



**Tertiary Students and Alcohol Use in
Aotearoa-New Zealand**

**An update of the Research Literature
2004-2010.**

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Alcohol Healthwatch

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Introduction

In June 2004 the Alcohol Advisory Council of New Zealand (ALAC) published “Alcohol Use and Tertiary Students¹ in Aotearoa – New Zealand”. (ALAC Occasional Publication No. 21).² This was a review of the literature to that time.

This report was prepared by Ron Tustin and commissioned by Alcohol Healthwatch on behalf of the National Advisory Group on Tertiary Student Drinking. It provides an update of the research that has been carried out since the publication of the above paper. Its purpose is to inform policy, planning and action in New Zealand to reduce alcohol-related harm among tertiary students, and in the communities where they live and learn.

Information was gathered by the following means:

1. Interviews with key researchers and other personnel. A list of those interviewed is attached in appendix 1.
2. Keyword searches in major medical library databases and principally Medline (PsycInfo).

Methodology and measurement

Several papers focus on the methodologies of the research including:

Kypri et al. (2004c) stated that decreasing response rates were of concern. However they concluded that bias resulting from non-response was too small to have an impact on estimating consumption levels.

Kypri et al. (2006c) showed that the provision of screening and minimal assessment may in itself provide treatment benefits and some controlled trials may be under-estimating treatment effects.

In Kypri et al (2009d), the authors stated that, in order to effectively evaluate the impact of a policy change, in a country the size of New Zealand it is not always possible to collect a significant amount of data. They advocate that government should build the research evidence base by ensuring evaluations are carried out in advance of any significant policy changes.

¹ The terms ‘tertiary’ and university’ and in the U.S. ‘college’ student are used in the literature. This report has gathered evidence in New Zealand from the 8 universities. To the author’s knowledge there have been no studies of other tertiary institutions such as polytechnics and wananga.

² This document is referred to as the “Towl report’ or the ‘2004 report’ throughout this report.

Executive Summary

This report summarises the known research carried out principally in New Zealand and Australia, and meta-studies from Europe and the United States for the period from 2004 to February 2010. It is a follow up report from the ALAC Occasional Publication No 21, 'Alcohol Use and Tertiary Students in Aotearoa-New Zealand', June 2004.

The purpose of this present review is to provide further evidence of effective and evaluated interventions to reduce alcohol-related harm among tertiary students for the national task force on tertiary student drinking, in order to develop its strategic plan.

For this review approximately 75 pieces of research have been sourced. This body of evidence reflects the research interest that is growing on this topic. This research interest is well justified, for the consumption levels and consequential harms from university students' alcohol use are higher than those of the non-student population of the same age,

Harms

A national survey has been carried out three times since 2004 and it now includes all New Zealand universities except for one. Two thirds of the sample was found to be drinking hazardously and a range of health and social harms were documented. There is additional evidence of the impact on academic performance.

Strategies to reduce harm

Location

Of the alcohol consumed by students, 51% is in licensed premises and 34% in halls of residence, so are amenable to interventions to reduce intoxication.

Outlets

There is an association between the density of outlets where students reside and problems. This is particularly strong within a 1 kilometre radius.

Price

There is a strong relationship between high prices and low levels of alcohol use.

Multi-component strategy

There are 2 examples of multi-strategy approaches in the United States, including regulation and enforcement, strong links between university and community groups, advertising agreements, web-based information. Although there were no comparison groups, there were

significant reductions in consumption and problems. In N.Z., Otago and possibly other campuses use multi component strategy but there have been no evaluations yet.

University policies

One study of 12 halls at a N.Z. university showed that moderate policies as opposed to restrictive or liberal policies produced the best results. Another study looked at policies and practices in student associations, support staff and licensing staff. The perception of seriousness of the issue varied amongst groups.

Social norms programmes

These are more prevalent in North America than Australasia. They continue to produce mixed results. They are usually in the form of social marketing campaigns and the findings indicate that they can help an audience contemplate behavioural change, but can also alienate students.

Brief interventions

There have been several studies into brief interventions since the last report. They usually use the AUDIT test as the screen followed by brief interventions. The response rate with web-based interventions is particularly high with students. Results in N.Z. studies show that they lead to a reduction in consumption and episodic drinking frequency as well as reduced problems.

The future

There are several projects that have recently commenced in N.Z. One is examining the impact of advertising on students in some of the new media such as social networking websites. Another is a focus on students who may be referred from a hall and will be inducted into a programme similar to the BASICS³ model. It will also include training for supervisors of halls and student support staff and a Campus Watch⁴ programme.

³ BASICS, (Brief Alcohol Screening and Intervention for College Students) is a preventive intervention program to reduce drinking and enhance awareness about alcohol-related issues among university students who are considered at risk because of heavy drinking behaviours. The brief intervention relies primarily on a motivational interview to provide students with the skills, knowledge, and insight into the consequences of drinking.

⁴ This programme is presently being evaluated. However as part of the Tertiary Student Health Survey 2009, 80% of respondents disagreed that 'Campus Watch is making things worse for the whole community' and 75% disagreed that 'Campus Watch is making things worse for students'.

Background

Tertiary student alcohol-related harm is a widespread national problem with serious consequences – and it has been for a long time. Although the factors that lead to the harm are complex, today – based on the evidence available - we have the potential to make real progress in reducing harmful drinking. On the basis of this information, tertiary institutions, communities and other interested organisations can take steps toward positive change.

