] which assumes similar treatment profiles and costs across Australia. This is likely to be an underestimate due to the higher rates of problematic drinking and the higher cost of treatment in areas like the Northern Territory.

[16] For full details of the underlying concepts, sources and methods used to compile these estimates ref to Labour Statistics: Concepts, Sources and Methods (cat. no. 6102.0.55.001), which is available on the ABS web site <http://www.abs.gov.au>.
[17] Population estimate as at December 2006.

Results

During 2005/06 DirectLine received a total of 49,327 calls and 7,269 (14.7%) of these calls were related to alcohol. Among those calls related to alcohol, 2,253 were from concerned or significant others (CSOs), which equates to 31.0% of alcohol-related calls and 4.6% of the total calls received.

Among the CSOs calling about the alcohol use of someone else the majority of callers were female (77.7%). Approximately two in three (68.2%) callers were aged 30 to 59 years. Partners made up a third (32.2%) of the CSO group, and a further 25.3% of calls were from parents. A smaller proportion of calls were received from friends (16.2%), siblings (10.1) and children (8.2%) of drinkers (Table 12.4).

The main services provided to CSOs affected by someone's drinker were counselling and support (43.6%), referral information (26.8%) and information (24.5%) (Table 12.5).

Table 12.4: Sociodemographic characteristics of concerned or significant others calling DirectLine about someone else's drinking, DirectLine, 2005/06 (n =2253)

	Males (n=500)		Females (n=1745)		Total	
	n	%	n	%	n	%
Age groups (n=1072*)						
0-19	<5		39	4.6	43	4.0
20-29	26	11.2	110	13.1	136	12.7
30-59	171	73.4	560	66.7	731	68.2
60+	32	13.7	130	15.5	162	15.1
Caller's relationship to the drinker (n=2245*)						
Friend	122	33.6	241	66.4	363	16.2
Parent	138	24.3	431	75.7	569	25.3
Spouse/partner	108	14.9	617	85.1	725	32.3
Sibling	57	25.2	169	74.8	226	10.1
Child	32	17.3	153	82.7	185	8.2
Other relative	43	24.3	134	75.7	177	7.9

* Missing responses not included

Table 12.5: Services provided to concerned or significant others calling about someone else's drinking, DirectLine, 2005/06 (n =2253)

	Males		Females		Persons	
	n	%	n	%	n	%
DirectLine services provided[1] (n=3836)						
Agency referral	241	23.5	786	76.5	1027	26.8
Counselling and support	352	21.1	1319	78.9	1671	43.6
Information	217	23.1	721	76.9	938	24.5
Sent out DirectLine publications	<5	-	<5	-	<5	-
Sent out other publications	29	20.6	112	79.4	141	3.7
Other	7	12.7	48	87.3	55	1.4

[1]Services provided exceed the number of callers as more than one service may be provided during the call.

Costs associated with calls to DirectLine

Two different costs are reported in this section: time-related opportunity costs and service allocated costs. Costs have been estimated based on the Victorian data, and national estimates have also been provided.

Time-related opportunity costs

The opportunity cost of a typical call from a CSO contacting DirectLine about someone else's drinking is estimated at $6.90 (Table 12.6).

Table 12.6: Cost of a typical call to DirectLine from concerned or significant others calling about someone else's drinking, 2005/06 (n =2253)

	Mean call time	Value of time per minute[1]	Total cost[2]
Mean wait time	00:00:53	$0.402	$0.35
Mean duration of call	00:16:19	$0.042	$6.55
Cost of typical call	00:17:12	$0.042	$6.90

[1]Value per minute based on cost of $00.67 per second
[2]Total costs are rounded to the nearest cent

Parents and partners incurred the bulk of the costs since they made more than half of the calls. The total cost to parents was estimated at $3,940, whereas the cost to partners was estimated at $5,016. Even friends and other relatives who are a little more distant in relationship than immediate family members or partners incurred an opportunity cost of $2,511.60 and $1,228.20 respectively. The total cost for the 2253 calls made to DirectLine by individuals affected by a drinker was estimated at $15,546 (Table 12.7). Given this cost is only related to Victoria, a national estimate was calculated. The national estimate for time-related opportunity costs of calling a phone help-line was estimated to be $62,924. This estimate is based purely on extrapolating Victorian estimates based on population data and should thus be treated with caution.

Table 12.7: Breakdown of total cost by relationship type of concerned or significant others calling DirectLine about someone else's drinking, 2005/06 (n =2253)

Relationship type	Number of calls	Cost of wait time	Cost of call (without wait time)	Total cost of call
Parent	571	$199.85	$3,740.05	$3,939.90
Partner	727	$254.45	$4,761.85	$5,016.30
Friend	364	$127.40	$2,384.20	$2,511.60
Sibling	228	$79.80	$1,493.40	$1,573.20
Other relative	178	$62.30	$1,165.90	$1,228.20
Child	185	$64.75	$1,211.75	$1,276.50
Total	2253	$788.55	$14,757.15	$15,545.70

Service allocated costs

Approximately $53,000 of DirectLine's budget is spent on providing a service to individuals calling about the drinking of another person (Table 12.8). As in the previous section, a national estimate was calculated by extrapolating Victoria estimates. In terms of total service resources the national cost is estimated to be $214,684.

Table 12.8: Cost of the resources allocated by DirectLine to deliver service to concerned or significant others calling about someone else's drinking, DirectLine, 2005/06 (n =2253)

Item	Value
DirectLine budget for 2009/10[1]	$1,153,020
Proportion of call from CSO because of others' drinking problems of total calls received by DirectLine in 2005/06	4.6%
Victorian estimate of total resources allocated by DirectLine to answer calls from CSO because of someone's drinking	$53,038
National estimate of total resources allocated by DirectLine to answer calls from CSO because of someone's drinking[2]	$214,684

[1]DirectLine budget includes salaries and wages corporate overheads and excludes recruitment costs, job separation costs (resignation, lay off etc) and corporate overheads that did not accrue that year but that which accrues periodically across years.
[2]This estimate is based purely on extrapolating Victorian estimates based on population data and should thus be treated with caution.

Discussion

Help line services such as DirectLine are considered an important component of the treatment sector. The immediate nature of the service coupled with the anonymity of phone-based contact is recognised in the literature (Coman, et al., 2001). To our knowledge, this is the first study to explore the use of an

AOD specific phone-based information and referral service by individuals concerned or affected by another person's alcohol use. While only one year of data are considered, findings indicate that a third of calls made to DirectLine concerning alcohol were from people other than the drinker. In respect to the total number of calls received for any drug, 4.6% were CSOs affected by others' drinking. Women more than men were found to contact DirectLine about someone's drinking and callers were generally aged 30-59 years of age. Over half (57.6%) the calls by concerned or significant others were from partners and parents, though friends, siblings and children were also found to access the service. Counselling and support was the most common service provided by the phone counsellors, followed by referrals to another services.

This study is also unique as it explores the cost burden to someone who has to call a help line due to the drinking of another person. While the costs from the perspective of service providers are well established, the cost related to the service user has been largely ignored. Each time a person calls a service like DirectLine there are opportunity costs involved in the time spent waiting to speak to a counselling, and the time spent talking to a counsellor. These costs exist even for calls made to services through a toll free number. Based on an average call lasting approximately 17 minutes, a time-related opportunity cost was estimated to be $6.90 per call. For a twelve month period, it was estimated that calls made to DirectLine from family members and friends because of someone else's alcohol use resulted in a total time-related opportunity cost of $15,545. When this figure was converted to a national estimate, the amount was $62,924. In terms of allocated resources, the cost estimate for Victoria was $53,038, and the national estimate was $214,684.

The findings must be interpreted with caution for the following reasons. Firstly, the results are based on only one year of data from a Victoria AOD service, which restrict the analysis to a particular time point and location. In terms of the economic component, the total call cost does not take into account calls made from a mobile phone, which will incur call charges even though DirectLine is a toll free service. Also, the average wait time has been taken from a previous study. Even though both sets of data relate to the same service, DirectLine, the data used are for different time periods and populations. The total call cost is based on the mean duration of calls from CSO, and the variation in the duration is not accounted for within the estimate. Finally, the value of time cost was computed from the Survey of Employee Earnings and Hours (EEH) conducted by the ABS. It is reasonable to assume that the population of concerned and significant others may differ from the sample used to determine the cost per minute of the call. A more robust method would include data from more than one year, and the opportunity cost of the time spent by people calling counselling, information and referral services other than DirectLine need to be estimated not just for Victoria but for other states as well. The relationship of the CSO to the drinker they are affected by, or concerned with, and the CSO characteristics need to be studied in closer detail to understand the impact in greater detail.

Emergency and community services for others

This section provides information on whether people have made contact with emergency and community services such as police, hospital, or counselling because of someone else's drinking. As mentioned earlier, the service utilisation of persons affected by the drinking of others is not particularly well understood, since administrative datasets, such as hospitalisations and police records, tend to focus on the characteristics of the individual defined as the patient or client, and do not record interpersonal influences, such as the adverse effects of one person's drinking on another person.

Drawing on results from the Alcohol's harm to others survey, this section describes the range of services accessed by respondents who self identified as being affected by another person's drinking. Also, in recognition of the direct and indirect financial costs of alcohol-related harms, this section takes a step towards developing a better understanding of the cost burden to individuals who accessed a service in association with the harm they experienced from drinking other than their own.

Methods

Data analysed in this section were from the Alcohol's harm to others survey which was completed by 2,649 respondents. Detailed information about the survey is included in Chapter 2, and the methodology has been comprehensively described in Wilkinson et al. (2009).

The survey included a series of items relating to the use of emergency and community services over the past 12 months because of someone else's drinking. The services of interest include: police; hospital and/or emergency department (ED); medical services other than hospitals; and counselling services and other professional. Each service was inquired about individually. An affirmative response for any of the services triggered a series of further questions enquiring about the number of times the service was sought, how much time accessing the service took out of their normal activities, and the amount of any out-of-pocket expenditure. Respondents were able to report the length of time in either hours or days and the exact out-of-pocket expense reported by the respondent was captured. These items enabled financial costing of harms experienced as a result of the problematic drinking of others to be computed. Informal services and support, such as family networks or groups such as Al Anon, were considered beyond the scope of this section.

Time expenditure

As noted previously, respondents were asked to estimate how much time in total did, for example, seeking medical care from a hospital take out of their normal activities, in hours or days, including time spent getting to and from the hospital. Not surprisingly, the range of times recoded was large. In order to make the data more manageable, and consistent with other sections (e.g. Chapter 9), the amount of time spent seeking and accessing a particular service was converted to 8 hour blocks, which was interpreted as a full day. For example, if someone was in hospital for 5 months, this was reported as 50 days (5*30/3). Despite this approach, the data remained highly skewed due to extreme values. As it was considered important to reflect the 'true nature' of the time expenditure experienced by respondents, the extreme values were included in the analyses. However, the inclusion of the extreme values, along with the use of an arithmetic mean of the data and the skewness, resulted in standard errors (SE) larger than the mean. Consequently, lower bound CI values reported in this section as zero are the result of truncating negative values less than zero.

Economic costs

Based on a parallel method to that used in the previous section, time-related opportunity costs were used to attach a monetary value to time respondents spent accessing a service. A costing of $24.12 per hour which was extrapolated from the average weekly earnings reported by the ABS from the Employee Earning and Hours Survey (Australian Bureau of Statistics, 2008). Also, national estimates have been calculated from this for the Australian population,[18] assuming similar treatment profiles and costs across Australia. This is likely to be an underestimate, due to the higher rates of problematic drinking and the higher cost of treatment in areas like the Northern Territory. Self-reported out-of-pocket expenses relating to services accessed were also used to calculate harm-related costs. These costs have been extrapolated to the total Australian population based on the weighted survey data.

