Research report title
Alcohol and other drug use at school leavers' celebrations

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Abstract

Background
A significant proportion of adolescents who attend celebratory events often engage in substantial alcohol and other drug use. We examined patterns, influences and impacts of drug consumption at an end of schooling life celebration.

Methods
17-18 year old Australians who intended to attend (N=541) and who attended the celebration (N=405) respectively completed pre- and post-event surveys.

Results
Males consumed 18.44, and females 13.24 Australian standard drinks on an average day during the school leavers' event. Compared to their last social event, there was greater alcohol (p<0.0005) and ecstasy use (p<0.046 for day 1 & p<.008 on day 3). However, the number of drinks consumed per hour appeared to be similar across contexts. Most (87%) experienced at least one negative outcome attributed to alcohol and other drug use. Safety strategies were frequently used and appeared to be protective against some of the most common harms (hangover, vomiting, black out and unprotected sex).

Conclusions
The use of alcohol and other drugs at this celebratory event appears to be reflective of the greater than usual number of drinking hours that are available to participants. The use of safety strategies can be successful in mitigating some of the most common drug related harms.

Introduction

Adolescent alcohol use in countries such as the US, UK and Australia, is typified by episodic consumption which commonly occurs to the point of intoxication (1-4). This style of 'risky drinking', means that young people are frequently affected by blackouts (memory loss), hangovers and violence (5, 6).

Adolescent alcohol and other drug (AOD) use appears to peak at 'special events' (7, 8). For many young adults in Western countries, the milestone of school completion is marked by festive events. These multiple day celebrations are a much anticipated occasion for frivolity with fellow alumni; and, in Australia, up to half of all year 12 graduates attend some form of these school leavers' celebrations (9, 10).

Compared to the significant press coverage each year (11), there has been relatively little formal research into the phenomenon. The common theme of existing studies is that for a significant proportion of attendees, the event revolves around heavy alcohol use, some consumption of other drugs, and engagement in other risky behaviours such as unprotected casual sex (12-20). Similar scenarios occur at other multiple-day peer-based celebratory events such as Spring Break in the US (21, 22), and Russefeiring, a 17 day Norwegian graduation party (23).

These risky behaviours are partially attributed to the 'holiday effect', a phenomenon where individuals on holiday tend to engage in risky behaviours not otherwise attempted at home (13, 18, 24-27). These elements include the temporary suspension of social codes, such as responsibility and accountability; time away from usual authority figures; a peer-based environment; and a reputation for AOD experimentation. Also, heavier drinkers appear to 'self-select' to attend party destinations with a reputation for AOD use (28-31).

Currently, there are few international and no Australian peer-reviewed published studies which provide quantity-specific estimations that reliably gauge the extent of AOD use at school leavers' celebrations (especially alcohol), and provide a fulsome view of its influence on behaviour.

The aims of this study were therefore to: (i) Compare the levels of AOD use at an end of school celebration, and use at other peer-based social events; and, (ii) Relate the experience of harms experienced at the celebrations to levels of use and engagement in harm-minimisation strategies.

Methods

Design
Core data for this project were gathered using a two-part survey design with a self-report methodology. The majority of the respondents were aged 17 (legal purchase age for alcohol in Australia is 18) (32). Respondents intended to, and/or had attended the 2009 school leavers' celebrations on Rottnest Island. This Island is located 20km off the west coast of Perth and is a popular location for the event in Western Australia. This location was chosen as the bulk of the visitors entered and exited via a single ferry terminal. This 'bottlenecking' facilitated survey administration.

The first survey sampled young people who intended to attend the event (N=541; 56% female; 91% 17 and 9% 18 years of age; 87% enrolled in an independent school). This pre-celebration survey was available both online and face-to-face. Half (52%) were conducted online from two months to the day prior to the celebration. Mean online completion time was 15.64 minutes (95% CI [14.79,16.49], n=215 [outliers removed]). The remaining paper surveys were disseminated on the first day of the celebrations on five ferries travelling to Rottnest Island. Project information forms and blank surveys were provided en route, and completed surveys collected as the boat docked.