The amount of research that has been published since the 2004 ALAC Occasional Publication, that is directly relevant to the New Zealand environment, is significant and provides a greater evidence base to implement action. This is despite the ‘file drawer’ problem, (Rosenthal) – the phenomenon where null results tend to go unreported in the literature. Previously the lack of evidence of what works has been a major obstacle to progress. Nevertheless, there are still significant gaps in the research particularly in regard to population-based interventions.

Why be bothered particularly about tertiary student drinking?

It has now become very evident that the consumption levels and consequential harms from university students’ alcohol use are higher than those of the non-student population of the same age. Kypri et al. (2005b) argued that students drink more hazardously than their non-student peers. A comparison of the AUDIT scores of 1424 University of Otago students in 2002 (Kypri et al. 2004) and the 2002/3 New Zealand Health Survey showed that students’ scores were on average 50-60% higher than their non-student peers. The prevalence of hazardous drinking (AUDIT score > 8) was almost twice as high among students. They also postulate that exposure to an ‘alcogenic’⁵ environment, such as the targeted marketing of alcohol to students through advertising, low prices and the promotion of events that promote heavy drinking, is implicated.

New Zealand University Students

In 2008 there were 395,575 students enrolled at registered publicly provided tertiary institutions in New Zealand. Within the 8 universities there are clear demographic variations. For instance, at Auckland University 15% of the students come from outside the boundaries of the university, whereas at Otago that number is 75%.

⁵ Alcogenic is a term that has been coined to describe all the physical and social environmental factors that reflect and promote a culture of excess drinking.

Alcohol consumption among students

International

Karam et al. (2007) reviewed published articles during 2005-2006 on alcohol use and related harm among tertiary students in Africa, Asia, Australasia, Europe and South America. They concluded that hazardous drinking in Australasia, Europe and South America appeared similar to that in North America. The rates were lower in Africa and Asia. The majority of research on this topic emanates from the United States but some of the findings will also have some relevance for the New Zealand situation. However there are some important and distinctive differences that will be discussed below. There have been no studies of alcohol use among international students in New Zealand.

New Zealand

David Towl reported in ALAC Occasional Publication 21 (2004) that “tertiary student drinking can be seen as a culture of consumption. Drinking is viewed as an intrinsic aspect of university life and is often presented as a more defining feature of being a student than academic work or study. (Adam et al. 2000). Most students surveyed in this study believed coming to university was the main influence in increasing their drinking.” There is no reason to believe that the patterns of consumption reported by Towl have changed significantly since 2004. The N.Z. studies reported on also indicated that males drank more than females and in greater amounts.

Brett McEwan (2009) investigated the relationship between student culture and binge drinking behaviour amongst halls of residence students at a medium-sized New Zealand university. He showed that the majority of students viewed alcohol use as a strong feature of student culture and this view was developed prior to students’ arrival on campus – typically through media images of student culture and from the comments of family and friends. Students showed a high level of acceptance towards binge-drinking behaviour.

Contrary to the popular perception that student drinking behaviour is an uncontrolled activity, the majority of heavy-drinking students reported that they practised ‘controlled intoxication’ while drinking. Students managed their level of intoxication by monitoring a range of alcohol-related effects to signal the need to either slow down or stop their drinking. Overall, most students enjoyed their drinking experiences and showed a high level of tolerance towards most alcohol-related harms.

Adopting the precepts of a social-ecological approach, McEwan argues that a range of multi-level harm-minimisation strategies are required targeting the ‘individual’ drinker, the ‘halls of residence’ environment, the ‘institutional’ environment, the ‘local community’ drinking environment, and the ‘national’ drinking culture.

An internet-based survey study of 1564 students at Otago University, (Kypri et al. 2005a) was used to compile a 7 day retrospective diary and to describe intoxication in a university community. One of the strengths of this study is in calculating an Estimated Blood Alcohol Concentration [EBAC]. The information (such as volume, duration of episode, gender, and weight) was used to calculate blood alcohol levels. The findings showed that 37% of women and 39% of men drank to intoxication (an EBAC of > 0.08 g %) at least once weekly. Teenage females had higher EBAC's than their male counterparts. Previous studies have shown that Intoxication was positively associated with lower age, European or Maori ethnicity relative to Asian, Pacific and other ethnicities, and with students living in halls of residences relative to other living arrangements.

The minimum legal purchasing age (MLPA) and non-NZ studies

In many of the states of the United States, the legal drinking age is 20 or 21. Consequently, many of the counter-measures in the U.S. to reduce college students' harmful drinking focus on enforcing the legal drinking age. However in New Zealand the MLPA for alcohol is 18. As almost all tertiary students in New Zealand are legally entitled to purchase alcohol, interventions such as curbing under-age drinking are not as relevant in N.Z.

When the MLPA was reduced to 18 years in N.Z., Brownfield et al. looked at the effect when younger, previously under-age drinkers were introduced into the drinking environment on the attitudes and behaviours of 20 and older drinkers. Surveys were carried out both pre and post the law change. There were no changes in the frequency of drinking, but the quantity consumed at one time decreased after the law change, suggesting that the presence of younger drinkers may have driven older drinkers away from licensed premises. In written comments a third of the sample of 20+ drinkers made negative comments towards the newer drinkers.

Gender

Although the ALAC Occasional Publication did not describe or report on any gender differences, since 2004 there have been some significant studies on these differences.

In many overseas studies males are shown consistently to drink greater amounts, and more hazardously than females. However some studies in N.Z. universities (Kypri et al. 2005a) now show that the rates have converged.

Drinking motives

O'Brien et al. (2008a) showed that although there were no gender differences in AUDIT scores of university sportspeople (n=631), gender differences were found in the motives for drinking.