Results

Across the Australian population, contacting the police (13.0%) was the most common service reported. A further 3.0% of the respondents sought counselling services and/or professional advice, 1.3% presented to a hospital or emergency department and 0.9% accessed other medical treatment (apart from a hospital or ED) (Table 12.9).

The longest mean time spent on seeking services was for health/medical services at the hospital or ED. Given an average of 62.3 hrs, the opportunity cost associated with receiving medical treatment from a hospital was estimated to be $1,503.20. The least length of time spent was on seeking police services which took an average of 3.9 hours, resulting in an opportunity cost of $94.10 (Table 12.9).

[18] Population estimate as at December 2006.

These costs have been extrapolated to the total Australian population (see Table 12.10) based on the weighted survey data. At total national time-related opportunity cost was estimated to be $720,345,000.

In addition to the time spent, respondents reported out of pocket expenses associated with their attendance at hospital or EDs, any other medical treatment and any counselling or professional advice. The mean costs and an estimate for the total cost to the Australian population for each of these items are provided in Table 12.11.

Table 12.9: Length and cost of time spent by people seeking services due to the drinking of others

		Length of Time (hours)			Cost of Time Spent[1]		
	Probability	Mean	95% Lower CI[2]	95% Upper CI	Mean	95% Lower CI[2]	95% Upper CI
Calling police	13.0%	3.9	2.9	4.9	$94.10	$69.97	$118.23
Hospital admission/ED attendance	1.3%	62.3	0.0	135.8	$1,503.20	$0	$3,276.65
Seeking other medical treatment	0.9%	48.4	0.0	122.1	$1,167.82	$0	$2,946.09
Seeking counselling /professional advice	3.0%	8.1	5.0	11.2	$195.44	$120.64	$270.24

[1]Hour rate of $24.12, from the average weekly earnings reported by the ABS from the Employee Earning and Hours Survey (Australian Bureau of Statistics, 2008) was used to calculate cost of time spent.
[2]Lower bound CI values reported in this section as zero are the result of truncating negative values to 0.

Table 12.10: Total cost of time spent by people seeking services due to the drinking of others, Australian population

	Total cost (in $ '000)		
	Mean	95% Lower CI[2]	95% Upper CI
Calling police	$184,334	$137,066	$231,603
Hospital admission/ED attendance	$284,366	$0	$619,856
Seeking other medical treatment	$163,618	$0	$412,763
Seeking counselling /professional advice	$88,027	$54,337	$121,718

[2]Lower bound CI values reported in this section as zero are the result of truncating negative values to 0.

Table 12.11: Out of pocket expenses experienced by people using services due to the drinking of others

		Mean out of pocket cost per respondent			Total out of pocket cost ($ '000) Australian population		
	Probability	Mean	95% Lower CI[2]	95% Upper CI	Mean	95% Lower CI[2]	95% Upper CI
Hospital admission/ED attendance	1.3%	$136	$0	$351	$25,728	$0	$66,400
Seeking other medical treatment	0.9%	$256	$0	$651	$35,867	$0	$91,209
Seeking counselling /professional advice	3.0%	$107	$60	$155	$48,193	$27,024	$69,813

[2]Lower bound CI values reported in this section as zero are the result of truncating negative values to 0.

While the mean out-of-pocket costs for accessing the various health services were quite low, once these costs were applied to the proportion of the total population who make use of them, the total out of pocket expenses for respondents using services due to the drinking of others exceeded $100 million.

Discussion

Findings from the Alcohol's harm to others survey illustrate that emergency and community services are accessed by individuals negatively affected by another person's drinking (person known to them or a stranger). Police were the most common service sought, followed by counselling or professional advice. While medical treatment, either at a hospital or through other medical service, was accessed by only a small proportion of the respondents, the average time-related opportunity cost associated these services exceeded $1000. When these costs are applied to the proportion of the Australian population who reported access each of these services, the total opportunity cost of the time spent accessing services due to others' drinking is in excess of $700 million. Similarly, while only a small proportion of respondents reported out of pocket expenses when using services due to others' drinking, across the entire population these costs are estimated to exceed $100 million.

As in all studies, a number of caveats must be considered. Even though the Alcohol's harm to others survey was designed to capture service utilisation of people affected by alcohol, the range of services investigated was limited to four, and the presenting concern/problem was not captured. Additionally, enquiries focused on time expenditure and out-of-pocket expenditures, and the survey did not capture other impacts. Although opportunity costs provides a useful metric of harm, intangible costs such from anxiety and stress would also increase the cost burden on the victim. However, given the limited evidence available on the costs shouldered by individuals affected by other's alcohol use in terms of services, this study adds to our understanding of the range of harms experienced within the Australian community.

Conclusion

This chapter provides a snapshot of services used by individuals concerned about, or affected by someone else's drinking. Agency level data from the Victorian specialist AOD services and from a Victorian-based AOD help-line and referral service were examined, along with data from the Harm to Others survey which captured the use of emergency services by respondents because of someone else's drinking. A cost component was also included as a way to explore alcohol's harm to others from an economic perspective.

Findings from the two agency data sources show that a relatively small proportion of the treatment population are clients seeking help for problematic alcohol use other than their own. Based on the count of Episodes of Care (EOCs) provided by the Victorian specialist AOD services 2% of EOCs were delivered to non-using clients concerned about alcohol and 4.6% of callers to the Victorian-based AOD help-line were from concerned or significant others. The profile differed between the two agencies in terms of service recipients' gender, with relatively equal numbers of men and women accessing services provided by the Victorian specialist AOD sector, whereas approximately 3 in 4 of the callers to the AOD help-line and referral service were women. Across the two sets of data, parent, partner/spouse and friend were the most common relationship types accessing services, and counselling was the primary intervention delivered to individuals seeking support because of someone else's drinking. Costs associated with delivering specialist AOD treatment to non-users concerned about alcohol were approximately $700,000, and a further $53,000 was estimated for the delivery of services to individual calling the AOD help-line and referral service because of someone's drinking. Costs extrapolated to the Australia population were $2,857,665 and $212,684 respectively.

The reported rates of use of emergency and community services by the population at large in relation to harm experienced from the drinking of others varied considerably between services. Based on the Harm to Others survey, police services were the most common emergency service sought (13.0% in the past year), followed by counselling/professional advice services (3.0%). Fewer people said they accessed hospital (including ED) (1.3%) and other medical treatment (0.9%) because of someone

else's drinking. On a national level, the financial costs associated with the time taken to access emergency services because of someone's drinking exceed $100 million.

Given the snapshot approach taken in this study, findings must be interpreted with caution and some limitations should be noted. Both the agency level data sources were restricted to Victoria. In terms of the emergency service the reliance on self-reporting, which is subject to recall bias, and the low response rate achieved (35.2%) for the survey are further limitations.

13: SUMMARIZING THE RANGE AND MAGNITUDE OF ALCOHOL'S HARM TO OTHERS

Introduction

This research provides both a broad overview and detailed insight into the problems the drinking of others causes for a large percentage of Australians. Australians are affected by both nuisance and petty costs of other's drinking at one end of the spectrum of alcohol's harm to others. At the other end of the spectrum smaller but significant proportions of Australian have been seriously injured and even killed where the drinking of others was implicated in range of circumstances and events.

A number of questions were asked in this work: How many Australians were affected? Who was affected? What is the relationship between those who have been affected and the drinker? How were Australians affected or harmed? What are the costs for others – in trouble, in time, in money? This chapter summarizes those answers, and then asks more questions – including what more information, strategies, policies and actions are needed to measure and limit the harms from others' drinking?

The range and magnitude of alcohol's harm to others

Numerous government service agency databases were used to provide information on how harms linked to the drinking of others were manifested (see Table 13.1). The people who these statistics represent are often those who have been so seriously affected that they need to be picked up by government health and social safety nets. As the report has in general been segmented by the type of harm – general wellbeing, heath effects, crimes, social problems linked to known drinkers, workplace effects, harm from strangers, and then direct service utilisation – the data from these government services are scattered across the chapters in the report. However, when taken together, it can be seen that the health system, parts of the welfare system (where data has been identified) and the criminal justice systems are all providing services for those who have been severely affected by the drinking of others. So, for example, using health system data, it can be seen that 367 people died and 13,699 people were hospitalised because of the drinking of others. Using police data, an estimated 70,000 Australians were victims of alcohol related assault in 2005 alone, among which 24,000 people were victims of alcohol related domestic violence. Using national child protection data and estimating from Victorian measures of alcohol involvement, almost 20,000 children were victims of alcohol related (substantiated) child abuse in 2006/07.

Table 13.1: Scoping the range and magnitude of alcohol's harm to others in Australia in a year

Records-based		
Deaths due to another's drinking (Ch 3)		367
Hospitalisations due to another's drinking (Ch 3)		13,669
Substantiated child protection cases involving a carer's drinking (Ch 8)		19,443
Alcohol-related domestic assault in police records (Ch 7)		24,581
Alcohol-attributable assaults in police records (Ch 6)		69,433
Survey-based (all Ch 4)†	Affected a little:	Affected a lot:
Negatively affected by a co-worker's drinking	496,700	120,400
Had one or more children negatively affected by the drinking of a carer	888,100	210,700
Negatively affected by the drinking of a household member, relative or friend	2,905,000	1,294,500
Negatively affected by drinking of a stranger or someone not known well	5,463,900	617,100
Any negative effect of a stranger's drinking	10,536,400	

†Using the population multiplier of 15,051,981 (see Australian Bureau of Statistics, 2006)

Secondary data surveys and in particular the Alcohol's harm to others survey conducted for the study provide information on how many people have been affected by other people's drinking in the general population in a systematic and detailed way. Whilst the effects on those surveyed may be less severe, far more Australians report a range of impacts on their lives linked to others' drinking. The Alcohol's harm to others survey provides information on a large number of items and describes how people are affected by the drinking of both those they know and those they do not know well or at all (termed "strangers" in this report). From the answers to the survey, we learn that almost three-quarters of the adult Australian population (the total population aged 18 years or more was 15 million at the last census in 2006 (see Australian Bureau of Statistics, 2006) and has increased since then) report having been affected in the last year in at least some minimal way by the drinking of others. As indicated in Table 4.1 A total of 16% of Australians have been affected by the drinking of someone they live with or are intimate with – a family member or romantic partner. Over one in ten Australians have been affected by a friend's drinking in the past year, and 5% have been affected by a co-worker's drinking. Five percent of the entire sample (including people who do not have children) report that children they live with or have parental responsibility for have been affected by another's drinking. Seventy per cent of Australians (over 10.5 million Australians) have been affected by strangers' drinking. This figure includes relatively minor annoyances, such as those who report being kept awake at night or being annoyed by urinating or litter from drinkers. A substantial 43% report they have been affected by a more serious type of harm from a stranger, including being threatened, physically assaulted, or having their property or belongings damaged.

When respondents were asked about how they were affected by people they knew, they reported that drinkers they knew had affected social occasions they were at, that they had been emotionally hurt or neglected because of the drinking of people that they knew, that they were involved in serious arguments because of their drinking, that drinkers "failed to do something they were counting on them to do". Over a third of those who reported that they had been negatively affected by those they knew reported that they had to stop seeing the person who had most affected them because of their drinking. Women were somewhat more likely than men to report being negatively affected by the drinking of a household member or relative. When respondents were asked which person, of those they knew, most negatively affected them because of their drinking, the most common answer was a partner or close relative, often male. For older respondents, the designated drinker was usually younger than them; for younger respondents, on average a little older.