The post-celebration survey was completed by 405 (50% female; 94% 17 years of age and 6% 18 and over; 92% attended an independent school). While this second survey was also available online, most (86%) were conducted face-to-face. On the last day of the event, a team of 27 researchers distributed surveys around the island's accommodation, commercial areas, and ferry terminal. Researchers remained within a visible distance to participants to encourage serious attempts and to collect surveys. Face-to-face response rates were estimated at approximately 90%, and completion time at 15 minutes. Survey modality (online vs. face-to face) was controlled for in multifactorial analyses, and Wilcoxon-Mann-Whitney tests did not reveal any significant differences in intended or reported actual alcohol use across the modalities.

The two surveys were designed to be analysed primarily as separate components – one assessing intentions and one assessing what happened at the celebrations. As the total number of celebrants on the island was 1 466, approximately 37% of the population was surveyed with the pre-celebration survey and 28% for the post-celebration survey. Although recapture was not a central method of the study, a self-generated anonymous code was incorporated into both instruments to pair an individual's data where possible (33, 34). Not all participants completed the code and the pre- and post-event surveys of 120 participants were eventually linked (62% female). Due to the modest known paired sample size, most analyses focus on 'within survey' data (combining both paired and unpaired respondents).

Confectionaries ('lollies') were provided as a minor incentive with face-to-face surveys. Participants of both survey modalities were able to enter a voucher prize draw. Prize-draw email addresses were detached from or collected in separate databases to the survey data. Consent was implied by survey completion (35). This study was approved by Curtin University (HR135/2008) and the Rottnest Island Authority (2008/13;2009/110328).

Measurements
Both surveys contained psychometrically validated and novel items in Likert and free response form. The pre-celebration survey included quantity-specific expectations of personal and peer AOD use at the event; expectations of how permissive the celebration context would be; parental discussions about alcohol use; and AOD use at their last social event. This 'last event' was the last social occasion attended with friends prior to the school leavers' celebration. As adolescent alcohol use tends to be episodic and increase in 'party' contexts (5, 36), the more frequently used survey reference period of the last seven days (37) may or may not include a peer based social event. The school leavers' celebration and the last event were comparable in that they were both social and peer-based, and

assessed a similar subset of young people that had self-selected as intending to/attended the end of school celebrations (19, 38). That is, the 'last event' served as a proxy for 'usual' AOD behaviour.

The post-event survey investigated AOD use, perceptions of peer AOD use, experience of AOD-conducive conditions, negative consequences, and harm reduction strategies employed at the celebrations.

Alcohol consumption was estimated using validated tools from the National Drug Strategy Household Survey - the beverage specific and the standard drink (SD) approach (39, 40). The beverage specific method requires the respondent to specify their drink (e.g. mid-strength beer), the size of their drink receptacle (e.g. a 330ml bottle), and the number of each type consumed, in table labelled with the most common beverage types and sizes. The SD method requires the respondent to convert their intake into SDs, and then to record a figure that summarised daily consumption. The SD question 'how many standard drinks did you have on day 1' was supplemented by a visual guide. In Australia, a 'standard drink' contains 10grams of alcohol. Piloting confirmed comprehension of the 'SD' concept was high, as it was a part of many schools' syllabus. The beverage specific response method is one of the most valid self-report measures of alcohol quantity – however, its higher and more accurate estimates are offset by a considerably lower response rate (41).

Both estimates were presented in Table 1, but only the beverage specific estimates have been discussed. The beverage specific method was used for the last event and celebration estimates whereas the SD method was only used in the celebration estimates. Reported sample sizes reflect the sample that responded to the relevant item.

Analysis
A series of Wilcoxon signed rank tests were performed to compare AOD use between the contexts of the last event and an average day at the leavers' celebrations (paired respondents).

Logistic regression analyses were performed to assess the impact of six factors on the likelihood of reported experience of 17 negative consequences. Independent variables were chosen to assess the ability of safety strategies to attenuate experience of a variety of harms. The six variables contained in each model were: (1) average quantity of alcohol used on a single day at the event; (2) use of drugs other than alcohol; (3) use of alcohol related safety strategies, as assessed using the Protective Behavioural Strategies Survey [PBSS]. The PBSS is a psychometrically validated list of behaviours that minimise alcohol use and related acute harm (42-48) (4) gender; (5) accommodation location; and (6) survey administration modality (online or face to face).

