Centre for Health Initiatives

Point of Sale Alcohol Promotions at Retail Outlets in Victoria

Final Research Report

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Glossary

Note the use of the following acronyms used throughout this document.

Acronym	Definition
CHI	Centre for Health Initiatives
UOW	University of Wollongong
DOJ	Department of Justice
POS	Point of Sale
RTD	Ready to Drink

Executive Summary

Alcohol marketing (including advertising) has long been linked with alcohol attitudes and behaviour in young adults. Heretofore, there has been a considerable amount of research investigating how traditional forms of marketing, particularly advertising such as television commercials or magazine advertisements influence alcohol attitudes and behaviours. However, alcohol marketing is becoming increasingly diverse, with a variety of innovative ways utilised to promote alcohol brands to consumers, and young adults in particular, such as branding, experiential marketing, sponsorship and promotional activities. These include a range of point-of-sale promotions (e.g., price promotions, free gifts and competitions), which are widely used in Australia. At present, there is very little evidence examining the extent of young adults' exposure to POS promotions, and any associated effect on alcohol attitudes and behaviours.

The purpose of this project was to address this gap in the literature, through a longitudinal study of young Victorians aged 18-25. Data was collected monthly between August 2012 and August 2013, through an online survey examining on exposure and responses to POS promotions, product purchases and drinking behaviour. A total of 297 people were recruited and participated in the study, with 243 participants (81.8%) completing 6 or more surveys.

The results indicated that 73.6% of respondents consumed alcohol during the week prior to completing each survey and 83.9% during the month prior to each survey. Approximately 65% engaged in binge drinking (more than 4 standard drinks on a single drinking occasion) at least once in the past month, averaged over the 12 month period.

The longitudinal data indicated some clear monthly trends in patterns of alcohol consumption and exposure to POS promotions over the 12-month period. For instance, there were peaks in consumption and POS promotions at three periods - March/April, December/January, and September – which coincided with major festive or sporting events (e.g., Christmas, AFL grand final). These trends are consistent with Neilsen sales data, which estimates the total off-premise liquor sales in Victoria. The results indicated that the peaks in POS promotions were associated with higher rates of alcohol purchase and consumption.

In summary, the present results indicated that alcohol POS promotions are a prevalent, highly accessed, and influential component of the alcohol marketing mix in relation to young people. The study identified clear patterns of intense POS promotions, including the extensive use of price promotions during peak 'drinking' periods (such as the Christmas period). A significant relationship between exposure to POS promotions and alcohol purchasing behaviour during these periods, including what was bought, how much was spent and whether purchases were part of a promotion was also observed. The report concludes with recommendations for policy interventions to reduce the impact of POS promotions including:

- Given the extensive visibility and purchase of alcohol POS promotions, policy makers may wish to consider regulating or restricting this environment, particularly at 'special' times of the year such as football finals season and Christmas and New Year.
- Young drinkers are price-sensitive and given the considerable existing research evidence base that demonstrates increasing alcohol prices reduces consumption and associated harms, policy makers may consider banning or restricting alcohol POS promotions as one component of a strategy to limit overall consumption.
- If POS promotions continue to be permitted, these could be regulated to reduce the amount of alcohol that is required to be purchased, to access such promotions.
- Alcohol POS promotions currently operate in an environment in which Australia's controls in these three areas are relatively liberal. If more robust, evidence based policy in line with the WHO best buy policies were to be introduced in Australia, this would likely have the effect of limiting the influence of alcohol POS promotions on purchasing behaviours, and alcohol consumption behaviours.
- Future high quality and methodologically sound research studies that track alcohol POS promotions and other forms of alcohol marketing and the effect on drinking behaviours among consumers longitudinally from adolescence to young adulthood, would provide additional insight and understanding in this area.

Background and Introduction

Alcohol consumption is a major health and social issue in Australia. For instance, one in five Australians aged 14 years and over consume alcohol at levels that increase their risk of long-term harm from disease or injury (Australian Institute of Health and Welfare [AIHW], 2011). In addition, 39.7% of Australians drink at levels on a single occasion that greatly elevate their risk of injury (AIHW, 2011). Research has also demonstrated that alcohol consumption habits have broader implications than disease and injury, since they increase the risk of cognitive impairment, reduced workplace productivity, unhealthy sexual practices, and exposure to violence and abuse (Nolen-Hoeksema, 2004; Rehm and Gmel, 1999). Thus, identifying and understanding the factors that contribute to patterns of alcohol consumption is important for informing strategies to reduce alcohol-related harm in Australia.

Alcohol marketing has been shown to have a significant influence on alcohol consumption, particularly in adolescents and young adults (Hastings et al. 2005). A considerable amount of literature has been published on the effects of alcohol advertising on young people's perceptions and current, and future, drinking behaviours (Jones et al., 2011; Snyder et al., 2006). In a review of 13 longitudinal studies published between 1990 and 2008, Anderson et al., (2009) examined the influence of alcohol advertising and media exposure on the drinking habits of adolescents. The results of the review indicated that exposure to alcohol media and commercials predicted younger onset of alcohol consumption and higher amounts of alcohol consumption. Similarly, Jones et al., (2011) found that exposure to alcohol advertisements across eight media platforms (including television, internet and point-of-sale) was strongly associated with drinking patterns in Australian adolescents. Synder et al. (2006) also demonstrated that exposure to alcohol advertising contributed to greater drinking levels in young people, while Smith and Foxcroft (2009) found that men who recalled a greater number of advertisements at 15 years of age drank significantly more beer at 18 years of age (Connolly, as cited in Smith & Foxcroft, 2009). This study also showed that participants who indicated they liked alcohol advertising at 18 years were more likely to be heavier drinkers at 18 years of age.

Despite this extant evidence base, few studies have specifically examined the influence of point-of-sale (POS) promotions on patterns of alcohol consumption. POS promotions refer to promotional materials that are found within a store or venue, at the point where a purchase is made which aim to develop and maintain brand awareness and/or to influence purchasing intentions (Jones et al, 2012). POS promotions can be broken in to three categories including:

- **Price promotions** (e.g., Buy 6 and get 20% off; NB this does not include straight discounts applied to one off products);
- **A free gift** with purchase (e.g., buy a case of beer and receive a free hat);
- **Competitions** (e.g., buy product X and go in the draw to win a holiday).

This form of marketing has become a more prominent (and potentially more influential) feature of alcohol marketing strategy (Gordon et al. 2011). POS differ from other traditional promotions as the audience has a direct opportunity to purchase a product when they are exposed to the POS promotion. Consequently they may be more likely to encourage impulse purchasing.

POS promotions appear to be effective marketing techniques, with 90% of surveyed retail store managers in the US agreeing that POS promotions are effective in selling products (Dibb et al, 2001). Furthermore, they are on the rise in the alcohol industry and becoming increasingly competitive (Ammann Howard, Flora & Schellicher, et al., 2004). Jones et al. (2012) audited 24 bottle shops in Perth and Sydney and found that on average there were 17 POS promotions per store which was a marked increase from a 2008 study that averaged 10 promotions per store (Jones et al., confidential report to NSW Health). POS promotions involve the utilisation of a range of tactics that appeal to (particularly young) consumers; including offering 'free' products such as desirable gifts or merchandise instead of the traditional discount, thus increasing purchase volume (Jones & Smith, 2011). The limited research in this area has suggested that current alcohol POS promotions provide a potentially significant and hazardous influence on young consumers.

There is some additional evidence indicating that in-store promotional materials (e.g., posters) predict subsequent alcohol use in young people (Byrnes, Shakeshaft, Petre, et al., 2013; Ellickson, 2008). Furthermore, many POS promotions are price-

based (e.g., 'buy one get one free'), which is concerning given the inverse relationship between the price of alcohol and the level of consumption (Levy and Sheflin, 1983; Coate & Grossman, 1988; Osterberg, 1995); these effects are pronounced among young people (Kenkel, 1993; Grossman, Chaloupka et al. 1994; Sutton & Godfrey, 1995; Chaloupka & Weschler, 1996). Early experimental research demonstrated that alcohol consumption was more than doubled during simulated 'happy hours' among both heavy and light drinkers (Babor, Mendelson et al. 1978). Furthermore, a study using data from the Australian National Drug Strategy Household Surveys conducted in 2001, 2004 and 2007 estimated the effect of changes of alcohol prices on consumption behaviours (Byrnes, et al., 2013). The results indicated that an increase in the price of alcohol by 1% was related to an increase in the number of days alcohol was not consumed over a year. Furthermore, the 1% price increase was significantly related to a decrease of 7.30 days on which between one and four standard drinks were consumed. These findings demonstrate the inverse relationship between alcohol prices and consumption behaviours.

POS promotions often require the purchase of a large volume of alcohol in order to participate. For instance, an audit of POS promotions in Perth and Sydney metropolitan areas show that participating in promotions required purchases of between 12 and 22 standard drinks (Jones, et al., 2012). Jones and Barrie (2010) also found that it is common for promotions to encourage young people to purchase greater volumes of alcohol. The study found POS promotions are most highly associated with RTD products than other types. This is concerning because Ready to Drinks (RTDs) are the most popular choice of alcoholic drinks for Australians between 12 to 21 years of age (Jones & Barrie, 2010). Furthermore, Jones and Smith (2012) found that purchase decisions were strongly associated with exposure to POS promotions; the authors consequently argued that there is a need to address volume discounts offered to young people as a means of marketing.

In aggregate, existing research indicates that POS alcohol marketing could influence young peoples' drinking behaviour. The present study was commissioned by the Victorian Department of Justice to extend our knowledge on these relationships using a longitudinal methodology.

The overall aim of the present study is:

- to examine the nature of POS alcohol marketing over a 12-month period and its relationship with alcohol behaviours in young (18-25 year old) Victorians.

The specific objectives are to:

- document young people's purchase and consumption behaviours;
- examine the degree of direct exposure to alcohol POS promotions;
- examine the degree to which exposure to POS promotions impacts on alcohol purchase and alcohol consumption behaviour; and
- Provide insight on the dynamics between alcohol POS promotions and alcohol purchase and consumption behaviour.

Patterns of Alcohol-Consumption in Victoria

The Victorian Department of Justice purchased a data set from Nielsen (a leading market research company) that examined total off-premise liquor sales in Victoria between July 2012 and June 2013. The data was collected using two methods; firstly, scanned data from Woolworths and Coles (excluding Dan Murphy's) and secondly, an audit of a representative sample of stores in the remaining market. This allows for an estimation of total off premise liquor sales in Victoria.

The data provides an overview of the current liquor sale landscape in Victoria, provides context for the research study and highlights trends over 11 of the 12 months that the survey was conducted. It is important to note that no direct links can be drawn between the Neilson data and the longitudinal data collected in the present study as the 12 month periods do not align, separate methodologies were used to collect the data and both data sets use different measures of alcohol consumption. .

Volume of alcohol purchase

The volume of each type of alcohol purchased across 12 months in Victoria is shown in the figure below (Figure 1). A substantially greater volume of beer was purchased than wine, RTD or spirits. The volume of beer fluctuated over the twelve month period starting at 18,315.6 litres (000's), peaking at 26,037.7 litres in December 2012, and dropping to a low of 16,157.2 in June 2013.

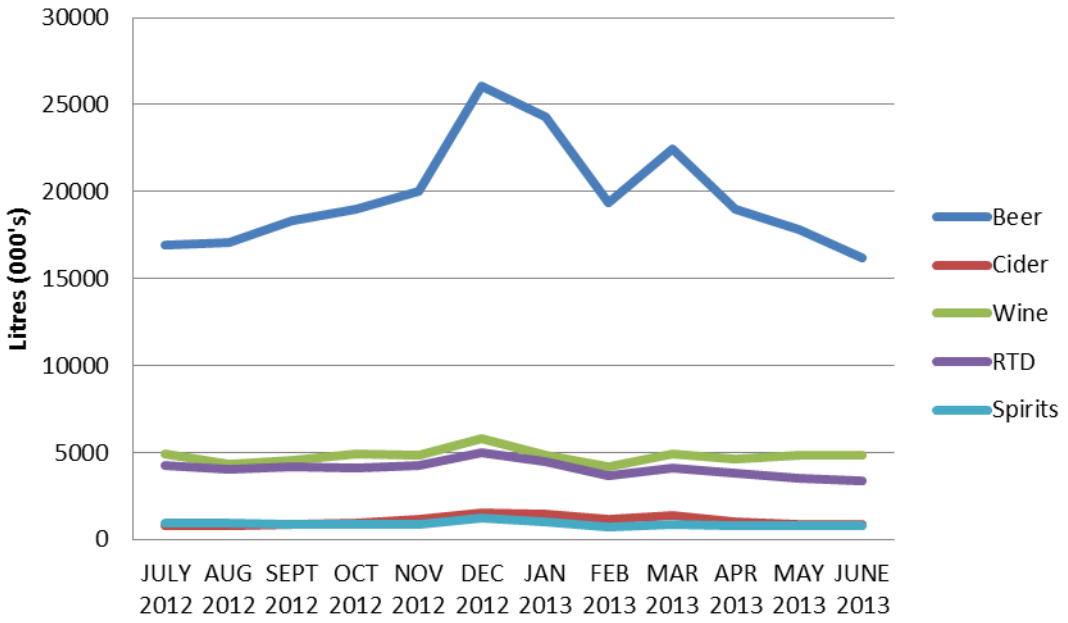


Figure 1.Volume of each type of alcohol purchased (AC Neilson data)

Similar trends are observed in the total volume of alcohol purchased in Victoria each month, with substantially more purchased during December and January, in line with the festive season (Figure 2). Additionally, beer purchases were substantially higher than other alcohol types (Figure 3). The volume peaked again in March 2013, coinciding with Easter. This data is consistent with the survey findings, and lends support to the validity of the self-report data.