Younger respondents were much more likely than older ones to report adverse effects from the drinking of both of strangers and of friends, with roughly equal rates among men and women reporting this.

Costs of alcohol's harm to others

Table 13.2 summarizes the cost estimates for Australia as a whole that have been made in the different chapters of this report. The costs are organized in Table 13.2 by type of cost, for categories of harm organized according to the structure of the report. The costs considered in the first three columns in Table 13.2 are borne by the other, and include out of pocket expenses; cost of time lost/spent; and intangible costs. The remaining costs in Table 13.2 are borne mostly, but not entirely, by governments and include: hospital/health service costs and child protection costs.

The first thing to note about Table 13.2 is that it is far from complete. For harm to other persons, the focus of this report, there are many categories of cost for which at this point we have not been able to estimate costs. We have utilised a range of data sources to derive estimates according to the type of harm. Where data was not available, the decision was made to highlight data deficiencies and suggest appropriate courses of action to fill this void rather than base estimates on unsubstantiated assumptions.

Costs of governmental services such as the police and courts, and social welfare other than child protection, are not included, though we do provide estimates of health service costs and child protections service costs that involve someone harmed by another's drinking. Though the orientation in this report is towards harm to other persons, and not towards societal costs, as in Collins and

Lapsley (2008; referred to here as C&L), in some areas, we compare our findings with those reported by C&L. C&L provide estimates of the costs of alcohol to Australian society in 2004/05 but, as noted in chapter 1, they do not split the costs to others from costs to the drinker. Moreover, C&L and the current study adopt different methodologies, and caution is therefore needed in contrasting the results. The primary reasons for highlighting the differences are to identify the potential magnitude of harm to others and the need to improve data quality to provide more robust and comprehensive estimates.

Out-of-pocket expenses

The first column of Table 13.2 counts out-of-pocket costs for a person affected by another's drinking. These estimates are based entirely on self-report from the Alcohol's harm to others survey, data from which has been extrapolated to reflect the whole adult population. We have counted here costs paid in the first place by the "other' person, but it is important to note that some of these costs will then be repaid by insurance or other means of social cost-sharing.

Out of pocket expenses for damage of personal belongings were estimated at $0.66 million and $0.26 million for alcohol-related assault and alcohol-related domestic violence, respectively. Costs for the designated drinker known to the respondent and for strangers' drinking are each based on two questions, and there are other categories of out of pocket expenses not covered by these questions. Out of pocket expenses due to property and personal damage associated with stranger drinking were estimated at $1,619 million. Out of pocket costs from the drinking of the person in the household, family or friendship group with the greatest adverse effect were somewhat less: $845 million. Although not included in Table 13.2, Chapter 9 also estimates that a total of $438 million was commandeered by the drinker which was needed for household expenses. Data was not available to estimate out of pocket expenses incurred due to: alcohol-related morbidity/mortality; the drinking of other heavy drinkers known to the respondent; alcohol-related child protection; and workplace or service utilisation.

C&L (p. 60) estimate a range of potential out of pocket expenses from alcohol-related road accident costs including: long term care ($10.6 m); premature funeral costs ($0.6 m); and vehicle costs – mostly repair costs ($821.6 million). If one assumes that about 80% of these vehicle costs are paid by the drink driver (based on the inverse of the PAAFs in Tables D.1 and D.2), the incidence of the remaining amount, over $150 million, would rest primarily with others. C&L also discuss property theft and damage, but do not find any data sources on which to estimate costs. Furthermore, in their judgment, "criminal damage [cannot] be causally attributed with any degree of certainty to the consumption of drugs". Given that when we have counted damage caused by alcohol, we are reflecting a survey response concerning damage "because of [a person's] drinking", it seems that many Australians would disagree with the judgment.

It is important to note that none of the out-of-pocket expense estimates in Table 13.2 overlap with any estimate provided by C&L. There may well be some overlap between the figures from Chapters 9 and 11 and those given for out-of-pocket expenses for victims of violence in Chapters 6 and 7, but an inspection of results for the descriptive items in Chapters 9 and 11, in which violence does not figure large, suggests that the overlap would be small.

Table 13.2: Summary of cost estimates from others' drinking for different categories of problems and relationship – all costs in millions of dollars

	Out of pocket costs	Cost of time lost/spent	Intangible costs	Hospital/health service costs	Child protection costs
Ch 3: morbidity/mort.:					
Child abuse	-	-	-	$0.95	-
Child road crash	-	-	-	$2.65	-
Adult road crash	-	$3.33	-	$27.06	-
Adult assault	-	$5.32	-	$38.23	-
Ch 5: wellbeing:					
Drinker in household	-	-	$1,500.72	-	-
Drinker elsewhere	-	-	$7,032.98	-	-
Ch 6: assault victims	$0.66	$57.68		$58.92	-
Ch 7: dom. viol. Victims	$0.26	$22.93		$23.21	-
Ch 8: child protection	-	-	-	-	$671.61
Ch 9: known drinker	$845.85	$9333.80	$6,389.58	-	-
Ch 10: workplace	-	$801.00	-	-	-
Ch 11: stranger drinker	$1619.00	-	$5,331.81	-	-
Ch 12: services use:					
Alc. treatment system	-	-	-	$2.86	-
Phone helpline	-	$0.06	-	$0.21	-
Survey: helpseeking	$109.79	$720.35	-	-	-

Time lost or spent

The second column of Table 13.2 shows the estimates for the value of the time lost or spent by the respondent because of or dealing with another's drinking. We have valued the opportunity cost of respondent's self-reported time lost/spent using the ABS average weekly earnings as a proxy for the market wage rate.

Cost of time lost or spent in hospital as a consequence of alcohol-related road crashes and alcohol-related assaults was estimated at $3.33 million and $5.32 million, respectively. The figure in Chapter 3 for time lost or spent because of assault by a drinker is much lower than the figure in Chapter 6. A major factor in this difference is that the Chapter 3 figure reflects only time lost due to hospitalisation.

C&L discuss a range of costs associated with road traffic accidents, productivity, crime and health care costs. For example, the estimates by Collins and Lapsley for total forgone employment from road crash costs are about $630 million – which might imply about $125 million for the "other", about 38 times the amount in Table 13.2.

While figures in Chapters 3, 6 and 7 reflect cases which come to police attention, the figures from Chapters 9 and 10 are estimated from the wider base of population survey responses. In this framing, the total estimated cost of extra hours worked and the time taken off due to other people's drinking is estimated at $801 million. As discussed in Chapter 10, this figure for workplace time lost or spent because of another's drinking is very substantial – considerably more than the $525 million estimated cost in the drinker's own work time or productivity because of alcohol-caused absenteeism or sickness (C&L, p. 59). There will be some overlap between the survey data on drinkers' reports of their own diminished productivity due to drinking, on which C&L are relying, and the data used here. If my co-worker is missing from work due to drinking, and I am called in to fill in because of this, the loss of productivity would appear in both accountings. But a substantial part of the figure we present will not have been counted otherwise.

The largest figure in the cost of time column is for time lost or spent because of the drinking of the drinker known to the respondent whose drinking most adversely affected the respondent. According to the estimate from population survey responses, in the course of the year over $9 billion worth of other people's time was absorbed by the needs and impositions of these drinkers – time spent outside the respondent's normal routine in caring for the drinker or for children the drinker was responsible for,

cleaning up after the drinker or providing transport. Respondents also reported spending substantial time – amounting to $720 million worth of time – seeking or receiving help from the police or health services because of the drinking of others.

Intangible costs.

Intangible costs measured in this study relate to the estimated value of fear, pain, suffering and lost quality of life. The method for calculating the value of such intangible loss relies on respondents' self-reported reduction in quality of life, as measured with the EQ-5D measure, with each quality-adjusted year of life (QALY) valued at $50,000.

Drawing on answers from the Alcohol's harm to others population survey, intangible costs were estimated, at $1,500 million and $7,000 million, for alcohol-related related loss of wellbeing associated with heavy drinkers known to the respondent, respectively, inside and outside the respondent's household. A second figure was derived from the relatively lower quality of life of respondents knowing a heavy drinker whose drinking had, in the respondent's view, had an adverse effect in the last year: over $6,300 million. That a larger effect in the aggregate ($6,300 compared with $1,500 million) was associated with the drinking of a single heavy drinker than on the cumulative effect of all the heavy drinkers known to the respondent probably indicates that heavy drinkers known to a respondent do not always have an adverse effect and some may have a positive effect on the respondent's wellbeing. While adverse effects from strangers' drinking were more widely dispersed in the population than adverse effects from the drinking of family and friends, the intangible costs were lower, around $5,300 million, presumably reflecting the lesser ability of strangers to disturb equanimity.

Data was not available to estimate intangible costs due to others' drinking for: alcohol-related morbidity/mortality; alcohol-related child protection; workplace costs; known person or stranger drinking, or service utilisation.

C&L (p.65) estimate intangible costs only for road accidents and for deaths, at $4,489 million. It is hard to estimate how much overlap there will be between the C&L estimate and that in the current study, but it may be substantial, even though C&L are mostly focused on the drinker and our calculations on the "other", and though the bases for the calculations are quite different. Although the estimation of intangible costs, and the extent to which they should be counted as "real costs", both remain controversial, the magnitude of harm indicates a substantial economic loss.

Hospital / health service costs

Costs related to hospital/service admissions were valued in this study by multiplying each alcohol attributable hospital separation with the corresponding average cost by Diagnosis Related Groups (DRGs) using the cost report from the National Hospital Cost Data Collection (Commonwealth Department of Health and Ageing, 2009).

Hospital / health service costs were estimated at $0.95 million, $2.65 million, $27.06 million and $38.23 million for alcohol-related hospital admissions for child abuse, child road crash, adult road crash and adult assault, respectively. Estimates of health service costs were also derived for assault victims ($58.92 million) and victims of domestic violence ($23.21 million) as recorded by the police that were admitted to hospital. Data was not available to estimate hospital / health service costs due to: alcohol-related workplace accidents.

C&L estimate net health care from alcohol misuse at around $1,967 million. A large part of the estimates we provide for health services would be included in the Collins & Lapsley estimate, since their frame and methods would include harm to others in the case of road crashes and to some extent in the case of assault injuries. Collins and Lapsley also consider a wider range of health services such as medical services, hospitals, nursing homes, pharmaceuticals and ambulances. The scope of our study limited the analysis to hospital costs. Hence our estimates considerably underestimate the true health care costs associated with harm to others.

Police / court costs

Collins and Lapsley report alcohol-related crime costs for police ($747 million), criminal courts ($86 million) and prisons ($142 million) in connection with violent crime. Though these costs are mostly not paid by the victims of violent crime, the state incurs these costs because of the effect of the perpetrator's drinking on another person. As noted above, C&L did not assign any costs to alcohol in property damage or crime, while our survey's respondents reported $2,465 million in out of pocket costs (from known drinkers and strangers), as projected nationally, from damage to property or belongings which in their view occurred because of another's drinking. Such losses would also imply substantial police and court costs for alcohol-related property crimes.

Child protection costs

Child protection costs were derived using State and Territory Government real recurrent expenditure on child protection, out-of-home care services and intensive family support services, obtained from the Productivity Commission's Report of Government Services 2008, multiplied by the proportion of substantiated cases that were projected to be alcohol-related. The estimated cost reported in Table 13.2 is $672 million. The figure for the child protection services costs attributable to an adult's drinking is wholly new; none of it would be represented in C&L.

How do the figures relate to each other and to Collins and Lapsley's estimates?

The overall picture is of substantial costs to others around the heavy drinker, in terms both of tangible and of intangible costs.