Results
Alcohol use at leavers' celebrations and the last event
A significantly greater proportion of respondents used alcohol during the celebration period (93%) and on each celebration day (an average of 88% across the 3 days), compared to the last peer-based social event (78%).

Using the beverage specific response method, drinking respondents were estimated to have consumed a mean of 11.94 standard drinks at their last social event, and 15.80 standard drinks on an average celebration day (see table 1 and figure 1). Paired respondents consumed an average of 5.07 standard drinks more in the celebration context compared to their last event (95% CI 2.92, 7.23); Wilcoxon signed rank test statistics: z= - 4.38, n =58, p = .0005, r = .59 [large effect]).

<SUGGESTED PLACEMENT FOR TABLE 1>

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Respondents were asked to specify the number of hours over which drinking occurred. A mean of 5.37 drinking hours was reported for the last event (n=361), and 7.42 (n=356) for an average

celebration day. Unsurprisingly, there was a positive correlation between the average number of drinking hours and quantity of alcohol consumed at the celebration (Spearman's rho = .62, n = 239, p<.0005), and at the last event (Spearman's rho = .30, n = 300, p = .0005)

A drinking pace score was calculated to indicate the number of SDs consumed in one hour. The mean drinking pace at the last event was 2.91 (95% CI 2.62, 3.19; n=300) and 2.70 (95% CI 2.50, 2.90; n=238) on a mean celebration day. On average, there was a smaller than 10% difference in the drinking pace between the contexts of the last event and the celebration (combining the scores of paired and unpaired respondents). Wilcoxon signed Rank Tests did not reveal any significant differences in paired respondents' drinking pace across contexts.

Drugs other than alcohol at school leavers' vs. the last event
The use of amphetamine, caffeine, cannabis, and ecstasy were assessed dichotomously. In these analyses, the use of 'an illicit drug' was defined as the use of amphetamine and/or cannabis and/or ecstasy. Thirteen per cent used an illicit drug at their last event, 14% used an illicit drug on an average celebration day (mean use over days 1-3) and 20% used on any one celebration day (see Table 2).

A series of Wilcoxon signed rank tests were used to contrast paired respondents' use of each drug across the contexts of their last event and each individual celebration day. Paired respondents were more likely to use ecstasy on day 1 (z = - 2.00, paired n = 103, p = .046, r = .14 [small effect size]) and day 3 of the celebrations (z = - 2.65, paired n = 103, p = .008, r = .18 [small-medium effect size]) compared to the last event they attended. No other comparisons were significantly different.

<SUGGESTED PLACEMENT FOR TABLE 2>

Negative consequences and the use of protective strategies
The majority of respondents (87%) experienced at least one negative experience at the school leavers' celebrations that they attributed to AOD use (N=313, 92 missing; see Table 4).

Table 4 provides a summary of the logistic regression analyses associated with experience of negative outcomes. Some independent levels had more than two levels. Alphabetical letters were used in Table 3 to denote each comparison between levels of the same variable (e.g. to compare the highest and lowest quartiles of alcohol use). These letters were used so odds ratios are identified with a specific level of a variable, rather than with the variable as a whole. For example, the cell content of '9.34**[b]' in Table 4, relates back to the letter 'b' in table 3. It means that respondents who drank 11.67-18.33 SDs ('b') were 9.34 times as likely to report a blackout compared to those who drank 0-6.00 SDs (comparison/reference group). Incidentally, this blackout finding is consistent with previous findings that adolescent drinkers are more susceptible to blackout compared to adults (30), and supported by data from a recent nationally representative survey (40).

<SUGGESTED PLACEMENT FOR TABLE 3>

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Of the 17 outcomes that were assessed, 14 models were significant. Four negative consequences were uniquely associated with the use of safety strategies: hangover, vomiting, blackouts and unprotected sex.

Controlling for all other factors in the model and compared to those who engaged in safety strategies with the greatest frequency (the reference group), the following odds ratios were reported. Respondents who engaged in protective strategies with the lowest frequency were: 3.50 times more likely to report a hangover; 3.38 times more likely to report a blackout; and 10.92 times more likely to report unprotected sex. Those who engaged in protective strategies with the second greatest frequency were 2.61 times more likely to report vomiting.

