

# Alcohol and Young People

A review of New Zealand and other international  
literature

December 2017

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## COMMISSIONING CONTACT'S COMMENTS

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This Health Promotion Agency (HPA) commission was managed by Margaret Chartres (Senior Researcher) and Dr Sarah Wright (Researcher).

HPA is interested in improving our understanding about how young New Zealanders drink alcohol. The intersections between demographic and health variables and the patterns of drinking by young people are of particular interest, as are the changes in how young people drink as they move from their late teens into early adulthood.

In April 2012, HPA (through the agency of the then Alcohol Advisory Council of New Zealand) commissioned the Department of Public Health at the University of Otago (Wellington) to undertake research into young people's drinking. The SoFIE-Health study was primarily funded by the Health Research Council of New Zealand as part of the Health Inequalities Research Programme. This report reviews the literature from New Zealand and from overseas, with an objective to examine the drinking behaviours of young New Zealanders aged between 12 and 24 years. Differences between male and female drinking behaviours are highlighted. A draft report was received in August 2012, and a final report in February 2013.

There are two companion reports: "Alcohol and older people. A descriptive analysis of changes in alcohol use in older New Zealanders from 2004 to 2009" and "Alcohol and young people. A descriptive analysis of changes in alcohol use in young New Zealanders from 2004 to 2009."

## REVIEW

The report was reviewed externally.

## ACKNOWLEDGEMENTS

The authors would like to thank Margaret Chartres and Dr. Sarah Wright, initially through the then Alcohol Advisory Council of New Zealand (ALAC) and subsequently through the Health Promotion Agency (HPA) for their energy and enthusiasm regarding this work.

Thanks are due to the external reviewer. Feedback on a draft report was provided by Margaret Chartres, Dr. Sarah Wright and Rosie Pears, of HPA.

# CONTENTS

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<b>Commissioning contact's comments</b> .....	<b>1</b>
<b>Executive summary</b> .....	<b>3</b>
<b>Introduction</b> .....	<b>6</b>
<b>Methodology</b> .....	<b>7</b>
Scope.....	7
Search strategy.....	7
Search results.....	7
<b>Abbreviations and definitions</b> .....	<b>9</b>
<b>How are young people drinking</b> .....	<b>10</b>
Drinking behaviours.....	10
Risky drinking.....	11
Summary points – how young people drink.....	13
<b>Why are young people drinking</b> .....	<b>15</b>
Why engage in drinking?.....	15
Why engage in risky drinking?.....	16
Summary points – why young people drink.....	17
<b>What are the factors that influence drinking in young people</b> .....	<b>18</b>
Parents, family environment and alcohol consumption.....	18
Education and alcohol consumption.....	19
Socio-economic status, deprivation factors and alcohol consumption.....	19
Summary points – factors that influence drinking in young people.....	21
<b>What is the burden of alcohol for young people</b> .....	<b>22</b>
Alcohol burden.....	22
Potential approaches to minimize alcohol-related harm.....	24
Summary points – burden of alcohol misuse and alcohol-related harm.....	25
<b>What is the current drinking advice for young people</b> .....	<b>26</b>
Drinking advice.....	26
Summary point – drinking advice and young people.....	26
<b>Drinking and Māori and Pacific Young People</b> .....	<b>27</b>
Drinking patterns and burden of harm.....	27
Summary points – Māori and Pacific young people.....	28
<b>Conclusions</b> .....	<b>29</b>
<b>Future research directions</b> .....	<b>30</b>
<b>References</b> .....	<b>31</b>
<b>Appendix</b> .....	<b>39</b>
Table 1: List of selected key organization reports that include young people and drinking.....	39
Table 2: Summary of selected peer-reviewed articles on young people and drinking.....	40

## EXECUTIVE SUMMARY

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Alcohol is a widely used drug in New Zealand. This review focuses on the drinking behaviour of young New Zealanders (aged 12 to 24 years), and supports the analysis of alcohol data from the Statistics New Zealand Survey of Family Income and Employment (SoFIE) and the SoFIE-Health sub-study, conducted from 2002 to 2010.<sup>1</sup> This report presents findings from literature published around this time period to provide context for understanding young peoples' drinking behaviours, and how these have changed.

### HOW ARE YOUNG PEOPLE DRINKING

- Evidence consistently shows that many young people think that it is okay to drink. However, approximately half of those young people who drink will engage in risky drinking.
- Drinking to get drunk appears to be something that some young drinkers plan to do.
- Young people drink different types of alcoholic drinks depending on drinking behaviour (classified in a number of different ways, depending on measures such as the frequency and typical quantity consumed) and age, and, to some extent, gender.
- Many New Zealand university students engage in risky drinking, which may be linked to their drinking habits formed while they were at school.
- Studies from overseas have highlighted that risky drinking is associated with poor social position outcomes in adulthood.

### WHY ARE YOUNG PEOPLE DRINKING

- Reasons for drinking may be linked to how young people drink, drinking frequency and quantity drunk per occasion.
- Young people drink for a variety of reasons – e.g. to have fun, to enjoy parties, and to get drunk.
- Some young people drink for more complex reasons related to their health and well-being, and these include: to forget about things, to feel more confident, and to relax.
- Peer pressure plays a significant role in young people's drinking.
- For some older youth, drinking has been cited as a means to cope with stress.

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<sup>1</sup> Carter, K., & Filoche, S., & McKenzie, S. (2017). *Alcohol and young people: A review of New Zealand and other international literature. Report commissioned by the Health Promotion Agency.* Wellington: Health Promotion Agency.

## WHAT ARE THE FACTORS THAT INFLUENCE DRINKING IN YOUNG PEOPLE

There are many factors which influence the dynamics of young people drinking. Salient findings include:

- Parental supply of alcohol is a risk factor for young people to engage in risky drinking.
- Family connectivity and parental disapproval of drinking appear to mitigate the risk for alcohol misuse.
- Overall, lower levels of formal education are a risk factor for engaging in risky drinking, although a deviation from this can be seen in the drinking behaviours of some university students.
- Socio-economic factors can play a role in risky drinking behaviours. There is a tendency for young people from areas of high socio-economic deprivation to drink less frequently, but to be more likely to engage in risky drinking, with a greater burden of alcohol-associated harm. However, the relationship is not always clear.

## WHAT IS THE BURDEN OF ALCOHOL FOR YOUNG PEOPLE

- Alcohol is a widely-used drug in New Zealand.
- The burden of alcohol-related harm lies across many populations, and is high for men and Māori.
- For all young people, alcohol use and misuse contribute to road deaths, road injuries, assaults and adverse mental health outcomes.
- Some university students engage in risky drinking, which may raise challenges for effective harm minimisation approaches.
- Young people between the ages of 13 and 17 have reported higher levels of alcohol-related harm (e.g. unwanted sex and violence) in areas of high deprivation compared to those living in areas of low deprivation.
- A screening approach that has the potential to encompass alcohol morbidity in a broad way, by looking at those individuals with harmful or hazardous drinking patterns, may have merits for early interventions.

## CURRENT DRINKING ADVICE FOR YOUNG PEOPLE AND THEIR DRINKING BEHAVIOUR

- At the time of this review, in New Zealand it is legal for anyone 18 years and over to purchase alcohol. This does not equate to a 'drinking age'.
- Even if young people know about drinking advice, they may still engage in risky drinking.
- Reducing the alcohol content in drinks may have a limited impact on drinking behaviours, as findings (from a study of NZ tertiary students set in a hypothetical context) suggest more alcohol may be purchased.

## HOW ARE YOUNG MĀORI AND PACIFIC PEOPLES DRINKING

- The self-reported burden of alcohol-related harm is high for Māori.
- Pacific communities in New Zealand maintain traditional cultural practices which may protect Pacific young people from alcohol-related harm.

## CONCLUDING REMARKS

- A complex relationship exists between young people and alcohol.
- Young people think that drinking is okay and drinking alcohol is a common practice for many young New Zealanders (12-24 years). Risky drinking by young people, both male and female, is also common practice. Young males are more likely to drink more frequently, and drink more per session than females. Some young people set out to get drunk (premeditative drinking behaviour). Most young people appear to engage in risky drinking either at home or at someone else's house.
- Evidence suggests that young people drink different alcoholic drinks depending on how they are drinking (e.g. RTDs are indicated as a preferred drink for risky drinkers).
- Evidence suggests that the reasons why young people drink are linked to how they drink.
- The impact of young people's drinking, especially risky drinking, on their health and social outcomes as adults, is not well understood in New Zealand. The findings from this review would suggest that risky drinking could contribute to, and exacerbate, some health and social well-being inequalities that exist in New Zealand.
- Young people drink for a variety of reasons. On one level their reasons for drinking appear simple, for example, to have fun. But on another level they appear more complex, for example, to forget about things. For some older youth (18-24 years), alcohol is used as a coping strategy for academic and/or family stress and anxiety.
- Alcohol-related harm occurs in many New Zealand communities, as well as in many population groups (men and Māori experience a significant burden of alcohol-related harm).

Given that the nature of alcohol use in young people is complex, no one regulation or intervention is likely to be effective in minimising alcohol-related harm. Rather, a host of different approaches are required.

## INTRODUCTION

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Evidence clearly shows that many young New Zealanders drink alcohol. The aim of this literature review is to provide an overview of the current knowledge to date on the drinking behaviours of young New Zealanders aged between 12 and 24 years of age. Points of difference between male and female drinking behaviours will be highlighted.

In covering this topic, the following questions will be addressed:

1. How are young people drinking?
2. Why are young people drinking?
3. What are the factors that influence drinking in young people, particularly in relation to:
  - a. Family environment.
  - b. Education.
  - c. Socio-economic position.
4. What is the burden of alcohol for young people?
  - a. Alcohol misuse (risky drinking).
  - b. Alcohol related harm.
5. What is the current drinking advice for young people?
6. How are young Māori and Pacific peoples drinking?

## METHODOLOGY

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### SCOPE

The review will focus primarily on literature pertaining to New Zealand's young people but, where relevant, information will also be drawn from the international literature. The review is intended as a user-friendly resource that summarises and compares key publications to highlight salient findings and trends. A list of relevant organisational reports (Table 1) and a summary of findings from most of the literature cited in this review (Table 2) can be found in the Appendix.

It is pertinent to note at this stage that each country has its own drinking advice and definitions of a standard drink. In addition, research reports often use different measures and descriptions of alcohol consumption, and compare across different age group categories. Owing to these variations relating to alcohol, direct comparisons of research findings are not always possible.

This review was commissioned in 2012 by the Health Promotion Agency (HPA), through the agency of the then Alcohol Advisory Council of New Zealand (ALAC). Concurrently, two reports on the changes in alcohol consumption in young people (15-24 years of age) and older people ( $\geq 60$  years of age) from 2004 to 2009 were commissioned. The two reports used data obtained from the Stats NZ (then Statistics New Zealand) Survey of Family Income and Employment (SoFIE) and the SoFIE-Health sub-study (Carter, Hayward, & Richardson, 2008; Carter, Cronin, Blakely, Hayward, & Richardson, 2010). HPA worked in collaboration with SoFIE-Health researchers and contributed to the funding of the SoFIE-Health study.

### Search strategy

We have focussed on the last ten years of research around alcohol use in young New Zealand people and adults, including Māori and Pacific peoples. Although publication date was used as a selection criterion, on occasion the data within has been collected prior to 2002 (e.g. in Huckle, Pledger, & Casswell, 2012). These publications have been included in the review as they are of importance to the evidence-base of young people's drinking behaviour in New Zealand. In addition, where they significantly add to the knowledge base, some selected earlier widely-cited research is included.

Some of the publications covered in this review are sourced from grey literature (e.g. the Youth'07 report). To exclude these sources would limit the scope and richness of the information presented in this review. Where possible, publications from grey literature have been substantiated and/or compared to peer-reviewed journal publications.

The general structure of the search strategy was 'alcohol', and terms related to alcohol, including appropriate MeSH headings 'AND' youth 'AND' New Zealand, with related terms, e.g. socio-economic position. PubMed automatically searches the MeSH headings as well as the more specific terms beneath that heading in the MeSH hierarchy (known as the explosion feature).

Search strategies for other databases were variations on this, depending on the search options available.

Databases searched included, but were not limited to:

- ACC – <http://www.acc.govt.nz>
- Addiction Research Network, University of Auckland – <http://www.fmhs.auckland.ac.nz/faculty/arn/>
- ALAC Library Catalogue – <http://www.alac.org.nz>
- Alcohol Drug Association – <http://www.adanz.org.nz>
- Alcohol Healthwatch – <http://www.ahw.org.nz/>
- Centre for Social and Health Outcomes Research and Evaluation (SHORE)/Te Ropu Whariki – <http://www.shore.ac.nz> / <http://www.whariki.ac.nz/>
- Dunedin Multidisciplinary Health and Development Research Unit – <http://dunedinstudy.otago.ac.nz/>
- Google Scholar – <http://scholar.google.co.nz>
- Ministry of Health – <http://www.moh.govt.nz>
- Ministry of Youth Development – <http://www.myd.govt.nz>
- PubMed – <http://www.ncbi.nlm.nih.gov/pubmed/>
- University of Otago Library – <http://www.library.otago.ac.nz/index.php>
- World Health Organization – <http://www.who.int>
- Youth 2000 – <http://www.youth2000.ac.nz>

## Search results

The initial search in PubMed in May 2012 produced 238 references: for socio-economic position – 23; family – 33; education – 57; Pacific peoples – 18; Māori – 23 (NB figures quoted include repeat references). The titles and abstracts were reviewed. Full copies of the relevant references were reviewed. Reference lists of relevant publications were also reviewed and so were any other papers that were related to the topic and widely quoted in the field, including those from the international literature.

## ABBREVIATIONS AND DEFINITIONS

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Alcohol consumption – The frequency of alcohol consumed and/or the quantity consumed over a given time

AAD – Alcohol abuse/dependence

ALAC – Alcohol Advisory Council of New Zealand

AUDIT – Alcohol Use Disorders Identification Test

BAC – Blood alcohol content, usually taken as a measure of alcohol intoxication and expressed as the amount of alcohol in a given amount of blood. It is often measured as either grams of alcohol per decilitre of blood (g/dl), milligrams per decilitre (mg/dl), or milligrams of alcohol per millilitres of blood (ALAC, 2012a)

Drinking behaviours – classified in a number of different ways, depending on measures such as the frequency and typical quantity consumed

Grey literature – Papers, reports, technical notes or other documents produced and published by governmental agencies, academic institutions and other groups that are not distributed or indexed by commercial publishers

HPA – Health Promotion Agency

MOH – Ministry of Health

NZ – New Zealand

NZiDep – A New Zealand-based measure of an individual's level of deprivation

NZDep – A New Zealand-based measure of an area level of deprivation

Risky drinking – For this report, risky drinking is defined differently in different studies

RTD – Ready to drink beverage containing alcohol

SES – Socio-economic status

SoFIE – Survey of Family Income and Employment

SoFIE-Health – Survey of Family Income and Employment-Health sub-study

Standard drink – For this report, a standard drink is defined as a can or small bottle of beer; a small glass of wine; or a single nip of spirits containing 10 g of alcohol. In New Zealand a standard drink is 10 g of alcohol

WHO – World Health Organization

Young people – Those aged between 12 and 24 years of age.