Coping motives were found to be a predictor of hazardous drinking in females but males were more likely to drink for social and enhancement reasons. The authors state that *“in... no other domain...is gender equality more endorsed and supported by social structures and policy than in universities....particularly in those subgroups where drinking is already endorsed (e.g. sportspeople).”*(Page 663)

Women and binge drinking

Lyons and Willott (2008) observed that among a sample of 16 women and 16 men aged 20-29, some of whom were students, binge drinking was a normalised and social activity that participants did not view as problematic and *“there was a feminization of binge drinking, as women were actively involved in producing their own identities through challenging notions of traditional femininity.”* (Page 708)

Gender and advertising

From information on how women’s and men’s magazines portray alcohol and drinking, there are clear differences in the ways in which men and women are portrayed in what they drink, ways they drink and the types of drinkers they are (Lyons and Hoy 2006). In women’s magazines although drinks are aligned with feminine images and descriptions, the drinking itself is aligned with masculinity, adventure and professionalism.

Ethnicity

Maori Students

In a presentation to the Tertiary Student Hazardous Drinking - Research Symposium, 8 April, 2008 (<http://www.otago.ac.nz/IPRU/Publications/Symposia.html>), Joanne Baxter stated that, from the analysis of data of a 2002 survey, there was a significant difference between the AUDIT scores of Maori students (12.4) and all students (10.6). Maori students drank 8.3 drinks per occasion and all students drank 7.0 drinks. Baxter concluded that *“Reducing hazardous drinking and consequences may contribute to enhanced outcomes within tertiary institutions for Māori.”*

Asian students

Oei and Jardim compared a sample of Australian Caucasian students with a group of Australian Asian students in relation to alcohol expectancies and drinking refusal self-efficacy (ability to refuse alcohol in certain situations). The findings confirmed that Caucasians drank more alcohol annually, drank more regularly and drank more per occasion than the Asian sample. The Caucasian sample reported higher confidence, higher sexual interest and higher tension

reduction than Asians. The Asian sample reported more negative consequences and they were more able to refuse alcohol under social pressure.

Alcohol-related harm

The ALAC Occasional Publication 21 (2004) included a table summarising the harms both to individual drinkers and to others affected by the drinking. This table can be found in Appendix 3.

One of the most significant additions to the body of knowledge since 2004 has been the development a national survey of university students in New Zealand. It has been carried out three times, in 2005, with 6 campuses and 5 universities, in 2007 when Canterbury University was added and in 2009 when Auckland University of Technology (AUT) was added, but the terms were such that uptake was very poor and it was excluded. Auckland University is the only other N.Z. University still not included in this survey.

In data from 2548 students from the 2005 survey, (Kypri et al 2009a), drinking patterns and alcohol-related harms were measured. One of the findings was that 68% of the sample was rated as hazardous drinkers by the AUDIT test. In regard to harms experienced over the previous 4 weeks, 33% had a blackout, 6% had unprotected sex, and 5% said they were physically aggressive towards someone. Drink-driving or being a passenger of a drink-driver was reported by 9% of women and 11% of men. Risk factors for heavy drinking included: lower age, monthly or more frequent heavy drinking in high school and living in a residential hall or shared house.

McGee and Kypri used two new scales to assess alcohol-related and academic problems associated with excessive drinking. They assessed the immediate physical consequences such as hangovers, blackouts and vomiting as well as interpersonal problems such as outburst and unwanted sexual activity as well as anti-social ones such as fighting, theft and vandalism. They found that these alcohol-related harms were relatively common among this group (n= 1564) of university students.

Sexual harm

In a sample of 1564 Otago university students (Cashell-Smith et al.) , 16% of women and 19% men reported having sex that they later regretted, and 34% of women and 25% of men reported unwanted sexual advances due to someone else's drinking in the past 3 months.

Connor et al. have looked at the same data. It underlines the strong association between heavy drinking and risky sexual behaviour. The authors report that in the last 4 weeks, 5% of women and 8% of men reported unsafe sex due to drinking, 3% of women and 4% of men had sex they were unhappy about at the time, and 8% of women and 9% of men had sex they later regretted. Unwanted sexual advances due to someone else's drinking affected 21% of women and 12% of men. The authors concluded that these harms could only partly be explained by

current drinking and stated that *“binge drinking at high school and early drinking onset are highly predictive of drinking patterns at university and this seems to explain much of the relationship with sexual experiences.”*

Vomiting

Blackmore has investigated the relationship between self-induced vomiting after drinking alcohol and eating disorders and alcohol use. In the sample of university students, 49% of those who drank over a period of 12 months reported they had intentionally vomited. Females scored higher than males on measures of disordered eating and in terms of hazardous alcohol use, males scored higher than females.

Drink-driving

University students are also exposed to considerable risk as drink-drivers and -passengers. Male students who drink alcohol are associated with speeding, drink-driving and drink-riding, but not seat-belt use. 3.4% of women and 8.4% of men had been drink-drivers in the last 4 weeks. The good news from a public health perspective is that most respondents dramatically underestimated how much they were able to drink to stay under the legal limit. (McAnally and Kypri, Kypri and Stephenson.)

Kypri et al. (2006a) found that after the MLPA was lowered, more alcohol-involved crashes occurred among 15-19 year olds than would have occurred had the MLPA not been reduced. The effect was particularly marked among 18-19 year olds. The study analysed data both before and after the introduction of the new legislation.