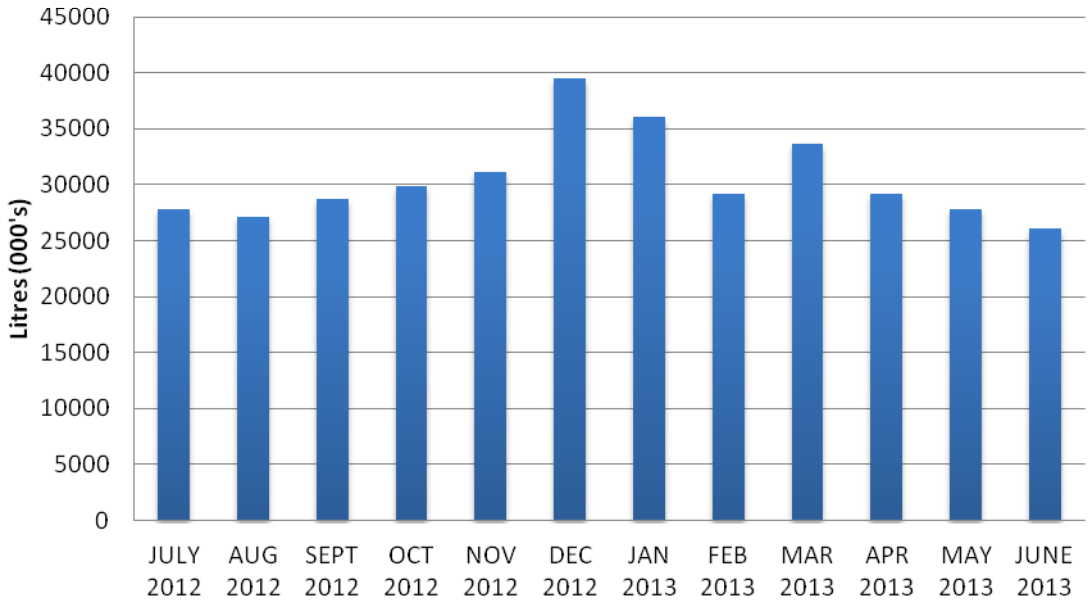


Figure 2. Total volume of alcohol purchased in Victoria per month

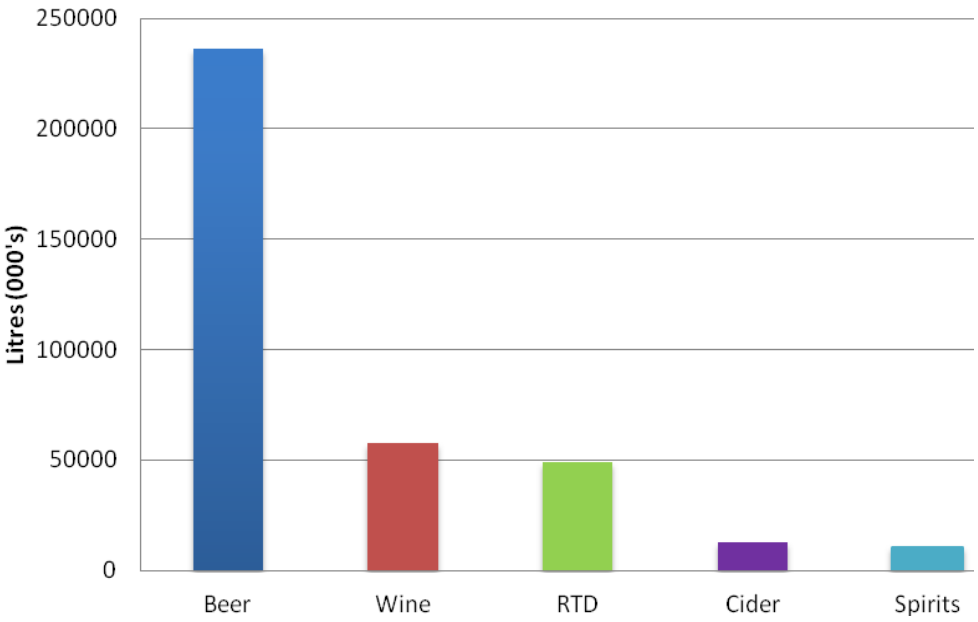


Figure 3. Total volume of each type of alcohol purchased in Victoria from July 2012 to June 2013 (AC Neilson Sales data)

When the volume of alcohol purchased was converted to pure alcohol content by volume (PACV), the results indicated that purchases of spirits account for the highest proportion of pure alcohol, followed by beer, RTD, and wine. Cider accounted for a relatively low amount of pure alcohol (Figure 4).

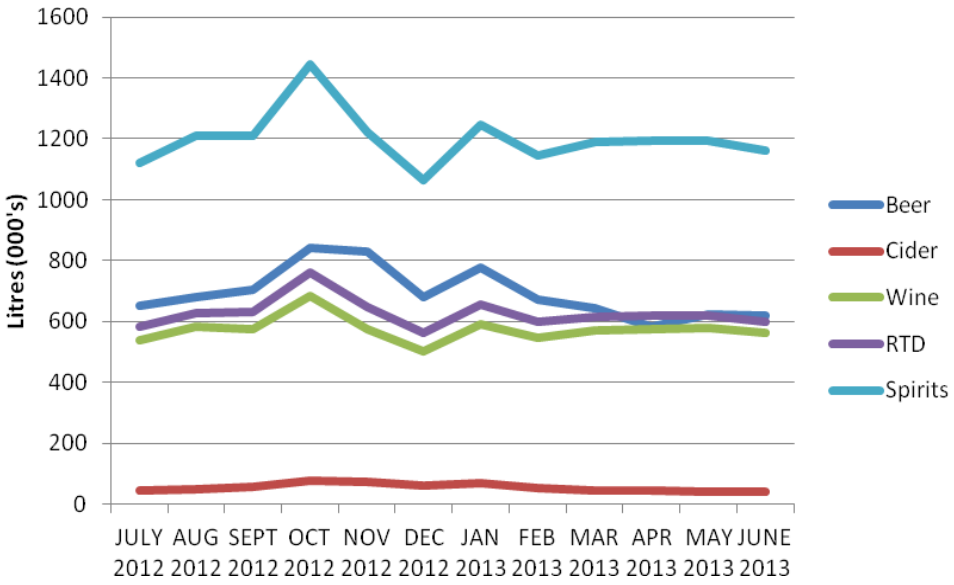


Figure 4. Pure alcohol content by volume (AC Neilson Sales data)

Total money spent on alcohol in Victoria

As shown in Figure 5, Victorians spent the largest amount of money (in $000's) on beer ($1,210,729) followed by wine ($687,233.5), spirits ($664,292) and cider ($118,775.7).

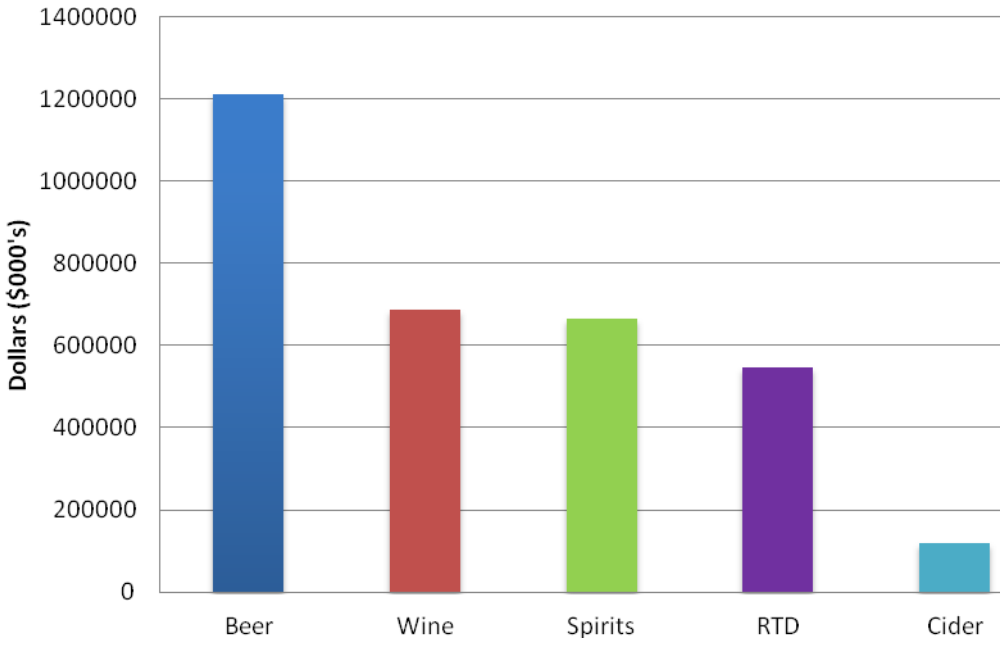


Figure 5. Total spending on each type of alcohol for the period July 2012 to June 2013

The amount of money spent on total alcohol sales each month is shown in Figure 6 and indicates that sales were highest in December and January followed by March. December was the highest month for sales in all categories, and the amount of money spent on any type of alcohol was highest for beer across all 12 months. Cider had the lowest sales across the year and remained fairly constant.

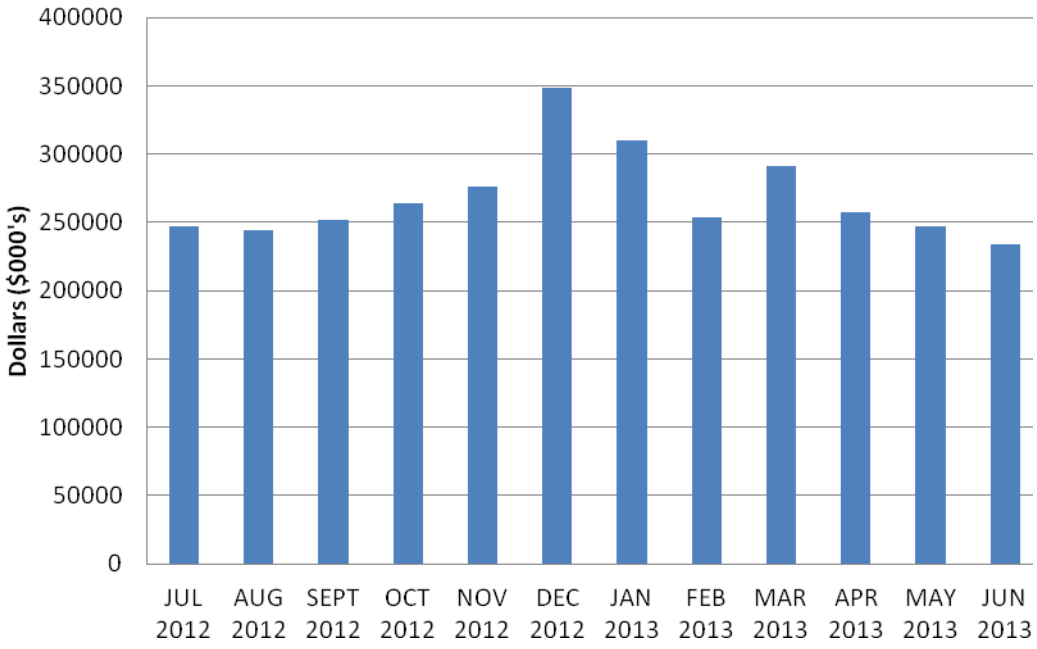


Figure 6. Total monthly spending on alcohol in Victoria from July 2012 to June 2013 (AC Neilson data)

Methods

The Centre for Health Initiatives (CHI) was commissioned by DOJ Victoria to undertake a quantitative research project to collect data on exposure and responses to POS promotions, product purchases and drinking behaviour. This involved the development and administration of a baseline survey that collected information on demographic characteristics of participants and baseline alcohol consumption. Twelve subsequent monthly surveys were then administered which assessed monthly alcohol consumption patterns and exposure to different types of alcohol POS promotions. The baseline and monthly surveys (described in more detail below) were administered through Survey Monkey and took participants approximately 10 minutes to complete.

Procedure

Participants were initially recruited by advertising on Facebook. However due to a low response rate, recruitment was completed using iView, a market and social research data collection agency. Participants needed to meet specific criteria to be allowed to participate in the study. The selection criteria for recruitment included individuals living in Victoria, who drink alcohol and are aged 18 to 25 years old.

Participants were sent an email containing a link to the online baseline survey, and given one week to complete the survey, with an email reminder sent on the 4th day. These participants were sent subsequent invitations to participate in each of the 12 monthly surveys. Invitations were sent in the first week of each month, and participants again had one week to complete each survey. Once participants completed a monthly survey, a $25 voucher of their choice (Woolworths, JB Hi Fi or Myer) was mailed to their home address. If they had completed all 13 surveys, the baseline and 12 follow up surveys, they received an additional $50 voucher. Unless participants withdrew their consent, they were invited to participate in each subsequent monthly survey even if they had not completed the previous monthly survey.

Measures

Table 1 below shows the measures used in the baseline survey. This survey was conducted prior to the monthly surveys and includes detailed demographics.

Table 1. Measures included in the initial baseline survey

Demographics	Age Gender Country of Birth Date of Birth Marital Status Highest level of education Employment status Student status
Age of first serve of alcohol?	
The Alcohol Use Disorders Identification Test (AUDIT)	Identifies hazardous drinking, harmful use and alcohol dependence [1]
Social Norms	Perceptions about others' drinking behaviours [2]
The Alcohol Expectancy Questionnaire	Measures the degree to which an individual expects alcohol to produce a variety of general and specific effects [3]
Alcohol related consequences	Asks whether respondents had engaged any negative behaviours following alcohol consumption such as aggressive behaviour or suffering an injury

[1] Babor et al., 2001
[2] Jones, Barrie & Robinson, 2011
[3] Brown, Christiansen & Goldman, 1987

Table 2 shows measures included in each of the 12 monthly surveys.