## HOW ARE YOUNG PEOPLE DRINKING

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### Drinking behaviours

Drinking is common practice in young people in Western societies and is an activity which receives considerable attention because of alcohol-associated harms and public health implications.

Drinking behaviours can be classified in a number of different ways, depending on measures of prevalence, frequency and typical quantity per occasion consumed. Based on these drinking measures, people's drinking behaviours can be classified into a number of different categories: non-drinker or abstainer, current drinker, moderate drinker, frequent drinker, heavy drinker and risky drinker (sometimes referred to as 'binge drinker'). How drinking behaviours develop is a complex and dynamic process, and influenced by a host of different factors (some of which will be discussed in the following sections). It is important to note that evidence indicates that, the earlier the exposure to alcohol occurs, the higher the likelihood of risky/harmful adolescent and young adult behaviours will develop, leading to possible detrimental health outcomes, including substance misuse (Adam et al., 2011; Dawson, Goldstein, Chou, Ruan & Grant, 2008; Heron et al., 2012; Kypri et al., 2009b; Viner & Taylor, 2007). This has important considerations for policy development and harm minimisation approaches. It is also important to note that survey data from organisations such as ALAC, which are frequently referred to in this review, are based on cross-sectional data. That is, the data provide a "snapshot" of people's drinking behaviours at a particular time. In contrast, longitudinal studies assess the same people at multiple time points over a period of time, and are better able to assess transitions in drinking behaviours, such as progression from one drinking behaviour (e.g. abstainer) to another (e.g. low-risk drinker).

"It's OK" for people the same age (12+ years of age) to drink or get "drunk, so long as it is not every day" are sentiments that a number of young people over the age of 12 reportedly agree with (Alcohol Advisory Council of New Zealand [ALAC], 2005; Ameratunga et al., 2011). From the surveys that are available, it is also clear that these sentiments translate into behaviours for many young people (ALAC, 2005; ALAC, 2011; Ameratunga et al., 2011; Ministry of Health, 2009). Data collected from 11 general population alcohol cross-sectional surveys conducted between 1990 and 2000 in Auckland has indicated that there have been significant increases in the typical-occasion quantities of alcohol consumed and alcohol-related problems, predominantly among young New Zealanders between 14-19 years of age and women (Huckle et al., 2012). Whether this trend has continued remains to be fully determined and would require further investigation with a longitudinal study approach.

The most current estimate of drinking prevalence, based on cross-sectional data (one-point-in-time) among young people (12-24 years of age, n=1,780) is 61 percent (ALAC, 2011). This is not surprising, given that the legal purchase age for alcohol in New Zealand is 18 years old. Of this surveyed population, 31 percent were classed as "moderate drinkers" and 30 percent as "binge drinkers" (five or more standard drinks on the last occasion for 12-17 year olds and seven or more standard drinks on the last occasion for 18-24 year olds) (ALAC, 2011). Other cross-sectional evidence has also indicated that the prevalence of young people drinking is 61 percent (Ameratunga et al., 2011), with the proportion of students who were current drinkers

doubling across the surveyed age range, from 38 percent at age 13 or less to 76 percent at age 17 or older (Ameratunga et al., 2011). Evidence indicates that both young males and females are likely to be drinking (ALAC, 2011; Ameratunga et al., 2011; Ministry of Health, 2009). Although, according to the Ministry of Health survey, young males were found to be drinking more often than females (14 percent of males consumed alcohol three to six times a week compared to 3 percent of females). Age, socio-economic deprivation and ethnicity also appear to influence drinking prevalence (ALAC, 2004; ALAC, 2005; ALAC, 2011; Ministry of Health, 2007; Ministry of Health, 2009).

### **Risky drinking**

Data from ALAC's 2009/10 survey reveals that, of the 89 percent of older youth (18-24 years of age) who indicated that they were drinkers, 45 percent drank moderately and 44 percent engaged in risky drinking (ALAC, 2011). In terms of the minors in the surveyed population (12-17 years of age), of the 32 percent who indicated that they were drinkers, 15 percent engaged in risky drinking (17 percent drank moderately and 68 percent reported that they did not drink at that time) (ALAC, 2011). Depending on the measure used to assess frequency and quantity of drinking, a difference in drinking behaviours between young males and females is sometimes reported. For example, according to the Youth'07 results, more males (59 percent) than females (55 percent) reported engaging in risky drinking, based on the question "how often, in the past four weeks, have you drunk five or more alcoholic drinks within a four hour session?" (Ameratunga et al., 2011). This report specifically asked about drinking in a four hour session to highlight the prevalence of 'binge drinking' behaviours. However, compared to the Ministry of Health survey (Ministry of Health, 2009), no difference in risky drinking behaviour between young males and females was determined (based on the question "how often a week and/or month do you drink a large amount of alcohol?"). A 'large amount' was defined as consuming more than six standard drinks for men or four for women on one drinking occasion).

Of note is the finding from the ALAC report (ALAC, 2011) that six times as many drinkers who engaged in risky drinking in the 12-17 year age group planned to get drunk compared with those who drank moderately. The extent to which premeditative drinking is prevalent in New Zealand minors is not fully understood (such as whether, or how, they manage their intoxication), and warrants further investigation. So too does the development of harm-minimisation interventions around this behaviour for this particular age-group. There are key questions around why this behaviour has developed, and how it is linked to their current and future health and well-being.

New Zealand university students aged 18-21 years have also been shown to engage in premeditative drinking and employ strategies to both achieve and maintain a desired level of intoxication, referred to as 'controlled intoxication' (McEwan, Swain & Campbell, 2011). Another premeditative drinking behaviour particularly pertinent to women (but also seen in men) is known colloquially as 'drunkorexia'. Drunkorexia is when women restrict their calorie intake prior to drinking in order to minimise weight-gain from alcoholic beverages, a behaviour which also frequently results in that person getting drunk quickly (Chambers, 2008). Although this drinking behaviour is discussed in the media, there is no authoritative evidence about it in the New Zealand literature. An estimate of risky drinking in university students places its prevalence at 68 percent (based on 2,548 students and (4+) on the Alcohol Use Disorders Identification Test

(AUDIT) consumption subscale) (Kypri et al., 2009b). Of note, Kypri et al. (2005) estimated that university students' AUDIT scores were, on average, 50–60% higher than those of their peers. It is not currently known whether university students' risky drinking behaviour forms a life-long drinking pattern, or whether it is a phase which ends with graduation. However, studies have shown that engaging in risky drinking in university is a behaviour that typically started in high school or earlier (Connor, Gray & Kypri, 2010; Kypri et al., 2009b). Kypri and colleagues have conducted a considerable body of research around alcohol consumption by university students (including interventions) in a New Zealand context, and this has been outlined in Table 2f: University students. Given that this population is likely to be employed in well-paid positions, and subsequently may have more financial resources at their disposal, knowledge of the changes to their drinking behaviour post-graduation would be of great interest. Of note, little is known about the behaviours of drinkers of comparable ages who are not at university, except in relation to alcohol-related harm, which is discussed in the following sections.

Evidence suggests that engagement in risky drinking is linked to other risky health behaviours and choices. For example, smoking has frequently been linked to elevated levels of engagement in risky drinking in New Zealand populations, particularly for younger men (Adam et al., 2011; Wilson, Weerasekera, Kahler, Borland, & Edwards, 2012). For women, evidence indicates that a 'liberalised' drinking approach may affect their drinking choices while pregnant, as those women who drank more than two standard drinks of alcohol on a typical occasion and/or who engaged in risky drinking were more likely to be of the opinion that 'more than one standard drink' of alcohol is safe on a typical drinking day during pregnancy (Parackal, Parackal, Harraway, & Ferguson, 2009). The opposite opinions were more often expressed by Pacific women and those who did not drink (Parackal et al., 2009).

The association between engaging in risky drinking in adolescence and adult health and social outcomes has been indicated in international research (Chassin, Pitts, & Prost, 2002; Kuntsche, Rehm, & Gmel, 2004), particularly in terms of how risky drinking can be associated with engagement in other substance misuse (Adam et al., 2011; Bonomo, Bowes, Coffey, Carlin, & Patton, 2004; Chassin et al., 2002; Tucker, Orlando, & Ellickson, 2003). A study from the UK has examined this link in more detail for a variety of health and social outcomes (Viner & Taylor, 2007). The findings from this (longitudinal) birth cohort are based on approximately 11,000 participants and indicated a strong relationship between adolescent engagement in risky drinking and significant later adversity and social exclusion, such as homelessness and lower adult socio-economic position (Viner & Taylor, 2007). This study also found that regular engagement in risky drinking in adolescents (two or more episodes of drinking four or more drinks in a row in the previous two weeks) predicted an increased risk of adult alcohol dependence, excessive regular consumption, illicit drug use, psychiatric morbidity, homelessness, convictions, school exclusion, lack of qualifications, accidents and lower adult socio-economic position. Regular alcohol consumption (as opposed to regular risky drinking) was also shown to increase the risk of problematic drinking and illicit drug use in adulthood, but conversely also increased adult socio-economic outcomes. Studies to further examine how alcohol use contributes to the development of health and social inequalities from adolescence to adulthood are warranted in New Zealand.

The results from the ALAC 2009/10 annual survey have shown that beer and ready-to-drink alcoholic drinks (RTDs) are the 'drinks of choice' for 12-17 year olds in New Zealand, although a move towards drinking spirits was also observed as nearly half of the respondents indicated that they had drunk spirits the last time they drank (ALAC, 2011). A Ministry of Health report on alcohol use also shows an age preference for RTDs, where young people aged 16 and 17 years old were significantly more likely to have consumed RTDs in the past year compared with all past-year drinkers aged 18-64 years (Ministry of Health, 2009). Of note is that RTDs were shown to be the preferred drink for those engaging in risky drinking (51 percent), compared to beer (47 percent) for the moderate drinkers (ALAC, 2011). The ALAC 2009/10 data did not include a breakdown of the type of drink preference for the 18-24 year age group as they were included as adults (18+ year olds). The 18+ year olds engaging in risky drinking were shown to prefer beer (41 percent) and spirits (32 percent) more than RTDs and wine. In comparison, moderate drinkers were shown to favour wine most (50 percent), followed by beer (33 percent). These findings demonstrate a clear difference in beverage preference and drinking behaviour between age groups (noting that 18-24 year olds are classed in a larger population), which may be linked to the speed at which intoxication is reached (for example, 'I drink to get drunk'). A study from the international literature has identified that reasons for drinking are potential explanatory factors for the association between beverage preference and alcohol use, and this is particularly marked for the consumption of beer and spirits (Kuntsche, Knibbe, Gmel, & Engels, 2006). A better understanding of the motivation behind drink choices, particularly for young New Zealanders, would require further in-depth investigation.

A study which has looked further at the pattern of RTD consumption in young people has shown that being an RTD consumer predicted both higher typical occasion quantities for respondents aged 14-17, 18-24 and 25+ years, and heavier drinking for those aged 14-17 and 18-24 years, particularly for females and those aged 14-17 (Huckle, Sweetsur, Moyes, & Casswell, 2008b). Similar to the ALAC 2009/10 findings, age and beverage preference were linked with different drinking behaviours, both a higher quantity per occasion as well as the frequency of alcohol consumption (Huckle et al., 2008b).

Young people appear to engage in risky drinking with their friends (84 percent) and family (52 percent) (Ameratunga et al., 2011), and mostly at someone else's home (61 percent) (Ministry of Health, 2009) or at their own home (50 percent) (ALAC, 2011). Very few young people report engaging in risky drinking at sports clubs or bars (Ministry of Health, 2009).

### **Summary points – how young people drink**

- Evidence has consistently indicated that young people (12-24 years of age) drink alcohol, and many think that it is okay to do so.
- Approximately half of those young people who drink will engage in risky drinking.
- Drinking to get drunk appears to be a premeditative behaviour, and is something that is not well understood for young New Zealanders and warrants further investigation.
- New Zealand university students are a population that regularly engage in risky drinking. The extent to which this behaviour is taken into adulthood is not known.
- From overseas research, engaging in risky drinking is associated with poor adult social position outcomes. This also warrants further investigation for New Zealanders.

- Young people drink different alcoholic drinks depending on drinking behaviour (classified in a number of different ways, depending on measures such as the frequency and typical quantity consumed), and age, and to some extent on gender (although this requires further investigation).

## WHY ARE YOUNG PEOPLE DRINKING

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### Why engage in drinking?

Young people appear to drink for a variety of different reasons – from having fun, to fitting in, to forgetting about things. In some publications the term ‘motive’ is used to describe why young people drink, particularly when discussing a more emotively-based choice (e.g. drinking to cope). For the purpose of this review, the term ‘reason’ will be used to incorporate both the emotive and practical choices for drinking (Kuntsche, Knibbe, Gmel, & Engels, 2005).

Various similar reasons as to why young people drink recur in a number of sources (Ameratunga et al., 2011; Kuntsche et al., 2005; Ministry of Health, 2009). These reasons can be summarised from the results of the Youth’07 survey (Ameratunga et al., 2011), a nationwide secondary school survey of 9,107 students. In this survey, students who were current drinkers could indicate as many responses (out of nine) as they wished. The most common reasons why young people drink are:

- To have fun (77 percent).
- To enjoy parties (56 percent).
- To get drunk (41 percent).
- To relax (37 percent).

Smaller proportions report reasons such as:

- To make me feel more confident (22 percent).
- To forget about things (22 percent).
- Because I’m bored (21 percent).
- Because my friends do (21 percent).

For some young people, reasons for drinking convey a complex and unhappy picture of their health and well-being. If a young person is drinking to forget about things, feeling the need for alcohol to relax, or make them feel more confident, this implies that there may be much deeper issues affecting their drinking choices. Drinking alcohol may occur as a result of mental health problems (Backer-Fulghum, Patock-Peckham, King, Roufa, & Hagen, 2012; Boden & Fergusson, 2011). In a European study, young people who indicated depression as a reason to start drinking were three times more likely to engage in risky drinking (more than five drinks on one occasion) than those who stated non-coping reasons e.g. to have fun (Kuntsche & Muller, 2012).

The results from the Youth’07 report also highlight the influence of peer pressure as a reason for drinking (Ameratunga et al., 2011). The role of peer pressure has been documented elsewhere, including Australia (Kelly et al., 2012a; Kelly et al., 2012b), where the importance of family-school connectivity has also been shown to be a mitigating factor for alcohol use. One often-cited reason that young people succumb to peer pressure is the requirement to give credible justifications (and often multiple reasons) for why they are not drinking (such as driving, feeling ill, or the occasion

on a religious or cultural holiday) in order to retain their status amongst peers (Borlagdan et al., 2010; Fry, 2011). Although it remains to be determined, there may be a link between the advertising of alcohol and peer pressured drinking, given that alcohol advertising has been implicated in the earlier onset of drinking and in increasing drinking if they already use alcohol (Anderson, de Bruijn, Angus, Gordon, & Hastings, 2009).