Academic performance

The impact of hazardous drinking on academic performance has been well documented in the U.S. About 25 percent of U. S. college students report academic consequences of their drinking including missing class, falling behind, doing poorly on exams or papers, and receiving lower grades overall

In New Zealand, Paschall et al. (2006) examined whether there was an association between scheduling Friday lectures and alcohol use. Those that did not have any Friday classes reported that Thursday was a typical drinking night and that their biggest drinking occasion was on a Thursday. However, the authors showed that although the week day pattern of drinking may vary for those who have Friday classes, there is no significant difference in overall levels of and heavy drinking between those who have Friday classes and those who do not. Nevertheless, students with a history of heavy drinking are less likely to schedule a Friday class. This type of evidence has encouraged some college administrators in the U.S. to increase the number of Friday classes.

In New Zealand, McGee and Kypri have looked at a variety of measures of academic performance such as being late for class, missing a class, being unable to concentrate and not completing assignments on time. They found an association between these measures and hazardous drinking.

REDUCING ALCOHOL-RELATED HARM AMONG TERTIARY STUDENTS

The strategies outlined in this section follow the categories from the National Alcohol Strategy (2001) and also from the ALAC Occasional Publication 21. These are:

- **supply control** – strategies that control the availability of alcohol
- **demand reduction** – strategies that encourage reduced and responsible use of alcohol
- **problem limitation** – strategies that are aimed at reducing the problems stemming from the use of alcohol

Controlling the supply of alcohol

Internationally there is a reasonable amount of evidence on the association of alcohol policies and alcohol use. Babor et al. still provide the most comprehensive and most recent study of evidence for strategies to reduce alcohol-related harm in the general population.

Paschall et al. (2009) investigated the relationship between alcohol control policies and adolescent alcohol use in 26 countries. Their findings supported the hypothesis that more comprehensive and stringent policies particularly in relation to availability and marketing had a strong association with a lower prevalence of adolescent alcohol consumption and age of first alcohol use.

In the U.S. an update of the 2002 review on environmental strategies to reduce college drinking (Toomey et al. 2007) summarises effective policies to reduce alcohol-related harm among college students;

Restrict where, when, and how alcohol is sold:

Higher densities of licensed premises have been associated with higher levels of drinking. Also higher rates of vandalism, noise and disturbances occur in those neighbourhoods. An increase in hours of sale is also associated with increased use, increased problems or both.

In New Zealand in data from the New Zealand national student survey (2550 students at 6 N.Z. university campuses) Kypri et al. (2008a) found significant associations between the geographic density of outlets with drinking levels and related problems. They also found the effects were largest for 1 km densities and for off-license outlets.

Kypri et al. (2007a) also examined the risk of intoxication by drinking in pubs, halls of residence and other places. Pubs accounted for 51% of all alcohol consumed, halls of residence 34%, student flats 9% and other locations 6%. Drinking in pubs was associated with intoxication among men. The authors concluded that student intoxication was commonplace in licensed premises and halls of residence and as such were amenable to interventions to reduce intoxication.

Server training – host responsibility

The evidence of this approach by itself has not been convincing. However if combined with, in the U.S., dram shop liability or, in N.Z. enforcement of Sale of Liquor and other relevant legislation, there is some evidence of its effectiveness.

Price

Several recent studies have shown that higher prices are associated with lower levels of alcohol use. But the results of some studies of the effect of price on alcohol-related problems have provided mixed results. Two recent studies in the U.S. show that students in environments where alcohol is cheap and more accessible were more likely to consume alcohol heavily than peers without similar exposures. And alternatively, by increasing the price of alcohol there were reductions in both moderate and heavy drinking by college students.

In April 2008 the Australian Government increased the excise tax on ready-to-drink (RTD's) spirit-based products. Chikritzhs et al. showed that in the three months after the tax increase 91 million fewer standard drinks were sold as RTD's. A 54% decline in sales was also reported over the same period.

Restricting where alcohol is consumed

Since the last review, many territorial local authorities in N.Z. have introduced, through their local by-laws, liquor bans in areas where students are likely to congregate. The evidence shows that liquor bans:

- May or may not reduce the number of people under the influence of alcohol
- Allow police to stop people drinking in public places, circumventing unruly behaviour.
- May have complementary strategies, but their focus is on reducing crime and improving safety

- Are enhanced through community partnerships involving police, local authorities, health agencies, community representatives and liquor liaison groups
- Are more effective in the context of a wider local authority alcohol strategy where there is a range of strategies

No evaluations of the effectiveness of liquor bans on students have been carried out.

In the U.S., colleges can choose to have 'dry' campuses. Students who attended colleges that banned alcohol on the campus had a 30% less likely chance to be heavy episodic drinkers. In addition rates of second hand effects such as property damage were lower at these colleges too.

In halls of residence in the U.S., 4 studies showed that there was no difference between students living in alcohol-free residences and those living in unrestricted residences in 30 day or past year alcohol use or for alcohol-related harms.

The roles of N.Z. universities

Although universities are increasingly assuming greater roles to minimise alcohol-related harm on their campuses, most are reluctant to take an active role in the wider community. However, in a submission by Otago University to the Law Commission review (2009) of the Sale of Liquor Act, the submitters state *"In Dunedin's case, the licensing environment has been pushed to such extremes that the university itself has been forced to intervene, making its stand to the Liquor Licensing Authority."* This has included submissions in regard to different liquor licences. They concluded *"the impact the alcohol industry is increasingly having, through their promotions and marketing strategies, is seriously undermining the perception our future students and their parents have of the City and the University."*

In his submission on one particular event, Captain Cook Tavern's 'Cookathon', the director of Student Services of Otago University said *"The issue at stake for the University is the totally unacceptable consequences of this promotion. The University and the Dunedin City to a lesser degree, are totally dependent upon students, their families and staff choosing to come to Dunedin to study, live and work.... This kind of promotion is destructive to the reputation of the University and also to the overall community of Dunedin City."*

Multi-strategy approaches and town-gown relationships

In Albany, New York a campus-community coalition was formed to reduce problems related to student drinking. The coalition implemented a multi-component intervention including, educating students about penalties related to alcohol, increased Police presence in student neighbourhoods, encouraging landlords to adhere to laws requiring safe and secure

accommodation for students, a voluntary agreement on advertising by licensees, monitoring advertisements by community members and law enforcement, licensing authorities and licensees meeting to discuss responsible service. Although patterns were not clear and no comparison group was included, the authors concluded that this approach led to decreases in alcohol-related problems. (Gebhardt et al.)

