

**National Drug Research Institute
Health Sciences**

**Alcohol and other drug use at school leavers' celebrations
in Western Australia**

Tina Lam

**This thesis is presented for the Degree of
Doctor of Philosophy
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Declaration

To the best of my knowledge and belief this thesis contains no material previously published by any other person except where due acknowledgment has been made. This thesis contains no material which has been accepted for the award of any other degree or diploma in any university.

Signature:

Tina Lam

Date: _____

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TABLE OF CONTENTS

CHAPTER 1: INTRODUCTION	1
1.1 RATIONALE.....	2
1.2 AIMS AND OBJECTIVES	2
1.3 SIGNIFICANCE.....	4
1.4 THESIS STRUCTURE	4
CHAPTER 2: LITERATURE REVIEW	7
2.1 A BROAD OVERVIEW OF AOD USE	8
2.1.1 <i>Australian and worldwide AOD use</i>	9
2.1.2 <i>Impacts of AOD use</i>	11
2.2 PATTERNS OF YOUTH ALCOHOL USE.....	15
2.3 PREVALENCE OF YOUTH AOD USE.....	18
2.3.1 <i>Alcohol</i>	18
2.3.2 <i>Illicit drugs</i>	20
2.3.3 <i>Examining the NDSHS and the ASSAD</i>	23
2.4 HEALTH IMPACTS OF AOD ON YOUNG PEOPLE.....	27
2.5 INFLUENCES ON AOD USE	34
2.5.1 <i>Risk and protection</i>	38
2.6 CONTEXT-SPECIFIC AOD USE	55
2.6.1 <i>Holiday settings</i>	56
2.6.2 <i>Overview of Leavers/schoolies</i>	57
2.7 LEAVERS AS A RITE OF PASSAGE	58
2.8 TRIANDIS' THEORY OF INTERPERSONAL BEHAVIOUR (TIB)	61
2.8.1 <i>An overview of the TIB structure</i>	62
2.8.2 <i>Testing the utility of the TIB</i>	67
2.9 SCHOOLIES ACROSS AUSTRALIA	73
2.10 LEAVERS IN WA	82
2.10.1 <i>The Leavers Live Project (1999-2001)</i>	83
2.10.2 <i>The Drug and Alcohol Office (2003-2004)</i>	87
2.10.3 <i>The violence of 2004</i>	88
2.10.4 <i>The Office of Crime Prevention Era (2005 – current)</i>	88
2.11 AOD USE AT WA LEAVERS	92
2.11.1 <i>Parental supply of alcohol at school leavers' celebrations</i>	95
2.12 MEDIA COVERAGE OF THE CELEBRATIONS.....	96
2.13 EXTENDING THE LITERATURE	96
2.14 HYPOTHESES.....	98
CHAPTER 3: METHODS	99
3.1 THE PRE-LEAVERS AND POST-LEAVERS SURVEYS.....	100
3.1.1 <i>Pilot testing</i>	101
3.1.2 <i>Online surveys</i>	104
3.1.3 <i>Pre-Leavers survey instrument</i>	105
3.1.4 <i>Post-Leavers survey instrument</i>	127
3.1.5 <i>Statistics</i>	139
3.2 INFORMAL OBSERVATION.....	143
CHAPTER 4: DATA DESCRIPTIONS	145
4.1 PRE-LEAVERS SURVEY	147
4.1.1 <i>Participant demographics</i>	147
4.1.2 <i>General intentions for Leavers</i>	147
4.1.3 <i>Intentions and expectations (AOD related)</i>	148
4.1.4 <i>AOD-conducive conditions at Leavers</i>	152
4.1.5 <i>The last social event attended with friends</i>	155
4.1.6 <i>Usual frequency of alcohol use</i>	161
4.1.7 <i>The reputation of Leavers</i>	162
4.1.8 <i>Behaviours more acceptable at Leavers</i>	163
4.1.9 <i>Safety behaviours</i>	163
4.2 POST-LEAVERS SURVEY	167