An area which has also received much attention is the normalising of drinking behaviours. That is, if young people are in an environment where alcohol is consumed regularly, and/or at risky levels, this becomes that young person's social norm. In addition, young people (under 18 years) who have a variety of options to obtain alcohol may regard drinking while under the legal purchase age as socially acceptable and normal (Kuntsche, Kuendig, & Gmel, 2008). In this instance, prevention measures need to take into account individuals' social environments as well as their access to alcohol, both in the community and at home (Connor, Kypri, Bell, & Cousins, 2011b; Kuntsche et al., 2008), and also to incorporate the influence that family connectivity has on mitigating alcohol-associated harm (Calabria, Clifford, Shakeshaft, & Doran, 2012; Hemovich, Lac, & Crano, 2011; Kelly et al., 2011b; Teevale et al., 2012).

For older youth (18-24 years of age), additional reasons for drinking appear to come into play, particularly that alcohol is used as a coping strategy (DeMartini, & Carey, 2011; Goldstein, & Flett, 2009; LaBrie, Ehret, Hummer, & Prenovost, 2012; Merrill & Read, 2010). Most of the research on this subject has been carried out in the US and Canada, and it would be of interest to explore this aspect further in a New Zealand setting.

### **Why engage in risky drinking?**

Why do young people engage in risky drinking? There is no straightforward answer. Based on a previous review of the international literature covering a 15-year period (from 1989) in 10 to 25 year olds, reasons for drinking appear to be related to how the young person is drinking – where social reasons (e.g. enjoy a party) appear to be associated with moderate alcohol use, premeditative drinking (e.g. to get drunk) with risky drinking, and coping motives (e.g. reduce stress) with alcohol-related problems (Kuntsche et al., 2005).

Engagement in risky drinking is associated with several risk factors, all of which have a dynamic influence on the drinking patterns and behaviours of young people. In summarising current opinion, Tomcikova, Geckova, van Dijk, & Reijneveld (2011) have categorised the risk factors associated with engagement in risky drinking into three groups:

1. Factors related to and social background of the adolescent, within which structural characteristics (e.g. structure of family), and psychosocial characteristics (e.g. social support), are distinguished.
2. Individual personality factors.
3. Factors proximal to behaviour, such as immediate intentions, reasons or expectations related to alcohol drinking, but also one's immediate condition (e.g. well-being).

At present, the picture of why New Zealand young people (12-24 years) engage in risky drinking, in relation to the risk factors mentioned above, is incomplete. Having a better understanding of the reasons for drinking in New Zealand young people will facilitate the development of more effective

interventions.

Early identification and intervention for young people who engage in risky drinking may also be useful for identifying individuals likely to experience a variety of problem behaviours (Kuntsche, Knibbe, Engels, & Gmel, 2007).

### **Summary points – why young people drink**

- Reasons for drinking may be linked to how young people drink, drinking frequency and quantity drunk per occasion.
- Young people drink for a variety of reasons, the most common are to have fun, to enjoy parties, and to get drunk.
- For some young people, reasons for drinking imply a more complex picture. Their reasons include drinking to forget about things, feel more confident and to relax.
- Peer pressure plays a significant role in young people's drinking.
- For some older youth, drinking has been cited as a means to cope with stress.

## WHAT ARE THE FACTORS THAT INFLUENCE DRINKING IN YOUNG PEOPLE

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Understanding the many factors that influence drinking in young people and how they affect the developmental patterns of alcohol consumption will help to inform more effective interventions and social policies aimed primarily at those who need them most (Sellman, Conner, & Robinson, 2012). The current research has arisen from recognition by ALAC/HPA of the need for a better understanding.

### **Parents, family environment and alcohol consumption**

Through their own drinking behaviour and attitudes towards drinking, parents can impact on the drinking behaviours of their children. Evidence from both New Zealand and overseas research has repeatedly shown that some minors obtain their alcohol from their parents (ALAC, 2011; Ameratunga et al., 2011; Gilligan, Kypri, Johnson, Lynagh, & Love, 2012a), and that parental supply of alcohol places young people at risk of engaging in risky drinking (Dietze, & Livingston, 2010; Gilligan et al., 2012a; Komro, Maldonado-Molina, Tobler, Bonds, & Muller, 2007). Just over half of the students in the Youth'07 survey reported getting alcohol from their parents (54 percent, n=9,567) and, for females, the proportion who reported getting alcohol from parents increased significantly from 52 percent in 2001 to 55 percent in 2007 (Ameratunga et al., 2011). Evidence from the longitudinal Dunedin Multidisciplinary Health and Development (birth cohort) study also suggests that a higher frequency of maternal drinking places young people at higher predicted risk for engagement in risky drinking (Casswell, Pledger, & Pratap, 2002). This is not to say that parents are intentionally placing their children at risk, but recently there has been a call for more research on the subject, including on the education-based interventions for parents as a means of harm minimisation (Gilligan, Kypri, & Lubman, 2012b; Ryan et al., 2011).

For young people the family environment covers a range of contexts: family structure (including influence of siblings) and cohesiveness, parental behaviours, culture and parenting styles. The family environment is known to influence the risk behaviours of young people. A dual-parent family appears to mitigate risky behaviour in young people, and those from divorced families appear to be at higher risk of engagement in risky drinking (Hemovich, & Crano, 2009; Hemovich et al., 2011).

There is cross-sectional evidence that shows family relationship quality is more closely related to girls' alcohol use than boys' (Choquet, Hassler, Morin, Falissard, & Chau, 2008; Kelly et al., 2011a). Parental disapproval and monitoring also play a significant role in mediating alcohol harm, particularly for Pacific youth (Teevale et al., 2012). A recent systematic review of family-based interventions for the reduction of alcohol-related harm has shown that, although the data to support their effectiveness is limited, this approach does lead to improved outcomes (Calabria et al., 2012). The authors conclude that tailored family-based interventions may be effective for the reduction of alcohol-related harm in indigenous communities, given the importance of family for these study participants from North America. Family-based intervention may also prove effective in New Zealand.

Studies based in New Zealand have shown that living arrangements may play a role in gender differences observed in the frequency of alcohol consumption. In one study females living at home at age 18 drank more frequently through early adulthood than those living away from home (Casswell et al., 2002), but no effect of living arrangements on males' consumption was observed/predicted. More recently evidence indicates that, particularly for New Zealand women (18-30 years), transition into custodial parenthood may result in reduced risks of alcohol abuse/dependence (Fergusson, Boden, & Horwood, 2012).

## **Education and alcohol consumption**

Education (i.e. the level to which an individual is educated) has also been shown to be linked to drinking behaviour (Casswell, Pledger, & Hooper, 2003; Casswell et al., 2002), knowledge of drinking advice (Bowring et al., 2012) and alcohol-related harm and social inequalities (Grittner, Kuntsche, Graham, & Bloomfield, 2012)<sup>2</sup>.

Studies based in New Zealand have indicated that having a low level of formal education is an important factor in predicting future drinking behaviours, such as higher quantities consumed per occasion, than are higher levels of formal education (Casswell et al., 2003; Casswell et al., 2002). In addition, low formal educational achievement is associated with unfavourable adult social position outcomes and socio-economic position, which in turn has been shown to be linked to increased alcohol-associated harm (Grittner et al., 2012).

A Casswell et al. (2003) analysis of 969 individuals interviewed at ages 18, 21 and 26 years (1990-1999) from the longitudinal Dunedin Multidisciplinary Health and Development birth cohort study illustrated that the quantity of drinking per occasion was most influenced by educational achievement. Less well-educated young adults, both male and female, drank significantly more during a drinking occasion at all ages than those with a school qualification or higher (Casswell et al., 2003). In a prior analysis of the same study, Casswell et al. (2002) also observed that both men and women who had achieved no schooling above Year 11 (approximately 16 to 17 years of age) were more likely to be in trajectory groups with heavier typical quantities of alcohol consumption per occasion.

A deviation from this association between a lack of education and consuming higher quantities of alcohol per occasion can be observed in young adults who are at university. The alcohol-associated harm within this population is discussed later in this review.

## **Socio-economic status, deprivation factors and alcohol consumption**

It is generally understood that socio-economically disadvantaged groups experience patterns of risky drinking and have a consistently high prevalence of drinking (Plant, 2008) and associated health problems and consequences (Farmer, & Hanratty, 2012; Grittner, et al., 2012; Huckle, You, & Casswell, 2010). However, the relationship between socio-economic status (SES) and drinking is not always clear, and frequently varies by age, gender and country, and findings also vary by measures used (Ameratunga et al., 2011; Heron et al., 2012; Huckle et al., 2010; Jatrana, Carter, McKenzie, & Wilson, 2011; Marie, Fergusson, & Boden, 2012; Richter, Leppin, &

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<sup>2</sup> Education is frequently taken as an indirect measure of socio-economic position (SEP). For young people, it would most likely be measured against the education of their parents or main caregivers. The underlying assumption of using education as an indicator of SEP is that someone with access to financial resources is more likely to have completed school and further education.

Gabhainn, 2006; Tomcikova et al., 2011; Viner, & Taylor, 2007).

In New Zealand a handful of studies have examined the relationship between SES and alcohol consumption and, as with findings from overseas, the results are not always clear, though some socioeconomic variables appear to play a role in drinking patterns. These variables, including education, occupation and income, have all been shown to directly affect drinking patterns, where lower SES groups have demonstrated heavier drinking quantities per occasion and higher SES groups have demonstrated higher drinking frequencies (Huckle et al., 2010). Other indicators of SES are area-level deprivation and individual level deprivation. Both of these indicators have been associated with frequency of risky drinking (Jatrana et al., 2011), and density of alcohol outlets (ALAC, 2012b). Findings from the Youth'07 report indicated that young people from low deprivation areas drink on a regular basis, whereas those from high deprivation areas drink less frequently but, when they do drink, it is likely to be risky drinking and with more likelihood of alcohol-associated harm (Ameratunga et al., 2011).

In looking at some of these studies in more detail, the Jatrana et al (2011) study on risky drinking (described in this study as 'binge drinking') and demographic and socio-economic position in New Zealand, using a large sample (N=19,255) of cross-sectional SoFIE-Health data on adults aged 15 years or older (at Wave 3), shows that the patterns for both area-level and individual level deprivation and alcohol consumption were generally mixed. Using the New Zealand-based measures of deprivation for area (NZDep) and individual deprivation (NZiDep), the results did indicate that there was a distinct gradient of increased daily engagement in risky drinking frequency with increasing area deprivation; with a similar pattern noted for individual-level deprivation. Of note is that engagement in risky drinking was most frequent in the 15–24 year age group.

The Casswell et al (2003) analysis of 969 individuals from the longitudinal Dunedin Multidisciplinary Health and Development study, illustrated that the frequency of drinking was shown to be influenced by annual income, with the higher income respondents drinking more often. This trend was persistent over time. Similar findings are reflected overseas (e.g. Tomcikova et al., 2011).

In the Youth'07 report, the relationship between deprivation factors and alcohol consumption was assessed, using a modified NZ Deprivation measure (classifying those areas with the lowest level of deprivation as 1 and those with the highest level of deprivation as 10) (Ameratunga et al., 2011). The results from the study indicated that higher proportions of students in low deprivation neighbourhoods were current drinkers compared with those in higher deprivation neighbourhoods (low, 63 percent; medium, 61 percent; high, 56 percent) (Ameratunga et al., 2011). However, as the authors pointed out, when the students from areas of high deprivation did drink, they were more likely to engage in risky drinking than those from areas of low deprivation (25 percent of students from areas of high deprivation usually drank 10 or more drinks per session compared to 13 percent of those from areas of low deprivation) (Ameratunga et al., 2011).

The results from the Youth'07 report also indicated that more students from high deprivation neighbourhoods, and more Māori and Pacific students, reported that they worried about how much they drank and had tried to cut down or give up drinking alcohol (Ameratunga et al., 2011).

A finding which is also noteworthy, is that students from areas of high deprivation were more likely to usually drink with other people (ie other than family or friends) and/or more likely to drink alone (high deprivation, 10 percent; medium, 7 percent; low, 5 percent).

It appears that the relationship between drinking, and certain patterns of drinking, with deprivation factors and socio-economic position varies in complex ways (Ameratunga et al., 2011; Heron et al., 2012; Huckle et al., 2010; Jatrana et al., 2011; Tomcikova et al., 2011). The emerging picture appears to be one where young people from low area-level deprivation drink often, whereas those from high area-level deprivation drink less frequently but, when they do drink, it is likely to be risky and result in more alcohol-associated harm. In terms of gender differences and socio-economic position, lower/average SES female groups have been shown to be more at risk for consuming larger typical-occasion quantities compared to other higher SES groups in the population (as they had sustained increases in the quantities they consumed over the study period where other SES groups did not; Huckle et al. 2010). Further research to unequivocally determine the relationship between SES and alcohol consumption is warranted.

### **Summary points – factors that influence drinking in young people**

- Parental supply of alcohol is a risk factor for young people to engage in risky drinking.
- Family connectivity, and parental disapproval of drinking, appear to mitigate the risk for alcohol misuse.
- Overall, low educational achievement is a risk factor for engaging in risky drinking, although a deviation from this can be seen in the drinking behaviours of some university students.
- Socio-economic factors can play a role in risky drinking behaviours, although the relationship is not always clear.

## WHAT IS THE BURDEN OF ALCOHOL FOR YOUNG PEOPLE

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### Alcohol burden

Alcohol has been described as the most commonly used (and misused) recreational drug in New Zealand (Ministry of Health, 2007), and many other countries (Adam et al., 2011; Baumberg, 2006; Navarro, Doran, & Shakeshaft, 2011; Rehm, 2011; Shield, Gmel, Patra, & Rehm, 2012). According to a World Health Organization (WHO) report, an estimated 2.5 million people worldwide died of alcohol-related causes in 2004, including 320,000 young people between 15 and 29 years of age (World Health Organization [WHO], 2010). For the year 2000, it was estimated that, for New Zealanders aged between 15 and 65 years, 1,037 deaths were caused by alcohol (Connor, Broad, Rehm, Hoorn, & Jackson, 2005). The burden of death, disability and disease attributed to alcohol was significantly high for men and for Māori (Connor et al., 2005). This may be due, in part, to the relatively youthful structure of these populations (Connor et al., 2005). It has been estimated that, if there was a reduction of about six standard drinks per week on average across all drinkers in the population, there would be a positive impact on alcohol-related harm in New Zealand (Sellman, Connor, & Robinson, 2012).