Saltz et al. evaluated a programme at three campuses in Washington aimed at decreasing disruptive off-campus parties. The intervention included 'party emphasis patrols', collaboration with the city (council) to develop a regulation to reduce calls to the same address, community engagement strategies including web-based information for students on living safely and legally in the community, service-learning projects in the adjacent communities and a neighbourhood-based conflict resolution programme. Although the study did not provide definitive results it did show a significant reduction in heavy episodic drinking in 2 intervention sites relative to a third and showed them in one year.

At Otago University, and possibly other NZ universities, there are several joint strategies in place. For example, at Otago there is the Campus Watch programme, a preventive campus and community based presence of people, an internet-based early screening and brief intervention programme for students and the university is active in the community by providing evidence at various liquor licence renewals or extensions (see above). Although there have been evaluations of individual programmes, there are no evaluations of the mix of strategies in the New Zealand context.

Policy in the university setting

Since the ALAC Occasional Publication 21 (2004), there have been two studies in New Zealand that have looked at institutional policies.

McLennan looked at the impact of the policies at twelve halls of residence at Otago University on alcohol-related behaviour. Students in halls with restrictive policies reported a higher prevalence of alcohol-related harm. Halls with moderate policies had the lowest prevalence of intoxication and harm. The results were also partly attributable to individual factors such as gender, ethnicity and high school drinking characteristics. In addition, the size of the hall and of the drinking group may have an impact. However, the author warned that this was an 'exploratory study' and the results are not conclusive.

Cousins et al. looked at the policies at 6 campuses in New Zealand, particularly at student services, student associations, Maori support staff, student health services and liquor licensing officers. All respondents agreed about the negative impact of alcohol on students, the perception of seriousness varied, for example, health services perceived the problem to be greater than others such as students associations. Although Maori support services

acknowledged the negative effects of alcohol they did not think alcohol issues were as much a priority as other issues. The authors recommended that if Maori hazardous drinking is to become a priority, additional resources may be needed. Some campuses had taken steps to coordinate services between students, support staff, health services and local authorities.

Reducing Demand

Advertising and marketing

The relationship between universities, student associations and the alcohol industry is a close one. Otago University is one of the few universities in NZ that owns the on-campus licensed venues. On most other campuses these are owned and operated by the students' associations. In 2009 Otago University decided to terminate its sponsorship relationship with Lion Nathan.

Although there have been no studies over the time period specifically of the impact of alcohol sponsorship on university students, a study of alcohol sponsorship and sportspeople showed that almost half (47.8%) of the sample had alcohol industry sponsorship. Those that received sponsorship had AUDIT scores on average 2.4 points higher than those who received no sponsorship. (O'Brien and Kypri).

Another indicator of the marketing relationship between the alcohol industry and university students is the level of advertising in student publications. Cousins and Kypri examined all 2005 issues of student newspapers for alcohol-related advertising. The findings showed that such advertising was common in 4 of the 5 universities studied. (In the other one there was an agreement between the students' association and a brewery forbidding alcohol-related advertising.) The amount of advertising was about 50% less than in the U. S. but students are exposed to many other forms of advertising too.

Kuo et al. examined the American campus alcohol environment (including alcohol promotions, price specials and advertising at premises) and the impact on student drinking behaviour. Almost three quarters of on-licence premises offered specials on weekends. They stated that "the availability of ...low sale prices and frequent promotions and advertisements ...were associated with higher binge drinking rates."

A study in Australia (Lynch and Jones) has looked at the impact of point of purchase (POP) promotions on male student drinking behaviour. POP promotions include promotional activities such as offering a premium for purchasing a certain quantity of alcohol. The authors found that these materials contribute to a 'pro-alcohol' environment and encourage patrons to drink alcohol at risky and greater levels than usual.

The advertising and marketing environment is changing rapidly, such as with the development of new media and new technologies which often sit outside the legal framework developed around radio, TV and print advertising. A new study looking at the impact of some of the new technologies has recently received a grant and will commence in 2010.

In regard to the sophistication and power of the new marketing approaches and the new marketing environments McCreanor et al. have challenged public health policy and practice to gain a better understanding of this in order to protect the health and wellbeing of young people.

Social norms

In the ALAC Occasional Publication Towl described the social norms strategy as “promising but requiring further evaluation”.

Since then this approach has continued to attract research interest, particularly in the United States. The corollary of this approach, where most students overestimate the use and approval of alcohol by their peers, is that students are less inclined to view their own alcohol use as problematic.

Social marketing programmes are often developed to correct these misperceived norms. In their meta-analysis, Borsari and Carey state that *“descriptive norm education appears to be an effective method of changing students’ perceptions of others drinking. There also appears to be gender differences in this approach, in that women are more likely to perceive the norms as being more descriptive of men’s behaviour and consequently are less likely to be influenced by norms education.”*

Two separate studies of Australian female students, (O’Hara et. al 2007 and 2008) on the influence of norms found that group norms played a large part in attitudes to drinking, whereas subjective norms did not. The group norm is likely to be higher amongst those who drank more. Individuals who lived independently were more likely to be high consumers. As social marketers they concluded that any campaign should focus on the attitudes and group norms of this group.