Discussion

Main finding of this study

The majority of the school leavers' were consuming very high levels of alcohol. Using one of the most accurate methods of self-report, a daily mean of 18.44 Australian standard drinks was reported for males, and 13.24 for females.

What is already known on this topic

The proportion of alcohol users (93%) is similar to other Australian Schoolies studies, which range from 90-97% (19, 20, 49-51). In Victoria and Queensland, 69% and 76% reported consuming 5+ drinks on a 'typical' Schoolies day (16, 20). The estimates in this study are substantially higher, but are likely a result of methodology differences. For example, compared to these other studies, this instrument a) utilised the SD and beverage specific method as opposed to multiple choice options (5 brackets, the highest being 10+), b) used the concept of the 'SD/used a SD visual guide, and c) referred to a specific as opposed to a 'typical' day.

These results are broadly consistent with estimates using similar quantity-specific measures. For example, the average alcohol use per celebration day did not appear to be substantially different to Spring Break estimations of 18 drinks for males, and 10 drinks for females (22). While an Australian SD contains 10g of alcohol and US drinks contain about 12 grams of alcohol, the studies taken together suggest broad similarity and potentially some convergence in drinking rates between the genders (52).

What this study adds

As the drinking rates (SDs per hour) appeared similar to the last social event attended, it is possible that the longer hours available at the celebratory event accounted, to some extent, for the substantial quantities of alcohol consumed. As there is some research evidence to support the notion that longer drinking hours are associated with higher levels of consumption (53), it is reasonable to propose that a greater opportunity to drink may have directly facilitated the greater use of alcohol per day. As celebrating students were commonly observed to commence drinking in the late afternoon, an earlier start time may be the key influence. These longer drinking times are possibly in turn fostered by lack of usual academic responsibilities, parental supervision and being within an environment with a reputation for heavy drinking.

The reported prevalence of ecstasy use at school leavers' celebrations was roughly twice that of the last social event. Although the reasons for higher ecstasy use were not specifically examined in this study, it is possible for example, that ecstasy's effects of increased 'cheer and chatter' and as an anti-soporific, aid what is regularly cited as the main positive aspect of leavers' celebrations: to socialise with peers (14, 54, 55). The absence of other drug differences between contexts are mostly unsurprising due to the lower frequency of illegal drug use in this age group combined with the paired sample size (56, 57).

Encouragingly, not only were the alcohol-related safety strategies frequently used, they appeared to have a protective effect. Controlling for a range of potential confounders, use of protective harm reduction strategies were associated with lowered odds of experiencing some of the most common harms and risks including hangover, vomiting, blackouts, and unprotected sex.

This study uniquely provided quality documented variation in use patterns, and risk and protective factors associated with riskier levels of use. This study was distinctive in using the last social event attended with friends as a behavioural baseline to identify a range of factors differentiating between contexts.

Limitations of this study

Although self-report measures are considered a generally valid measure for adolescent drug use (58-60), there are some potential limitations. Firstly, deliberate misreporting is an issue for all self-

administered surveys, underreporting and over reporting having potential to skew results (59). Secondly, recall effects may cause reports of past behaviour may be incomplete/inaccurate, even though the majority (96%) of the post-celebration surveys were completed within three days of end of celebrations. Lastly, though this study used an opportunistic/convenience sample and cannot be conclusively stated as representative of the celebrations, the combination of a high response rate and that approximately a third of the total celebration population was surveyed, remains a strength.

As school leavers' celebrations show no obvious sign of decline in popularity, recognition of actual and potential harms, prevention and mitigation strategies are increasingly important. They also have relevance for other celebratory events. These findings have relevance identifying the high risk of celebration, demanding effective responses while simultaneously indicating that use of harm reduction strategies can reduce risk. Outcomes have been directly disseminated with the celebration-coordinating government bodies to assist in ensuring harm minimisation and education are prioritised in event management. Findings have also been translated into practical strategies and communicated through national media, and materials designed for parents and young people.