Alcohol is a modifiable risk factor for many groups of health problems including cancer, cardiovascular diseases, gastrointestinal diseases, depression, panic disorder and suicidal behaviour (Boden, & Fergusson, 2011; Foulds, Wells, Lacey, Adamson, & Mulder, 2012; George, Nutt, Dwyer, & Linnoila, 1990; Rehm, 2011; Sher, 2006). In the UK, cirrhosis of the liver in young people is becoming more prevalent due to persistent risky drinking from an early age (Heron et al., 2012). Whether this trend will be reflected in New Zealand remains to be seen.

Alcohol contributes to road death and injury, drowning, assaults and domestic violence, other non-traffic-related mortality and morbidity, and some mental health disorders and sexual health problems (ALAC, 2012a; Rehm, 2011; WHO, 2010). Alcohol has also been associated with suicide attempts in young New Zealanders between 15 and 24 years of age. A study reviewing past 12-month emergency department admissions records for European youth aged 15 to 24 years found alcohol was present for 29 percent of 212 admissions (Bennett, Coggan, Hooper, Lovell, & Adams, 2002). High levels of alcohol during pregnancy can lead to birth defects in infants, including foetal alcohol syndrome (Morbidity and Mortality Weekly Report, 2012). Some of the alcohol-related harm is associated with age. For example, in New Zealand, the risk of having an alcohol-related driving incident at all BAC (blood alcohol concentration) levels are higher for drivers under 20 years of age (ALAC, 2012a). Whether this is true of other alcohol-associated harm (e.g. suicide attempts) remains to be determined.

A significant finding from the Youth'07 report was the association between the level of area deprivation and alcohol-related harm. In particular, young people who lived in areas of higher deprivation were twice as likely to report having unwanted sex (after drinking) (low deprivation, 5 percent; medium deprivation, 7 percent; high deprivation, 10 percent), and twice as likely to report injuring someone else (low deprivation, 6 percent; medium deprivation, 8 percent; high deprivation, 13 percent) (Ameratunga et al, 2011). It is plausible to hypothesise that these alcohol-related harms are likely to have a negative impact on young people's transition to adulthood by contributing to adversity and social exclusion (Viner, & Taylor, 2007).

On a positive note (albeit a cautious one) – young people living in areas of high deprivation were twice as likely to have stopped drinking or tried to cut down (low deprivation, 8 percent; medium deprivation, 12 percent; high deprivation, 20 percent) and were twice as likely to be worried about their drinking (low deprivation, 8 percent; medium deprivation, 9 percent; high deprivation, 18 percent). However, whether attempts to stop or reduce drinking are successful in the long term remains to be determined, especially given that, for some young people, accessing support services was reported as being difficult (Ameratunga et al, 2011).

Drinking is linked to depression, although any causal relationship is not clear (Boden, & Fergusson, 2011). This association cannot be ignored when discussing alcohol-related harm in young people. Evidence has shown that young people who indicate depression as a reason for starting to drink are three times more likely to engage in risky drinking (Kuntsche, & Muller, 2012). Major depression is a risk factor for suicide, and New Zealand is ranked second highest out of 27 developed countries (after the US) for youth suicide rates (Patton et al., 2012). More research is needed into the reasons why young people drink, and why some engage in risky drinking (and in other risky behaviours e.g. illicit drug use), and more exploration is needed into approaches that may mitigate poor health outcomes (e.g. tailored family-based outcomes, improved access to support services, and positive youth development programmes) (Viner et al., 2012).

Media reports often glamourise the risky drinking practices of university students in New Zealand. However, less well covered in the media are the alcohol related-harms that can occur with risky drinking. A study of New Zealand university students describes how many students experienced blackouts, had unprotected sex and were sometimes physically aggressive towards someone (Kypri et al., 2009b). Connor et al. (2010) highlights how unsafe, unhappy and unwanted sexual experiences were commonly attributed to alcohol use at university. In another study students regarded alcohol-related harm and consequences (such as vomiting, missing an academic class, physically hurting themselves and passing out) as “an expected and acceptable cost of their excessive drinking behaviour” (McEwan et al., 2011). And, as the author pointed out, this raises issues for effective intervention and harm-minimising strategies for this population.

Alcohol-related harm in older youth (18-24 years) not in tertiary education is not as well reported, except when violence has occurred (ALAC, 2012a; Boden, Fergusson, & Horwood, 2012; Connor, Kypri, Bell, & Cousins, 2011a). It has been suggested that more than 62,000 physical assaults and 10,000 sexual assaults occur every year that involve a perpetrator who has been drinking, and that 10,500 of these incidents require medical attention (Connor, & Casswell, 2009). A recent report has described the impact of alcohol-related harm on other people (i.e. not the consumer) as being “substantial but not well described” (Connor, & Casswell, 2012, p.11), and the authors go on to describe how the “harm from others’ drinking has had little research attention in New Zealand and there are several important areas where there is no accessible research or administrative data” (Connor, & Casswell, 2012, p.23), including from the police records. In this report the authors also highlighted that one of the most under-researched areas was the harm other people’s drinking had on children, where the impact of others’ drinking could have serious long-term consequences (Connor, & Casswell, 2012).

## Potential approaches to minimise alcohol-related harm

Throughout this review, we have highlighted possible areas where harm minimisation interventions may be complex (e.g. university students) or where they may be effective (e.g. tailored family-based intervention). This section will discuss potential interventions that have not previously been mentioned.

In terms of reducing alcohol-related harm, limiting access to alcohol, including increasing purchasing age and price, has been recommended by some New Zealand researchers as the most effective population-based approach to minimising alcohol-related harm (Sellman, Connor, & Joyce, 2010; Sellman et al., 2012; Wilson et al., 2012). Reducing the amount of alcohol (i.e. maximum allowable alcohol content) in a standard drink has also been proffered as an approach (Stephenson, 2011). However, its effectiveness as a control measure may be limited as findings suggest that, if the percentage of alcohol content was decreased, more alcohol would be purchased and vice versa (Stephenson, 2011). Although these findings were from a study of New Zealand tertiary students set in a hypothetical context, it does highlight the complicated challenge for reducing alcohol-related harm by regulatory means.

In a randomised controlled (double-blind, multi-site) study, the e-SBI (a Web-based alcohol screening and brief intervention approach) for Māori university students was shown to reduce hazardous and harmful drinking among non-help-seeking Māori students (Kypri et al., 2012). The e-SBI approach was supported by ALAC (now HPA) which has now entered into an agreement with all eight New Zealand universities to roll out the intervention on an on-going basis (pers. comm. HPA<sup>2</sup>). Additional supportive information, in particular by Kypri and colleagues, on the development and rationale for using a Web-based approach for New Zealand university students is outlined in Table 2f: University students (Appendix 2).

In New Zealand primary care, attention is turning to a screening approach that has the potential to encompass alcohol morbidity more broadly, by looking at those individuals with harmful or hazardous drinking patterns (HHD) (Foulds et al., 2012). Harmful drinking is defined as a pattern of consumption that results in physical or psychosocial harm, while hazardous drinking is a pattern that places individuals at risk of adverse health outcomes (Foulds et al., 2012). In a study using the 2006/07 New Zealand Health Survey sample (n=12,488), the incidence of HHD was 18 percent, with the highest prevalence (53.6 percent) in men 18-24 years of age.

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<sup>2</sup> In 2009 ALAC (now HPA) contracted Otago University to run a national trial of electronic-screening and brief intervention (e-SBI) with first-year university students in seven NZ universities. This project built on an earlier trial e-SBI university project at Otago that was based in the student health service. The 2009 trial stood alone from the student health service, with first-year students invited to participate via email. The researchers enlisted high numbers of Māori students (invited all first-year Maori students to participate) and ran two parallel studies (one with Māori and one with non-Māori) to ascertain how effective this approach was for Māori. The findings have been very promising, and the intervention is over twice as effective for Māori as non-Māori (23 percent vs 9 percent, respectively).

As a result of this RCT, an MOU was entered into with all eight NZ universities to roll out the intervention on an on-going basis. HPA hosts the e-SBI tool and universities direct students to it via email (as per the trial) on at least a yearly basis. While e-SBI has a lesser effect in reducing hazardous drinking than SBI in primary care, it still has a significant impact and, as it is sent via email, it has a very wide reach to those who may not be accessing health services.

However, less than 10 percent of people identified with HHD had talked to their primary care provider about their alcohol use in the past year (Foulds et al., 2012). Screening for HHD in primary care has its merits for facilitating intervention measures but, as the authors suggest, more needs to be done to improve detection in this setting (Foulds et al., 2012). Treating HHD is not easy. An emerging picture for management and treatment of alcohol abuse/dependence is one requiring multi-level interventions from a public health perspective, as discussed in preceding sections (e.g. reducing the legal BAC for driving and the physical availability of alcohol), down to the individual, and extending to their social and family environment.

### **Summary points – burden of alcohol misuse and alcohol-related harm**

- Alcohol is a widely-used drug in New Zealand.
- The burden of alcohol-related harm lies across many populations, and is significantly high for men and Māori.
- For young people, alcohol contributes to road deaths, road injuries, assaults, and adverse mental health outcomes.
- Many university students engage in risky drinking, and appear to be generally tolerant of the alcohol related consequences, which may raise difficulties for effective interventions and approaches.
- Young people between the ages of 13 and 17 have reported higher levels of alcohol-related harm (e.g. unwanted sex and violence) in areas of high deprivation compared to those living in areas of low deprivation.
- A screening approach that has the potential to encompass alcohol morbidity more broadly, by looking at those individuals with harmful or hazardous drinking patterns, may have merits for early intervention.

# WHAT IS THE CURRENT DRINKING ADVICE FOR YOUNG PEOPLE

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## Drinking advice

At the time of this review, in New Zealand it is legal for anyone 18 years and over to purchase alcohol. This does not equate to a 'drinking age'.

HPA's low-risk alcohol drinking advice for adults (including young adults aged 18-24 years) is that, to reduce their long-term health risks:

- Women should drink no more than two standard drinks a day and no more than 10 standard drinks a week, and have at least two alcohol-free days every week.
- Men should drink no more than three standard drinks a day and no more than 15 standard drinks a week, and have at least two alcohol-free days every week.

To reduce their risk of injury on a single occasion of drinking, women should drink no more than four and men no more than five standard drinks on any single occasion. Pregnant women, or those planning to get pregnant, should not drink any alcohol as there is no safe level of alcohol use at any stage of pregnancy.

The low-risk alcohol advice for young people under 18 years is that not drinking alcohol is the safest option. Those under 15 years of age are at the greatest risk of harm from drinking alcohol and not drinking in this age group is especially important. For young people aged 15 to 17 years, the safest option is to delay drinking for as long as possible.

In terms of young people's awareness of drinking advice, an Australian study has illustrated that this was generally low but there was an understanding around what was a 'safe' number to drink to avoid long-term harm and injury. However, as many researchers report, knowing about the risks does not always change behaviour (Bowring et al., 2012; Casswell, 2012). It has, therefore, been proposed by some New Zealand researchers that it may be more beneficial to use drinking guidelines in a clinical setting as part of a brief assessment and intervention session (Sellman et al., 2012), rather than as the current population-based public health approach (Casswell, 2012).

The Health Promotion Agency (HPA) promotes a drinking culture change, which includes a focus on youth, Māori and Pacific peoples (ALAC, 2009a; ALAC, 2009b; ALAC, 2009c) and which is in accordance with international evidence-based approaches (Imlach Gunasekara, Wilson, & Edwards, 2010; Sellman et al., 2012).

## Summary point – drinking advice and young people

- Many young people know about drinking advice, but still engage in risky drinking.

## DRINKING AND MĀORI AND PACIFIC YOUNG PEOPLE

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### Drinking patterns and burden of harm

There is limited information available regarding drinking patterns of young Māori and Pacific New Zealanders. However where studies have included Māori and Pacific participants, evidence indicates that a significant burden of alcohol-related harm lies within these populations (Connor et al., 2005). This may be due to the relatively youthful structure of these populations (Connor et al., 2005). Māori and Pacific young people appear to drink greater amounts of alcohol on one occasion (risky drinking) and, based on self-reported measures, they indicate experiencing more alcohol-related harm than their NZ European and Asian counterparts (Ameratunga et al., 2011). Recently it has been shown that participants identifying as Māori had modestly higher rates of alcohol abuse/dependence (AAD) than non-Māori (Marie et al., 2012). The higher rates of alcohol use and AAD in Māori could not be explained by socio-economic or environmental factors (Marie et al., 2012).

One of the most comprehensive studies examining differential alcohol consumption by young New Zealanders' (self-identified) ethnicity is the Youth'07 report (Ameratunga et al., 2011). Other research looking at different ethnic populations of New Zealand (Ministry of Health, 2009; Ministry of Social Development, 2010; Pacific Research & Development Services, & Centre for Social and Health Outcomes Research and Evaluation Massey University, 2004) and ALAC annual surveys (ALAC, 2005; ALAC, 2009; ALAC, 2011) all echo similar findings to the Youth'07 report. The findings from the Youth'07 report indicate that the differences frequently observed in the respective adult populations are similar in young people – that is, significant variation exists between ethnic groups in the amount of alcohol consumed (Ameratunga et al. 2011). In general, Asian students reported drinking less than other ethnic groups, with about a third (31 percent) of Asian current drinkers reporting that they had only one drink per session (compared to Māori 8 percent, Pacific 12 percent, NZ European 18 percent, and Other 23 percent; Ameratunga et al., 2011).

The Youth'07 report highlighted a high incidence of alcohol-related harm among Māori young adults. Many Māori students reported injury after drinking alcohol (27 percent) and a large number (34 percent) reported that they had been a passenger in a car with a driver who had been drinking alcohol within the previous month (Ameratunga et al., 2011). Māori also reported that they worried about how much they drank, and had tried to cut down or give up drinking alcohol, but that they also experienced trouble accessing services for alcohol concerns (Ameratunga et al., 2011).

A recurring trend in several of the reports that have examined drinking in Pacific peoples is summarised by Huakau et al. (2005, p.1):

*The proportion of Pacific drinkers is less than the proportion of drinkers in the general New Zealand population. Forty-three percent of Pacific peoples abstained from drinking alcohol (during the previous year) compared to 15 percent of the general New Zealand population. However, Pacific drinkers consumed larger annual volumes of absolute alcohol and higher quantities of absolute alcohol (on a typical occasion) than general New Zealand population*

*drinkers.*

The authors went on to discuss the cultural context of their findings, describing how the lower proportion of drinkers among Pacific peoples and a low acceptability for alcohol in Pacific cultures may be a result of alcohol not existing in the Pacific Islands prior to first contact with Europeans (Huakau et al., 2005). Risk for Pacific people may come about when there are large volumes of alcohol available at social gatherings, as it is seen as generous to provide for guests and that for the guest it is customary to consume until they are full or finished (Huakau et al., 2005).