The questions inevitably arise of how these figures do or do not add up, and how they relate to the figures for social costs of alcohol (and their components) reported by Collins and Lapsley (2008). As a first step, we reiterate that the figures in Table 13.2 cannot simply be added up: they potentially include substantial double counting. The costs in Chapter 7, to take the most obvious example, are wholly included in the cost in Chapter 6.

Furthermore, they cannot simply be added to the costs reported in Collins and Lapsley. There is a second issue here, in addition to the issue of double counting: the two studies have done their counting on the basis of different frames of reference. Collins and Lapsley's estimates are of societal costs, whereas ours are of costs to specific others around the drinker. In a societal cost accounting, to give an example, a person's money loss from robbery would not count, because the money would still have its value for someone in the society. In our accounting, when respondents tell us about out-of-pocket costs, which would include those from robberies, we count them as costs incurred by the other.

Let us now consider the status of the costs in Table 13.2 category by category.

Out-of-pocket costs: The costs shown in the table are for separate items which are unlikely to have any overlap. They therefore can reasonably be added to produce an estimate of $2.57 billion, which clearly would be an underestimate, of out-of-pocket costs of others' drinking. Most of these costs would not be measured in Collins and Lapsley, and as mentioned, some of them would not be counted by them. With respect to Collins and Lapsley, it would be unsafe to add these costs to their amounts. Their estimates include some amounts for property loss from alcohol-related violent crime and for vehicle damage and repairs for alcohol-involved traffic crashes, which are likely to overlap somewhat with the figures we have estimated.

Cost of time lost or spent: The two largest figures in this column, for workplace time loss and for helpseeking time, are unlikely to overlap more than a small amount. Although the time lost as estimated in Chapter 12 due to helpseeking is likely to concern a known drinker, the questions in Chapters 9 and 12 ask about different kinds of activities and are unlikely to overlap. With some caution, then, the three figures from Chapters 9, 10 and 12 (survey helpseeking) can be added, yielding a total of $10.86 billion. The phone helpline cost from Chapter 12 is included within the survey estimate, and the amounts from Chapters 3, 6, and 7 have an unknown relation to the figures from the later chapters; in our view they should not be added in. With respect to Collins and Lapsley, the three we have counted here are all in principle different

costs which should not overlap with theirs. However, there may well be some overlap between Collins and Lapsley's estimates based on absenteeism etc. by the drinker and a part of our estimate based on the extra work others had to do because of someone's drinking. In the areas of road crashes and assaults, there are also potentially some overlaps with Collins and Lapsley's figures.

Intangible costs: The estimates in this column all derive from a single estimate by each respondent of his or her state of physical and mental health, in comparison to the estimates of other respondents. Thus there is a great deal of artefactual overlapping in the figures, and they should not be added up. The figures in Chapter 5 also are based on categories which lack an attribution by the respondent of harm from the other's drinking – the basis is simply that they live with or know very heavy drinkers. A conservative approach, therefore, is to pick the largest figure among those derived in chapters 6-11. So the best estimate here is $6.39 billion. There is no overlap here with what Collins and Lapsley estimate as intangible costs.

Hospital/health costs: Obviously, with these costs and Child protection costs we move beyond the perspective of losses to the individual other, since many of the hospital costs and all of the child protection costs are paid by governments. There is overlap in the hospital and health costs between the costs for assaults in Chapters 3, 6 and 7; we have here taken the largest costs for assault for Chapter 6 and added this figure to the other hospital figures for chapter 3. There should be no other overlap in costs, so the total for this column is $0.09 billion. There is likely to be substantial overlap with the figures in Collins and Lapsley, so amounts from this column should not be added to Collins and Lapsley's.

Child protection costs: These costs are not counted at all by Collins and Lapsley. These costs are not for income support, but rather real costs to the state mostly for providing services. So the cost of $0.67 billion is legitimately added to Collins and Lapsleys' accounting.

Adding up: Combining the out-of-pocket and lost/spent time costs above, the estimated total tangible costs of others' drinking are $13.43 billion. The conservative estimate of intangible costs from others' drinking is $6.39 billion. In terms of estimated costs for hospital and health services and for child protection – costs which mainly are paid by governments – the estimate is $0.76 billion.

In terms of what could be added to Collins and Lapsley's costs, clearly the intangible costs here do not overlap with theirs. The child protection costs can clearly be added to Collins and Lapsley's figures. Much of the tangible costs from others' drinking would not have been counted in Collins and Lapsley, but without further research it is unclear how much.

As this discussion makes clear, our efforts to estimate costs from others' drinking are but a first step in what will be a longer road to arrive at good estimates which reconcile different accounting frames and which eliminate double counting.

In summation

The present study is, to our knowledge, the most sustained effort anywhere to quantify alcohol's harms to others, drawing on and analysing a wide variety of existing and newly developed data. A first aim has been to set and apply conceptual frames suitable for the purpose, not only as a guide to the present study but as a step towards developing models for wider use in the future. A second aim has been to enumerate the various kinds of harm that can occur due to another's drinking, in the context of different kinds of relationship between the drinker and the person harmed. A third aim has been to develop concrete descriptive data on the phenomenology of alcohol-related harm – on the various interactions and events which contribute to the experience of harm from another's drinking. A fourth aim has been to measure the period prevalence of different kinds and levels of harm from others' drinking, and to map the social location of the harm, both for the drinker and for the person adversely affected. A fifth aim has been to develop methods for costing different aspects of alcohol's harm to

others, and to apply these methods to estimate costs to others from the alcohol-related behaviour of heavy drinkers.

This report summarizes the progress we have made in pursuing these aims. We have inked in the general outline of alcohol's harm to others in Australia. In the course of a year, a strong majority of the population has been touched adversely in one way or another by others' drinking. A substantial minority reports that they have been adversely affected a lot by the drinking of others; thus 14% have been affected a lot in one area of relationships or affected at least a little in three or more areas of relationships. It is younger adults who bear much of the brunt of the drinking of others: younger women, particularly, in family relationships, and younger men as well as women in terms of harm from friends and strangers. In terms of tangible costs reported by a representative sample of the Australian population, heavy drinkers have cost others around them about $13.43 billion in out-of-pocket costs and in forgone wages or productivity. Hospital and child protection costs sum to a further $765 million, totalling all of these costs a figure of $14.2 billion is reached. In addition, there are large intangible costs, estimated at a minimum of $6.4 billion dollars.

The picture as seen through the frame of the general population surveys is complemented with the pictures that appear through the frames of the social response agencies – the police, the health services, treatment agencies, child protection agencies, helplines, and so on – which respond to emergencies, which pick up and sew up the pieces, and which counsel and assist those in trouble, including those whose trouble is or is due to another's drinking. Since each type of agency deals with serious trouble in only a relatively small fraction of the population in any one year, the numbers and the costs here are smaller. But the troubles are often very severe, and there would be a strong social consensus on forestalling or ameliorating them with effective preventive measures.

Next steps

The work of the project has opened up an area of study, charted its scope, and provided a wide variety of first approximations and answers. But the work has also posed new questions and opened up new lines for further work.

There is considerable scope for further analyses of the existing datasets, and for analysis of new ones which are coming on line. The existence of the present study has stimulated others – for instance, a parallel general population survey in New Zealand, a new study in Ireland, and a commitment by the World Health Organization to promote and organize a collaborative international study on the topic in developing countries. Questions from the Alcohol's Harm to Others survey, with a parallel series on drugs, have been included in a new study of 16-24-year-olds in Victoria. These diverse initiatives mean that the existing datasets and analyses will acquire new value as comparison points with other data both in Australia and abroad.

One line of development would be in terms of psychometric work developing standardized and validated instruments for measuring aspects of alcohol's harm to others. Such work might well include the development of screening measures which could be widely applied. One obvious context for applying relatively brief instruments would be at intake in major social response institutions – hospitals, ambulance services, police lockups, and in child protection investigations. While there is a need for organizational development to make sure that the "mandatory box" concerning alcohol involvement in a case is routinely and consistently marked yes or no, there is also a need to develop and apply more detailed inquiries – with an eye to informed case management as well as to research which will inform prevention and policy.

These more detailed inquiries will contribute knowledge in their own right about the circumstances and correlates of the occurrence harm related to others' drinking, and point towards preventive and policy strategies to effectively reduce rates of occurrence. By providing a stronger basis for estimating alcohol aetiological fractions for the caseloads of a particular type of agency, they will also allow refinement of estimates of rates in the population as a whole and of cost estimates.

Another line of work would be to develop a fourth dimension to the picture: the time dimension. The picture we have been able to limn has been essentially cross-sectional – a focus on "period prevalence", to use the technical term, with questions asked retrospectively about a slice of the near past or with records data cumulated for a year. At the level of individuals, pairs, families and interactions, we know little about the natural history of alcohol's harm to others. What is the frequency of and what are the conditions under which harm from drinking continues to be suffered over time? There may be some scope for analysing existing longitudinal samples of families or other interactive groups, and opportunities for adding relevant questions to ongoing longitudinal studies should also be explored. Samples defined by institutional frames and followed over time also have the potential to teach much to us – as for instance a longitudinal analysis of the trajectory of alcohol-related child protection cases.

Lastly, thinking and research needs to be developed on prevention and policy initiatives concerning alcohol's harm to others. Preventing harm to others from drinking is as cogent and urgent a public health goal as preventing harm to the drinker from his or her own drinking. Only in the specific area of drink driving has such thinking been well developed. Lessons of the policy experience with driving down casualties from drink driving should be studied and implications for other kinds of harm from others' drinking explored. There will be a need to develop demonstration projects, and to evaluate the results in terms of effects in reducing harm as well as of side-effects. And the lessons of such demonstration projects will then need to be applied in policy. This scenario of development of a knowledge base for policy will also have the beneficial side-effect of contributing a wealth of new data for epidemiological, costing and explanatory analyses.

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APPENDIX A: ESTIMATING HARM TO OTHERS FROM DRINK DRIVING

AIM

The aim of this analysis was to use available state and national data from the Australian Transport Safety Bureau (ATSB) to develop estimates of serious road crash injuries and death caused by another's drinking. The main tasks were to:

- estimate proportions of crashes that can be attributed to alcohol and to do this separately for fatalities and hospitalisations;
- estimate the proportion of all serious road crash injuries involving passengers, other drivers and pedestrians where one or more vehicle drivers had a positive blood alcohol level;
- describe and compare alcohol and non-alcohol related crashes resulting in serious injuries in terms of location, time of day and other relevant variables; and
- estimate alcohol aetiologic fractions for victims (i.e. passengers, pedestrians or drivers with negative BAC) of road crashes where at least one driver recorded a positive BAC equal to or greater than 0.05mg/ml and equal to or greater than 0.1mg/ml.

METHODS

Procedural details

The ATSB Casualty Crash Database (CCD) was the source of data for this analysis. The CCD was the national collection of police data about serious road crashes where, according to Police, at least one person was admitted to hospital or at least one person died as a result of the crash.

The CCD is organised as a hierarchical database. Data is drawn from the original Police records at three levels: the crash, the vehicles involved in the crash and the persons travelling in each vehicle or, where they occur pedestrians involved in the crash. These three levels of data may be analysed independently or together by linking them with unique identifiers for each crash, vehicle and person involved. The three data sets are also available in an amalgamated data set.

These data have been collected by the ATSB and its forerunners since 1990. The data were compiled on a quarterly basis from individual State and Territory governments. The ATSB conducted formatting and checking of the data before providing quarterly and annual summaries and maintaining the CCD.

The data used for this analysis is from the 1999/2000 financial year. This was the most recent year for which comprehensive and reliable data were available. Unfortunately, the data quality after this year have deteriorated such that the data for hospitalisations are not reliable and some states no longer contribute to the CCD. Further, some States' data could not be used because of reliability issues, even for the 1999/2000 data. Due to difficulties with data availability for NSW, the ACT and Victoria, and because of reliability issues subsequently identified with data from SA, only data from the remaining four jurisdictions have been used in these analysis.