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Table 1. Alcohol use at the last social event and on an average day at the school leavers' celebrations

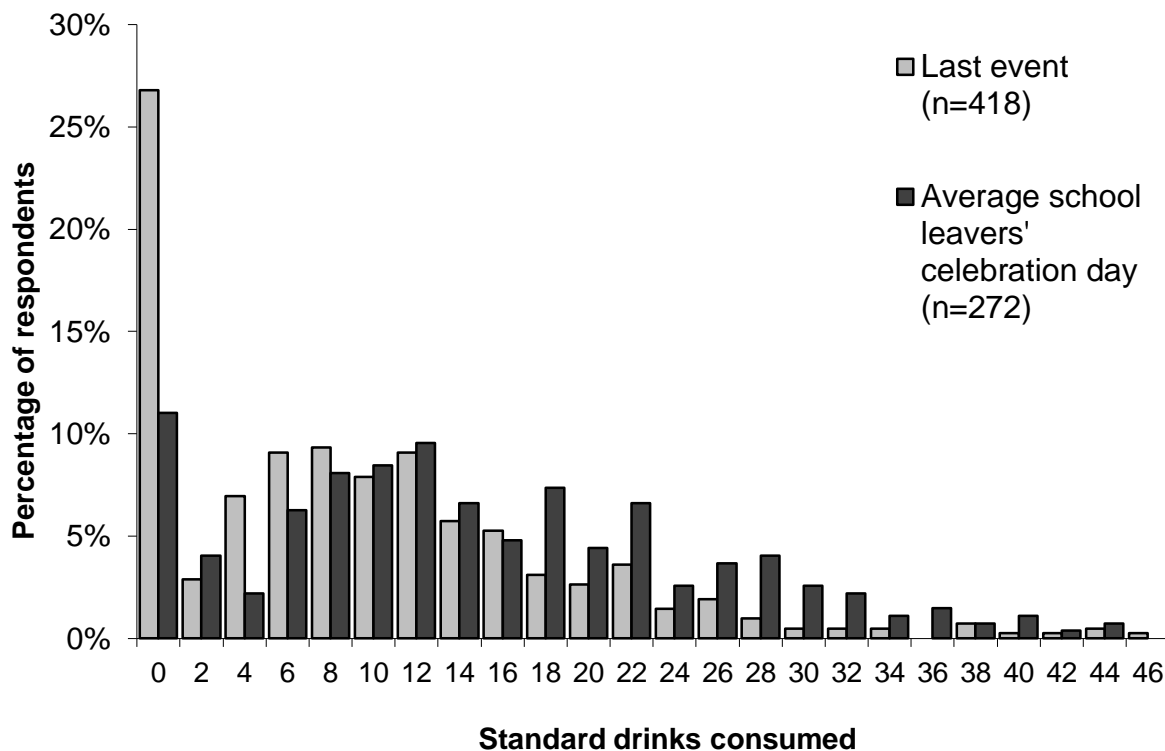|	Alcohol estimate method	Males				Females				All drinking respondents			
		Mean	95% CI	Missing N	N	Mean	95% CI	Missing N	N	Mean	95% CI	Missing N	N
Last event	Beverage specific	14.32	12.73, 15.89	58	132	10.09	9.00, 11.17	61	170	11.94	11.01, 12.88	123	306
Average school leavers' event day	Beverage specific	18.44	16.72, 20.16	67	118	13.24	11.64, 14.84	63	122	15.80	14.60, 17.00	133	242
	Standard drink	17.05	15.57, 18.53	13	172	11.44	10.24, 12.64	11	174	14.20	13.2, 15.19	27	348

Note. Means and CIs calculated with respondents who used alcohol (112 at the last event, and 30 at the school leavers' event did not drink). Estimates include both paired and unpaired respondents. Some did not specify their gender (4 at last event, 2 at school leavers' event).

Mean alcohol use at school leavers' event was highly correlated across the beverage specific and standard drink response methodologies (Spearman's rho=0.87, p<0.005, N=235).

A similar proportion of males and females consumed alcohol at both the last event and the end of school celebrations. However, in both contexts, males consumed significantly more: 4.23 standard drinks at the last event, and by 5.20 standard drinks on an average celebration day (p =.0005).

In Australia, the National Health and Medical Research Council states a threshold of no more than four standard drinks for low risk single occasion alcohol consumption. The clear majority of the drinkers consumed beyond this guideline on an average celebration day (87% using the standard drink method and 91% using the beverage specific method).