4.2.1	<i>Participant demographics</i>	167
4.2.2	<i>Alcohol use at Leavers</i>	168
4.2.3	<i>Use of drugs other than alcohol at Leavers</i>	178
4.2.4	<i>Estimations of peer alcohol and other drug use at Leavers</i>	187
4.2.5	<i>Negative consequences at Leavers</i>	188
4.2.6	<i>Harm reduction strategy use</i>	192
4.2.7	<i>Conditions at Leavers conducive to alcohol and other drug use</i>	194
4.2.8	<i>Informal observation outcomes</i>	196
CHAPTER 5: HYPOTHESIS AND POST-HOC TESTING		199
5.1	HYPOTHESIS TESTING.....	200
5.1.1	<i>Hypothesis 1: Alcohol and other drug (AOD) use at non-Leavers social events and at Leavers</i> . 200	
5.1.2	<i>Hypothesis 2: Quantity of AOD use at non-Leavers social events and at Leavers</i>	202
5.1.3	<i>Hypothesis 3: Relationship between AOD use experience and AOD use at Leavers</i> . 206	
5.1.4	<i>Hypothesis 4: The impact of intent to use AOD on actual AOD use</i>	214
5.1.5	<i>Hypothesis 5: The relationship between AOD-conducive conditions and AOD use</i> ..	222
5.1.6	<i>Hypothesis 6: Comparing peer AOD use and personal AOD use</i>	230
5.1.7	<i>Hypothesis 7: The impact of parental attitudes on AOD use and consequences</i>	241
5.1.8	<i>Hypothesis 8: Impact of harm reduction strategies on AOD use and AOD-related outcomes</i>	250
5.1.9	<i>Hypothesis 9: The acceptability of signs of AOD-related behaviour across contexts</i> 259	
5.2	POST-HOC TESTS	260
5.2.1	<i>Post-hoc test 1: AOD use predicted using: intent, prior experience and AOD conducive conditions at Leavers</i>	260
5.2.2	<i>Post-hoc test 2: Differences between alcohol estimation methods</i>	264
5.2.3	<i>Post-hoc test 3: Use of other drugs and quantity of alcohol consumed</i>	266
5.2.4	<i>Post-hoc test 4: Caffeine used with alcohol and negative AOD consequences at Leavers</i> 267	
5.2.5	<i>Post-hoc test 5: Estimations of peer use: pre and post Leavers</i>	269
5.2.6	<i>Post-hoc test 6: Drinking hours and pace</i>	271
5.2.7	<i>Post-hoc test 7: Predictors of intent to use alcohol</i>	272
5.2.8	<i>Post-hoc test 8: Accommodation style and location</i>	277
5.2.9	<i>Post-hoc test 9: Survey administration type</i>	280
5.3	SUMMARY OF RISK FACTORS FOR INCREASED AOD USE.....	285
CHAPTER 6: DISCUSSION		287
6.1	DOCUMENTING AOD USE PREVALENCE AND QUANTITIES	288
6.1.1	<i>Alcohol</i>	288
6.1.2	<i>Drugs other than alcohol</i>	291
6.2	INTERPRETATION OF HYPOTHESIS TESTING	298
6.2.1	<i>H1 & H2: AOD use at Leavers and non-Leavers social events</i>	298
6.2.2	<i>H3: AOD use experience and AOD use at Leavers</i>	303
6.2.3	<i>H4: The impact of intent to use AOD on actual AOD use</i>	304
6.2.4	<i>H5: AOD-conducive conditions</i>	306
6.2.5	<i>H6: Peer AOD use</i>	309
6.2.6	<i>H7: Parent related attitudes and behaviours</i>	315
6.2.7	<i>H8: Peer-based safety discussions and use of harm reduction strategies</i>	320
6.2.8	<i>H9: The acceptability of signs of AOD-related behaviour across contexts</i>	325
6.2.9	<i>Summary</i>	327
6.3	STUDY STRENGTHS AND LIMITATIONS	330
6.4	IMPLICATIONS AND RECOMMENDATIONS	336
REFERENCE LIST		343
APPENDIX		367