It was necessary to exclude NSW because NSW did not supply information on BACs due to privacy restrictions. The ATSB also note that some serious injury data for NSW have been unavailable for inclusion in their databases since 1999. ACT data were also excluded for the same reasons. Victoria was excluded from the analysis as it did not supply any data due to state privacy requirements. Preliminary analysis also identified problems with South Australian data, in that for fatal accidents, very few had known results for BAC: of 115 records, 97 had unknown BACs. It was necessary to exclude SA from the analysis on this basis.

The National Alcohol Indicators Project Technical Report No. 2 provides a useful introduction and critique of the CCD, which at the time of that report was managed by the Federal Office of Road Safety (now the ATSB).

In order to simplify the present analysis a single database joining all three levels of data, ie crash, vehicle and persons was created. Data fields included in the combined dataset were restricted to those of relevance to the project: location variables, time and day, demographics, injury information and blood alcohol measures.

The analysis was conducted at the crash level. This ensured that all vehicles and persons involved in a crash were accounted for. As the interest of the present study was to compare the characteristics of crashes involving alcohol with crashes where alcohol was not a factor, crashes were distinguished according to the BAC status of drivers involved in the crash.

All crashes were allocated to one of six BAC categories: 1) crashes where BAC > 0 and < 0.05 for either drivers or pedestrians, that is, below the legal limit, 2) crashes where BAC >= 0.05, that is, above the legal limit and 3) crashes where BAC was 0. An additional 3 categories used the same definitions but applied 0.10mg/ml instead of 0.05mg/ml as the cut-off point. A small number of records (six) could be classified in more than one of these groups because the crash contained multiple positive BACs; this occurs for example where a crash involves more than one driver with a positive BAC and where one of these BACs is < 0.05 and another is > = 0.05 such that the crash is legitimately coded into both groups. In these cases, the crash is assigned once to the higher BAC. It was also necessary to allow for records which contained unknown BACs and this is described below. Checks were then performed to ensure that there was no double counting of records between groups and that the correct number of vehicle and person entries for each crash were accounted for in the final table of aggregating all of the 12 groups.

A requirement for the analysis was a consideration of the differences between metropolitan and non-metropolitan regions. The ATSB data contained different geographic location codes for each state. It was possible to code Queensland and Western Australia according to the Australian Standard Geographical Classification (ASGC). The ASGC allows a grouping according to the classification of regions as being in the capital city "statistical division" so these classifications were preferred where the ASGC data was used. The Northern Territory ATSB location codes were "police districts", which enabled discrimination between metropolitan and non-metropolitan areas. It was not possible to discriminate between metropolitan and non-metropolitan for Tasmania, as the ATSB region data for that state used town and municipality names which could not easily be coded between metropolitan and non-metropolitan. All Tasmanian records were considered non-metropolitan.

Substantial numbers of unknown entries for the BAC field presented some limitations, ie where drivers involved in a crash had not had a BAC recorded by police. It was not possible to determine whether unknown driver BACs were more or less likely to be positive or negative than drivers with known BACs or whether unknown BACs were representative of the larger sample. A comparison of injuries with known and unknown BACs in relation to average age and male to female ratio indicated substantial variation. In particular, drivers with unknown BACs were more likely to be female in three out of four jurisdictions (see Table A.1). Unfortunately, where an operator had an unknown BAC the entire crash (including all associated passenger injuries) had to be assigned as missing in order to avoid potentially biasing the sample and eliminating crashes with any unknown BACs reduced the total number of records from 10,200 to 4,279.

Table A.1: Comparison of age and sex for records with a known BAC and records with unknown BACs

	Known BAC			Unknown BAC		
	n	Mean age	Male/Female Ratio	n	Mean age	Male/Female Ratio
Queensland						
Fatalities	150	34.1	3.688	82	35.8	1.645
Hospitalisations	822	30.5	2.125	3,172	35.4	1.289
Total	972	31.0	2.295	3,254	35.4	1.296
Western Australia						
Fatalities	136	35.6	2.886	53	34.5	2.786
Hospitalisations	1,575	33.1	1.457	544	32.4	1.603
Total	1,711	33.3	1.531	599	32.6	1.677
Northern Territory						
Fatalities	42	36.1	2.231	6	37.0	2
Hospitalisations	319	33.2	1.435	91	33.1	2.138
Total	361	33.5	1.507	97	33.4	2.129
Tasmania						
Fatalities	20	31.6	9	12	24.6	3
Hospitalisations	161	32.1	1.875	169	31.1	1.683
Total	181	32.1	2.121	181	30.7	1.742
Total jurisdictions						
Fatalities	348	34.8	3.244	153	34.5	2.06
Hospitalisations	2,877	32.3	1.637	3,976	34.8	1.357
Total	3,255	32.6	1.75	4,129	34.8	1.377

Methods for estimating alcohol aetiologic fractions for victims of alcohol impaired drivers

Population alcohol aetiologic fractions (PAAFs) for deaths and hospitalisations arising from alcohol impaired drivers were most recently identified by Ridolfo and Stevenson (2001). These estimates were based on relative risks derived from studies which have investigated the relationship between levels of alcohol consumption and risk of death and morbidity among *drivers*. These PAAFs have typically been applied across all hospital separations and death records with an ICD code indicating road traffic crash as the underlying cause in order to estimate alcohol-attributable road crash mortality and morbidity. These PAAFs, derived from studies of adult drivers have been routinely applied to children aged 0-14 yrs and all road crash injuries regardless of whether or not the injury was sustained by a passenger or by a driver. To date, specific PAAFs for passengers and other potential victims of alcohol impaired drivers have not been estimated. One of the limitations to discriminating between victims (eg passengers, zero BAC drivers) of road crashes and alcohol impaired drivers themselves has been the absence of such information in hospital and death records, ie administrative records do not routinely distinguish between drivers with positive BACs, drivers with zero BACs, or passengers versus driver status.

The ATSB Casualty Crash Database (CCD) contained information on BACs of alcohol impaired and non-alcohol impaired drivers (ie whether positive or negative) and identified numbers of passengers associated with each driver. The CCD also identified pedestrians where they were involved in crash events. Alcohol impaired drivers or '+ (positive) BAC' drivers were defined as vehicle operators with a recorded BAC of 0.05 mg/ml or greater. For the purpose of estimating PAAFs, 'victims' of impaired driver road crashes were defined as: i) injured non-alcohol impaired drivers; ii) injured non-alcohol impaired pedestrians, and iii) all injured passengers, involved in road crashes where at least one driver had a + BAC. Alcohol impaired drivers and pedestrians injured in road crashes were not considered victims of other people's drinking.

From these groups, it was possible to identify the number and proportion of total injuries (ie victims + drivers), separately for fatalities and hospitalisations and by age group, which occurred among 'victims' who were involved in road crashes where at least one driver had a positive BAC.

In addition, since it is not possible to directly identify which road crash hospitalisations and deaths are associated with alcohol impaired drivers, it was necessary to estimate the proportion of all injuries, by age group, associated with positive BAC drivers from the CCD. This component of the analyses was similar to the case series approach to identifying proportions of road crash caused hospitalisations and deaths by level of BAC among drivers identified in Ridolfo and Stevenson (2001; pp 32-33).

To generate age-specific PAAFs which could be used to estimate numbers of victims of alcohol impaired drivers among all hospitalisations and all deaths coded as caused by a road crash, the proportion of injuries caused by alcohol impaired drivers which were suffered by victims (as opposed to injuries suffered by the drivers themselves) was multiplied by the overall proportion of injuries attributable to alcohol impaired drivers (see Table A.2 for workings).

As with vehicle drivers, adult pedestrians involved in road crashes are also required to submit to a BAC test. Although only contributing to a small minority of all injuries, it is possible that not all pedestrians were 'victims' of drivers and that a proportion may also have been responsible for 'causing' a road crash while having a positive BAC. Thus the term 'operators' has been used to refer to both vehicle drivers and pedestrians.

One of the assumptions of the analyses expressed in Table A.2 is that for crashes which included at least one operator with a BAC >= 0.05mg/ml any additional operators involved in the crash who had zero BAC or BAC < 0.05mg/ml were considered 'victims'. Thus, where alcohol consumption above the legal limit by an operator was present, alcohol was assumed to be the primary cause of the crash. Analyses were not able to be presented by both age and sex due to small numbers of cases, particularly for females.

Table A.2: Methods and formulae applied for estimating the proportion of all road crash injuries attributable to victims of alcohol impaired operators

	Number of injuries by age group
Crashes with at least one operator + BAC	
Number Operators with +BAC >=0.05/0.1 (a)	a
Number Operators with +BAC <0.05/0.1 (b)	b
Number Operators with zero BAC (c)	c
Number Passengers (d)	d
Total injuries for + BAC crashes (e)	e = a+b+c+d
Proportion of injuries attributable to victims among + BAC crashes (f)	f = (b+c+d)/e
Crashes with all operators zero BAC	
Number Operators with zero BAC (g)	g
Number Passengers (h)	h
Total injuries for zero BAC crashes (i)	i = g+h
Proportion of injuries attributable to victims among zero BAC crashes (j)	j
Total number crash injuries (k)	k = e+i
Estimated proportion of all road crash injuries attributable to alcohol impaired operators (ie includes operators and victims) (l)	l = e/k
Estimated proportion of all road crash injuries attributable to victims of alcohol impaired operators (m)	m = l * f

Demographic, geographical and temporal characteristics of alcohol impaired drivers

Summary statistics indicating injury ratios for positive BAC driver crashes versus zero BAC driver crashes for fatalities and hospitalisations, were created each of the following variables:

Jurisdiction

Gender

Day of week (as weekday, total for Monday through Thursday, versus weekend, total for Friday, Saturday and Sunday)

Time of day (as day, total between 6AM and 5:59PM, versus night, total between 6:00PM and 5:59AM)

Metropolitan versus non-metropolitan

Results

Estimated alcohol aetiologic fractions for fatally injured and hospitalised victims of alcohol impaired drivers

Tables A.3a and A.3b show the estimated partial age-specific PAAFs for fatally injured victims of alcohol impaired driver road crashes where a cut-off of 0.05mg/ml and 0.10mg/ml respectively were used to differentiate between alcohol and non-alcohol attributable crashes. Using a cut-off of 0.05mg/ml the PAAF for all ages was estimated to be 0.141, that is, about 14% of all road crash fatalities can be considered victims of impaired driver road crashes (Table A.3a). Table A.3b indicates that applying a cut-off of 0.10mg/ml, the estimated partial age-specific PAAFs for fatally injured victims of alcohol impaired driver road crashes was higher at about 0.22. The PAAF for road crash fatalities varied considerably by age. The likelihood of being a fatal victim of an impaired driver road crash is highest for those between 16 and 25 years of age

The estimated partial age-specific PAAFs for hospitalised victims of alcohol impaired driver road crashes shown in Tables A.4a and A.4b are lower than those estimated for fatalities. As shown in

Table A.4a, using a cut-off of 0.05mg/ml the PAAF for all ages was estimated to be 0.118, that is, about 12% of all road crash hospitalisations can be considered victims of impaired driver road crashes. The PAAF for all ages where a BAC of 0.10mg/ml (see Table A.4b) was used to define alcohol-attributable crashes was about 0.104. PAAFs for hospitalised victims appeared to be inversely related to age with the likelihood of being hospitalised due to another's alcohol impaired driving highest for those aged under 26 years.