Table 2. Measure included in the monthly surveys

Age	Age in years
Drinking behaviours in the past week/month	Consumption amounts and frequencies over the last week and month
Alcohol related consequences	Asks whether respondents had engaged any negative behaviours following alcohol consumption such as aggressive behaviour or suffering an injury
Alcohol promotions during last month	Any alcohol related promotions
Bottle shop visits	
POS Exposure during past week	How many POS promotions respondents have seen
Purchases	All purchases made at a bottle shop
Consumption related to a POS purchase	Purchases/consumption related to POS alcohol promotion
Consumption not related to a bottle shop purchase	Consumption of alcohol that was purchased elsewhere

At three time points across the 12 months of data collection (months 6, 9, and 12), additional measures were included in the survey to measure normative beliefs, injunctive norms, outcome expectations and group identity (Table 3). For a description of the theoretical background of the additional items, please see Appendix A.

Table 3. Additional measures included at three time points

Normative Beliefs	Measures respondents' perceptions of how often and how much people drink alcohol [1]
Injunctive Norms	Measures respondents' perceived approval of drinking [2]
Outcome Expectations	Measures respondents' perceptions of the benefits of alcohol consumption[3]

1 Baer et al., 1991
[3] Baer, 1994
[3] Rimal & Real, 2005

Statistical Analysis

All of the datasets were coded and merged to provide a complete longitudinal dataset, incorporating baseline characteristics, monthly POS data, and alcohol-related behaviour. The analysis plan involved addressing five major questions:

1. Is there an association between exposure to POS promotions and alcohol behaviours?
2. Are there trends in alcohol consumption/intentions over time?
3. Are there trends in POS promotions over time?
4. Is there an association between trends in alcohol consumption and exposure to POS promotions?
5. Is exposure to POS promotions associated with normative beliefs relating to alcohol consumption?

The first four questions utilise items included in the baseline and monthly surveys. Question 5 includes these items as well as the additional items included at the three time points (months 6, 9 and 12).

The analyses were broken down into four main stages, which are described below. Stages 1 to 2 were conducted using Microsoft Excel and SPSS. Stages 3 and 4 were conducted using M*plus* version 6.11, which is a flexible and powerful software package for examining complex data. M*plus* is statistical package that is highly robust to violations of assumptions such as normality and homogeneity of variance.

Stage 1. Descriptives

In the first stage of the analysis, descriptive statistics were computed for the baseline and monthly surveys to provide an indication of participant responses across each survey. Cross-sectional correlations from Month 1 were performed to investigate whether exposure to POS promotions was associated with alcohol behaviours at baseline.

Stage 2. Longitudinal trends

The second stage of the analyses involved plotting trends in the data over time (e.g., trends in alcohol consumption, exposure to POS promotions). The following trends were examined:

- number of standard drinks consumed;
- frequency of binge drinking;
- amount of money spent on alcohol;
- alcohol related consequences;
- exposure to alcohol POS promotions; and
- purchase of alcohol POS promotions;

Stage 3. Relationships between POS promotions and Alcohol-behaviours

The purpose of the third stage of the analysis was to quantify the nature of the relationships between certain variables (e.g., alcohol consumption and exposure to POS promotions) over the 12-month period. That is, whereas stage 1 provides a description of trends in alcohol consumption and POS promotions across the 12-month period, stage 2 tested whether these trends were significantly related. This involved using a statistical approach called growth modelling, which identifies trends in variables over time. Using this approach, it is possible to test whether trends in a given variable (e.g., alcohol consumption) are significantly associated with another variable (e.g., exposure to POS promotions).

Figure 7. Growth model examining the trends in purchase of alcohol and promotions over time[1]

An example of the growth models tested in this research project is shown in Figure 7. This specific model tests whether POS promotions are significantly associated with alcohol purchases over the 12-month period. The circle containing i, s, and q (intercept, slope and quadratic function) is a representation of the trends in alcohol purchases over the 12-month period (i.e., we tested linear and quadratic changes in alcohol purchases across the 12 time points). The arrows between promotions at each month and purchases represent a regression path, whereby purchases are regressed on promotions. This provides an indication of whether POS promotions at each month are significantly associated with alcohol purchases. No variables were controlled for in this model and the modelling procedure was robust to violations of assumptions (e.g., normality and homogeneity of variance) that would apply to parametric tests.

Using this approach, two major models were tested. The first tested whether POS promotions (price promotions, free gift with a purchase, and competition entries) were significantly associated with alcohol purchases. The second model tested whether exposure to POS promotions was significantly associated with alcohol consumption. The advantage of this approach is that it provides a way of quantifying the trends and associations in the first stage of the analysis and best answers the research questions.

Stage 4. Relationships between POS promotions and alcohol-normsProject Title

The relationship between POS promotions and alcohol-related norms at month 6 (the first month in which all variables were available) was examined using correlation analyses. The results are reported as pearson correlations (r), with statistical significance indicated by a p value < .05. We then investigated whether POS promotions at month 6 predicted alcohol-related norms at month 12 using regression modelling, controlling for age, sex, country of birth, and norms measured at month 6. Separate models were then conducted examining whether alcohol-related norms at month 6 were significantly predictive of purchase of POS promotions at month 12;

[1] the first three months are shown as an example; the model looked at the trend across the full 12 months

age, sex, country of birth, and POS promotions at month 6 were also included as covariates. Results are reported as regression coefficients (β), with statistical significance indicated by a p value < .05.

Results

Descriptive Statistics

Table 4 shows the total number of respondents for each survey as well as the response rate each month. This indicates that the response rate was fairly high across all months, although there was a trend towards a decline over the 12-month period. The proportion of males and females remained fairly consistent across the 12-month period.

The issue of missing data required careful consideration. Only 99 participants completed all 13 surveys, but it was decided that conducting the analyses on these individuals only could substantially limit statistical power but also bias the results. Therefore, a decision was made to exclude participants with missing data across 6 or more time points. Thus, the final sample consisted of 243 participants who completed more than 6 surveys. This is an approach that is generally consistent with longitudinal data research that examines data across multiple (e.g., 4 or more) time points. Thus, all results refer to the sample of 243 participants. The only exception is for the growth models which required complete data and thus refer to the sample of 99 participants. The characteristics of both samples (i.e., n = 243 and n = 99) are described below.

Table 4. Response rate for the baseline and monthly surveys

Survey	Completed in month	Total Response Rate (%)	% Male	% Female
Baseline	297	0	43.8	56.2
M1	264	88.9	43.6	56.4
M2	253	84.2	44.3	55.7
M3	248	83.5	44.0	56.0
M4	240	80.2	44.2	55.8
M5	245	82.5	44.5	55.5
M6	217	73.1	44.2	55.8
M7	213	71.7	44.6	55.4
M8	202	68.0	46.0	54.0
M9	195	65.6	44.1	55.9
M10	209	70.4	43.1	56.9
M11	188	63.3	42.6	57.4
M12	192	64.3	45.8	54.2

Table 5 shows the characteristics of respondents at baseline (n=297), those who completed at least six of the twelve monthly surveys (n=243), and those who completed all surveys (n=99). As shown, the gender distribution varied only slightly as did the marital status. However the proportion of tertiary educated respondents rose from 30.7% at baseline to 37.4% who completed all surveys. The proportion of part-time students also rose from 15.8% at baseline to 21.2% who completed all surveys. When examining drinking behaviours of respondents, the consumption frequency and amount as well as binge drinking did not vary greatly between those who completed the baseline, six or more months or all surveys.

Table 5. Sample demographics

	Baseline (N=297)		Completed 6+ months (N=243)		Completed all surveys (N=99)	
	N	%	N	%	N	%
Gender						
Male	130	43.8	109	44.9	46	46.5
Female	167	56.2	134	55.1	53	53.5
Marital Status						
Divorced/Separated	2	.7	2	.8	2	2.0
Married	37	12.5	30	12.3	10	10.1
Never married	258	86.9	211	86.8	87	87.9
Education						
Year 10 or equivalent	22	7.4	13	5.3	6	6.1
High School Certificate	110	37.0	86	35.4	38	38.4
TAFE/Diploma	74	24.9	59	24.3	18	18.2
Tertiary	91	30.7	85	35.0	37	37.4
Employment Status						
Full time	92	31.0	76	31.3	33	33.3
Part time	66	22.2	56	23.0	22	22.2
Casual work	56	18.9	46	18.9	19	19.2
Not currently employed	70	23.6	58	23.9	23	23.2
Other	13	4.4	7	2.9	2	2.0
Study Status						
Yes, part-time	47	15.8	41	16.9	21	21.2
Yes, full-time	100	33.7	89	36.6	35	35.4
No	150	50.5	113	46.5	43	43.4
How often do you have a drink containing alcohol?						
Never	11	3.7	9	3.7	4	4.0
Monthly or less	63	21.2	54	22.2	20	20.2
2-4 times a month	125	42.1	97	39.9	40	40.4
2-3 times a week	87	29.3	74	30.5	34	34.4
4+ times a week	11	3.7	9	3.7	1	1.0
How many standard drinks containing alcohol do you have on a typical day when drinking?						
1 or 2	95	32.0	83	34.2	34	34.3
3 or 4	98	33.0	76	31.3	31	31.3
5 or 6	49	16.5	44	18.1	17	17.2
7 to 9	32	10.8	26	10.7	9	9.1
10+	23	7.7	14	5.8	8	8.1
How often do you have 4+ drinks on one occasion?						
Never	43	14.5	37	15.2	13	13.1
Less than monthly	87	29.3	71	29.2	29	29.3
Monthly	104	35.0	85	35.0	34	34.3
Weekly	60	20.2	47	19.3	22	22.2
Daily or almost daily	3	1.0	3	1.2	1	1.0

POS promotions, consumption, and consequences at Month 1

Table 6 presents the results of a correlation analysis examining the associations between drinking behaviour (number of standard drinks consumed), exposure to alcohol promotions, and the number of alcohol promotions purchased. These correlations were performed for month 1 only to provide an indication of these baseline associations. The results demonstrate that exposure to, and purchase of, all three types of alcohol POS promotions were significantly associated with greater alcohol consumption. Higher correlation coefficients were observed for price promotions, indicating a stronger relationship with alcohol consumption for these POS promotions.

Table 6. Correlations between alcohol consumption and POS promotions at month 1

	Age	Sex	Drinks consumed
Age	-		
Sex	.30*	-	
Drinks consumed	.05	-.11	-
Price (seen)	.06	-.04	.29*
Price (purchased)	.07	.00	.39*
Gift (seen)	.06	-.08	.24*
Gift (purchased)	-.02	.04	.17*
Competition (seen)	.04	-.01	.23*
Competition (purchased)	.08	.03	.17*

Note. * significant at p<.05

Table 7 presents the correlations between baseline drinking patterns, POS promotions, and alcohol-related consequences. These results indicated that exposure to, and purchase of, all three types of alcohol promotions were significantly associated with a hangover, arguments, aggression, and blackouts but not the remaining consequences.

Table 7. Correlations between POS promotions and alcohol-related consequences at Survey Month 1 (September, 2012)

	Age	Sex	Drinks consumed	Price (seen)	Price (purchased)	Gift (seen)	Gift (purchased)	Competition (seen)	Competition (purchased)
Hangover	.11	.05	.24*	.21*	.18*	.23*	.20*	.19*	.17*
Heated Argument	-.03	-.03	.12	.19*	.30*	.31*	.29*	.28*	.24*
Been aggressive	.10	-.02	.19*	.15*	.24*	.23*	.32*	.19*	.29*
Blackouts	.00	-.04	.27*	.16*	.19*	.26*	.26*	.22*	.26*
Spent too much	-.15*	-.19*	.12	.04*	.11	.04	.02	.03	.01
Unsafe sex	.03	-.01	.07	.00	.01	.03	.02	.02	.01
Injury	-.08	.08	.09	.02	.11	.07	.13	.07	.09
Inappropriate behaviour	-.01	-.04	.13	.12	.17*	.18*	.12	.16*	.14*
Removed from club	-.01	-.09	.23*	.07	.17*	.09	.10	.07	.13

Note. * significant at p<.05

Trends observed over the 12-month period

This section presents trends in alcohol behaviour, alcohol consequences, exposure to POS promotions, and purchase of POS promotions over the 12-month period. For clarity, each of the trends are presented separately.

Consumption patterns (including the number of standard drinks consumed)

Alcohol consumption at Baseline

The age at which respondents first consumed alcohol ranged from 11 to 25 years, with a mean of 16.09 years (*SD*=1.98). Table 8 shows the typical drinking frequency is 2 to 4 times a month (37.4%) and 2 to 3 times a week (32.5%).

Table 8. Drinking patterns of respondents at baseline

	n	**%**
How often do you have a drink containing alcohol?		
Never	9	3.7
Monthly or less	54	22.2
2-3 times a month	97	39.9
2-3 times a week	74	30.5
4+ times a week	9	3.7
How many standard drinks containing alcohol do you have on a typical day when drinking?		
1 or 2	83	34.2
3 or 4	76	31.3
5 or 6	44	18.1
7 to 9	26	10.7
10 or more	14	5.7
How often do you have 4+ drinks on one occasion?		
Never	37	15.2
Less than monthly	71	29.3
Monthly	85	35.0
Weekly	47	19.3
Daily or almost daily	3	1.2

Weekly drinking patterns

On average, nearly three-quarters (73.6%) of respondents consumed alcohol during the week prior to completing each survey. The majority drank on two days during that week, and typically they consumed three or four drinks on these days. The total number of standard drinks consumed during the week averaged 7.9.

Monthly drinking patterns

On average, a higher percentage (83.9%) of respondents reported drinking alcohol during the month prior to each survey. The average number of days alcohol was consumed over the month was six, and again three or four drinks were typically consumed on these occasions.

Alcohol consumption fluctuated over the 12 months, ranging from a low of 5.84 standard drinks (SD=7.04) in May and August to a high of 11.37 (SD=18.39) in January (Figure 8). The high standard deviation in August indicates that there was a greater spread of reported alcohol consumption during that month. Peaks in consumption were also observed in November (m=9.46, SD=10.69), and again in April (m=9.33, SD=10.21). The large standard deviations are not surprising given national alcohol consumption trends are showing a more pronounced dichotomy in drinking behaviours to either low level or very high level consumption patterns. For a full descriptive analysis of monthly consumption patterns, please see Appendix B.