Figure 1. Alcohol use at the last event and on an average day at the school leavers' celebrations

Note: Alcohol consumption estimates made using the beverage specific approach with all paired and unpaired respondents. Alcohol consumed was assessed on a continuous scale. Values above zero were placed in categories representing two standard drinks. Standard drink labels reflect the highest value within each category; i.e. '2' represents the values between 0.01-2.00.

Table 2. Use of drugs other than alcohol at the last event and at Leavers

	Last event		Leavers day 1		Leavers day 2		Leavers day 3		Any one day at Leavers	
	%	N	%	N	%	N	%	N	%	N
Males										
Amphetamine	9.52	189	13.25	166	7.05	156	5.73	157	15.38	169
Caffeine	41.49	188	47.53	162	37.27	161	35.67	157	56.07	173
Caffeine & alcohol	53.73	67	75.47	53	87.50	40	76.67	30	78.95	76
Cannabis	15.14	185	15.43	162	14.29	154	10.46	153	22.35	170
Ecstasy	4.81	187	10.91	165	9.55	157	10.32	155	16.47	170
Other drugs	3.87	181	7.43	148	3.45	145	2.78	144	9.55	157
An illicit drug	18.85	191	22.89	166	18.87	159	16.56	157	27.57	185
Females										
Amphetamine	3.07	261	3.49	172	2.99	167	3.53	170	6.86	175
Caffeine	39.31	262	39.41	170	32.72	162	36.09	169	50.86	175
Caffeine & alcohol	59.14	93	70.45	44	68.57	35	67.44	43	71.23	73
Cannabis	5.75	261	6.59	167	3.64	165	3.05	164	8.05	174
Ecstasy	2.33	257	4.68	171	4.24	165	7.14	168	8.57	175
Other drugs	2.49	241	0.00	156	0.00	153	0.65	155	0.60	166
An illicit drug	8.78	262	9.88	172	6.59	167	10.18	167	13.66	183
All respondents										
Amphetamine	5.74	453	8.24	340	4.92	325	4.56	329	10.98	346
Caffeine	40.44	455	43.11	334	34.98	323	35.67	328	53.14	350
Caffeine & alcohol	56.79	162	73.20	97	78.67	75	71.23	73	75.17	149
Cannabis	9.78	450	10.88	331	8.72	321	6.58	319	15.03	346
Ecstasy	3.57	448	7.69	338	6.79	324	8.62	325	12.39	347
Other drugs	3.06	425	3.59	306	1.67	300	1.66	301	4.92	325
An illicit drug	13.13	457	16.18	340	12.50	328	13.19	326	20.49	371

Note. N represents valid responses - whether the drug was used or not used. An 'illicit drug' was the use of amphetamine and/or cannabis and/or ecstasy. Estimates for 'caffeine & alcohol' reflect a subset of caffeine users. Compared to females, males were more likely to have used: amphetamine at the last event (p=.007) and at the end of school celebration (p=.01); cannabis at the last event (p=.002) and at the celebration (p=.0005); ecstasy at the celebration (p=.04); a drug other than those listed at the celebration (p=.001) and an illicit drug at the last event (p=.003) and at the celebration (p=.002).

Table 3. Variables used in logistic regression models associated with experience of negative outcomes

Independent variable	Category value	Parameter coding	N
(1) Alcohol use on an average celebration day	0-6.00 standard drinks	Comparison/ reference group	96
	6.33-11.33	a	92
	11.67-18.33	b	89
	18.67-45.00	c	101
(2) Other drug use	No other drugs used	Reference group	167
	Caffeine used (no illicits)	d	127
	Illicits used (± caffeine)	e	76
(3) PBSS (Protective Behaviour Strategy Score)	Scores 14-46 (safest)	Reference group	63
	Scores 47-56	f	65
	Scores 57-65	g	59
	Scores 66-84 (least safe)	h	61
(4) Gender	Female	Reference group	200
	Male		200
(5) Accommodation location	Main settlement area	Reference group	287
	Secondary region		110
(6) Survey modality	Online	Reference group	55
	Face-to-face		350

Note. Alcohol use was assessed using the 'standard drink response method' to maximise sample size available for analysis.