Table A.3a: Estimated age-specific alcohol aetiologic fractions (m) for fatally injured road crash victims of alcohol impaired operators, 0.05mg/ml BAC driver minimum

		Injured persons by age group (in yrs)					
		0-15	16-25	26-35	36-65	66+	All ages
Crashes with at least one operator + BAC							
Number Operators with +BAC >=0.05	(a)	0	2	6	3	0	11
Number Operators with +BAC <0.05	(b)	2	41	35	37	3	118
Number Operators with zero BAC	(c)	1	3	0	3	1	8
Number Passengers	(d)	4	19	6	6	1	36
Total injuries for + BAC crashes	(e)	7	65	47	49	5	173
Proportion of injuries attributable to victims among + BAC crashes	(f)	0.714	0.369	0.255	0.245	0.400	0.318
Crashes with all operators zero BAC							
Number Operators with zero BAC	(g)	4	44	35	50	33	162
Number Passengers	(h)	14	22	13	9	10	54
Total injuries for zero BAC crashes	(i)	18	66	48	59	43	216
Proportion of injuries attributable to victims among zero BAC crashes	(j)	0.778	0.333	0.271	0.153	0.233	0.250
Total number crash injuries	(k)	25	131	95	108	48	389
Estimated proportion of all road crash injuries attributable to alcohol impaired operators	(l)	0.280	0.496	0.495	0.454	0.104	0.445
Estimated proportion of all road crash injuries attributable to victims of alcohol impaired operators	(m)	0.200	0.183	0.126	0.111	0.042	0.141

Table A.3b: Estimated age-specific alcohol aetiologic fractions (m) for fatally injured road crash victims of alcohol impaired operators, 0.10 mg/ml BAC driver minimum

		Injured persons by age group (in yrs)					
		0-15	16-25	26-35	36-65	66+	All ages
Crashes with at least one operator + BAC							
Number Operators with +BAC >=0.1	(a)	2	16	18	14	2	52
Number Operators with +BAC <0.1	(b)	0	27	23	26	1	77
Number Operators with zero BAC	(c)	1	3	0	3	1	8
Number Passengers	(d)	0	14	7	3		24
Total injuries for + BAC crashes	(e)	3	60	48	46	4	161
Proportion of injuries attributable to victims among + BAC crashes	(f)	1.000	0.550	0.521	0.435	0.750	0.522
Crashes with all operators zero BAC							
Number Operators with zero BAC	(g)	4	44	35	50	33	162
Number Passengers	(h)	14	22	13	9	10	54
Total injuries for zero BAC crashes	(i)	18	66	48	59	43	216
Proportion of injuries attributable to victims among zero BAC crashes	(j)	0.778	0.333	0.271	0.153	0.233	0.250
Total number crash injuries	(k)	21	126	96	105	47	377
Estimated proportion of all road crash injuries attributable to alcohol impaired operators	(l)	0.143	0.476	0.500	0.438	0.085	0.427
Estimated proportion of all road crash injuries attributable to victims of alcohol impaired operators	(m)	0.143	0.262	0.260	0.190	0.064	0.223

Table A.4a: Estimated age-specific alcohol aetiologic fractions (m) for hospitalised road crash victims of alcohol impaired operators, 0.05mg/ml BAC driver minimum

		Injured persons by age group (in yrs)					
		0-15	16-25	26-35	36-65	66+	All ages
Crashes with at least one operator + BAC							
Number Operators with +BAC >=0.05	(a)	0	33	9	10	3	55
Number Operators with +BAC <0.05	(b)	0	175	144	99	5	423
Number Operators with zero BAC	(c)	0	9	11	14	1	35
Number Passengers	(d)	32	163	56	37	3	291
Total injuries for + BAC crashes	(e)	32	380	220	160	12	804
Proportion of injuries attributable to victims among + BAC crashes	(f)	1.000	0.453	0.30	0.32	0.33	0.405
Crashes with all operators zero BAC							
Number Operators with zero BAC	(g)	28	495	336	507	111	1,449
Number Passengers	(h)	144	244	90	119	60	513
Total injuries for zero BAC crashes	(i)	172	739	426	626	171	1,962
Proportion of injuries attributable to victims among zero BAC crashes	(j)	0.837	0.330	0.211	0.190	0.351	0.261
Total number crash injuries	(k)						
Estimated proportion of all road crash injuries attributable to alcohol impaired operators	(l)	0.157	0.340	0.341	0.204	0.066	0.291
Estimated proportion of all road crash injuries attributable to victims of alcohol impaired operators	(m)	0.157	0.154	0.104	0.065	0.022	0.118

Table A.4b: Estimated age-specific alcohol aetiologic fractions (m) for hospitalised road crash victims of alcohol impaired operators, 0.10 mg/ml BAC driver minimum

		Injured persons by age group (in yrs)					
		0-15	16-25	26-35	36-65	66+	All ages
Crashes with at least one operator + BAC							
Number Operators with +BAC >=0.10	(a)	0	33	9	10	3	55
Number Operators with +BAC <0.10	(b)	0	161	147	125	5	438
Number Operators with zero BAC	(c)	0	5	1	10	0	16
Number Passengers	(d)	19	105	46	39		209
Total injuries for + BAC crashes	(e)	19	304	203	184	8	718
Proportion of injuries attributable to victims among + BAC crashes	(f)	1.000	0.470	0.276	0.321	0.375	0.390
Crashes with all operators zero BAC							
Number Operators with zero BAC	(g)	28	495	336	507	111	1,449
Number Passengers	(h)	144	244	90	119	60	513
Total injuries for zero BAC crashes	(i)	172	739	426	626	171	1,962
Proportion of injuries attributable to victims among zero BAC crashes	(j)	0.837	0.330	0.211	0.190	0.351	0.261
Total number crash injuries	(k)	28	495	336	507	111	1,449
Estimated proportion of all road crash injuries attributable to alcohol impaired operators	(l)	0.099	0.291	0.323	0.227	0.045	0.268
Estimated proportion of all road crash injuries attributable to victims of alcohol impaired operators	(m)	0.099	0.137	0.089	0.073	0.017	0.104

Demographic, geographical and temporal characteristics of road crashes injuries

Overall, among both fatalities and hospitalisations and among both alcohol impaired and non-alcohol impaired crashes, operators outnumber victims. Single vehicle, sole drivers (i.e. not including pedestrians) account for 33.5% of all fatalities and 30.3% of all hospitalisations. The following tables (Tables A.5 – A.9) summarise number of operator injuries versus victim injuries for alcohol and non-alcohol impaired road crashes by:

Jurisdiction

Gender

Day of week (as weekday, total for Monday through Thursday, versus weekend, total for Friday, Saturday and Sunday)

Time of day (as day, total between 6AM and 5:59PM, versus night, total between 6:00PM and 5:59AM)

Metropolitan and non-metropolitan areas

Chi-squared statistics for these differences for fatalities and hospitalisations are presented in Table A.10 and Table A.11.

Table A.5: Victims of alcohol impaired and non-impaired operators by jurisdiction, fatalities and hospitalisations

	Qld	WA	Tas	NT	Total
Fatalities	n=183	n=152	n=44	n=30	n=409
Victims per +BAC operator	0.278	0.404	1.000	0.105	0.349
Victims per -BAC operator	0.281	0.623	0.529	0.286	0.416
Hospitalisations	n=832	n=1,688	n=329	n=206	n=3,055
Victims per +BAC operator	0.586	0.845	1.130	0.208	0.644
Victims per -BAC operator	0.548	0.498	0.582	0.238	0.484
Hospitalisations/Fatalities +BAC	2.111	2.089	1.130	1.979	2.071
Hospitalisations/Fatalities -BAC	1.951	0.800	1.100	0.832	1.184

General observations from Table A.5:

1. WA and Qld dominate in number so their ratios are probably more indicative than the total, that is, most of the variation in +BAC versus -BAC comes from WA and Qld with the NT being similar for both fatalities and hospitalisations.
2. There is generally less than 0.5 victim fatalities for each driver fatality.
3. There is generally a higher number of victims for hospitalisations than for fatalities and this ratio is higher again for the +BAC crashes.
4. A chi square test of the distribution of +BAC and –BAC between Queensland and Western Australia showed that there was a statistically significant difference between the distribution of BACs between these two states for hospitalisations but not for fatalities (see Tables A.10 & A.11, QLD vs WA).

Table A.6: Victims of alcohol impaired and non-impaired operators by sex, fatalities and hospitalisations

Measure	Male	Female	Total
Fatalities (chi=14.327, p<0.001)	n=309	n=99	n=408
Victims per +BAC agents	0.276	0.923	0.341
Victims per -BAC agents	0.248	1.000	0.416
Hospitalisations (chi=78.222, p<0.001)	n=1,870	n=1,184	n=3,054
Victims per +BAC agents	0.612	1.238	0.720
Victims per -BAC agents	0.345	0.723	0.492
Hospitalisations/Fatalities +BAC	2.217	1.341	2.112
Hospitalisations/Fatalities –BAC	1.392	0.723	1.184

NB: 2 records with unknown sex

General comments regarding Table A.6:

1. Female drivers tend to carry more passengers who are killed or hospitalised; the ratios are similar between +BAC and -BAC crashes.
2. More hospitalised victims arise for each hospitalised driver than for fatalities, with significantly greater ratios for +BAC hospitalisations than -BAC hospitalisations, and again the ratios are higher for females than males.
3. Ratios for female fatalities are in the order of four times the magnitude of males and for female hospitalisations twice the magnitude of males.

4. A chi square test of the distribution of +BAC and –BAC by gender showed that there was a statistically significant difference between the distribution of BACs by gender for hospitalisations and fatalities.

Table A.7: Victims of alcohol impaired and non-impaired operators for weekends (Friday, Saturday and Sunday) and weekdays (Monday through Thursday), fatalities and hospitalisations

Measure	Weekend	Weekday	Total
Fatalities (chi=1.994, p=not significant)	n=186	n=223	n=409
Victims per +BAC agents	0.349	0.348	0.349
Victims per -BAC agents	0.755	0.683	0.723
Hospitalisations (chi=8.086, p=0.004)	n=1,383	n=1,672	n=3,055
Victims per +BAC agents	0.329	0.489	0.416
Victims per -BAC agents	0.577	0.437	0.492
Hospitalisations/Fatalities +BAC	2.161	1.961	2.071
Hospitalisations/Fatalities –BAC	1.755	0.894	1.184

General comments regarding Table A.7:

1. No difference between weekend and weekday ratios for fatalities.
2. Weekday hospitalisations ratios are higher than weekend ratios for +BAC crashes.
3. No clear pattern for ratios of hospitalisations between -BAC and +BAC crashes.
4. A chi square test of the distribution of +BAC and –BAC by weekend versus weekday showed that there was a statistically significant difference between the distribution of BACs by weekend and weekday for hospitalisations.

Table A.8: Victims of alcohol impaired and non-impaired operators by time of day, fatalities and hospitalisations

Measure	Day 6:00AM-5:59PM	Night 6:00PM-5:59AM	Total
Fatalities (chi=13.122, p<0.001)	n=197	n=212	n=409
Victims per +BAC agents	0.433	0.323	0.349
Victims per -BAC agents	0.413	0.421	0.416
Hospitalisations (chi=198.260, p<0.001)	n=1,700	n=1,347	n=3,047
Victims per +BAC agents	0.678	0.736	0.723
Victims per -BAC agents	0.442	0.609	0.492
Hospitalisations/Fatalities +BAC	1.565	2.278	2.071
Hospitalisations/Fatalities –BAC	1.071	1.447	1.183

General comments regarding Table A.8:

1. Ratios for hospitalisations are higher than ratios for fatalities for day and night incidents.
2. Night ratios are higher than day ratios for hospitalisations. Positive BAC ratios are also higher than -BAC ratios.
3. There is no clear pattern for fatalities but night +BAC ratios are significantly lower.
4. There is a very strong statistical relationship (p<0.001) between this day/night measure and BAC for both fatalities and hospitalisations.