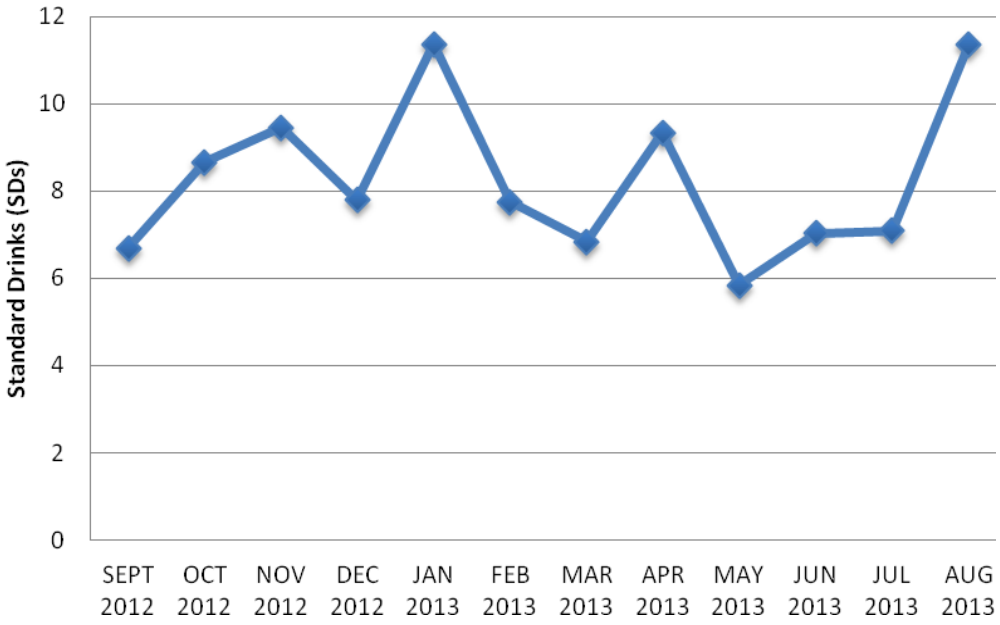


Figure 8. The average number of standard drinks consumed per week across the 12 months by respondents who indicated they had at least a full serve of alcohol (n=243)

Frequency of Binge drinking

As shown in Figure 9, on average across the 12 monthly surveys, approximately 65% of young people engaged in binge drinking (more than 4 standard drinks on a single drinking occasion) at least once. Alarmingly, more than 5% engaged in binge drinking on seven or more occasions.

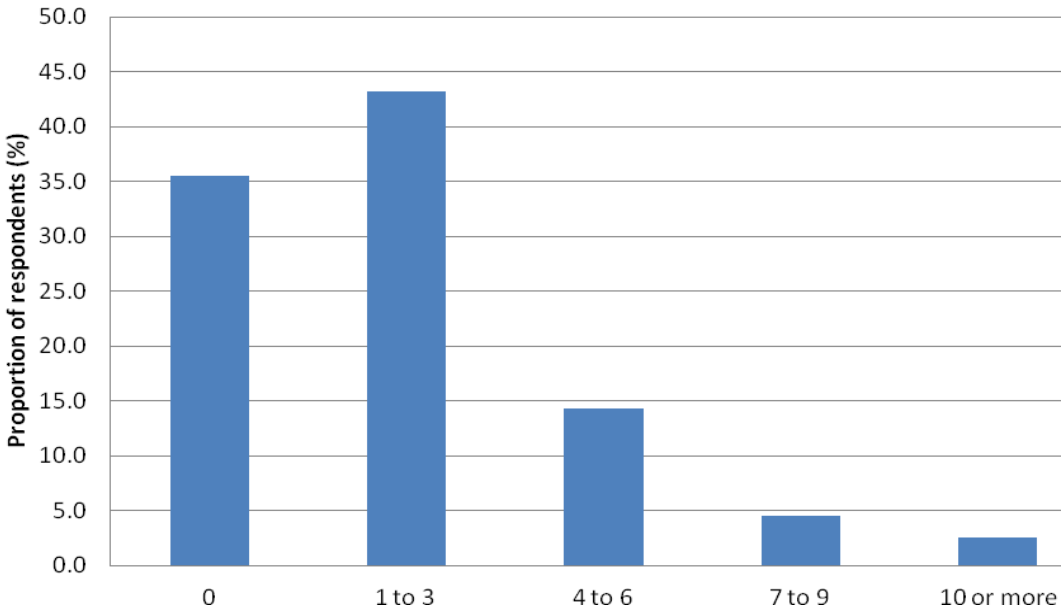


Figure 97. Number of occasions binge drinking (4 or more drinks) in the month prior to surveys (n=243)

The pattern of binge drinking over the 12 months is shown in Figure 10. The peak periods for engaging in this drinking behaviour were March and April (includes Easter and Anzac Day), December and January (the festive season), and September (NRL/AFL Finals). This pattern is consistent with the amount of money spent on alcohol during these periods (Figure 11).

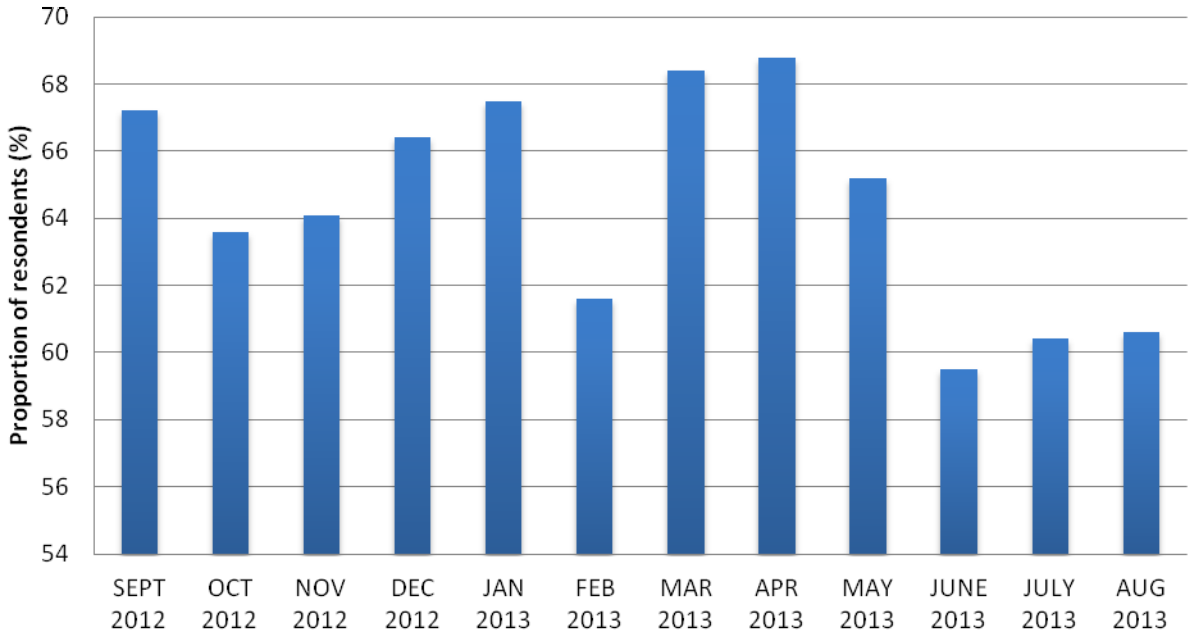


Figure10. The proportion of respondents (of those who stated they had consumed alcohol across each month) engaging in binge drinking (n=243)

As shown in Figure 11, the average amount of money spent on alcohol per month was lowest in June 2013 and highest in September 2012). The average amount of money spent per participant per month over the 12 month period was showing a consistency in purchase.

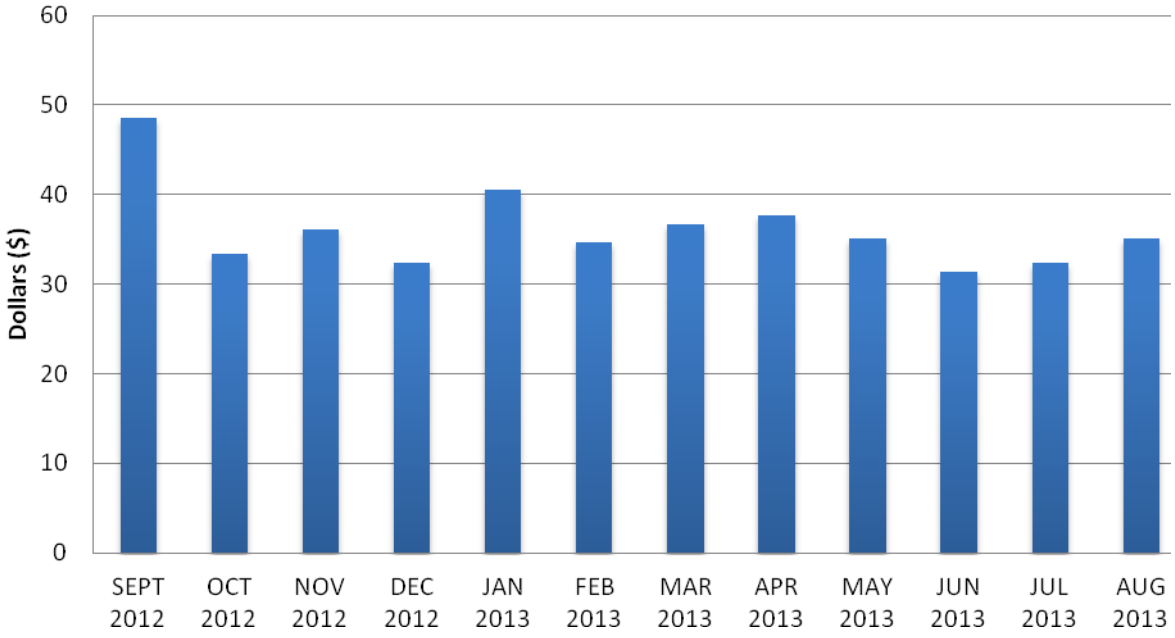


Figure 11. Spending by respondents on alcohol per month for the 12 months of the survey (September 2012 to August 2013) (n=243)

Table 9 below shows the proportion of respondents that consumed a full serve of alcohol cross each of the twelve months as well as the number of days they consumed alcohol in the month, the number of days alcohol was consumed and the number of occasions they engaged in binge drinking during the past month.

Table 9. Alcohol consumption during each month across the twelve months (n=243)

	Sept 12	Oct 12	Nov 12	Dec 12	Jan 13	Feb 13	Mar 13	Apr 13	May 13	Jun 13	Jul 13	Aug 13
Full serve												
Yes	88.8	88.8	90.3	85.4	87.9	85.0	76.1	78.0	80.9	83.2	80.9	79.4
No	11.2	11.2	9.7	14.6	12.1	15.0	23.9	22.0	19.1	16.8	19.1	20.6
Number of days alcohol consumed												
1 to 7	69.6	69.2	72.6	67.6	63.4	75.4	68.8	66.4	73.6	74.3	79.2	75.0
8 to 14	23.8	18.7	18.8	19.9	22.8	16.9	19.3	27.3	23.5	21.0	18.9	17.3
15 to 21	3.9	6.6	5.9	8.5	9.0	3.8	11.9	3.1	0.9	4.7	1.9	7.7
22 or more	2.8	535	2.7	4.0	4.8	3.8	0	3.1	1.8	0	0	0
Typical number of standard drinks on a single occasion during past week												
1 or 2	37.0	35.7	43.0	35.8	33.6	34.6	35.5	39.8	41.5	42.2	34.9	35.6
3 or 4	28.7	31.4	24.7	27.9	39.6	30.8	34.7	33.6	31.1	31.2	42.5	32.6
5 or 6	15.5	14.8	17.2	17.0	11.0	22.3	11.3	12.5	13.2	12.8	9.4	13.5
7 or 8	8.3	7.7	6.5	9.1	9.0	7.7	9.7	8.6	9.4	6.4	5.7	8.7
9 or more	9.2	10.4	8.6	10.2	6.8	4.6	8.9	5.5	4.7	7.3	7.5	9.6
Number of occasions binge drinking in past month												
Nil	34.8	39.0	37.6	35.8	32.4	38.5	31.5	31.1	34.9	40.5	39.6	39.4
1 to 3	47.0	42.3	41.4	40.3	40.0	40.8	43.5	43.8	47.2	39.4	44.3	45.2
4 to 6	9.4	12.1	13.4	13.6	17.2	14.6	16.9	18.0	12.3	16.5	12.3	8.6
7 to 9	7.7	2.7	5.9	8.0	6.9	3.1	4.0	4.7	3.8	1.8	1.9	5.8
10 or more	1.1	3.8	1.6	2.3	3.4	3.1	4.0	2.3	1.9	1.8	1.9	1.0

Note. Numbers in table are depicted as percentages

Alcohol-related consequences

Alcohol-related consequences as measured at baseline

The Alcohol Use and Disorder Identification Test (AUDIT) from the baseline survey showed that over a third of respondents indicated that they were unable to stop drinking once they had started on at least one occasion during this period. Similar results were evident when asked if they had *failed to do what was normally expected of you because of drinking?".* The table (table 10) below illustrates the drinking behaviours of respondents during the 12 months prior to the baseline survey

Table 10. Drinking behaviours during the 12 months prior to the baseline survey

During the past year, how often...	***n***	**%**
have you found that you were not able to stop drinking once you had started?		
Never	162	66.9
Less than monthly	55	22.4
Monthly	16	6.6
Weekly	10	4.1
failed to do what was normally expected of you because of drinking?		
Never	155	63.8
Less than monthly	68	28.0
Monthly	15	6.2
Weekly	4	1.6
Daily or almost daily	1	0.4
needed a drink in the morning to get yourself going after a heavy drinking session?		
Never	213	87.7
Less than monthly	20	8.2
Monthly	6	2.5
Weekly	3	1.2
Daily or almost daily	1	0.4
had a feeling of guilt or remorse after drinking?		
Never	121	49.8
Less than monthly	87	35.8
Monthly	26	10.7
Weekly	6	2.5
Daily or almost daily	3	1.2
been unable to remember what happened the night before because you had been drinking?		
Never	137	56.4
Less than monthly	81	33.3
Monthly	18	7.4
Weekly	6	2.5
Daily or almost daily	1	0.4

Alcohol-related consequences across the twelve month period

As can be seen in Figure 12 (and Appendix C), a hangover was consistently the most commonly reported consequence of alcohol consumption over the 12-month period. Inappropriate behaviour was the second most commonly reported consequence of drinking (approximately 15% of respondents), followed by blackouts (approximately 10%). Figure 12 below shows the proportion of respondents who experienced these consequences over the 12 months.