The letters in the parameter coding column relate to the superscript in Table 4. These letters to denote which levels of each IV were significant when compared to the reference group.

The Protective Behavior Strategy Scale asks respondents to indicate on a 6 point Likert scale whether they engaged in the set of safety behaviours while drinking. Minor alterations were made to the PBSS to make it relevant to the sample and context, and a test-retest procedure (n=20) and a Cronbach's alpha of .83 for the PBS summary score with the final dataset (n~260), suggest these changes did not affect the reliability of the scale.

Bookings for the two accommodation locations were randomly allocated, but the sites differed in terms of accessibility by support services etc.

Continuous IVs (alcohol use and PBSS) were split into quartiles to facilitate logistic regression analyses with evenly sized groups.

Table 4. Logistic regression analyses associated with experience of negative outcomes

Consequence (DV)	Descriptives		Odds Ratios for the significant unique associations					
	Prevalance (%)	N	Alcohol use (0-6 standard drinks)	Other drugs (none)	PBSS (safest)	Gender (female)	Location (main settlement)	Survey modality (online)
Hangover	67.42	310	2.67*[a] [1.14, 6.22] 3.18*[b] [1.23, 8.22] 5.55**[c] [1.76, 17.48]	-	3.50*[h] [1.21, 10.11]	-	-	0.33* [0.12, 0.91]
Emotional outburst	45.28	307	-	3.98** [e] [1.62, 9.80]	-	0.29** [0.16, 0.54]	-	-
Vomiting	37.91	306	-	-	2.61*[f] [1.13, 6.03]	-	-	-
Heated argument	35.69	297	4.01*[b] [1.36, 11.82]	2.29*[d] [1.15, 4.55] 5.52**[e] [2.09, 14.56]	-	-	-	-
Accident/injury	40.67	300	-	2.46**[d] 1.29, 4.72]	-	0.39** [0.21, 0.73]	-	-
Physically aggressive	18.98	295	-	4.04*[e] [1.27, 12.82]	-	0.31* [0.13, 0.78]	-	-
Blackout	57.95	302	2.66*[a] [1.05, 6.73] 9.34** [b] [3.29, 26.51] 6.22** [c] [1.98, 19.55]	-	3.38*[h] [1.22, 9.40]	-	-	-
Inability to pay for things	12.29	301	-	4.49*[e] [1.17, 17.27]	-	-	-	-
Unprotected sex	13.62	301	-	-	10.92* [h] [1.14, 104.23]	-	-	-
Sexual situation were not happy about at the time	15.38	299	-	-	-	-	-	-
Regretted sexual encounter	21.33	300	-	-	-	-	-	0.37* [0.14, 0.98]
Stole private/public property	12.42	298	-	10.08**[e] [2.45, 41.47]	-	-	-	-
Act of vandalism	9.70	299	-	7.75*[e] [1.51, 39.78]	-	-	4.03* [1.19, 13.67]	-
Removed from island/accommodation	3.33	300	-	-	-	-	-	-
Arrested for intoxicated behaviour	5.02	299	-	-	-	-	-	-
Any sexual risk/problem	32.23	301	-	2.95*[e] [1.17, 7.47]	-	0.49* [0.25, 0.96]	-	-

| Any legal problem | 18.27 | 301 | - | 9.71**[e] [3.16, 29.85] | - | - | - | - |

Note. All analyses control for alcohol quantity, other drug use, safety strategy use, gender, location and survey modality. Reference groups are presented in brackets after each independent variable.

95% C.I. presented in square brackets after the Odds Ratio.

The logistic regression models were not statistically significant for: (i) Sexual situation were not happy about at the time, (ii) Removed from island/accommodation, and (iii) Arrested for intoxicated behaviour.

'Any sexual risk/problem' was a summary variable (endorsement of at least one of the following: unprotected sex, sexual situation they weren't happy about at the time or sexual encounter they later regretted).

'Any legal problem' was a summary variable (endorsement of at least one of the following: stealing, vandalism, removal/banning or arrest).

* denotes a significant unique association where p<.05 (** for when p< .01).

The '-' symbol denotes the independent variable did not make a significant unique contribution to the model.