Social marketing

There are two evaluations of marketing programmes in universities in this time period. Ricciardelli and McCabe examined students’ understandings and effectiveness of an Australian campaign. Although many students were positive about the campaign, others were more negative. The findings highlighted how media campaigns can help an audience contemplate behavioural change, but also how they can alienate students and promote counter-productive attitudes. The authors commented that in order to bridge the gap between problem awareness

(usually the object of a media campaign) and behaviour change, such programmes should be followed by brief intervention strategies.

The second evaluation is of the 'mirrors' postcards at Victoria University, Wellington (Hutton). These postcards had a small mirror on them and the words "Missing. Going out? Stick with your mates." The general consensus was that the posters were an innovative, creative and effective way of encouraging students to consider their behaviour. Over half of the sample (355) would, may or possibly make a difference to people's drinking behaviour. The value of peer-developed materials was also emphasised.

Labelling on containers

The packaging of alcohol in Australasia, unlike non-alcoholic beverages, is not required to display a list of ingredients or nutritional information, such as the amount of sugar, calories or any preservatives. Kypri et al (2007b) surveyed 7237 students in an Australian university and three quarters said that they wanted to see both ingredients and nutritional information on alcohol containers. In fact, no more than 4% disagreed with this measure. The authors suggested that the present interest in weight issues in developed countries might be a more compelling motive to reduce hazardous drinking than alcohol-related injury and harm.

Healthy universities

In Europe the Healthy Universities approach provides an example of how alcohol issues can be embedded in a wider context. The goal of a 'healthy universities' is to integrate health into the university's structure.

In the United Kingdom, Dunne and Somerset (2004) carried out a piece of qualitative research to investigate students' health needs and their views on health promotion in a university. Two central themes emerged; firstly, student health concerns, such as adjustment to university life, lifestyle behaviours and support services and secondly, health promotion in a university setting with key areas being alcohol and drug use, healthy eating and mental health. "Alcohol was felt to be of paramount importance as all students discussed a trend towards excessive alcohol intake" (page 368). They supported the idea of campaigns, being complemented by other interventions.

Problem limitation

Brief interventions

There is a substantial body of research evidence that supports the efficacy of brief interventions (BI's) for alcohol-related problems, and in particular for students. Roche and Freeman contend that general practitioner uptake of BI's has been poor and practice nurses should be considered

as alternative deliverers. They also suggest that “the use of computers’ is a viable alternative to pen-and-paper questionnaires.’ (Page 13)

The Alcohol Use Disorders identification Test (AUDIT) is widely used in BI’s. AUDIT is a standardised instrument that can be administered quickly and easily. Berner et al. carried out a systematic review (23 studies) of the diagnostic accuracy of the AUDIT. They concluded that there was strong evidence for its use with its use in primary care and elderly populations. Although they said there was weak evidence to support its diagnostic accuracy in student populations they only examined one study with this target group.

In Saunders et al. as part of the proceedings of a symposium, Kypri concluded that given the evidence base for brief intervention for older drinkers, its efficacy in reducing hazardous drinking among young people, and university students in particular, deserves further study.

In a review covering the period 2003-2004 of telephone, correspondence and computerised interventions to reduce alcohol problems, Kypri et al (2005d) stated “*the evaluation of innovative interventions...is still at a fledgling stage*” They found that although telephone and correspondence approaches had mixed results, computerised interventions can reduce hazardous alcohol consumption.

Since that time Kypri and colleagues have focussed their attention on web-based screening and brief interventions with university students.

Web-based

Bewick et al. have reviewed the effectiveness of electronic screening and brief interventions (eSBI) in regard to alcohol issues. From an initial search of 191 articles only 10 were evaluated and consequently eligible for inclusion. They concluded that the effectiveness of eSBI had mixed results but the process evaluations suggest that eSBI is well received.

Kypri et al. (2004b), employing a double-blind Randomised Controlled Trial with a relatively small sample of students (n=167) allocated students to web-based assessment and personalised feedback or a leaflet. They found that eSBI reduced consumption, reduced heavy episodic frequency and personal problems at both 6 weeks and 6 months.

A study of 1010 Otago university students (Kypri et al. 2005c) offered screening (AUDIT), showed that half to two thirds drink at hazardous levels, most will complete a computerised screening in a primary health care setting and only 4% will decline follow-up contact. The authors concluded that opportunistic eSBI in this setting is both inexpensive and deliverable to many.

Until now, studies among tertiary students have been limited by short follow up periods. But the same sample of 1010 students was followed up at 6 and 12 month intervals by Kypri et al (2008b). This RCT showed that those students who received eSBI reported statistically significant less alcohol consumption and fewer problems at both 6 and 12 months on some measures. It also showed that additional sessions did not increase the efficacy of the intervention.

This intervention was also adapted for an Australian university. Again, this eSBI intervention showed its potential with university students. Those who received eSBI drank 17% less than controls after 1 month and 11% less after 6 months. (Hallett et al., Kypri et al.2009c). Although the effects were somewhat smaller than those found in the Otago study this may have been because of the lack of face-to-face interaction and the fact that it did not take place in a health care setting.

The potential for nesting alcohol consumption interventions within other health issues was demonstrated by a computerised intervention (Kypri and McAnally) of 213 students at Otago University in 2003. This demonstrated significant changes in students physical activity and fruit and vegetable intake by those who received a web-based assessment and personalised feedback compared to those who had minimal contact.