In the ALAC 2009/2010 Survey, both young people (12-17 years old) and adult Pacific people were the least likely to drink, and demonstrated a much lower likelihood of engaging in risky drinking compared to Māori and New Zealand Europeans. An understanding of Pacific culture and its protective effect against drinking and alcohol-related harm is emerging. A sub-study of the Youth'07 report examined the demographic, cultural, home and neighbourhood environments of two types of Pacific drinkers (non- binge drinkers and binge drinkers, with binge drinkers being defined as those students who reported drinking 5 or more alcoholic drinks in one session at least once in the last four weeks), to develop risk and protective profiles for alcohol-related behaviours (Teevale et al., 2012). The study also included a detailed breakdown of Pacific ethnicities as Samoan, Cook Islands, Tongan, Niuean, Tokelauan, Fijian, or Other Pacific peoples. The findings demonstrated a “transnational nature of Pacific communities in New Zealand who bring and maintain traditional cultural practices which seem health protective” for their young members (Teevale et al., 2012).

### **Summary points – Māori and Pacific young people**

- Self-reported burden of alcohol-related harm is high for Māori.
- Pacific communities in New Zealand maintain traditional cultural practices which may be health protective for their young members.

## CONCLUSIONS

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This review has described key findings concerning alcohol and young people, particularly young New Zealanders.

The findings from this review highlight the complex relationship which exists between young people and alcohol. A young person's relationship with alcohol depends on their individual situation – e.g. their age, gender, living situation (family structure, family relationship, SES), and mental well-being.

However, there are some commonalities around young people's drinking behaviour.

Young people think that drinking is okay, and drinking alcohol is a common practice for many young New Zealanders (12-24 years). Risky drinking by young people, both male and female, is also common practice. Young males are more likely to drink more frequently, and drink more per session, than females. Some young people set out to get drunk (premeditative drinking behaviour). Most young drinkers appear to engage in risky drinking either at home or at someone else's house. Media coverage of the drinking behaviours of some university students is often skewed to portray a party image and overlooks the significant alcohol-related harm that many students report.

Evidence suggests that young people drink different alcoholic drinks depending on drinking behaviour and age. In parallel with this is evidence which suggests that the reasons why young people drink are linked to how they drink. For example, one may move from engaging in low-risk drinking to engaging in risky drinking when alcohol is used as a coping tool. The impact of young people's drinking, especially risky drinking, on their adult health and social outcomes is not well understood for New Zealand youth. The findings from this review would suggest that engagement in risky drinking could contribute to, and exacerbate, some existing health and social well-being inequalities in New Zealand.

Young people drink for a variety of reasons. On one level their reasons for drinking appear simple, for example: to have fun, but on another level they appear more complex, for example: to forget about things. For some older youth (18-24 years), alcohol is used as a coping strategy for academic and/or family stress and anxiety.

The burden of alcohol lies across many New Zealand communities, particularly for men and Māori.

Given that the nature of alcohol use in young people is complex, no one regulation or intervention is likely to be effective in minimising alcohol-related harm. Rather a host of different approaches are required.

## FUTURE RESEARCH DIRECTIONS

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Throughout this review we have indicated areas in which further research about drinking by young New Zealanders is needed. These areas are:

- Premeditative drinking. Drinking to get drunk appears to be a premeditative behaviour, and is something that is not well understood for young New Zealanders.
- Drinking reasons and alcohol use. There appears to be a link between the reasons why young people drink, and how young people drink (i.e. drinking behaviours – the frequency of drinking and volume of alcohol consumed). Exploring this relationship further would greatly facilitate intervention and policy development.
- Adult outcomes. There is little longitudinal evidence examining social position and health and well-being outcomes of adults who started drinking at risky levels in their adolescence.
- Mental health and well-being. The reasons behind some young people's drinking may be associated with their mental health, which could lead them to make risky choices, which in turn may affect their adult health outcomes. As such, there is a need for more research into the reasons and motivations for young people who engage in risky drinking (and other risky behaviours e.g. illicit drug use), and approaches to mitigate the potential poor adult health outcomes (e.g. tailored family-based outcomes, improved access to support services, positive youth development programmes).
- Risk factors associated with risky drinking. The reasons why young people engage in risky drinking are influenced by many factors (social, individual, intentions, expectations and well-being). This is a complex area that needs further investigation in a New Zealand context.
- Evaluation of support services and harm-minimisation initiatives. Findings from the Youth'07 report indicated that access to alcohol support services was difficult for some young people. This indicates that there may be a need to evaluate the accessibility of support services, as well as the harm-minimisation initiatives, that are presumed to be available to young people.
- Health impact of alcohol misuse. Alcohol misuse has been found to negatively impact several adult chronic health problems. In the UK, cirrhosis of the liver in young people is becoming more prevalent due to persistent risky drinking from an early age. Understanding the extent to which chronic health problems exist among young New Zealanders that drink would be helpful for devising interventions to minimise health inequalities.

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## APPENDIX

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Not all these reports have been discussed in the main body of the review. They have been included here as points of reference for further information around young people and drinking, and include reports on factors which may influence drinking, although young people may not have been the specific target population, e.g. ALAC's report on outlet density. All ALAC reports can be accessed through <http://www.alcohol.org.nz/research-resources/research-publications>.

**Table 1: List of selected key organisation reports that include young people and drinking**

Organisation	Year	Report
ALAC	2012	Alcohol-related injury: An evidence-based literature review
ALAC	2012	The Impacts of Liquor Outlets in Manukau City: Summary Report – Revised
ALAC	2011	Alcohol Monitor: Adults and youths 2009-10. Drinking behaviours report
ALAC	2009c	Youth action plan
ALAC	2009b	Pacific action plan
ALAC	2009a	Māori action plan
ALAC	2009	Pearls Unlimited: Pacific people and alcohol.
ALAC	2007	Youth'07: Young people and alcohol
ALAC	2006	The Pacific alcohol and drugs outcome project
ALAC	2005	The way we drink
ALAC	2004	Alcohol Use and Tertiary Students in Aotearoa – New Zealand
Ministry of Social Development	2010	The social report
World Health Organization	2010	Global strategy to reduce the harmful use of alcohol
Ministry of Health	2009	Alcohol Use in New Zealand: Key results of the 2007/08 New Zealand Alcohol and Drug Use Survey.
Department of Public Health, University of Otago, Wellington	2008	SoFIE-Health Baseline Report: Study design and associations of social factors and health in Waves 1 to 3.
Ministry of Health	2007	Alcohol Use in New Zealand: Analysis of the 2004 New Zealand Health Behaviours Survey – Alcohol Use
Pacific Research & Development Services, & SHORE/Whariki	2004	Pacific Drugs and Alcohol Consumption Survey 2003 Final Report: Volume I

**Table 2: Summary of selected peer-reviewed articles on young people and drinking**

<b>2a. Drinking advice and knowledge</b>			
<b>Author</b>	<b>Location</b>	<b>Topic</b>	<b>Main points</b>
Casswell (2012)	New Zealand	Discussion of the use and/or efficacy of drinking guidelines, critical perspective	The author postulates that, although guidelines can be useful as an educational or counselling tool, they “dominate the policy landscape and justify ignoring more effective ways of addressing what shapes people’s behaviour” and in that sense, as a policy intervention “they will contribute to alcohol-related harm”.
Dawson, Smith, Pickering, & Grant (2012)	USA	Discussion on an approach for evaluating the validity of alternative low-risk drinking guidelines.	Twenty-seven alternative guidelines were evaluated in terms of their ability to predict nine measures of concurrent and prospective alcohol-related harm, using longitudinal data from a nationally representative sample of US adults (n = 26,438 to 12,339 depending upon outcome). The guidelines that best predicted concurrent alcohol-related harm comprised daily-only limits of 4/3 drinks for men/women, but gender-invariant limits of 4/4 drinks were also shown to be effective.
Kerr & Stockwell (2012)	USA and Canada	Discussion on the ability of consumers to utilise information about the alcohol content of beverages when expressed in different forms, for example in standard drinks or units versus percentage alcohol content.	Standard drink definitions vary across countries. Drinkers were shown to have difficulty in defining and pouring standard drinks and tended to over-pour, so that their evaluation of intake was underestimated (Kerr & Stockwell, 2012). The authors concluded that, although standard drink labelling is effective, it is not frequently used by drinkers to track their alcohol intake, which may limit the ability of an individual to follow low-risk drinking advice.
Thompson, Stockwell, MacDonald (2012)	Canada	To quantify the degree of risk associated with lower levels of consumption for people under 25 years of age, with the broader purpose of informing the development of Canadian low-risk drinking guidelines.	540 youths aged 16–23 (54.4 percent female) completed an interview concerning alcohol consumption patterns and a broad range of acute health and social harms.  A significant proportion of young people consumed in excess of adult drinking limits as defined by the Centre for Addiction and Mental Health (CAMH).  No independent effects of age or gender were identified.  The CAMH guidelines for adult drinkers were shown not to adequately address acute risks for young people, with the authors calling for more specific low-risk drinking advice for young people.

2b. How young people are drinking					
Author	Location	Topic	Drinking measures	Population	Main findings
Casswell et al (2002)	New Zealand	To identify developmental trajectories of drinking between the ages of 18 and 26 years and to identify variables, amenable to policy influence, which predict these trajectories.	<p>The frequency of drinking over the past year and the typical quantity consumed per drinking occasion were computed from five location-specific questions.</p> <p>Measures used to predict membership of trajectory groups were ease of access to alcohol, drinking on licensed premises, response to alcohol advertising, educational achievement, parental consumption, age of onset of regular drinking, and living arrangements.</p>	Participants were from the Dunedin Multidisciplinary Health and Development study: 18 (n= 993), 21 (n=992) and 26 (n=980) years old.	Access to licensed premises at age 18 had the most significant impact on membership of the trajectory groups, and educational achievement had a significant impact on membership of the heavier quantity trajectory groups.
Chen et al. (2011)	China	Assessing the influences of school and family on alcohol-purchasing behaviours in school-aged children	<p>The primary outcome variable was alcohol purchasing behaviour, defined by a question “Have you ever purchased an alcoholic beverage by yourself from a commercial source?” For those with a positive response, a subsequent multiple-choice question was asked “From which venues did you ever buy alcoholic beverages on your own?”</p>	2,630 school children (10-12 years of age)	<p>Approximately one in nine children purchased alcoholic beverages by 6th grade.</p> <p>Children who did not participate in after-school programmes or had observed parental drinking had a 2–3-fold increased risk of buying alcoholic beverages alone.</p> <p>Density of alcohol outlets and the amount of public transport may play a role in purchasing behaviours</p> <p>Alcohol was widely available to minors.</p>

2b. How young people are drinking (continued)					
Author	Location	Topic	Drinking measures	Population	Main findings
Coleman & Cater (2004)	UK	14 – 17 year-olds' experience of 'risky' drinking – a cross-sectional survey	<p>The questionnaire stated that 'By very drunk we mean that you may not have remembered what you've been doing, or ended up by being sick, or falling over, or having a hangover, etc.'</p> <p>A final question measured young people's expectancies of the effects of alcohol.</p>	702 teenagers (14 – 17-years of age)	<p>Results suggest that a major transition towards first-ever drunkenness occurs between the ages of 14 and 15.</p> <p>Younger people aged 14 – 15 who reported experience of drunkenness, were more likely to report becoming very drunk unsupervised in outdoor, and potentially more harmful, locations.</p>
de Visser & Birch (2012)	UK	Investigation into young people's knowledge of low-risk drinking guidelines	<p>Knowledge: Seven questions assessed knowledge of alcohol units and guidelines for safe alcohol consumption.</p> <p>Drink pouring activity: Participants were asked to pour drinks as if they were 'regular strength' wine, beer and vodka, by pouring:</p> <p>their 'usual' drink of wine, beer and vodka (or the amount they would pour for a friend).</p> <p>'Units' of wine, beer and vodka.</p>	Two samples were recruited in South- East England: 309 secondary school students aged 16–18, and 125 university students aged 18–25	<p>Most respondents lacked the knowledge and skills required to drink in accordance with government guidelines.</p> <p>Participants' usual drinks were substantially larger than one unit, and participants tended to underestimate the unit content of drinks.</p>

2b. How young people are drinking (continued)					
Author	Location	Topic	Drinking measures	Population	Main findings
Faden and Fay (2004)	US	Trends in drinking among Americans aged 18 and younger: 1975–2002	Quantity and/or frequency of consumption.	Approximately 80,000 young people between 12 and 18 years of age	<p>Alcohol consumption by 8th, 10th and 12th graders had decreased substantially since the 1970s according to trend analyses</p> <p>It remains disturbingly high, however, according to data from three national surveys (e.g. 12.4 percent of 8th and 28.6 percent of 12th graders had drunk five or more drinks in a row in the past 2 weeks).</p>
Guilamo-Ramos, Jaccard, Turrisi, & Johansson (2005)	America	To examine the prevalence and dynamics of binge drinking among middle school students.	<p>Binge drinking was measured by asking adolescents to indicate how many days they had consumed 5 or more drinks in a row during the past 12 months. The respondents indicated the frequency of binge drinking on a 7-point rating scale, where 1=never, 2=1 or 2 days in the past 12 months, 3=once a month or less, 4=2 or 3 days a month, 5= 1 or 2 days a week, 6=3 to 5 days a week, and 7=every day or almost every day.</p>	5,300 students who were of African-American, Asian-American, European-American and Latino descent in grades 7 and 8 (12-14 years of age), and who represented a stratified random sample of 86 middle schools throughout the United States.	<p>Overall, approximately 8 percent of seventh graders and 17 percent of eighth graders reported that they had engaged in binge drinking during the past 12 months.</p> <p>Variations (including ethnic differences) in binge drinking were caused by factors that varied within schools rather than across schools.</p> <p>Binge drinking during middle school was also predictive of binge drinking during high school.</p>

2b. How young people are drinking (continued)					
Author	Location	Topic	Drinking measures	Population	Main findings
Huakau et al. (2005)	New Zealand	To describe the alcohol consumption patterns and related harms of some Pacific peoples (Samoan, Cook Island Maori, Tongan, Niuean, Fijian and Tokelauan) living in Aotearoa (New Zealand), and to draw comparisons with measures from the general New Zealand population.	The alcohol measures included annual volume, frequency of drinking, quantity of alcohol consumed on a typical occasion, frequency of drunkenness, and experience of alcohol-related consequences in the previous 12 months, from the respondents' own and others' drinking.	The Pacific Drugs and Alcohol Consumption Survey (PDACS) was carried out with 1,103 randomly-selected Pacific peoples aged between 13 and 65 years old who were resident in households throughout New Zealand.	<p>57 percent of the Pacific respondents were drinkers; more males (61 percent) than females (51 percent) drank – the proportion of Pacific drinkers is less than the proportion of drinkers in the general New Zealand population.</p> <p>Pacific drinkers consume larger amounts of absolute alcohol annually and larger quantities of absolute alcohol on a typical occasion.</p> <p>Pacific peoples' drinking patterns are more harmful (both to themselves and others) than those of the general New Zealand population.</p>
Huckle et al. (2012)	New Zealand	To assess trends in drinking patterns and alcohol-related problems among age and gender groups in the context of a liberalised alcohol policy environment.	Measurements included typical-occasion quantity and frequency of drinking in the last 12 months.	Age groups were 14-19, 20-24, 25-39 and 40-65 years (n=variable)	<p>Significant increases in typical-occasion quantity were found for young men and young women aged 14-19 years and for women aged 20-24 and 40-65 years.</p> <p>The increase was most marked among those 14-19 years old.</p>