5. A chi square test of the distribution of +BAC and –BAC by day versus night showed that there was a statistically significant difference between the distribution of BACs by day versus night for hospitalisations and fatalities.

Table A.9: Victims of alcohol impaired and non-impaired operators by metropolitan and non-metropolitan regions, fatalities and hospitalisations

Measure	Non-metro	Metro	Total
Fatalities (chi=1.191, not significant)	n=283	n=126	409
Victims per +BAC agents	0.382	0.275	0.349
Victims per -BAC agents	0.416	0.415	0.416
Hospitalisations (chi=10.861, p=0.001)	n=1,629	n=1,426	n=3,055
Victims per +BAC agents	0.782	0.638	0.723
Victims per -BAC agents	0.618	0.382	0.492
Hospitalisations/Fatalities +BAC	1.681	2.336	1.819
Hospitalisations/Fatalities –BAC	1.295	0.877	1.080

General comments regarding Table A.9:

1. Ratio of victims in non-metropolitan crashes generally higher than metropolitan crashes
2. Ratios higher for hospitalisations compared to fatalities
3. There is a strong relationship between metropolitan/non-metropolitan location of crashes for hospitalisations (p=0.001) but not for fatalities.
4. A chi square test of the distribution of +BAC and –BAC by metropolitan versus non-metropolitan showed that there was a statistically significant difference between the distribution of BACs by metropolitan versus non-metropolitan location for hospitalisations.

Chi- square tests for fatalities and hospitalisations, BACs by selected characteristics

Table A.10 and Table A.11 summarise the results of chi-squared tests as described above, where all positive BACs were included, and for tests of records where the positive BAC was under the legal limit and in excess of the legal limit. It is apparent that for fatalities, only gender, hour of day and age show statistical significance for the particular tests presented. For results below the legal limit the results are not significant.

For hospitalisations, where all positive BACs are included all specified tests are statistically significant but where positive BACs are below the legal limit fewer tests are statistically significant.

Table A.10: Chi-squared tests of significance for fatalities

	Passenger of 0.049>BAC>0.0 crash versus Passenger no BAC crash			Passenger of BAC>0.05 crash versus Passenger no BAC crash			Passenger of BAC>0.0 crash versus Passenger no BAC crash		
	n	Chi	Sig	n	Chi	Sig	n	Chi	Sig
Qld vs WA	60	0.037[1]	0.847	80	1.635	0.201	82	1.579	0.209
Male vs Female	78	2.964[1]	0.085	105	12.444	<0.001	108	14.327	<0.001
Weekday vs Weekend	78	0.758[1]	0.384	106	1.615	0.204	109	1.994	0.158
Pop 16-25 vs Rest	77	1.511[1]	0.219	104	3.940	0.047	107	4.680	0.031
Male: 16-25 vs Rest	40	0.360[1]	0.548	63	0.011	0.916	66	0.062	0.804
Female: 16-25 vs Rest	37	na[2]	-	41	7.281[1]	0.007	41	7.281[1]	0.007
Day vs Night	78	5.571[1]	0.018	106	10.572	0.001	109	13.122	<0.001
Metro vs Non-metro	78	0.01[1]	0.922	106	1.412	0.235	109	1.191	0.275

[1] 2 cells with expected count < 5

[2] no female passengers for this age category and BAC

Table A.11: Chi-squared tests of significance for hospitalisations

	Passenger of 0.049>BAC>0.0 crash versus Passenger no BAC crash			Passenger of BAC>0.05 crash versus Passenger no BAC crash			Passenger of BAC>0.0 crash versus Passenger no BAC crash		
	n	Chi	Sig	n	Chi	Sig	n	Chi	Sig
Qld vs WA	656	0.321	0.571	816	52.856	<0.001	858	52.856	<0.001
Male vs Female	929	10.341	0.001	1,164	73.549	<0.001	1,214	78.222	<0.001
Weekday vs Weekend	931	4.353	0.037	1,165	5.597	0.018	1,216	8.086	0.004
Pop 16-25 vs Rest	845	5.796	0.016	1,065	30.203	<0.001	1,112	33.065	<0.001
Male: 16-25 vs Rest	410	4.722	0.030	584	12.399	<0.001	616	14.650	<0.001
Female: 16-25 vs Rest	435	0.719	0.397	481	17.452	<0.001	496	16.231	<0.001
Day vs Night	928	53.273	<0.001	1,162	168.115	<0.001	1,213	198.260	<0.001
Metro vs Non-metro	931	1.757	0.185	1,165	17.457	<0.001	1,216	10.861	0.001

DISCUSSION POINTS

1. Due to problems with ATSB data reliability only data for Queensland, Western Australia, Tasmania and Northern Territory for the 1999/2000 financial year was used in this analysis.
2. A singe data set was created from the hierarchical ATSB data grouping data into three broad groups: a) positive BAC lower than the legal limit; b) positive BAC exceeding the legal limit; and c) BAC of zero. These groups were sub-categorised according to injury (death or hospitalisation) and by whether the injury was to a driver, passenger or pedestrian.
3. A limitation was the number of unknown BACs. All crashes that had such unknowns were eliminated from the data set in order to preserve the analysis of the comparison between harms due to alcohol related harms versus non-alcohol related harms. The effect of this was to reduce the number of records from 10,200 to 4,279 individual injuries.
4. A descriptive analysis of the differences between records with known and unknown BACs by jurisdiction for two basic demographic indicators (gender ratio and average age), showed consistent differences between the two groups. This suggests that there may be real rather than random differences between these groups and as such the results discussed apply only to a subset of all crashes.
5. Cross tabulations were performed on the data set by jurisdiction, metropolitan versus non-metropolitan, day of week, hour of day, gender and age See Tables A.3 thorough A.10.
6. Total sole driver injuries account for 33.5% of all fatalities and 30.3% of all hospitalisations.
7. However, in those crashes where BAC is positive, generally there tends to be a higher number of victim fatalities or hospitalisations. This trend appears to be driven by female operators who appear to carry more injured passengers.
8. There does not appear to be a significant difference between weekend and weekday injuries regardless of BAC.
9. Night time crashes tend to involve more victims than day crashes and crashes involving positive BACs appear to involve more hospitalisations.
10. Non-metropolitan crashes appear to involve more victims than metropolitan crashes. Metropolitan crashes tend to have higher numbers of victims where BACs are zero.

11. Regardless of BAC, there are more victims in the youngest and oldest age groups. While males are more likely to be victims as well as operators in the younger age groups, female operators in middle age tend to involve more multiple victims.
12. Significance testing for records involving fatalities show that only gender, age and time of day variables were statistically associated with positive BACs versus BAC reports of zero. Significance testing for hospitalisations shows associations between BAC and all tested variables. These results appear to be influenced by the number of records. The smaller number of records for fatalities and the smaller number of records in the low positive BAC group show weaker statistical relationships.
13. The PAAF for road crash fatalities varies considerably by age. The likelihood of being a fatal victim of an impaired operator road crash is highest for those under 26 years of age.
14. The estimated partial age-specific PAAFs for hospitalised victims of alcohol impaired operator road crashes was lower than for fatalities at about 0.118 (Table A.4a). The likelihood of being hospitalised due to another's alcohol impaired driving was highest for those aged under 26 years.

APPENDIX B: POPULATION AETIOLOGICAL ALCOHOL FRACTIONS ICD -10 CODES

Table B.1: Conditions considered in Chapter 3 analyses and corresponding ICD-10 codes

Condition	ICD-10 code
Child abuse	X85-Y09, Y87.1 (age <15)
Fetal alcohol syndrome	Q86.0 (age <15)
Road crash: non-pedestrian	V12-V14 (.3 -.9), V19.4-V19.6, V19.9, V20-V28 (.3 -.9), V29-V79 (.4 -.9), V80.3-V80.5, V81.1, V82.1, V82.9, V83.0-V86 (.0 -.3), V87.0-V87.9, V89.2, V89.3, V89.9
Road crash: pedestrian	V02-V04 (.1, .9), V06.1, V09.2, V09.3
Interpersonal violence	X85-Y09, Y87.1 (age >15)

APPENDIX C: POTENTIAL YEARS OF LIFE LOST (PYLL) FACTORS, BY SEX AND AGE (CHAPTER 3)

Potential years of life lost, or PYLL, provides a measure of the years of life lost due to premature death. There are two alternative methods for estimating PYLL. In this report, PYLL estimates were made using the same methods as those applied by the Australian Institute of Health and Welfare and the Australian Burden of Disease study (Ridolfo and Stevenson, 2001).

Using this method, PYLLs are equated to a measure of average community life expectancy at the actual age of death. Details of this approach are described in Ridolfo and Stevenson (Ridolfo and Stevenson, 2001; p 4-5). It should be noted that this is a different from the approach taken in other older reports (e.g. English et al 1995) which estimated PYLLs due to a specific condition and then adjusted the life expectancy after effectively removing that condition from all possibly causes of death.

Table C.1 below summarises PYLLs by sex for each age group as they were applied in the report. It will be noted that the estimated life expectancy is quite heavily discounted, and thus is quite conservative. In order to concord with weighted 'person' PAAFs calculable for interpersonal violence, PYLL factors for 'persons' (average of male and female PYLL by age group) were also applied to victims of interpersonal violence and underlie PYLL estimates shown in summary Table 3.3 and Table D.5.

Table C.1: PYLL factors applied to alcohol-attributable deaths by age and sex

Age group in years	Male	Female	Persons[1]
0-14	29.87	30.31	30.09
15-24	27.93	28.64	28.29
25-34	26.04	26.97	26.50
35-44	23.40	24.63	24.02
45-54	19.85	21.52	20.69
55-64	15.48	17.55	16.52
65+	7.82	9.30	8.56

[1] Applied to adult interpersonal violence only

APPENDIX D: SUPPLEMENTARY TABLES FOR ROAD CRASHES AND VIOLENT INJURY (CHAPTER 3)

ROAD CRASHES

Table D.1 presents information from Australian data on the estimated number of deaths, and potential years of life lost, amongst non-pedestrians in road crashes attributed to the drinking of others. Non-pedestrian deaths include passengers who may have been in car that was being driven by someone with a BAC over 0.1 mg/ml, or those who were drivers or a passengers in a vehicle that was hit by another car where the driver was over the 0.1 mg/ml, as well as those who may have been riding a bicycle that was hit by a drunk driver.

In all age groups combined, of a total 1,182 non-pedestrian road deaths an estimated 246 people were killed because of others' drinking in 2005, and a total of 5,992 potential years of life (PYLLs) were lost. Over three times as many men as women were killed in non-pedestrian road crashes because of others' drinking.