Discussion

Since the review in 2004 (ALAC Occasional Publication 21) there has been a high level of research interest in tertiary students' drinking. We have a clearer understanding of the description of the problem and there have been further studies on interventions to increase the evidence of what is likely to reduce harm among tertiary students.

Some of these understandings are:

- University students drink more alcohol and experience a greater level of harm than other young people of the same age.
- In some studies women are drinking equivalent amounts of alcohol as the men and in some instances are becoming more intoxicated than males.
- The national surveys of N.Z. university students show that 2/3 are drinking to hazardous levels and harms such as sexual harm, vomiting, blackouts and aggressive behaviour are well documented. This is based on data from the 2005 survey. Information has now been collected from the 2007 and 2009 surveys.
- The majority of intoxication occurs in and around licensed premises and halls of residence. Consequently it is recommended that interventions should focus on these locations.

A range of interventions have now been evaluated and some are obviously more efficacious than others. Babor et al. have probably provided the most robust analysis of these.

There are some examples of strong evidence that cannot be ignored:

- The association between the density of outlets in close proximity to campuses and problems
- The impact of price, particularly in regard to the Australian example of a tax hike in RTD's
- The impact of advertising and marketing on students, such as advertising on the campus, the use of new technology, special events and 'unhealthy promotions', sponsorship which have associations with increased harm
- The embedding of programmes about alcohol-related harm in a broader context, such as in a 'healthy settings' approach, provision of labelling with nutrition information, students' wish to see programmes within a context of mental health and other issues.

Individual-based interventions such as the web-based screening and brief intervention have attracted a lot of attention by researchers in N.Z. They have demonstrated that these interventions are inexpensive, deliverable to many students and lead to positive outcomes such as reduced consumption, decreased episodic frequency and decreased personal problems over 6 weeks, 6 months and 12 months. There is a good case to extend these into all N.Z. tertiary institutions.

Some Questions University Leaders Can Ask

1. What is the type of problem that needs to be addressed (e.g., high rates of heavy drinking, fights during sporting events, street parties)?
2. What strategies are most likely to address each problem?
3. At what level should the strategy be implemented (e.g., at sports stadiums, on the campus, in the community, or wider?)
4. Who should participate in developing strategies?
5. What strategies are currently being implemented?
6. How well are existing policies being enforced? And would enforcement of existing policies be more effective than implementing new policies?
7. How can different strategies complement each other?
8. What resources are needed to implement new strategies? Are resources available?
9. How will the new strategies be evaluated and fine-tuned to maximize their effect?
10. Are your strategies founded on solid, research-based findings?

Tertiary student drinking is a complex topic. Reducing harmful alcohol use among this group calls for innovative approaches. Some of the more promising approaches are likely to draw on new technology or new research approaches. It is too early to tell if these approaches will prove useful in real-world campus settings, but they represent some unique prospects and are worth watching.

- Web-based training for halls of residence supervisors, health workers, student support workers and others in a position to help students who are experiencing problems with alcohol.
- Computerised or web-based screening and brief intervention throughout all N.Z. tertiary institutions for students, to identify early on those students at risk for alcohol problems.
- Interventions for priority groups such as women, Maori, sportspeople and other specific groups within the university population.
- The universities' active and increasing roles in the community where students drink, through developing relationships with the regulatory agencies, participation in licensing processes, programmes such as Campus Watch at Otago university.
- Multi-component approaches that draw on best-practice models.

Appendix One

Interviews were held with the following people:

- Kypros Kypri, University of Newcastle, NSW, Australia
- Brett McEwan, Waikato University.
- Antonia Lyons, Psychology department, Massey University, Wellington.
- David Richardson, Director of Student Services, Otago University.
- Brett McLellan, Injury Prevention Research Unit, Otago University.

Interviews covered the explanation of the aims of this report, what published papers have they written or co-written in the time period, what other papers are they aware of that should be included, what unpublished papers do they know of, what is the research stating about the topic, what are the gaps in information.

Appendix two

Executive Summary of ALAC Occasional Publication 21 2004

Most research into tertiary student drinking comes from the United States; some is available from Canada, Europe and Australia. Four studies were found from New Zealand and all indicated:

- consumption levels well in excess of recommended limits
- first-hand and second-hand harms related to that consumption
- evidence of a general public health concern that needs management.

University life may actually promote drinking among students. Drinking has been described as intrinsic to the student culture and a more defining feature of tertiary study than academic work itself. High rates of drinking are seen by researchers as due to:

- the peer nature of the tertiary education culture – alcohol allows you to fit in
- the need to prove masculinity and adulthood
- the high levels of unstructured free time available
- the promotion of alcohol to students.

‘Drinking stories’ play a part in maintaining group dynamics and are seen positively by students, which means drinking harms could actually be seen as a good thing. ‘Drinking games’ are also prevalent, with the aim of getting drunk quickly, socialising, controlling others and getting others drunk.

ALCOHOL-RELATED HARM

Harms related to alcohol consumption are connected with intoxication. There is a higher level of harm among people who occasionally become intoxicated than among dependent drinkers.

Research from New Zealand and overseas has demonstrated numerous harms associated with the alcohol consumption of others. These second-hand alcohol effects are prevalent in New Zealand and may have an effect on minority groups to a level not realised before.

SPECIFIC EVALUATED STRATEGIES

Internationally, few programmes have been evaluated, with those that have mostly coming from the United States. While these programmes may be beneficial, their applicability to the New Zealand context must be considered before any are implemented.