2b. How young people are drinking (continued)					
Author	Location	Topic	Drinking measures	Population	Main findings
Jones & Barrie (2011)	Australia	To identify and describe the range and availability of ready to drink alcohol (RTDs) available in New South Wales (NSW) (including metropolitan, regional and rural areas), with a particular focus on the variations in alcohol content and pricing.		52 alcohol outlet audits were conducted across nine locations, including metropolitan, regional and rural New South Wales.	<p>150 individual RTD alcohol products were identified, ranging from 4.8 percent to 7.5 percent alcohol by volume, and from 1.0 to 2.7 standard drinks (SD) per unit. When purchased in multipacks (typically four or six units), the cost per SD ranged from AU\$1.95 to \$3.70, decreasing to as low as AU\$1.22 per SD when on special.</p> <p>The author called for more research to examine young people's preferences for these different product types; and consideration of policies, alongside price-based interventions, that address broader marketing strategies.</p>

2b. How young people are drinking (continued)					
Author	Location	Topic	Drinking measures	Population	Main findings
Kerr, Greenfield, Bond, Ye, & Rhem (2009)	US	To estimate the age, period, cohort and demographic influences on measures of alcohol volume and heavy drinking days.	<p>Heavy episodic drinking, measured in this case as 5 or more drinks in a day and 8 or more drinks in a day, or through alternative measures such as subjective drunkenness or binge drinking (5+ men/4+ women on an occasion or in 2 hours).</p> <p>Alcohol volume, measured as the sum of reported beer, wine and spirits drinks consumed in a typical month.</p> <p>The number of 8+ days was calculated as the sum of the 12+ and 8-11 drink categories.</p> <p>In the US a standard drink is defined as containing about 14g of ethanol.</p>	<p>Six National Alcohol Surveys (NAS), cross-sectional samples of the US population conducted between 1979 and 2005.</p> <p>1979 survey (n=1,772)</p> <p>1984 survey (n=5,221)</p> <p>1990 survey (n=2,058)</p> <p>1995 survey (n=4,925)</p> <p>2000 survey (n=7,612)</p> <p>2005 survey (n=6,919)</p>	The more recent birth cohorts generally had higher alcohol volumes and significantly more 5+ and 8+ days (examined for men only).

2b. How young people are drinking (continued)					
Author	Location	Topic	Drinking measures	Population	Main findings
McEwan et al. (2011)	New Zealand	To explore students' drinking behavior and attitudes, focusing upon findings that revealed how heavy-drinking students monitored and managed their experiences of alcohol intoxication.	<p>A 'drinking' student was defined as one who had consumed alcohol during the previous 12-month period.</p> <p>A 'standard' alcoholic drink was defined as the equivalent of 10 grams of ethanol.</p> <p>The experience of 'intoxication' was self-assessed by students.</p>	<p>819 students (18- 21 years of age) residing within three university student residences were invited to participate in three phases of data collection.</p> <p>15 focus group interviews and 18 in-depth interviews were undertaken, and 501 students (61 percent) completed a written survey questionnaire.</p>	<p>The majority of drinkers in this study who consumed alcohol with the intention of getting intoxicated, typically drank to a predetermined level of intoxication, and maintained that level by monitoring a range of drinking effects.</p> <p>This behaviour has been termed 'controlled intoxication'.</p> <p>Peer-based influence (friends telling friends to stop drinking) was an evident and effective means of harm-minimisation.</p>

2b. How young people are drinking (continued)					
Author	Location	Topic	Drinking measures	Population	Main findings
McPherson, Casswell, & Pledger (2004)	New Zealand	To compare women's and men's alcohol consumption patterns and alcohol-related problems in New Zealand in 1995 and 2000, by age group.	<p>Those who had not drunk alcohol in the last 12 months were defined as abstinent.</p> <p>Those who had not stopped drinking in the last 12 months were then asked to report on drinking in specified locations plus any additional locations they used. For each place, they were asked how often they drank there and what they would drink on a typical occasion at that location.</p> <p>This information was then used to estimate the frequency of drinking, the quantity consumed on typical occasions, and the annual volume of alcohol consumed (volumes of alcohol consumed are reported in mls of absolute alcohol).</p> <p>Heavier drinking occasions are defined as six drinks or more for women (90 ml absolute alcohol), and eight or more for men (120 ml).</p>	General population surveys in 1995 (n = 4,232) and 2000 (n = 5,113) using the same questionnaire.	<p>In the 20–39-year age group quantities of alcohol consumed on a typical occasion and the related measures of volume, drunkenness and problems all showed convergence.</p> <p>In the groups over 40 years of age convergence occurred in relation to frequency of drinking.</p>

<b>2b. How young people are drinking (continued)</b>					
<b>Author</b>	<b>Location</b>	<b>Topic</b>	<b>Drinking measures</b>	<b>Population</b>	<b>Main findings</b>
Sellman, Connor, Wells, & Joyce (2011)	New Zealand	A discussion on whether the heavy drinking culture is primarily a youth issue.	Narrative discussion.	Assessment based on the one survey: New Zealand Mental Health Survey: Te Rau Hinengaro.	<p>Out of the population aged 16 and above, only 8.8 percent of the heavy drinkers are under 20 and a further 21.5 percent are aged 20-24.</p> <p>Those aged 60-69 made up 3.8 percent of the heavy drinkers, and those aged 70 or more comprised 1.9 percent.</p> <p>The majority of the heavy drinkers (64.1 percent) are aged 25-59.</p>

2b. How young people are drinking (continued)					
Author	Location	Topic	Drinking measures	Population	Main findings
Teevale et al. (2012)	New Zealand	To describe the demographic, cultural, home and neighbourhood environments of the two types of Pacific drinkers (non-binge drinkers and binge drinkers), to develop risk and protective profiles for alcohol-related behaviours.	Binge drinking was measured by a series of branching questions. First, students were asked if they had ever drunk alcohol (not counting a few sips) and continued to drink alcohol, by asking them the frequency of alcohol consumption in the last 4 weeks. If they responded yes, they were asked "In the past 4 weeks, how many times did you have 5 or more alcoholic drinks in one session within 4 hours?", with response categories: "none at all", "once in the past 4 weeks", "two or three times in the past 4 weeks", "every week", or "several times a week". Those who reported drinking 5 or more alcohol drinks in one session at least once in the last 4 weeks were classed as binge drinkers.	1,190 Pacific students (from the Youth'07 survey) who identified any of their ethnicities as Samoan, Cook Islands, Tongan, Niuean, Tokelauan, Fijian or Other Pacific Peoples. Final analysis: n=974	<p>Of 974 students, percent (n=308) reported binge drinking in the last 4 weeks. .</p> <p>There were no gender differences in binge drinking behaviours, but there was a significant association with age, with almost half (47.1 percent) of all older students (17 years) binge drinking compared to only 15.2 percent of younger students (13 years).</p> <p>Among the socio-economic variables, students who lived in homes where other rooms were used as bedrooms were more likely to binge drink than students who did not live in crowded homes.</p> <p>Protective factors associated with binge drinking were age (younger less likely to binge drink), cultural factors (a parent's use of a Pacific language), and home factors pertaining to parental knowledge of the student's whereabouts after school and at night time</p>

2c. Why young people drink					
Author	Location	Topic	Drinking measures	Population	Main findings
Backer-Fulghum et al. (2012)	US	Direct and mediational links among parental bonds (rejection, care, overprotection, autonomy and neglect), self-esteem, stress, pathological reasons for drinking, and alcohol-related problems were explored.	A scale was created to measure moderate alcohol-use problems using a questionnaire made up of 12 items (e.g. "How many times have you lost control of drinking, neglecting obligations, family or work?; How many times have you sneaked drinks, hidden bottles and/ or kept a bottle close at hand to drink from?; How many times have you felt you drank too much, possibly damaging your mental or physical health?")	405 students (241 men, 164 women) from Missouri University of & Technology The sample was 59 percent men, with a mean age of 19.96 (SD=2.66).	<p>Perceived mother and father neglect (over and above other negative parental bonds) were directly linked to increased stress, which led to more pathological reasons for drinking and alcohol-related problems.</p> <p>Higher levels of mother care were indirectly linked to fewer pathological reasons for drinking through higher self-esteem and less stress.</p> <p>Higher levels of father rejection were indirectly linked to more stress through lower self-esteem.</p>

2c. Why young people drink (continued)					
Author	Location	Topic	Drinking measures	Population	Main findings
Kuntsche et al. (2007)	Switzerland	To investigate the direct and indirect links (through alcohol use) between adolescents' drinking motives and violent behaviours (ie bullying and fighting).	<p>Three questions were used to measure alcohol use:</p> <p>(a) drinking frequency, ie the number of drinking occasions in the last 12 months (from 0 to 40 or more),</p> <p>(b) usual quantity, measured as the number of standard drinks on a typical occasion (0 to 5 or more), and</p> <p>(c) frequency of drinking five or more drinks in a row in the last 30 days (ranging from 0 to 10 or more times).</p>	5,419 8th to 10th graders in Switzerland (mean age 15.0, SD= 0.86)	The authors concluded that "drinking motives have a bearing on other problem behaviors besides excessive drinking, and may be useful for early identification and intervention for students who are likely to experience a variety of problems"

2c. Why young people drink (continued)					
Author	Location	Topic	Drinking measures	Population	Main findings
Kuntsche et al (2006)	Switzerland	<p>To investigate among adolescents whether:</p> <p>(i) drinking motives are related to beverage preference;</p> <p>(ii) beverage preference is related to alcohol use (drinking levels and risky drinking occasions);</p> <p>(iii) the association between beverage preference and alcohol use is moderated or mediated by drinking motives.</p>	<p>Beverage preference, defined as the proportion of a specific beverage in the total amount of drinks consumed at the last drinking occasion. The adolescents were asked: 'The last time you had an alcoholic drink, did you drink any alcopops? If so, how much?' The possible answers were: 'I never drink alcopops': 'I did not drink alcopops on my last drinking occasion': 'Less than 2 regular bottles or cans (&lt;55 cl)': '2–4 regular bottles or cans (55–110 cl)': '5–8 regular bottles or cans (137.5–220 cl)': and '9 or more regular bottles or cans (&gt;247.5 cl)'. Similarly structured questions and answers were used for the quantity of 'beer', 'wine', 'cider', and 'spirits' consumed during the previous drinking occasion.</p> <p>All amounts were converted into number of drinks containing 15 g of pure ethanol.</p>	5,379 8th to 10th graders in Switzerland (mean age 15.1, SD = 0.95)	<p>A significant positive association was found between enhancement motives and a preference for beer and spirits; the association was negative with regard to a preference for wine and alcopops.</p> <p>Prevention approaches should target coping motives, particularly for adolescents who show a preference for spirits.</p>

2c. Why young people drink (continued)					
Author	Location	Topic	Drinking measures	Population	Main findings
Kuntsche et al. (2005)	Switzerland	Why do young people drink? A review of drinking motives.	Review	NA	Social motives appear to be associated with moderate alcohol use, enhancement with heavy drinking, and coping motives with alcohol-related problems.
Sheehan & Ridge (2001)	Australia	The meanings of alcohol were explored with young women from a range of socio-economic backgrounds and with those classed as 'heavy drinkers'.	126-item self-report questionnaire to assess consumption rates, drinking patterns, attitudes toward drinking, drinking situations, harmful experiences, positive experiences, reasons for drinking, and alcohol education lessons at school.	Two phase study. In the first phase, 850 young women in years 9 and 10 (aged 14–16) and, in the second phase, four focus groups (n=23)	Young women primarily drink for fun, enjoyment and to feel good, 'to relax,' 'to be popular and mix with friends,' and 'to cheer up/forget worries'.  Lower income school sites recounted the highest incidence of harms, yet also the highest level of positive memories.

2c. Why young people drink (continued)					
Author	Location	Topic	Drinking measures	Population	Main findings
Parackal et al. (2009)	New Zealand	To assess the opinions of New Zealand women on the safety of alcohol consumption in pregnancy and the socio-demographic and lifestyle factors associated with these opinions.	<p>Binge drinking was defined as five or more standard drinks on a typical drinking occasion for those younger than 18 years, and seven or more standard drinks on a typical drinking occasion for those 18 years and above.</p> <p>The number of drinks consumed on a typical drinking day (Question 2 of AUDIT-C) was asked as an open-ended question.</p>	A nationwide, cross-sectional survey was conducted in 2005 on a random sample of 1,109 non-pregnant women aged 16–40 years.	<p>Overall, 44 percent (95 percent confidence interval 41–47%) of women surveyed were of the opinion that no alcohol is safe in pregnancy.</p> <p>Women who drank more than two standard drinks of alcohol on a typical occasion, and/or who binged, were more likely to be of the opinion that 'more than one standard drink' of alcohol is safe on a typical drinking day during pregnancy.</p>

2d. Factors that influence drinking					
Author	Location	Topic	Drinking measures	Population	Main findings
Casswell, Pledger, & Hooper (2003)	New Zealand	To investigate the relationship between several Indicators of socio-economic status achievement, (educational achievement, occupational activity and income and drinking patterns in young adulthood.	The frequency of drinking and the typical quantity of alcohol consumed per drinking occasion in the year.	Participants were from the Dunedin Multidisciplinary Health and Development study: 18 (n= 993), 21 (n=992) and 26 (n=980) years old.	<p>Frequency of drinking increased over these early adult years.</p> <p>Higher income respondents were drinking more often and this was persistent overtime.</p> <p>Relationship between educational achievement and frequency of drinking for males at age 18.</p> <p>Relationship between women's occupational activity and the quantities they consumed.</p>
Connor et al. (2011b)	New Zealand	To examine the association of outlet density with both consumption and harm throughout New Zealand, while controlling for indicators of area deprivation and individual socio-economic status (SES).	<p>Individual alcohol consumption and drinking consequences were measured in a 2007 national survey.</p> <p>All alcohol outlets in New Zealand were geocoded.</p> <p>Outlet density was the number of outlets of each type: off-licences (stores that sell alcoholic beverages for consumption elsewhere), bars, clubs, restaurants within 1 km of a person's home.</p>	18-70 year olds (n=1,925)	<p>No statistically significant association was seen between outlet density and either average alcohol consumption or risky drinking.</p> <p>A positive relationship between outlet density and risky (binge) drinking was observed.</p> <p>Density of all types of outlet was associated with alcohol-related harm scores, before and after adjustment for SES.</p>

2d. Factors that influence drinking (continued)					
Author	Location	Topic	Drinking measures	Population	Main findings
Farmer & Hanratty (2012)	UK	To explore the associations between subjective wellbeing, living in a low-income household (eligibility for free school meals) and substance use by schoolchildren.	Alcohol consumption – “Ever tried alcohol?”  Alcohol frequency – “How many times drunk in last four weeks?”	3,903 children aged 10 and 15 years from two local authorities in the North West of England.	More boys than girls had experimented with drugs or alcohol but, in the fourth year of secondary education, girls were significantly more likely than boys to have been drunk.  Living in a low-income household was associated with substance use, adjusting for age and subjective wellbeing.  Respondents who reported being happy or able to communicate with their family were less likely to be regular Users.
Fergusson et al. (2012)	New Zealand	To examine the associations between the transition to parenthood and substance use disorders from ages 18 to 30.	Using both custom-written survey items to assess substance use and components of the Composite International Diagnostic Interview (CIDI) to assess DSM-IV symptom criteria for alcohol abuse/dependence (AAD)	Christchurch Health and Development Study (CHDS) – birth cohort of 1,265 children (635 males, 630 females) born in Christchurch (New Zealand) – at ages 21, 25 and 30 years. Study participants were interviewed concerning alcohol use and the use of illicit substances (cannabis and a range of other substances)	Transition to custodial parenthood may result in reduced risks of substance use disorder, particularly amongst female cohort members.