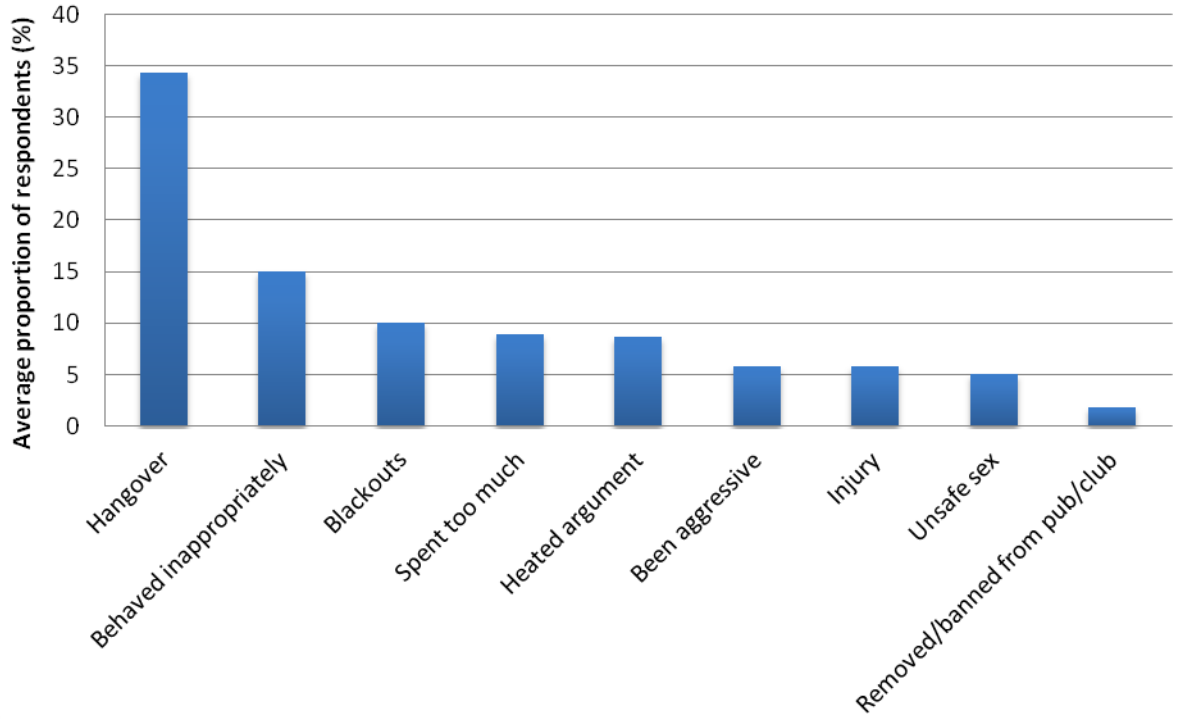


Figure 12. The average proportion of respondents experiencing an alcohol related consequence during the 12 month period

Consistent with purchasing and consumption trends, across the twelve months (September 2012 to August 2013), September and January were the months in which these consequences of drinking were most commonly reported by participants. This trend was not consistent for March/April (Easter and Anzac period), and this variation may be partly explained by the length of the celebration period. For instance, Easter extends over a weekend whereas the football finals series takes place over a four week period.

Figure 13 shows the proportion of individuals who have injured themselves or others as results of drinking. The majority responded that they had not, 9.2% indicated yes but more than a year ago, and 12.1% yes and during the past year. Similarly Figure 14 shows that the majority of respondents have never had a friend, relative, health worker or doctor recommend they reduce their alcohol intake (88.3%).

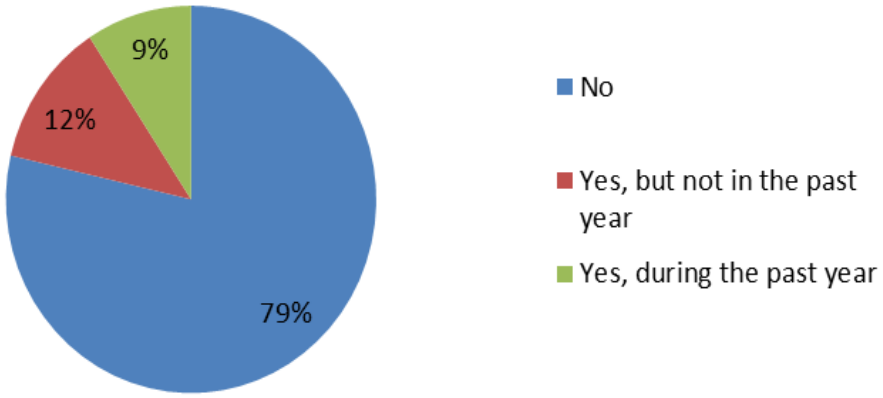


Figure 83. Proportion of participants that had injured themselves or others as a result of drinking

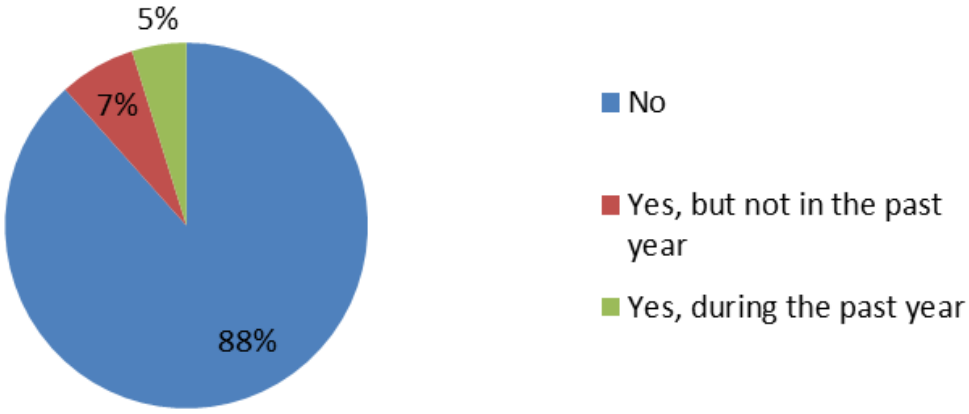
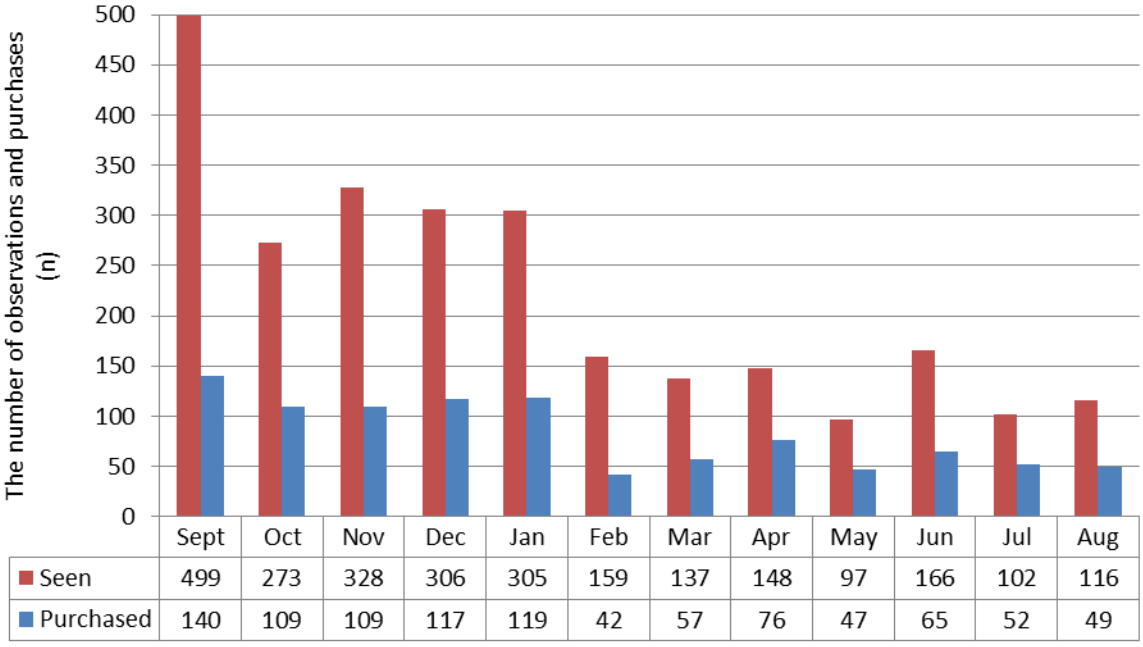


Figure 14. Proportion of people who have had a friend, relative, health worker or doctor recommend they reduce their alcohol intake

Exposure to alcohol promotions and purchase behaviour

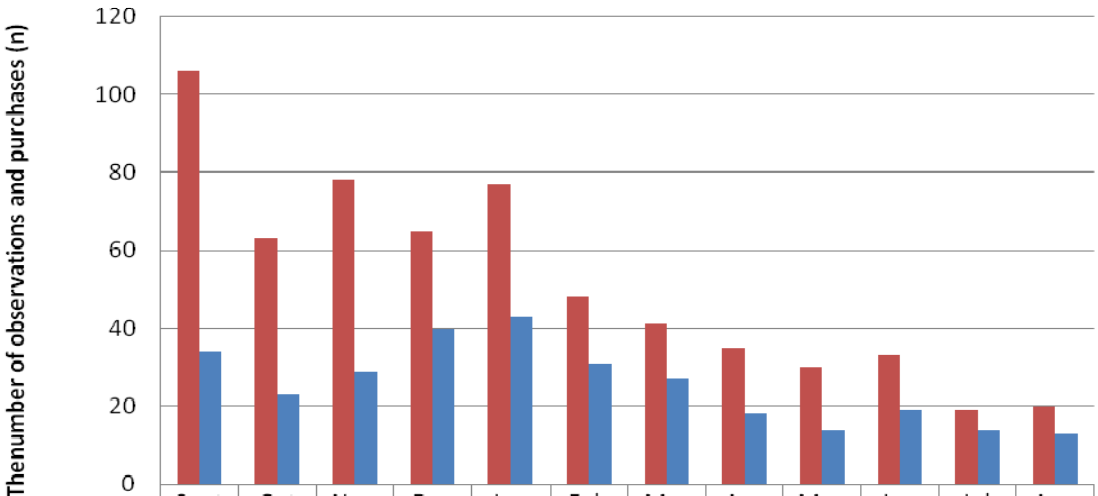
The number of price promotions observed by respondents fluctuated monthly and was lowest in June 2013 and highest in September 2012 and December 2012 (shown in Figure 15). Figure 6 also shows the number of purchases related to price promotions for each month. Purchases as part of a price promotion were highest in

January 2013, June 2013 and October 2013; and lowest in July 2013. Free gift (Figure 16) and competition entry (Figure 17) promotions were less commonly observed than price promotions. Similarly, there were fewer alcohol purchases relating to both of these promotions compared to price promotions. For a descriptive analysis of exposure to and purchase of POS promotions, please see Appendix E.



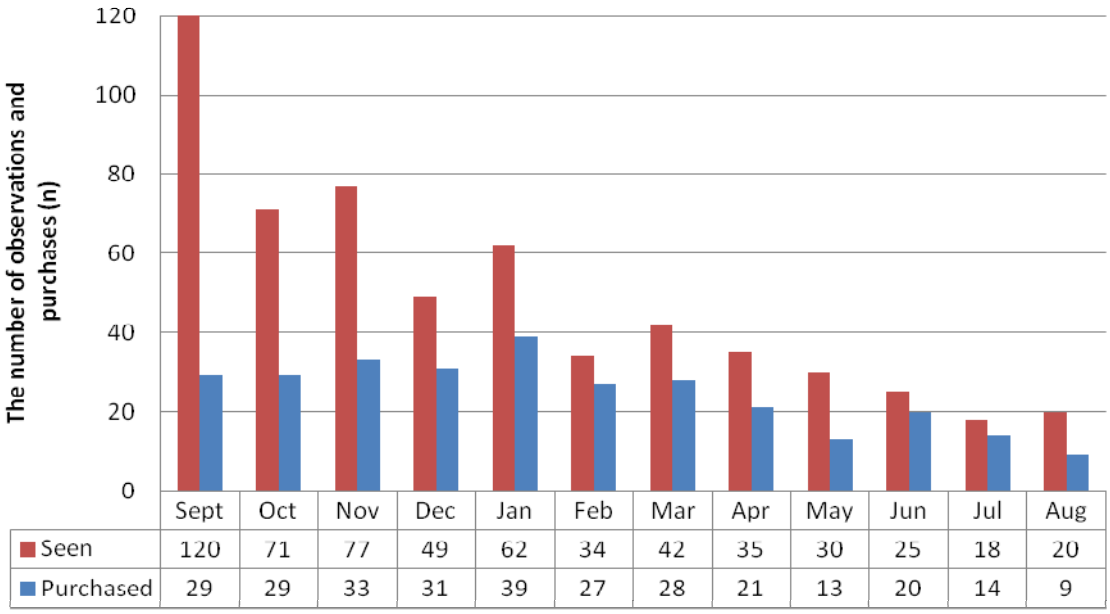
	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug
Seen	499	273	328	306	305	159	137	148	97	166	102	116
Purchased	140	109	109	117	119	42	57	76	47	65	52	49

Figure15. Price promotion observations and purchases per month



	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug
Seen	106	63	78	65	77	48	41	35	30	33	19	20
Purchased	34	23	29	40	43	31	27	18	14	19	14	13

Figure16. Free gift with purchase promotion observations and purchases per month



	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug
Seen	120	71	77	49	62	34	42	35	30	25	18	20
Purchased	29	29	33	31	39	27	28	21	13	20	14	9

Figure 17. Competition entry promotion observations and purchases per month

Purchases associated with alcohol promotion

Price promotions were the most commonly purchased form of promotional activity, which is consistent with previous research (Figure 18). Consistent with other trends throughout this report, the peaks in purchases were during the months of January and April.