Reducing the Physical Availability of Alcohol

Some American campuses have moved towards total alcohol bans, with varying results. One study found no change in extreme drinking or alcohol-related harms, but reduced second-hand effects of drinking on alcohol-free campuses.

Internationally, the minimum legal drinking age has been demonstrated as one of the most effective policy options available. In New Zealand the Sale of Liquor Amendment Act 1999 set the minimum legal purchasing age at 18. Most tertiary students can therefore buy alcohol with few restrictions placed on them in licensed premises.

Studies have found high correlates between outlet density and heavy drinking, frequent drinking and drinking-related problems. Reducing outlet density near tertiary education campuses may be promising in reducing harms.

Brief Interventions

Brief intervention has been successful in targeting students identified as problem drinkers and motivating them to change their behaviour.

The short duration and low intensity of brief interventions mean they can be delivered to students by a cross-section of the student-support workforce, including peers. They can also be delivered in a range of media such as mailed feedback, personal diaries or self-help manuals and through a variety of strategies such as one-to-one motivational interviews or small-group information and assessment discussions.

Recent studies indicate acceptability and appropriateness of experiential intervention programmes such as interactive monitoring at licensed premises or web-based motivational assessment. One New Zealand study found students would rather receive brief intervention from a computer than a health professional while an Australian study found students might favour a personal alcohol health risk assessment at student functions.

Changing the Drinking Context

By targeting bars, servers, door staff and marketers, the environmental factors of alcohol consumption can be changed, and with them the harms associated with hazardous consumption.

Using strategies such as increasing light sources in bars, improving ventilation, offering food, improving the flow of foot traffic and working to avoid aggression, a licensed premise can cease being a place for committed drinking sessions and instead become a social environment where alcohol is consumed safely.

A recent review of host responsibility places a greater emphasis on servers of alcohol in licensed premises to prevent intoxication. In addition, the Sale of Liquor Act 1989 carries offences for servers and managers who do not comply with the strategies of host responsibility.

Educative and Persuasive Strategies

Education strategies are not well supported by the literature. After a drug education programme, students were aware that alcohol was a dangerous substance, but were not motivated to change their drinking patterns. Educative strategies have been employed using the media, computers and the internet to provide alcohol harm reduction messages to students.

The power of persuasion by parents, friends and other family members has also been investigated. Students felt more comfortable in intervening in friends' alcohol and drug use after completing drug education courses themselves. Work from the United States found that including parents in promotions might have more than beneficial results.

Although educative strategies may not work well in isolation, they do have a place as part of a comprehensive range of strategies.

Social norms approaches, which work by highlighting healthy norms about drinking, have been introduced to a wide range of United States campuses. Studies have shown the approach has promise but requires further evaluation.

Healthy Settings

The World Health Organisation (WHO) is developing healthy settings to solve health problems closer to their source. This holistic approach involves strengthening environmental health and health promotion and forging relationships with the community.

A health-promoting university integrates health into its culture, processes and policies. It includes strategies to encourage safe alcohol practices and the reduction of alcohol-related harm.

Institutional Policies

A number of New Zealand tertiary education institutions have alcohol policies. Many of these focus on regulations on what and where alcohol may be consumed. Research supports student involvement in policy development.

De-emphasising Alcohol

De-emphasising alcohol's role in the student milieu may be integral to solving some of the problems surrounding it.

For example, by adding compulsory classes on Fridays, students may be more likely to not drink on Thursday and Friday nights. Research also suggests using revenue from alcohol sponsorship to promote alcohol safety and making news about alcohol-related harm a priority for student newspapers.

Increasing social capital (by encouraging students to do volunteer and charity work) has been seen as a way of reducing alcohol-related harm. Campuses with higher rates of volunteering have lower rates of alcohol-related harm.

THE WAY FORWARD

The United States National Advisory Council on Alcohol Abuse and Alcoholism Task Force on College Drinking's publication A Call to Action (Task Force on College Drinking [TFCD], 2002a) recommends a '3-in-1 Framework' to address 'excessive college drinking'. The Framework focuses simultaneously on three audiences:

1. Individuals, including at-risk or alcohol-dependent drinkers.
2. The student body as a whole.
3. The college [university] and surrounding community.

The Framework is designed for the United States where many strategies are based around preventing under-age drinking, so may not apply directly to the New Zealand environment of a lower minimum legal purchasing age. Because restricting access is not a viable option in New Zealand's legal climate, harm-reduction methods may be more appropriate.

Any work in this area needs the leadership of the institution and support from the local community. By making tertiary student alcohol-related harm a community problem rather than a campus one, community leaders are more likely to lend their support.

Socio-cultural strategies, such as changing the drinking context and de-emphasising alcohol's role on campus, are positive steps forward. Harm-reduction methods, such as reducing alcohol outlet density, promoting the use of opportunistic brief intervention and supporting substance-free events, recognise that alcohol is part of the student culture, but the part it plays does not need to be great.

Appendix 3

Harms associated with own drinking	Harms associated with others' drinking
<p>Hangover Emotional outburst Vomiting Heated argument Physically aggressive to someone Blackouts Inability to pay bills as a result of drinking Unprotected sex In a sexual situation unhappy about Sexual encounter that later regretted Stealing public property Vandalism Removed or banned from pub Arrested for drunken behaviour Missed a class Failed to complete assignment Impaired at test or exam Physically hurt self Drove while intoxicated</p>	<p>Being pushed, hit or assaulted Property damage Unwanted sexual advance Study/sleep interrupted A serious argument Babysat a drunken student Was insulted/humiliated Sexually assaulted/raped Found vomit in hallway/bathroom Victim of a crime Passenger in car with drunken driver</p>

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