2d. Factors that influence drinking (continued)					
Author	Location	Topic	Drinking measures	Population	Main findings
Gilligan et al. (2012a)	Australia	To review the nature of parental supply of alcohol to adolescents aged 13–17 years, explore parental social networks as a potential avenue for intervention, and propose future directions for research with a view to informing public policy and the development of interventions to reduce risky drinking.	Narrative review	Narrative review	Intervening with parents, and possibly via parental social networks, may be effective in reducing adolescent risky drinking.
Gossrau-Breen, Kuntsche, & Gmel (2010)	Switzerland	To explore the links between having older siblings who get drunk, satisfaction with the parent–adolescent relationship, parental monitoring, and adolescents' risky drinking.	Five + drinking (risky): The question was “Think back once more over the last 30 days. How many times (if any) have you had five or more drinks in a row?”  Frequency of subjective drunkenness: Asked the number of occasions in the last 12 months in which the participants had been drunk.  Drunken older siblings: Participants were asked “Do any of your older siblings get drunk?”	3,725 8th to 10th graders in Switzerland (mean age 15.0, SD = .93) who indicated having older siblings.	Both parental factors and older siblings' drinking behaviour shape younger siblings' frequency of risky drinking.  A “satisfying” relationship with parents does not seem to be sufficient to counterbalance older siblings' influence.

<b>2d. Factors that influence drinking (continued)</b>					
<b>Author</b>	<b>Location</b>	<b>Topic</b>	<b>Drinking measures</b>	<b>Population</b>	<b>Main findings</b>
Hemovich et al. (2011)	USA	Understanding early-onset drug and alcohol outcomes among youth: The role of family structure, social factors and interpersonal perceptions of use.	Alcohol use was operationalised by asking respondents: "Have you ever, even once, had a drink of any alcoholic beverage, that is more than a few sips?" Those responding yes were asked: "How long has it been since you last drank an alcoholic beverage, more than a few sips?" Responses from both items were combined to construct a scale of alcohol use.	4,173 respondents aged 12 to 18 years from the restricted version of the National Survey of Parents and Youth (NSPY).	Youth from single-parent families engaged in significantly higher levels of substance use than those from dual-parent households.  Youth from father-only households engaged in higher levels of cigarette, alcohol and marijuana use than those from mother-only and dual-parent households.

2d. Factors that influence drinking (continued)					
Author	Location	Topic	Drinking measures	Population	Main findings
Huckle, Huakau, Sweetsur, Huisman, & Casswell, (2008a)	New Zealand	To examine the relationship between physical, socio-economic and social environments and alcohol consumption and drunkenness, among a general population sample of drinkers aged 12–17 years.	<p>Typical-occasion quantity and annual frequency were collected, by asking respondents in the survey who had consumed alcohol in the past 12 months to report at which, of a number of mutually-exclusive locations plus any additional locations, they had had a drink.</p> <p>For each location at which respondents drank they were asked how often they drank there, and how much they would drink on a typical occasion at that location.</p> <p>Frequency of drunkenness (no more detail given).</p> <p>Independent individual-level measure of frequency of social supply of alcohol as reported by the young person (supply from parents, friends and others).</p> <p>Deprivation measures were also collected and described.</p>	Telephone survey of 1,179 respondents aged 12–17 years, conducted between March and June 2005.	<p>NZDEP score was a significant predictor of typical-occasion quantity but not for annual frequency or frequency of feeling drunk.</p> <p>Outlet density, as measured by the number of outlets reached within 10 minutes' drive, was associated with typical-occasion quantity and approached significance for frequency of drunkenness for drinkers aged 12–17 years.</p> <p>Controlling outlet density (alcogenic environment) is an important consideration in public health management.</p>

2d. Factors that influence drinking (continued)					
Author	Location	Topic	Drinking measures	Population	Main findings
Kavanagh et al. (2011)	Australia	To assess the association between access to off-premises alcohol outlets and harmful alcohol consumption.	<p>Alcohol outlet density was defined as the number of outlets within a 1-km road network of respondents' homes, and proximity was the shortest road network distance to the closest outlet from their home.</p> <p>The frequency of alcohol consumption in the last 12 months, with eight response categories: every day; 5–6 days/week; 3–4 days/week; 1–2 days/week; 2–3 days/month; about 1 day/month; less often; and no longer drink.</p> <p>Typical quantity – how many drinks they usually consumed per drinking occasion, with six response categories: 13 or more; 11–12; seven to 10; five to six; three to four; and one to two drinks.</p> <p>Binge drinking – how many times in the past year they consumed more than six standard drinks in a day (males), or more than four standard drinks (females).</p> <p>One standard drink was defined as 10 g of alcohol.</p>	2,334 adults aged 18–75 years from 49 census collector districts in metropolitan Melbourne.	Density of alcohol outlets was associated with increased risk of drinking alcohol at levels associated with harm.

2d. Factors that influence drinking (continued)					
Author	Location	Topic	Drinking measures	Population	Main findings
Kelly et al. (2011a)	Australia	To explore gender differences in the longitudinal impact of family emotional climate on adolescent alcohol use and exposure to peer drinking networks.	Alcohol use was derived from the item 'In the past year, on how many occasions have you had alcoholic beverages (like beer, wine or liquor/spirits) to drink— more than just a few sips?' (0= 'never', 1= '1–2 times', 2='3–5 times', 3= '6–9 times', 4= '10–19 times', 5= '20–29 times', 6= '30–39 times', 7= '40+ times').  Peer alcohol use was assessed with the item 'In the past year, how many of your best friends have tried alcohol (like beer, wine or liquor/spirits) when their parents didn't know about it?' (0–4 friends).	855 Australian students (modal age 10–11 years at baseline) participating in the International Youth Development Study (Victoria, Australia).	Parent disapproval of alcohol use was protective for both genders, but this effect was larger for boys than girls, and there was no evidence that peer use mediated this effect.  For girls, mother–daughter relationship quality protects girls from the influence of peers who consume alcohol.
Jatrana et al. (2011)	New Zealand	To examine binge drinking in relation to socio-economic position	Frequency of binge drinking (more than eight (for men) or six (for women) standard drinks on one drinking occasion) in those who reported drinking in the past 12 months was categorised as: never binge, binge monthly, binge two times per month, binge weekly, and daily or almost daily binge drinking.	18,520 respondents from the Survey of Family, Income and Employment, NZ provided information on alcohol use at Wave 3.	Binge drinking was more common in men than women.  Frequency of binge drinking generally increased as educational level declined.  Clear gradient for increasing daily binge drinking frequency with each increment in greater area deprivation.

<b>2d. Factors that influence drinking (continued)</b>					
<b>Author</b>	<b>Location</b>	<b>Topic</b>	<b>Drinking measures</b>	<b>Population</b>	<b>Main findings</b>
Levin, Kirby, & Currie (2012)	UK	To examine the association between family structure and adolescent risk behaviours and assess the role of the family meal.	How often they drank alcoholic drinks. Responses were 'Every day, Every week, Every month, Hardly ever and Never'.	4,257 school children taken from a nationwide study. Mean age for boys 14.51, and 14.48 for girls.	<p>Eating a family meal regularly nullified the association between family structure and drinking alcohol for boys and girls and cannabis use for boys.</p> <p>Frequency of eating a family meal was associated with a reduced likelihood of all risk behaviours among girls, and all but fighting and having sex among boys.</p>
McEwan, Campbell, & Swain (2010)	New Zealand	Narrative discussion on local and global influences on alcohol consumption.	Narrative discussion.	Narrative discussion.	<p>The authors propose that “the liberalisation of alcohol licensing laws and advertising/ sponsorship regulations, alongside the growth of the alcohol-based hospitality industry have promoted the normalisation of an alcohol-based leisure lifestyle” .....as well as “establishment of commercial and social-networking websites have conjointly enabled the growth of a culture of intoxication, which is characterised by drinkers intentionally drinking to intoxication and viewing this behaviour as socially acceptable”</p>

2d. Factors that influence drinking (continued)					
Author	Location	Topic	Drinking measures	Population	Main findings
Tomcikova et al. (2011)	Slovakia	To compare adolescent abstainers, consumers and excessive drinkers in terms of family characteristics (structure of family, socio-economic factors), perceived social support, personality characteristics (extraversion, self-esteem, aggression) and well-being.	<p>Drinking alcohol: 'How many times in the last 4 weeks have you drunk alcohol? – I haven't drunk during the last 4 weeks/1–2 times/3 and more times.</p> <p>Being drunk: 'In the last 4 weeks have you been drunk?' – no/1–2 times/3 and more times.</p> <p>The respondents were divided into three groups: (i) total abstainers (had neither drunk alcohol nor been drunk); (ii) consumers (had drunk alcohol without being drunk during last 4 weeks); and (iii) excessive drinkers (had been drunk at least once during the last 4 weeks).</p>	3,694 elementary school students from 8th and 9th grades (13-16 years of age).	<p>Excessive drinking respondents were those with higher family affluence; parents' education did not show a significant association with excessive drinking.</p> <p>Results showed that particular groups of children at higher risk of excessive drinking were: children of divorced parents, adolescents from families with higher affluence, those with lower social support from family but higher support from friends, those with higher levels of physical aggression and hostility, and those with lower well-being.</p>

<b>2e. Burden and alcohol related harm</b>					
<b>Author</b>	<b>Location</b>	<b>Topic</b>	<b>Drinking measures</b>	<b>Population</b>	<b>Main findings</b>
Connor et al. 2010)	New Zealand	To estimate the prevalence of potentially harmful sexual experiences attributed to drinking in university students, their association with current drinking, and the influence of past high school binge drinking and age at first drink.	<p>The first three questions of the Alcohol Use Disorders Identification Test (AUDIT) questionnaire were used to assess alcohol consumption, using a four-week time frame.</p> <p>The number of drinking days, the average number of drinks per drinking day, and the number of heavy drinking days (six or more standard drinks).</p> <p>Respondents were asked about the age at which they had their first full standard drink of alcohol (&lt; 9 years to &gt; 25 years).</p>	2,548 university students from six different campuses	Unsafe, unhappy and unwanted sexual experiences attributed to drinking are common at university and associated with heavier drinking, previous high school binge drinking and early drinking onset.

2e. Burden and alcohol related harm (continued)					
Author	Location	Topic	Drinking measures	Population	Main findings
Connor et al. (2005)	New Zealand	To estimate the burden of death, disease and disability attributable to alcohol consumption in New Zealand	<p>Average daily consumption and pattern of drinking from the 2000 National Alcohol and Te Ao Waipiro surveys. Results were weighted to represent consumption for the whole adult NZ population. Data from five other New Zealand (NZ) studies 20–24 were used to estimate the alcohol consumption patterns for those older than 65 years, and consumption during pregnancy was estimated from survey data.</p> <p>Four levels of average daily consumption, with different cut points for men and women, corresponding to those used by the WHO Global Burden of Disease Study.</p>	New Zealanders aged between 15 and 65 years (n=varied depending on measure)	<p>3.9 percent of deaths in New Zealand in 2000 were attributable to alcohol consumption (approximately 1,037 deaths) and approximately 981 deaths were prevented by alcohol, resulting in a net loss of about 56 lives.</p> <p>A net loss of 26,000 disability-adjusted life years (DALYs) due to alcohol in 2002, with 76 percent lost by men. Alcohol use disorders accounted for about half of all DALYs lost.</p>

2e. Burden and alcohol related harm (continued)					
Author	Location	Topic	Drinking measures	Population	Main findings
Dietze et al. (2009)	Australia	To examine the relationship between income inequality and the rates of alcohol-attributable hospitalisation and death at a local-area level in Australia.	Two types of alcohol-related harm were examined: alcohol-attributable hospitalisation and alcohol-attributable mortality.	N=variable	<p>There were 885 alcohol-attributable deaths and 19,467 alcohol-attributable hospitalisations across all local government areas (LGAs).</p> <p>In general the results showed that increasing LGA level income inequality was associated with increasing rates of alcohol-attributable harm, after adjusting for general socio-economic disadvantage and remoteness of LGAs.</p> <p>In relation to remoteness – inner and outer-regional areas of the country were less likely to experience alcohol-attributable harm than major cities and remote areas of Australia.</p>

2e. Burden and alcohol related harm (continued)					
Author	Location	Topic	Drinking measures	Population	Main findings
Grittner et al. (2012)	Europe	To examine the influence of country-level characteristics and individual socio-economic status (SES) on individual alcohol-related consequences.	Alcohol-related consequences were defined as the self-report of at least one internal or one external consequence in the last year.	42,655 men and women collected by cross-sectional surveys in 25 countries of the Gender, Alcohol and Culture: An International Study.	<p>Lower educated men and women were more likely to report consequences than higher educated men and women, even after controlling for drinking patterns.</p> <p>Those of fewer resources are less protected from the experience of a problem or the impact of a stressful life event.</p>
Heron et al. (2012)	UK	To examine patterns of alcohol use in early adolescence and relate these to hazardous and harmful alcohol use at age 16.	<p>Drinking frequency – classified into three categories as: none, occasional (has had a drink in the last 6 months but does not drink weekly), weekly use.</p> <p>Typical consumption – the number of units of alcohol the respondents consume on a typical day when they have had a drink – classified into five categories as: none, 1 or 2, 3 or 4, 5 or 6, 7 or more.</p>	Birth cohort of 7,100 13 to 15 year olds	<p>At age 16, over one in three of adolescents were categorised as hazardous or harmful drinkers, and 16-year old alcohol-use status was associated strongly with alcohol-use profile between 13 and 15 years.</p> <p>The authors suggested that multi-component interventions are required in order to minimise and reduce average levels of drinking among young and mid-adolescents.</p>