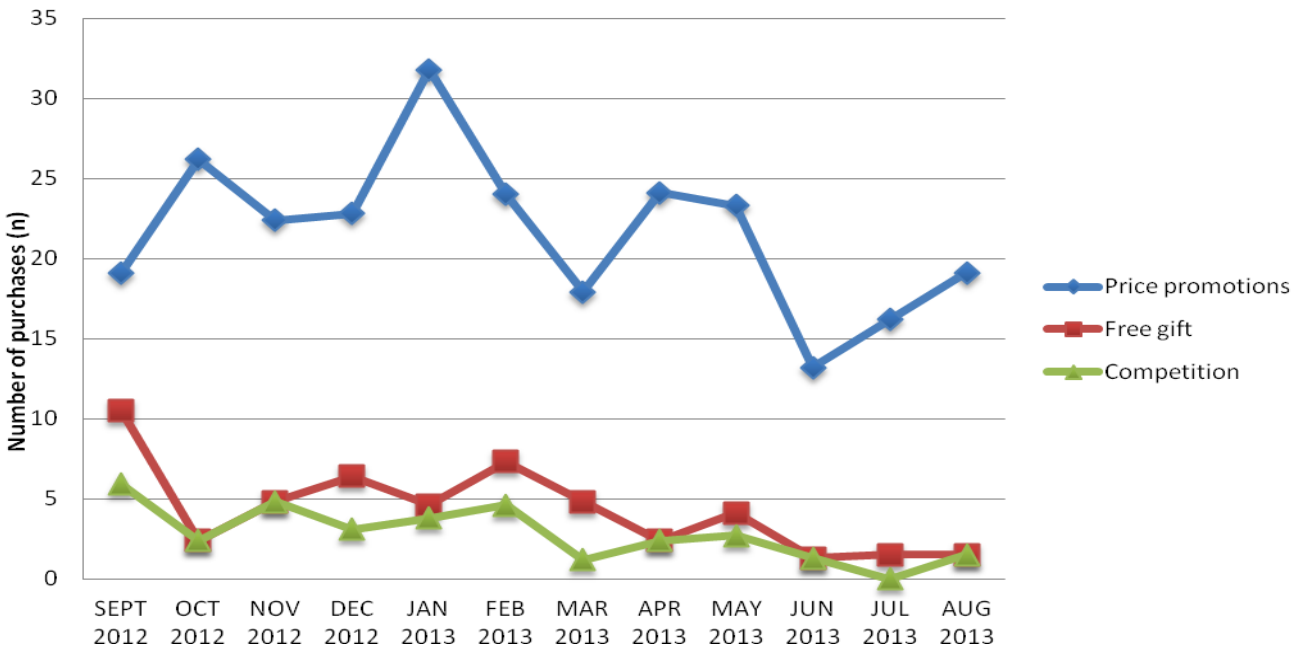


Figure 98. Monthly purchases associated with promotions

In each survey, respondents were asked whether they visited a bottle shop in the past month and on average 67% had done so (regardless of a purchase being made). As seen in Appendix D, the proportion of people visiting a bottle shop fluctuated from 55.2% to 77.0% of respondents each month.

Respondents were also asked why they purchasing an item related to a promotion. The response options were 'value for money', 'appealing', 'liked it' and 'normally buy regardless'. The main reason for purchasing a certain type of alcohol promotion was value for money. This was clearly demonstrated by the monthly data (Appendix E) with an average of 39.6% of respondents stating that this is why they had purchased a particular promotion. Interestingly, 12.7% of respondents stated that they would buy the same product regardless of whether it was a part of any type of promotion.

Relationships between trends in POS promotion exposure and alcohol consumption

The results indicated that across all months, exposure to price promotions was significantly associated with purchase of price promotions. Similarly, exposure to competitions and free gifts with a purchase were associated with purchase of these

promotions. The beta coefficients for each relationship for each month ranged from 0.45 to 0.96 ($p < .05$ for all effects).

The next model tested whether exposure to promotions also translated into consumption of alcohol. This involved testing whether exposure to alcohol promotions was significantly associated with consumption at each month. The results demonstrated that for most of the months observed over the period, there was no significant relationship between exposure to alcohol promotions and monthly alcohol consumption. There were two exceptions, however. In December, price promotions was significantly associated with higher alcohol consumption ($\beta = 3.13$, $p = .038$); and in May, exposure to competitions was significantly associated with higher consumption ($\beta = 5.10$, $p < .001$).

In aggregate, these findings suggest a relationship between exposure to different promotions and the purchase of those promotions specifically in December and May. While this was not clearly associated with subsequent alcohol consumption across most months, there were notable exceptions (December and May); as these were months associated with significantly higher than average levels of binge drinking; this finding is of concern.

POS promotions and normative beliefs

At months 6, 9, and 12, additional items were included in the monthly surveys to assess injunctive and descriptive norms in relation to consumption of alcohol. As shown in Table 11-12, these additional items assessed participant perceptions of:

- Their friend's and peers' drinking patterns
- Whether their family and society in general approved of different drinking behaviours,
- The potential benefits and enjoyment level of drinking.

Table 11 indicates that participants perceived their peers and friends as consuming alcohol frequently and in large amounts per drinking sessions. For instance, 70.2% of participants believed that their peers consumed alcohol at least once a week, with 48.8% believing their close friends consumed alcohol at least once a week.

Alarmingly, participants believed that 24.7% of their peers and 15.8% of their close friends consumed 7 or more drinks in a single drinking occasion.

Table 11. Participant beliefs regarding alcohol behaviours of friends and peers

Item	%
How many peers drink alcohol at least once a week?	
None/a few	10.3
About half	19.5
Most	43.7
All/almost all	26.5
How many close friends drink alcohol at least once a week?	
None/a few	28.4
About half	22.8
Most	26.0
All/almost all	22.8
How often do people your age drink alcohol?	
Monthly/less than monthly	1.9
2 – 3 times a month	13.5
1 – 3 times per week	73.4
4 or more times a week	10.2
How often do close friends drink alcohol	
Monthly/less than monthly	12.1
2 – 3 times a month	22.3
1 – 3 times per week	57.7
4 or more times a week	7.9
How much alcohol do you think peers drink during a typical drinking session?	
0 – 2 drinks	11.7
3 – 4 drinks	36.3
5 – 6 drinks	27.4
7 or more drinks	24.7
How much alcohol do you think close friends drink during a typical drinking session?	
0 – 2 drinks	29.3
3 – 4 drinks	31.2
5 – 6 drinks	23.7
7 or more drinks	15.8

Table 12 indicates that most participants believed that their peers, close friends, and siblings would not care if they drank alcohol every weekend. Furthermore, 25.6% indicated that their peers would approve of them drinking every weekend, with 18.6% believing that their close friends would approve of them drinking every weekend. Most participants believed that their peers, friends, and siblings would disapprove of them drinking alcohol daily, driving after drinking, or drinking enough to pass out. Most participants also believed that their parents would not approve of any of the drinking behaviours examined.

Table 12. Participant perceptions of peer, friend, family, and social approval of drinking behaviours

	Strongly Disapprove	Disapprove	Wouldn't care	Approve	Strongly Approve
How would people your age respond if you did the following?					
Drank alcohol every weekend	2.3	13.0	59.1	20.5	5.1
Drank alcohol daily	16.3	49.8	29.8	4.2	0.0
Drove after driving	51.6	35.4	9.3	3.7	0.0
Drank enough to pass out	23.3	40.9	26.0	9.3	0.5
How would your closest friends respond if you did the following?					
Drank alcohol every weekend	4.7	21.4	55.3	15.8	2.8
Drank alcohol daily	29.8	50.2	17.2	2.8	0.0
Drove after driving	71.6	19.6	5.1	3.3	0.5
Drank enough to pass out	40.5	36.7	14.9	7.9	0.0
How would your siblings respond if you did the following?					
Drank alcohol every weekend	14.0	28.5	47.7	8.4	1.4
Drank alcohol daily	44.4	38.8	14.0	2.8	0.0
Drove after driving	81.6	9.0	5.2	3.8	0.5
Drank enough to pass out	55.7	27.9	11.3	4.3	0.9
How would your parents respond if you did the following?					
Drank alcohol every weekend	22.3	39.5	31.2	4.6	0.9
Drank alcohol daily	63.3	24.6	9.5	2.4	0.0
Drove after driving	87.0	7.0	3.3	2.4	0.5
Drank enough to pass out	76.3	14.4	6.5	2.4	0.5
How would society respond if you did the following?					
Drank alcohol every weekend	7.4	36.7	46.0	8.8	0.9
Drank alcohol daily	31.2	47.5	18.6	2.8	0.0
Drove after driving	75.3	18.1	3.3	2.8	0.8
Drank enough to pass out	53.0	36.2	7.4	2.8	0.8

Table 13 indicates that the majority of participants believed that drinking with friends is rewarding, pleasurable, enjoyable, and fun. Similarly, the overwhelming majority believed that other people also found drinking with friends to be rewarding,

pleasurable, enjoyable, and fun. The majority of participants also believed that drinking alcohol was important for socialisation (e.g., "drinking alcohol is part of the experience of being my age") and making friends (e.g., "drinking allows people my age to make friends").

Table 13. Participant perceptions of the benefits of drinking alcohol

Benefits to self	Strongly Disagree	Disagree	Neither	Agree	Strongly Agree
Drinking alcohol with friends is rewarding	1.4	11.1	35.8	48.3	3.3
Drinking alcohol with friends is pleasurable	0.9	5.1	16.7	67.9	9.3
Drinking alcohol with friends is enjoyable	0.9	4.7	13.5	68.4	12.6
Drinking alcohol with friends is fun	0.9	4.2	18.1	63.3	13.5
Benefits to others					
For most people, drinking alcohol with friends is rewards	0.9	5.6	24.7	61.9	7.0
For most people, drinking alcohol with friends is pleasurable	1.4	3.2	11.6	74.0	9.8
For most people, drinking alcohol with friends is enjoyable	1.4	2.3	12.1	72.1	12.1
For most people, drinking alcohol with friends is fun	0.5	2.3	14.9	69.3	13.0
Socialisation	**Strongly Disagree**	**Disagree**	**Neither**	**Agree**	**Strongly Agree**
Drinking alcohol is part of the experience of being my age	0.5	8.4	21.4	62.3	7.4
People my age are expected to drink alcohol	0.9	9.3	23.7	54.9	11.2
Drinking is an important part of social life	4.2	17.3	24.7	47.9	6.0
People my age look forward to being able to drink	0.9	5.6	19.5	63.2	10.7
Drinking allows people my age to make friends	1.9	12.6	26.5	54.9	5.1

Table 14 presents the results of a correlation analysis examining whether these beliefs and perceptions were significantly associated with participant's drinking behaviours and their purchases of different alcohol promotions. These correlations were performed cross-sectionally on the month 6 data (the first time these items were included in the survey). The results indicate significant positive correlations between the number of standard drinks consumed and perceptions of how much and how often their peers and close friends consumed alcohol. In addition, individuals who drank more believed that their parents and society approved of their drinking and that drinking had a number of benefits and was important for socialisation.

Purchases of price promotions, free gifts, and competition entry, were associated with perceptions of peer and friend consumption patterns, parent approval of drinking and perceptions that consumption of alcohol is beneficial. In addition, purchases of free gifts or competition entries were associated with friends' consumption patterns, sibling approval, and society approval.

Table 14. Correlations between beliefs and perceptions and participants drinking behaviours and purchases

	Number of Drinks	Price Promotions	Free Gifts	Competition Entry
Peers Drink	.20*	.05	.06	.07
Friends Drink	.32*	.11	.15*	.14*
Peer Frequency	.20*	.03	.03	.04
Friend Frequency	.27*	.15*	.18*	.19*
Peer amount	.29*	.20*	.16*	.14*
Friend amount	.35*	.23*	.24*	.22*
Sibling approval	.12	.13	.22*	.22*
Parent approval	.16*	.19*	.33*	.33*
Society approval	.16*	.10	.20*	.22*
Benefits to self	.33*	.21*	.22*	.20*
Benefits to others	.18*	.13	.12	.11
Socialisation	.24*	.09	.09	.10
Identity	.12	.13	.19*	.18*
Similarity	.12	.12	.23*	.23*

*Significant at 0.05 level

These cross-sectional correlations do not provide an indication of the temporal associations between variables, since inferences regarding the direction of causation cannot be made. As a result, regression analyses were then conducted to explore the longitudinal relationships between these variables. This involved examining whether normative beliefs at baseline predicted purchase of price promotions, free gifts, and competition entries (separate models were tested for each outcome, and age, gender, country of birth and baseline purchase behaviour were included as covariates). The models did not indicate a strong relationship between normative beliefs and promotions purchases. However, frequency of peer consumption did predict greater purchases of free gifts (β = .17, p = .016) and competition entry (β = .16, p = .017).

Regression models were then tested that examined whether purchase of alcohol promotions at baseline predicted normative beliefs, controlling for baseline normative beliefs, age, gender and country of birth. None of the longitudinal relationships were significant. The lack of significant longitudinal results could reflect the short time lags between measures (e.g., 3 – 6 months). Because factors such as normative and injunctive beliefs are fairly stable over time, it may require longer lags to identify any significant results.

Comparisons between AC Neilson and survey data

Volume of alcohol purchases (AC Neilson data) and POS purchases by respondents

Figure 2 (p.14) shows the volume of alcohol purchased in Victoria each month (September 2012 to June 2013[2]) from the AC Neilson data. The trend line shows similar fluctuations to POS purchasing patterns (Figure 15,16,17) with peaks during the Christmas and the New Year and again around Easter/Anzac Day. Purchases relating to POS promotions reported during September 2012 are higher, however as mentioned previously this may be due to response bias during this reporting period. Although we cannot conclude that the POS promotions contributed to the change in volumes purchased, there does appear to be some type of association between them.