Table D.1: Estimated number of Australian non-pedestrian road crash deaths for victims aged 15 years and older attributable to alcohol consumed by others, 2005

	Total deaths	Age-specific aetiologic fraction[1]	Alcohol-attributable deaths	Alcohol-attributable PYLL
Male				
15-24yrs	264	0.262	69	1932
25-34yrs	227	0.260	59	1537
35-44yrs	135	0.190	26	600
45-54yrs	97	0.190	18	366
55-64yrs	70	0.190	13	206
65+ yrs	102	0.064	7	51
Total 15yrs+	895	0.223	192[2]	4692[3]
Female				
15-24yrs	68	0.262	18	510
25-34yrs	54	0.260	14	379
35-44yrs	31	0.190	6	145
45-54yrs	29	0.190	6	119
55-64yrs	31	0.190	6	103
65+ yrs	74	0.064	5	44
Total 15yrs+	287	0.223	54[2]	1300[3]
Persons				
15-24yrs	332	0.262	87	2442
25-34yrs	281	0.260	73	1915
35-44yrs	166	0.190	32	745
45-54yrs	126	0.190	24	484
55-64yrs	101	0.190	19	309
65+ yrs	176	0.064	11	95
Total 15yrs+	1182	0.223	246[2]	5992[3]

[1] Estimated PAAF specific to hospitalised road crash passengers and pedestrians where at least one vehicle operator had a BAC > 0.10mg/ml, see Appendix A

[2] For accuracy, alcohol-attributable totals are the sum of age-specific rows for that sub-group and may only approximate a multiplication of the average PAAF for the sub-group by total deaths

[3] PYLL totals are the sum of age-specific PYLLs in that sub-group

Table D.2 presents information on the estimated number of deaths, and potential years of life lost, amongst pedestrians involved in road crashes attributed to the drinking of others. Pedestrian deaths include those people who were hit by a vehicle that was being driven by someone with a BAC over 0.1mg/ml.

For those aged 15 years and older, of a total 187 pedestrian road deaths an estimated 31 people were killed because of others' drink driving in 2005, and a total of 676 potential years of life (PYLLs) were lost.

Table D.2: Estimated number of Australian pedestrian road crash deaths for victims aged 15 years and older attributable to alcohol consumed by others, 2005

	Total deaths	Age-specific aetiologic fraction[1]	Alcohol-attributable deaths	Alcohol-attributable PYLL
Male				
15-24yrs	23	0.262	6	168
25-34yrs	19	0.260	5	129
35-44yrs	15	0.190	3	67
45-54yrs	16	0.190	3	60
55-64yrs	12	0.190	2	35
65+ yrs	38	0.064	2	19
Total 15yrs+	123	0.223	22[2]	478[3]
Female				
15-24yrs	10	0.262	3	75
25-34yrs	4	0.260	1	28
35-44yrs	9	0.190	2	42
45-54yrs	4	0.190	1	16
55-64yrs	5	0.190	1	17
65+ yrs	32	0.064	2	19
Total 15yrs+	64	0.223	9[2]	197[3]
Persons				
15-24yrs	33	0.262	9	243
25-34yrs	23	0.260	6	157
35-44yrs	24	0.190	5	109
45-54yrs	20	0.190	4	77
55-64yrs	17	0.190	3	52
65+ yrs	70	0.064	4	38
Total 15yrs+	187	0.223	31[2]	676[3]

[1] Estimated PAAF specific to hospitalised road crash passengers and pedestrians where at least one vehicle operator had a BAC > 0.10mg/ml, see Appendix A

[2] For accuracy, alcohol-attributable totals are the sum of age-specific rows for that sub-group and may only approximate a multiplication of the average PAAF for the sub-group by total deaths

[3] PYLL totals are the sum of age-specific PYLLs in that sub-group

Table D.3 presents information on the estimated number of hospitalisations and bed days attributed to the drinking of others amongst non-pedestrians from all age groups. An estimated 3,362 people were hospitalised because of the drinking of others, and spent over 15,000 bed days in hospital. More than twice as many men (2,308) as (1,054) were hospitalised because of others' drinking, and hospitalisations appeared to occur more frequently among men and women aged 15-24 years than for any other age group.

Table D.3: Estimated number of non-pedestrian road crash hospitalisations for victims aged 15 years and older attributable to alcohol consumed by others, 2004/05

	Total hospitalisations	Age-specific aetiologic fraction[1]	Alcohol-attributable hospitalisations	Alcohol-attributable bed days
Male				
15-24yrs	8021	0.137	1099	4588
25-34yrs	5859	0.089	521	2320
35-44yrs	4280	0.073	312	1464
45-54yrs	2866	0.073	209	1049
55-64yrs	1752	0.073	128	693
65+ yrs	2217	0.017	38	286
Total 15yrs+	24995	0.104	2308[2]	10399[2]
Female				
15-24yrs	3408	0.137	467	1982
25-34yrs	2412	0.089	215	736
35-44yrs	1781	0.073	130	800
45-54yrs	1607	0.073	117	521
55-64yrs	1195	0.073	87	408
65+ yrs	2226	0.017	38	291
Total 15yrs+	12629	0.104	1054[2]	4738[2]
Persons				
15-24yrs	11429	0.137	1566	6570
25-34yrs	8271	0.089	736	3056
35-44yrs	6061	0.073	442	2265
45-54yrs	4473	0.073	327	1569
55-64yrs	2947	0.073	215	1101
65+ yrs	4444	0.017	76	576
Total 15yrs+	37624	0.104	3362[2]	15137[2]

[1]Estimated PAAF specific to hospitalised road crash passengers and pedestrians where at least one vehicle operator had a BAC > 0.10mg/ml, see Appendix A

[2] For accuracy, alcohol-attributable totals are the sum of age-specific rows for that sub-group and may only approximate a multiplication of the average PAAF for the sub-group by total hospitalisations/bed days

Table D.4 presents information on the estimated number of hospitalisations, and bed days attributed to the drinking of others amongst pedestrians from aged 15 years and older. An estimated 281 people were hospitalised because of the drinking of others, and spent over 2,200 bed days in hospital. The distribution of harm between the sexes was slightly more even although still, many more men were (173) hospitalised than women (108) because of others' drinking. Again, young men and women in the 15-24 year age group were more likely to be hospitalised than other age groups because of others' drinking.

Adding figures from Tables D.1 through D.4, a total of 277 people died and 3,642 people were hospitalised across Australia because of others' drinking in road crashes in a single year in 2005.

Table D.4: Estimated number of pedestrian road crash hospitalisations for victims aged 15 years and older attributable to alcohol consumed by others, 2004/05

	Total hospitalisations	Age-specific aetiologic fraction[1]	Alcohol-attributable hospitalisations	Alcohol-attributable bed days
Male				
15-24yrs	485	0.137	66	425
25-34yrs	447	0.089	40	332
35-44yrs	328	0.073	24	145
45-54yrs	267	0.073	20	189
55-64yrs	214	0.073	16	193
65+ yrs	454	0.017	8	78
Total 15yrs+	2195	0.104	173[2]	1363[2]
Female				
15-24yrs	324	0.137	44	297
25-34yrs	172	0.089	15	81
35-44yrs	180	0.073	13	125
45-54yrs	198	0.073	14	127
55-64yrs	131	0.073	10	91
65+ yrs	632	0.017	11	136
Total 15yrs+	1637	0.104	108[2]	857[2]
Persons				
15-24yrs	809	0.137	111	722
25-34yrs	618	0.089	55	413
35-44yrs	508	0.073	37	270
45-54yrs	466	0.073	34	316
55-64yrs	344	0.073	25	285
65+ yrs	1086	0.017	18	214
Total 15yrs+	3833	0.104	281[2]	2220[2]

[1]Estimated PAAF specific to hospitalised road crash passengers and pedestrians where at least one vehicle operator had a BAC > 0.10mg/ml, see Appendix A

[2] For accuracy, alcohol-attributable totals are the sum of age-specific rows for that sub-group and may only approximate a multiplication of the average PAAF for the sub-group by total hospitalisations/bed days

Deaths and hospitalisations from interpersonal violence attributable to alcohol consumed by others

Table D.5 presents information on the estimated number of deaths, and potential years of life lost because of interpersonal violence associated with the drinking of others. These deaths include victims of homicides, and manslaughter, and include victims in alcohol–related brawls in and around licensed premises as well as domestic violence incidents. Child abuse deaths have not been included here (see Chapters 3 and 8). Of a total of 182 (interpersonal) violent deaths, just under half or an estimated 77 deaths involved others' drinking in 2005, and a total of 1,802 potential years of life (PYLL) were lost. Over twice the number of men were killed in violent deaths involving others drinking than women. Male and female victims of violence appeared to occur in slightly older age groups than those killed in road crashes, with the highest numbers of violent deaths in the 25-34 and 35-44 year age groups.

Table D.5: Estimated number of deaths for victims of interpersonal violence aged 15 years and older attributable to alcohol, 2005

	Total deaths	Age-specific aetiologic fraction	Alcohol-attributable deaths	Alcohol-attributable PYLL
Male				
15-24yrs	21	0.417	9	245
25-34yrs	30	0.508	15	397
35-44yrs	26	0.447	12	272
45-54yrs	23	0.419	10	191
55-64yrs	11	0.295	3	50
65+ yrs	9	0.232	2	16
Total 15yrs+	120	0.438	51[1]	1171[1]
Female				
15-24yrs	6	0.418	3	72
25-34yrs	16	0.467	7	201
35-44yrs	16	0.497	8	196
45-54yrs	10	0.429	4	92
55-64yrs	8	0.354	3	50
65+ yrs	6	0.190	1	11
Total 15yrs+	62	0.447	26[1]	622[1]
Persons[2]				
15-24yrs	27	0.417	11	319
25-34yrs	46	0.487	22	594
35-44yrs	42	0.471	20	475
45-54yrs	33	0.423	14	289
55-64yrs	19	0.313	6	98
65+ yrs	15	0.218	3	28
Total 15yrs+	182	0.442	77[1]	1802[1]

[1] For accuracy, alcohol-attributable totals are the sum of age-specific rows for that sub-group and may only approximate a multiplication of the average PAAF for the sub-group by total deaths/PYLLs

[2]PAAFs for 'persons' are a weighted average of age-specific PAAFs for males and females and therefore 'person' rows may only approximate the sum of male and female age specific alcohol-attributable deaths in this Table

Table D.6 presents information on the estimated number of hospitalisations and bed days spent in hospital because of interpersonal violence attributed to the drinking of others in all age groups. An estimated 9,209 people were hospitalised because of the drinking of others, and spent almost 28,000 bed days in hospital. Two and a half times the number of men were (6,587) hospitalised compared with women (2,630) because of others' drinking. Young and middle aged men and women in the 15-44 year age groups were more likely to be hospitalised than children and older age groups because of others' drinking.

Table D.6: Estimated number of hospitalisations for victims of interpersonal violence aged 15 years and older attributable to alcohol, 2004/05

	Total hospitalisations	Age-specific aetiologic fraction	Alcohol-attributable hospitalisations	Alcohol-attributable bed days
Male				
15-24yrs	3500	0.417	1458	3038
25-34yrs	4977	0.508	2529	6504
35-44yrs	3614	0.447	1614	5272
45-54yrs	1700	0.419	713	2471
55-64yrs	681	0.295	201	995
65+ yrs	316	0.232	73	857
Total 15+yrs	14788	0.438	6587[1]	19137[1]
Female				
15-24yrs	987	0.418	412	877
25-34yrs	2112	0.467	986	2239
35-44yrs	1638	0.497	814	2531
45-54yrs	700	0.429	300	2080
55-64yrs	221	0.354	78	279
65+ yrs	207	0.190	39	627
Total 15+yrs	5865	0.447	2630[1]	8631[1]
Persons[2]				
15-24yrs	4487	0.417	1871	3917
25-34yrs	7089	0.487	3452	8568
35-44yrs	5252	0.471	2474	7960
45-54yrs	2400	0.423	1015	4547
55-64yrs	902	0.313	282	1303
65+ yrs	523	0.218	114	1526
Total 15+yrs	20653	0.442	9209[1]	27821[1]

[1]For accuracy, alcohol-attributable totals are the sum of age-specific rows for that sub-group and may only approximate a multiplication of the average PAAF for the sub-group by total hospitalisations/bed days

[2]PAAFs for 'persons' are a weighted average of age-specific PAAFs for males and females and therefore 'person' rows may only approximate the sum of male and female age specific alcohol-attributable hospitalisations in this table.