2e. Burden and alcohol related harm (continued)					
Author	Location	Topic	Drinking measures	Population	Main findings
Hutton (2012)	New Zealand	To elicit student responses to the harm reduction campaign: mixed methods approach.	<p>The qualitative data were analysed using key issues identified from the transcripts and from the interview recordings, such as: why some students choose not to drink responsibly and what affects drinking behaviours.</p> <p>Quantitative measures of drinking: Respondents were asked how often they drank, the number of drinks consumed on a 'big' night out, and whether they thought they drank too much</p> <p>Two definitions of binge drinking were used to analyse the results:</p> <p>1) Four drinks per drinking occasion for women, and six drinks per occasion for men, as episodic binge drinking.</p> <p>2) Eight units for men and six units for women, and 7–8 drinks, as the benchmark for a binge.</p>	330 questionnaires were completed, with discussion groups with 36 of the respondents.	<p>The majority of students in this study did not see their drinking as problematic.</p> <p>Humour was a favoured approach for getting across a serious message about drinking.</p> <p>Harm reduction is a valuable strategy in addressing binge drinking with young people; but there needs to be awareness of gender-specific issues.</p> <p>Harm reduction messages need to accept that risky behaviours are pleasurable and that pleasure is a motivating factor in substance use; which requires further investigation.</p>

2e. Burden and alcohol related harm (continued)					
Author	Location	Topic	Drinking measures	Population	Main findings
Kypri et al. (2009b)	New Zealand	To determine drinking and alcohol-related harm among university students.	<p>Respondents were asked to report how often they engaged in binge drinking (&gt;4 drinks for women and &gt;6 drinks for men) during their last year of high school, with 8 response options (values) ranging from “never” (0) to “4 or more times per week”.</p> <p>They were asked whether they had consumed any alcohol in the preceding 12 months and, if yes, were asked on how many days in a typical 4-week period they would consume at least 1 standard drink, how many drinks on average they would consume on a typical drinking day, and how often they would consume 6 or more standard drinks.</p> <p>Students were also asked whether they consumed any alcohol during the past 7 days.</p>	2,548 undergraduates (17 to 25 years of age) from 5 different universities.	<p>68 percent scored in the hazardous range (4+) on the AUDIT consumption subscale.</p> <p>Risk factors for frequent binge drinking included: lower age, earlier age of drinking onset, monthly or more frequent binge drinking in high school, and living in a residential hall or a shared house (relative to living with parents).</p>

<b>2e. Burden and alcohol related harm (continued)</b>					
<b>Author</b>	<b>Location</b>	<b>Topic</b>	<b>Drinking measures</b>	<b>Population</b>	<b>Main findings</b>
Lindsay (2012)	Australia	A narrative (qualitative discussion) on how young people manage alcohol-related violence using individual structured in-depth interviews about their drinking biographies.	The aim of the drinking biographies study was to gather life-course information about drinking to identify 'low risk', 'risky' and 'high risk' alcohol consumption settings and contexts.	26 males and 34 females (aged 20–24) living in Victoria, Australia.	<p>33/60 recounted negative experiences with alcohol-related violence.</p> <p>Women were observers of public violence and potential victims of family violence, while men were observers and potential victims of public violence from unknown perpetrators.</p> <p>Alcohol-related violence was centred on performances of masculinity and was socio-spatially contextualised – important to note for harm reduction intervention and policy development.</p>

2e. Burden and alcohol related harm (continued)					
Author	Location	Topic	Drinking measures	Population	Main findings
Viner & Taylor (2007)	UK	To determine outcomes in adult life of binge drinking in adolescence in a national birth cohort.	Binge drinking (defined as two or more episodes of drinking four or more drinks in a row in the previous 2 weeks). Questions included usual frequency of drinking alcohol in the past 12 months, units of alcohol consumed in the previous week, and frequency of consuming four or more drinks in a row in the past 2 weeks.	1970 British Birth Cohort Study surveys at 16 years (1986, n=11,622) and 30 years (2000, n=11,261).	<p>High regular alcohol use, when adjusted for binge drinking, increased the risk of problematic drinking and illicit drug use in adulthood, but was not associated with other poor adult outcomes.</p> <p>High regular use was associated with better adult socio-economic outcomes, whereas binge drinking was associated with poorer socio-economic outcomes.</p> <p>Binge drinking predicted an increased risk of: adult alcohol dependence, excessive regular consumption, illicit drug use, psychiatric morbidity, homelessness, convictions, school exclusion, lack of qualifications, accidents and lower adult social class.</p>

<b>2f. University students — Select publications from Kypri et al.</b>					
<b>Author</b>	<b>Location</b>	<b>Topic</b>	<b>Drinking measures</b>	<b>Population</b>	<b>Main findings</b>
Kypri et al. (2012)	New Zealand	Web-based alcohol intervention for Māori university students: double-blind, multi-site randomised controlled trial.	The AUDIT-C comprises the three consumption questions of the 10-item World Health Organization (WHO) AUDIT. Those in the intervention group were then asked AUDIT items 4–10, all of which are concerned with alcohol problems, and additional questions on the largest number of standard drinks consumed on one occasion in the last 4 weeks, the duration of the drinking episode in hours, and their body weight, for the purpose of estimating peak blood alcohol concentration.	6,697 were invited to participate and 1,789 (hazardous or harmful drinkers) were randomised.  Participants were university students who indicated that they were Māori and were aged 17–24 years at the time they were invited to participate	Relative to controls, participants receiving intervention drank less often [RR = 0.89; 95% confidence interval (CI): 0.82–0.97], less per drinking occasion (RR = 0.92; 95% CI: 0.84–1.00), less overall (RR = 0.78; 95% CI: 0.69–0.89) and had fewer academic problems (RR = 0.81; 95% CI: 0.69–0.95).
Cousins, Connor & Kypri (2010)	New Zealand	Reducing alcohol-related harm and social disorder in a university community: a framework for evaluation	Outcome measures (rather than drinking measures): Prevalence of heavy episodic drinking; number of acute alcohol-related harms; incidence of antisocial behaviour, assault and street fires.	Interviews with university administrators and Campus Watch staff; surveys of local residents' views; Campus Watch incident data; national surveys of university students in 2005, 2007 and 2009; police data; fire department data	A study protocol for a mixed method evaluation of Campus Watch was developed, which comprised a multifaceted intervention seeking to reduce social disorder on a university campus and surrounding community in New Zealand.

2f. University students — Select publications from Kypri et al. (continued)					
Author	Location	Topic	Drinking measures	Population	Main findings
Kypri, Paschall, Langley, Baxter & Bourdeau, (2010)	New Zealand	The role of drinking locations in university student drinking: Findings from a national web-based survey	Measures included the number of standard drinks (10 g ethanol) consumed on each day of the preceding week in pubs/bars/nightclubs, student flats/houses, residential halls, and 'other' locations (e.g., restaurants).	A cross-sectional web-based survey with random sampling of 17 to 24 year-old undergraduates from six university campuses in 2005. There were 2,548 respondents (response fraction: 63%).	Certain drinking locations (ie, pubs, residential halls, off-campus houses) appear to promote or facilitate heavy alcohol consumption among students
Kypri et al. (2009a)	Australia	To test the efficacy of a proactive Web-based alcohol screening and brief intervention programme	Outcome measures were: drinking frequency, typical occasion quantity, overall volume, number of personal problems, an academic problems score, prevalence of binge drinking, and prevalence of heavy drinking.	A randomised controlled trial was conducted at an Australian university in 2007. Invitations were sent to 13,000 undergraduates (age range 17-24 years) to complete a Web-based Alcohol Use Disorders Identification Test.	Proactive Web-based screening and intervention reduced drinking in undergraduates.
Hallett, Maycock, Kypri, Howat, & McManus (2009)	New Zealand	Development of a web-based alcohol intervention for university students: processes and challenges.	Primary outcomes are: (i) total alcohol consumption; (ii) frequency of drinking; (iii) amount consumed per typical drinking occasion; (iv) the proportions exceeding medical guidelines for acute and chronic harm; and (v) scores on an academic problems scale.	17-24 year-old students from seven of New Zealand's eight universities.	The trial will provide information on the effectiveness of e-SBI in reducing hazardous alcohol consumption across diverse university student populations, with separate effect estimates for Māori and non-Māori students.

2f. University students — Select publications from Kypri et al. (continued)					
Author	Location	Topic	Drinking measures	Population	Main findings
Kypri, Langley, Saunders, Cashell-Smith, & Herbison (2008)	New Zealand	Randomised controlled trial of web-based alcohol screening and brief intervention in Primary Care.	<p>Seven outcome measures were selected: (1) frequency of drinking (number of drinking days in the preceding 2 weeks)</p> <p>(2) typical occasion quantity (standard drinks [10 g of alcohol] consumed per typical drinking occasion in the preceding 4 weeks)</p> <p>(3) total volume (standard drinks consumed in the preceding 2 weeks)</p> <p>(4) frequency of very heavy episodes (number of occasions in the preceding 2 weeks on which a threshold of 80 g of alcohol for women, or 120 g of alcohol for men, was breached)</p> <p>(5) personal, social, sexual, and legal consequences of episodic heavy drinking (items endorsed on the Alcohol Problems Scale [score range, 0-14])</p> <p>(6) consequences related to academic performance (score on the Academic Role Expectations and Alcohol Scale [score range, 0-35]); and (7) the AUDIT score at 12 months.</p>	975 students (age range 17-29 years) screened using the Alcohol Use Disorders Identification Test (AUDIT). Of 599 students who scored in the hazardous or harmful range, 576 (300 of whom were women) consented to the trial and were randomized to receive an information pamphlet (control group), a Web-based motivational intervention (single-dose e-SBI group), or a Web-based motivational intervention with further interventions 1 and 6 months later (multidose e-SBI group).	<p>Relative to the control group, the single-dose e-SBI group at 6 months reported a lower frequency of drinking (rate ratio [RR], 0.79; 95% confidence interval [CI], 0.68-0.94), less total consumption (RR, 0.77; 95% CI, 0.63-0.95), and fewer academic problems (RR, 0.76; 95% CI, 0.64-0.91).</p> <p>Single-dose e-SBI reduces hazardous drinking and the effect lasts 12 months.</p>

2f. University students — Select publications from Kypri et al. (continued)					
Author	Location	Topic	Drinking measures	Population	Main findings
Kypri, Bell, Hay, & Baxter, (2008)	New Zealand	To examine the geographic density of alcohol outlets and their association with drinking levels and related problems among university students.	Counts of alcohol outlets within 3 km of each campus were tested for their non-parametric correlation with aggregated campus drinking levels and related problems.	2,550 students (mean age 20.2, 60% women) at six university campuses in New Zealand (63% response).	There were positive associations between alcohol outlet density and individual drinking and related problems. Associations remain after controlling for demographic variables and pre-university drinking ie the associations are unlikely to be due to self-selection effects.
Cashell-Smith, Connor & Kypri (2007) (Abstract only)	New Zealand	To estimate the prevalence and correlates of alcohol-related risky and unwanted sexual experiences	Not described in abstract.	1% of women and 0.5% of men reported sexual assault in the past 4 weeks.	Interventions to reduce alcohol-related risky sexual behaviours should target both male and female drinkers, and identifiable subgroups at higher risk.
Young, Connor, Ricciardelli, & Saunders (2006)	New Zealand	The role of alcohol expectancy and drinking refusal self-efficacy beliefs in university student drinking.	The current study utilised two measures of alcohol expectancy, the alcohol expectancy questionnaire (AEQ) and the drinking expectancy profile [consisting of the drinking expectancy questionnaire (DEQ) and the drinking refusal self-efficacy questionnaire] to predict severity of alcohol dependence, frequency of drinking, and the quantity of alcohol consumed per occasion	174 undergraduate university students.	Positive expectancy and drinking refusal self-efficacy were strongly related to university student drinking. The incorporation of expectancy as a means of informing prevention approaches in tertiary education shows promise.

<b>2f. University students — Select publications from Kypri et al. (continued)</b>					
<b>Author</b>	<b>Location</b>	<b>Topic</b>	<b>Drinking measures</b>	<b>Population</b>	<b>Main findings</b>
Kypri, Sitharthan, Cunningham, Kavanagh, & Dean, (2005)	New Zealand	To critique the recent literature on telephone, correspondence-based, and computerised interventions for alcohol problems, which enhance or substitute for practitioner-delivered treatments.	NA	NA	There is strong support among potential users for alcohol interventions that employ telephone assistance, written correspondence and the Internet.
Kypri, Cronin, & Wright (2005)	New Zealand	Do university students drink more hazardously than their non-student peers?	A comparison of scores on the Alcohol Use Disorders Identification Test (AUDIT)	17–24 year olds in two surveys: an Internet-based survey of University of Otago students in 2002 (n=1,424, 82% response), and the 2002/3 New Zealand Health Survey (NZHS; n=1,406, 72% response), based on a stratified random sample of households and conducted by face-to-face interview.	In particular, 18–23 year-old students' scores were, on average, 50–60% higher than those of their peers,  The prevalence of hazardous drinking (AUDIT score ≥8) was almost twice as high among students (65% vs. 36%; 95% CI for the difference: 28%, 35%), while harmful drinking (AUDIT score ≥15) was three times as prevalent (31% vs. 9%; 95% CI for the difference: 18%, 24%).

<b>2f. University students — Select publications from Kypri et al. (continued)</b>					
<b>Author</b>	<b>Location</b>	<b>Topic</b>	<b>Drinking measures</b>	<b>Population</b>	<b>Main findings</b>
Kypri & Langley (2003)	New Zealand	The aims of this study were to compare university students' perceptions of drinking norms with actual student drinking norms, to examine the relationship between norm misperception and individual drinking status, and to investigate the relative importance of three reference groups as potential determinants of individual drinking levels: young people in New Zealand of the same age and gender, local university students of the same age and gender, and the closest friends of individual respondents.	Respondents were asked to estimate the incidence of heavy episodic drinking and vomiting in the three reference groups, and to rate their own drinking in comparison. Estimates within [+ or -] 10% of actual norms were rated as accurate; estimates above or below actual norms by more than 10% were rated, respectively, as over-estimates and under-estimates. Heavy episodic drinking was defined as: thresholds were four and six standard drinks (10 g of ethanol per drink) for women and men, respectively, in accordance with the New Zealand government's "upper limits for responsible drinking".	A randomly-selected representative sample of 1,564 New Zealand university students aged 16-29 years completed an Internet-based survey of their alcohol use (response rate: 82%)	Over-estimation of drinking norms was very common in this sample of New Zealand university students. Students whose drinking was heaviest were most likely to overestimate norms.