Purchases

Figure 3 (p.15) shows the amount of money (000's) Victorians spent on alcohol for each month from September 2012 to June 2013. Figure 19 shows the amount of money spent by survey respondents (aged 18 to 25 years) for each of these months. The graphs show similar trends in spending (with the exception of September 2012, however as mentioned previously this may be a result of response bias), with peaks around Christmas and then again early in 2013. This data shows that the spending patterns observed among the young Victorians surveyed is overall similar to that of the general population of Victoria.

[2] The time period from September 2012 to June 2013 is shown as these months have data available from both sources: AC Neilson and survey respondents.

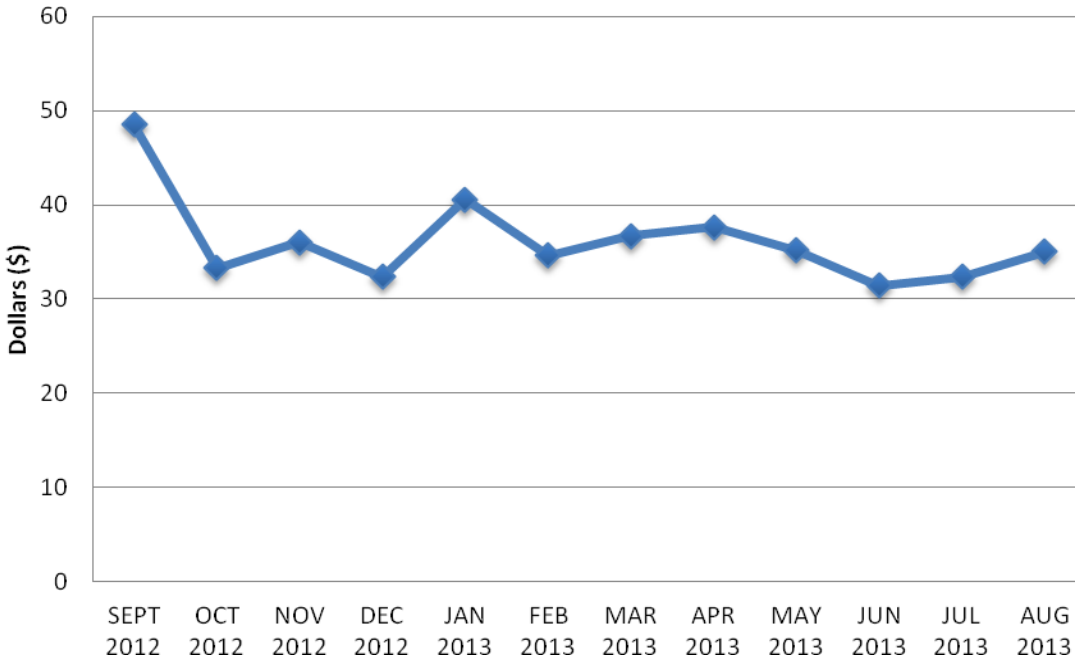


Figure 19. Average monthly expenditure on alcohol by respondents

Discussion and Implications

The aim of this study was to explore the nature, extent and impact of point of sale alcohol promotions Victoria. We identified some very interesting trends in the data highlighting associations between alcohol, promotions, purchasing and consumption.

Our analysis found that the majority of participants in the study consumed alcohol in the week prior to completing the survey each month (ranging from 65.8%-85.4%) for the past 12 months. The average total number of standard drinks consumed in the week prior to completing the survey peaked in January with participants drinking on average 11.37 drinks for the week over 2.5 days. Binge drinking (more than 4 standard drinks in a sitting) was also prevalent with rates varying from 59.5% of participants binge drinking in June 2013 to 68.1% in April 2013. On average, participants reported binge drinking between one and three times per month. These findings are supported by national data. For example the 2010 National Drug Strategy Household Survey showed that 18-24 year olds were the most likely to regularly consume alcohol in risky quantities, with more than 31% doing so as often as weekly (AIHW 2011a).

In relation to the types of POS promotions participants viewed, price promotions were by far the most visible, compared with competitions and free gifts with purchase. 'Price promotions' differ from 'discounted alcohol' in that the latter offer a reduced price per se, whereas the former are linked to purchase volume (eg 'buy one, get one free' or '$x for two'). This is consistent with previous research showing that price promotions are more prevalent in bottle shops in Perth and Sydney and are the promotions which young people are most attracted to (Jones et al, 2010; Jones & Smith, 2011). This was consistent with this study where price promotions were the most purchased POS promotion.

A clear trend was identified with all three promotion types (price promotion, gift with purchase and competition), with peaks in participants' spend and the number of promotions that were observed and purchased (Figure 15,16,17); these peaks in spend and promotions coincide with the NRL/AFL finals Series (September), Christmas/New Year (December/January) and Easter/ANZAC Day (April).

Using growth model analysis, we were able to identify a significant relationship between exposure to point of sale promotions, and alcohol purchase behaviours. This is an important finding given that actual purchasing of consumer goods is a strong predictor of subsequent behaviour (Azjen, 1991). Furthermore, as suggested in previous research, alcohol promotions, and in particular price promotions, often encourage or require the purchase of significant quantitates of alcohol (such as buy one case of beer get one free). Reviews of the extant research have also suggested a significant association between alcohol price promotions, and other forms of promotion, and drinking behaviour (Meier et al. 2008).

We were unable to identify a statistically significant relationship between exposure to alcohol promotions and alcohol consumption for most months in which the survey was conducted. However, it was found that in the period near Christmas (December) there was an increase in exposure to alcohol promotions that was found to be significantly associated with increased alcohol consumption. This relationship between exposure to alcohol promotions and alcohol consumption was finding was also identified during the month of May 2013

This is perhaps unsurprising given that alcohol promotions are prevalent during the festive season, and this period may be when people are looking for the best deal they can find, and may be drinking at higher rates compared to the rest of the year. It is important to acknowledge that drinking behaviour is influenced by a number of influences beyond alcohol marketing, such as peers, parents, and social norms (Gordon et al. 2010). As such consumption during the festive season may not necessarily be directly linked with promotions.

The survey research also examined relationships between exposure to POS promotions, normative beliefs towards alcohol (descriptive and injunctive social norms, and outcome expectations), and drinking behaviours. Cross-sectional data showed that participants perceived that alcohol consumption among their peers and friends was high. Furthermore, a reasonable percentage of participants perceived that their friends or peers would not care, or would even approve of weekly drinking. Given that friends and peers are an important reference group for young adults, this suggests that social norms around alcohol are issues worthy of further investigation. Our longitudinal analysis identified significant associations between perceived frequency of peer consumption and use/involvement with POS

promotions (competition entries and free gifts with purchase]. Although no other significant causal associations were identified between POS promotions, normative beliefs, and drinking behaviours, future research conducted over longer time periods, with greater time lags between data collection points would enable further insight to be generated on the relationships between POS promotions (and alcohol marketing more generally), social norms towards alcohol, and drinking behaviour.

It is important to note that establishing significant causal relationships between exposure to one individual form of alcohol marketing (such as price promotions) and subsequent drinking behaviour is challenging given the multi-factorial nature of alcohol consumption. The majority of studies that have identified significant relationships between exposure to alcohol marketing and drinking behaviour have measured data at two or a maximum of three time points, and not on a monthly basis (Anderson et al. 2009). Furthermore, published studies have found only small significant effects of individual channels of alcohol marketing on behaviour, but have identified more significant effects when considering exposure to several forms of marketing as an aggregate variable in statistical analysis (Gordon et al. 2010). Appendix E shows the other forms of alcohol marketing, participants were exposed to.

It is important to note that POS marketing is likely to serve several other functions. The first, consistent with research in fast moving consumer goods, is to impact on behaviour at the point of decision-making (in terms of influencing choice of brand as well as purchase quantity). A second, and under-researched function is the impact on brand image and brand attitude; many of the 'gift' and 'competition' promotions link the product/brand to high-profile events, sporting teams, and desirable 'image' products. It has previously been shown that tobacco point-of-sale marketing increases positive brand image among young people (Donovan et al 2002).

Given the fluctuations in alcohol consumption across the months of the year, and the methodological considerations associated with attempting to identify casual associations between exposure to alcohol promotions and drinking behaviour, future studies that measure survey data across several time points over a longer period of time may offer a more rigorous study design. For instance, there are few studies that have collected data on an annual basis beyond two to three years. Such studies,

particularly if they tracked young people's exposure to alcohol marketing, and drinking behaviour through their teenage years right into early adulthood, would offer a more complete understanding of these relationships.

Notwithstanding this discussion in relation to research methodology, the study generated some important implications for policy and practice. Firstly, from the survey research we identified clear patterns of intensive alcohol promotion activity from the survey, particularly around 'special' times of year such as Christmas/New Year, Easter/ANZAC Day, and the football finals season in September. In these months a peak in alcohol promotional activity occurred, and this was found to be associated with increases in alcohol purchasing behaviour among survey participants. This evidence offers insight into how the alcohol industry, marketers, and retailers manipulate the alcohol market at particular times of year, influencing purchasing behaviours, and potentially drinking behaviours. Furthermore, this increase in alcohol promotional activity may have a wider social influence by normalising alcohol consumption during these times of year. Christmas and New Year, Australia Day, ANZAC Day, and football finals season in September, have almost become synonymous with alcohol consumption in Australia, and this is reinforced by the alcohol industry's promotional activity.

As such, policy makers may wish to consider interventions to regulate alcohol promotional activity during these 'special' periods, particularly given the focus on other prevention strategies such as Random Breath Tests during these peak periods for alcohol-related harm. Restrictions or reductions on the level of alcohol promotional activity during these times may reduce alcohol purchasing behaviour, and subsequent harms associated with consumption – including hospitalisations, road traffic accidents, and other social harms such as crime and disorder and lost productivity.

The study identified that price promotions are a heavily used strategy by the alcohol industry to promote the purchase and consumption of alcohol. Given the price sensitivity of young people, alcohol pricing (and particularly volume-related price discounting) is a particularly important concern for this group. There is a wealth of research evidence demonstrating that increasing the price of alcohol reduces consumption and associated harms (Babor et al. 2010). Therefore, given the extent of price promotion activity evident in this study, and the extant research concerning

the effect of different forms of alcohol marketing on behaviour, policy makers may wish to consider restrictions on alcohol price promotions to reduce purchasing and consumption behaviour, particularly among price-sensitive young people. Whilst, further research to test for direct causal relationships between POS promotions specifically and alcohol consumption would be useful, it is important to acknowledge that the strength of relationships between individual channels of alcohol marketing and drinking behaviour are small. However, given that consumers are exposed to multiple different forms of alcohol marketing, it is the cumulative effect of exposure that is of concern (Gordon et al. 2010). This finding may suggest that, POS promotions could be an important and prominent component of the alcohol marketing environment and have a cumulative influence on youth drinking. This suggests that policy makers should consider the regulatory environment governing POS promotions.

Often price promotions, or entry to competitions, require the consumer to purchase a significant amount of alcohol, and potentially more than the person may have originally intended to buy. A recent study of POS promotions in Perth and Sydney found that on average, wine promotions required a purchase of 21.5 standard drinks, beer promotions 25.4 standard drinks, spirit promotions 28.5 standard drinks, and RTD promotions 12.6 standard drinks (Jones et al 2012); and that price promotions had significantly higher purchasing requirements than non-price promotions. As such, there is increasing recognition in the research literature that alcohol marketing can encourage immoderate consumption (BMA, 2009). If the alcohol industry is to be permitted to continue to run POS promotions, policy makers may wish to consider controls over the amount of alcohol required to access these promotions, or to prohibit promotions that may encourage immoderate drinking as introduced in Scotland (Chick, 2012).

Finally, the study identified significant cross sectional associations between POS promotions, normative beliefs towards alcohol, and drinking behaviour, and longitudinal associations between POS promotions and one measure of descriptive norms of drinking. Whilst no other causal associations were identified, these findings provide new insight given that the relationships between forms of alcohol marketing, social norms, and drinking behaviour have not been tested in previous research. Therefore, support from policy makers for future research to further test these

relationships would help generate further insight and understanding. If associations between alcohol marketing and social norms are identified it would suggest that alcohol marketing has a normative effect in society, notwithstanding its direct effect on behaviour. Given that similar research on tobacco marketing has found such a relationship between marketing and social norms (Brown et al. 2009), further research on this topic would be welcome.

In summary, the study identified that alcohol POS promotions are a prevalent, highly accessed, and potentially influential component of the alcohol marketing mix in relation to young people. Clear patterns of intensive POS promotions by the alcohol industry and retailers, and extensive use of price promotions as a marketing tool were found. Furthermore, a significant relationship between exposure to POS promotions and alcohol purchasing behaviour was identified. Although no subsequent relationship with consumption was identified, the balance of existing evidence does identify a significant relationship between exposure to multiple forms of alcohol marketing, alcohol purchasing behaviour, and alcohol consumption. These findings generate useful insight on the alcohol environment in Victoria that is of interest to policy makers and stakeholders.

Conclusion and Recommendations

Given the evidence from the present study, and in the extant research literature, alcohol POS promotions are an important consideration for policy makers and stakeholders in the alcohol field. Our study has demonstrated that alcohol POS promotions are a prominent component of the alcohol marketing mix, and that the alcohol industry utilises these promotions to influence the marketplace and consumers, particularly at various times of the year such as during the festive season, and AFL/NRL finals series. The study identified that price promotions are a prominent type of POS promotion used by the alcohol industry/retailers. This is of particular relevance given that young drinkers are particularly price sensitive when making alcohol-purchasing decisions (Lundborg, 2002). Indeed, our modeling analysis found that there was a significant relationship between exposure to POS alcohol promotions and alcohol purchasing behaviour among survey participants. Although analysis did not identify a significant causal association between exposure to alcohol POS promotions and alcohol consumption for most months of the 12 monthly survey, this is likely due to issues with the study design and generic issues in identifying causal relationships as discussed previously. Nevertheless, our analysis did identify significant relationships between exposure to POS promotions and alcohol consumption in two of the 12 months in which the survey was conducted.

These findings generate some important conclusions and recommendations in relation to the alcohol POS environment:

- Policy makers may wish to consider regulating or restricting this environment. Focusing on 'special' times of the year such as football finals season and Christmas and New Year may be an effective strategy.
- Young drinkers are price-sensitive and the extensive use of POS price promotions by the alcohol industry identified in this study may provide an appealing incentive to purchase alcohol. Furthermore, given the considerable existing research evidence base that demonstrates increasing alcohol prices reduces consumption and associated harms, policy makers may consider banning or restricting alcohol POS promotions as one component of a strategy to limit overall consumption.
- The study identified that alcohol POS promotions may also encourage immoderate consumption. If POS promotions are to be permitted, these

could be regulated to reduce the amount of alcohol that is required to be purchased, to access such promotions.

- Future high quality and methodologically sound research studies that track alcohol POS promotions and other forms of alcohol marketing and the effect on drinking behaviours among consumers longitudinally over a number of years from adolescence to young adulthood, would provide additional insight and understanding in this area.

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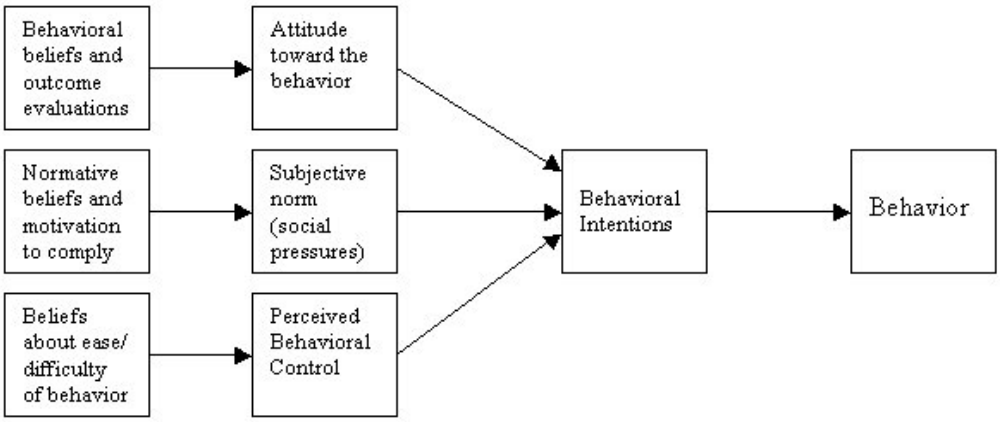
APPENDIX A- Theoretical Framework

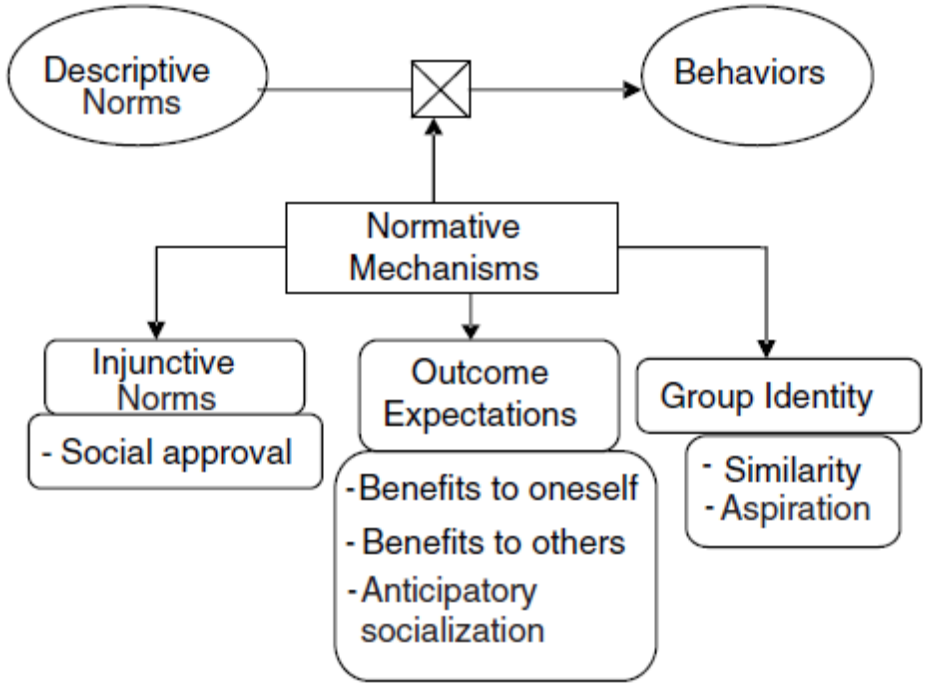
The theoretical framework used was based on the Theory of Planned Behaviour (Ajzen, 1991), and the Theory of Normative Social Behaviour (Rimal and Real, 2005). The Theory of Planned Behaviour (TPB) is the most widely used and tested behavioural theory used to explain drinking attitudes and behaviours, along with a wide range of other health and social behaviours. The theory proposes that behavioural beliefs, also known as outcome beliefs, normative beliefs and control beliefs, influence attitudes towards the behaviour, subjective norms and perceived behavioural control, and that this in turn influences behavioural intentions and ultimately behaviour. This is explained in the diagram below:

Figure A-1. The Theory of Planned Behaviour



We had identified a gap in the current evidence base and were particularly interested in normative beliefs and subjective norms regarding alcohol and the influence of POS alcohol promotions. To explain and test these relationships used the Theory of Normative Social Behaviour (TNSB) as a theoretical framework (Rimal and Real, 2005). The TNSB examines and explains the norms component of the TPB and has been used to investigate norms and their relationships with attitudes and behaviour in relation to alcohol (Rimal and Real, 2005; Rimal and Real, 2008). The TNSB includes three mechanisms: *injunctive norms*, *outcome expectations*, and *group identity* that are hypothesised to moderate the influence of descriptive norms on behaviour as illustrated in Figure 2.

Figure A-2. The Theory of Normative Social Behaviour



APPENDIX B- Alcohol consumption behaviour per month

In the past week	**Sept (M1)**	**Oct (M2)**	**Nov (M3)**	**Dec (M4)**	**Jan (M5)**	**Feb (M6)**	**Mar (M7)**	**Apr (M8)**	**May (M9)**	**Jun (M10)**	**Jul (M11)**	**Aug (M12)**
Consumed alcohol (Yes)	81.7%	77.5%	75.3%	77.0%	85.4%	73.7%	70%	70.3%	65.3%	71.1%	70.2%	65.8%
Number of days consumed alcohol (SD)	1.96 (1.18)	2.17 (1.47)	2.31 (1.41)	2.19 (1.57)	2.48 (1.63)	2.09 (1.52)	1.91 (1.12)	2.32 (1.45)	1.82 (1.16)	2.01 (1.39)	1.88 (1.24)	2.04 (1.40)
Typical number of standard drinks per occasion	3 or 4	3 or 4	3 or 4	3 or 4	3 or 4	3 or 4	3 or 4	3 or 4	3 or 4	3 or 4	3 or 4	3 or 4
Total number of standard drinks (SD)	6.69 (6.02)	8.66 (9.70)	9.46 (10.69)	7.80 (7.76)	11.37 (18.39)	7.75 (9.13)	6.84 (7.47)	9.33 (10.21)	5.84 (5.93)	7.03 (7.04)	7.09 (14.33)	7.03 (8.95)
In the past month												
Consumed alcohol (Yes)	91.2%	89.7%	88.8%	85.8%	90.3%	84.8%	79.8%	80.7%	77.3%	81.5%	78.2%	79.1%
Number of days consumed alcohol	5.98 (4.86)	6.61 (5.89)	6.16 (5.63)	6.89 (5.97)	7.57 (6.18)	5.91 (5.54)	6.02 (4.80)	6.20 (5.40)	5.23 (4.78)	5.73 (5.12)	5.01 (4.33)	5.82 (5.27)
Typical number of standard drinks per occasion	3 or 4	3 or 4	3 or 4	3 or 4	3 or 4	3 or 4	3 or 4	3 or 4	3 or 4	3 or 4	3 or 4	3 or 4

APPENDIX C- Consequences of alcohol consumption per month (percentages refer to the number of people who report an adverse consequence)

	Aug (Base)	**Sept (M1)**	**Oct (M2)**	**Nov (M3)**	**Dec (M4)**	**Jan (M5)**	**Feb (M6)**	**Mar (M7)**	**Apr (M8)**	**May (M9)**	**Jun (M10)**	**Jul (M11)**	**Aug (M12)**
Hangover	50.7	37.3	37.3	36.2	37.6	37.6	29.5	32.9	31.7	25.3	29.7	30.8	29.8
Heated argument	20.6	11.2	7.1	9.0	7.8	9.5	8.2	7.6	5.6	8.7	9.3	4.8	3.3
Been aggressive	12.5	6.9	5.8	5.0	5.4	10.0	7.1	5.3	3.7	3.3	3.5	4.1	3.3
Blackouts	23.0	14.6	11.1	8.1	11.7	12.7	8.2	9.4	6.8	5.3	4.1	6.8	7.9
Spent too much	16.2	9.4	10.2	11.3	7.8	9.0	8.7	7.6	6.2	8.0	7.0	7.5	6.6
Unsafe sex	13.2	6.4	5.3	4.1	5.9	4.1	3.8	5.3	1.9	3.3	3.5	4.8	5.3
Injury	12.2	5.6	7.1	6.3	6.3	8.1	7.1	5.3	2.5	3.3	2.3	3.4	5.3
Behaved inappropriately	31.4	18.5	21.8	13.6	15.1	15.8	16.4	12.9	11.8	11.3	7.0	8.9	10.6
Removed/banned from pub/club	6.1	3.9	1.3	0.0	1.0	1.8	3.3	2.4	1.9	0.0	0.0	0.7	1.3

APPENDIX D- Alcohol promotions in bottle-shops (in the past week)

	Sept (M1)	**Oct (M2)**	**Nov (M3)**	**Dec (M4)**	**Jan (M5)**	**Feb (M6)**	**Mar (M7)**	**Apr (M8)**	**May (M9)**	**Jun (M10)**	**Jul (M11)**	**Aug (M12)**
Visited a bottle-shop	77.0	68.4	72.8	72.7	68.2	66.9	59	72.4	64.4	63.3	69.1	55.2
Amount normally spent (SD)	$48.51 (202.94)	$33.31 (34.51)	$36.06 (40.83)	$32.39 (29.50)	$40.58 (39.24)	$34.63 (50.96)	$36.69 (38.53)	$37.64 (47.53)	$35.15 (48.85)	$31.43 (28.08)	$32.36 (34.88)	$35.04 (41.55)
Number of price promotions	75.9	72.2	62.7	70.6	72.0	58.2	62.9	71.8	71.4	59.6	48.2	64.6
Number of free gift	35.5	27.8	29.1	26.6	25.2	24.1	22.6	15.5	19.6	12.3	16.1	8.3
Number of competition entry	36.9	25.9	25.5	18.3	20.6	17.7	22.6	15.5	16.1	10.5	12.5	8.3
Number of promotion purchases (n)												
Price Promotions	49.6	53.7	47.3	45.0	55.1	44.3	46.8	47.9	46.4	54.4	39.3	45.8
Free gift	11.3	7.4	10.9	14.7	11.2	13.9	12.9	7.0	10.7	5.3	7.1	4.2
Competition entry	7.1	8.3	10.0	7.3	8.4	8.9	4.8	5.6	5.4	5.3	7.1	2.1

Reason (%)	Sept (M1)	Oct (M2)	Nov (M3)	Dec (M4)	Jan (M5)	Feb (M6)	Mar (M7)	Apr (M8)	May (M9)	Jun (M10)	Jul (M11)	Aug (M12)
Value for money	40.4	44.9	40.2	40.6	43.4	31.6	39.3	36.6	41.1	45.3	34.5	37.5
Appealing	0.7	0.0	2.8	0.0	1.9	2.5	0.0	2.8	0.0	0.0	0.0	0.0
Liked it	0.7	1.9	0.0	2.8	1.9	1.3	1.6	0.0	3.6	0.0	1.8	2.1
Normally buy regardless	14.9	10.3	11.2	11.3	13.2	10.1	13.1	16.9	14.3	11.3	9.1	16.7

APPENDIX E- Exposure to different types of alcohol promotions/marketing per month (percentages refer to yes responses)

	Sept (M1)	Oct (M2)	Nov (M3)	Dec (M4)	Jan (M5)	Feb (M6)	Mar (M7)	Apr (M8)	May (M9)	Jun (M10)	Jul (M11)	Aug (M12)
TV	53.5	49.4	43.8	37.7	35.9	29.2	24.5	27.5	28.0	24.2	25.1	28.3
Radio	21.1	20.7	15.7	16.3	15.1	13.4	8.5	11.0	12.4	8.5	10.2	11.0
Newspaper	33.6	32.3	28.9	31.4	29.8	24.5	20.8	21.5	20.2	18.0	17.6	23.0
Catalogue	53.1	49.3	47.0	49.4	46.5	42.1	36.3	39.5	38.3	36.5	38.0	34.6
Websites	30.9	26.3	20.9	22.2	20.8	14.8	12.7	10.5	14.0	12.8	12.8	13.1
SMS	3.1	4.0	3.6	1.7	2.9	2.8	2.4	1.0	1.0	1.4	2.1	3.1
Email	10.9	10.0	10.8	10.0	8.2	11.1	10.8	10.0	8.3	7.6	8.6	7.3
Social networking site	25.4	23.1	20.9	15.5	13.9	10.2	12.7	11.0	11.4	7.1	9.1	11.0
Sports sponsorship	23.8	24.7	15.7	15.5	15.9	13.0	11.3	13.5	17.6	14.7	13.9	14.7

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