LIST OF TABLES

Table 1 The beverage specific/detailed table response table	117
Table 2 Pre-Leavers survey participant demographics.....	147
Table 3 Reasons for attending Leavers at Rottnest Island	148
Table 4 Intentions and expectations for personal and peer alcohol use.....	149
Table 5 Intentions for intoxication at Leavers	150
Table 6 Intentions for the use of other drugs.....	151
Table 7 Expectations the average student will be using other drugs.....	152
Table 8 Expectations of how conducive Leavers will be to AOD use	153
Table 9 Other drugs at the last social event.....	157
Table 10 Conditions at the last social event where more than 4 standard drinks were consumed.....	160
Table 11 The reputation of Leavers	163
Table 12 Ways to keep safe while intoxicated at Leavers.....	164
Table 13 Discussions, approval, and safety behaviours with parents and peers	166
Table 14 Post-Leavers survey demographics	167
Table 15 Alcohol at Leavers – standard drink response method.....	169
Table 16 Alcohol consumption at Leavers (beverage specific response method)	172
Table 17 Drinking hours at Leavers	176
Table 18 Source of alcohol used at Leavers	177
Table 19 Other drug use at Leavers	179
Table 20 Quantity of other drugs used at Leavers.....	183
Table 21 Source of other drugs used at Leavers.....	184
Table 22 Agreement the average student used other drugs at Leavers.....	188
Table 23 Negative consequences experienced at Leavers.....	190
Table 24 Use of harm reduction strategies at Leavers	193
Table 25 Conditions at Leavers conducive to AOD use.....	195
Table 26 Proportion of drinkers at the last event and at Leavers	200
Table 27 Other drugs at the last pre-Leavers social event and at Leavers.....	201
Table 28 Alcohol quantity at the last social event and on an average day at Leavers	203
Table 29 Quantity of other drug use at last social event and at Leavers (all respondents) ..	205
Table 30 Alcohol use at Leavers modelled using prior alcohol use, controlling for gender, location and survey modality.....	207
Table 31 Use of amphetamine modelled using: amphetamine use at the last event, gender, location, and modality	209
Table 32 Use of caffeine predicted using: caffeine use at the last event, gender, location, and modality.....	209
Table 33 Use of caffeine with alcohol modelled using: caffeine use with alcohol at the last event, gender, location, and modality.....	211
Table 34 Use of cannabis modelled using: cannabis use at the last event, gender, location, and modality	212
Table 35 Use of an illicit drug predicted using: illicit drug use at the last event, gender, location, and modality	213
Table 36 Intentions and actual use of alcohol at Leavers	216
Table 37 Amphetamine use at Leavers modelled using: intent to use amphetamine, and controlling for gender, location and survey modality	217
Table 38 Caffeine use at Leavers modelled using: intent to use caffeine, and controlling for gender, location and survey modality.....	218
Table 39 Cannabis use at Leavers modelled with: intent to use cannabis, and controlling for gender, location and survey modality	219
Table 40 Ecstasy use at Leavers modelled using: intent to use ecstasy and controlling for gender, location and survey modality	220
Table 41 Illicit drug use modelled using: intent to use an illicit drug and controlling for gender, location and survey modality.....	221
Table 42 Alcohol use at Leavers modelled using: peer alcohol use, conditions at Leavers, use of harm minimisation strategies, gender, accommodation location, and survey modality.....	223
Table 43 Amphetamine use at Leavers modelled using: AOD-conducive conditions, gender, location and survey modality.....	225

Table 44 Use of caffeine with alcohol at Leavers modelled using: AOD-conducive conditions, gender, location and survey modality.....	226
Table 45 Cannabis use at Leavers modelled using: AOD-conducive conditions, gender, location and survey modality.....	227
Table 46 Ecstasy use at Leavers modelled using: AOD-conducive conditions, gender, location and survey modality.....	227
Table 47 Illicit drug use modelled using: AOD-conducive conditions, gender, location and survey modality	228
Table 48 Pre-Leavers intentions of personal alcohol use, and estimations of immediate peer and average student alcohol use	231
Table 49 Comparing personal intent and estimations of peer and average student alcohol use	232
Table 50 Post-Leavers estimations of personal alcohol use, immediate peer and average student alcohol use.....	233
Table 51 Comparing personal alcohol use and estimations of immediate peer and average student alcohol use at Leavers (post-Leavers)	234
Table 52 Comparing personal intent and expectations of others' use of drugs	235
Table 53 Amphetamine use modelled using: agreement the average leaver was using amphetamine, controlling for gender, location and modality	237
Table 54 Caffeine use at Leavers modelled using: agreement the average leaver was using caffeine, gender, location and modality	238
Table 55 Cannabis use at Leavers modelled using: agreement the average leaver was using cannabis, gender, location and modality	239
Table 56 Ecstasy use modelled using: agreement the average leaver was using ecstasy, gender, location and modality	240
Table 57 Parental approval of risky alcohol use and intended and reported alcohol use....	243
Table 58 Crosstabulation of parental approval of other drugs use and intentions to use an illicit drug	244
Table 59 Intended alcohol use across levels of parental approval of other drug use.....	245
Table 60 Safety discussion and intended alcohol use, reported alcohol use and reported illicit drug use	246
Table 61 General other drug discussions and intended alcohol use and reported alcohol use	248
Table 62 Cross tabulation of 'parental discussion about drugs other than alcohol' with parental approval and intentions to use an illicit drug	249
Table 63 Summary of the negative consequences logistic regression models.....	253
Table 64 Alcohol use at Leavers modelled using: intended alcohol use, drinking habits, AOD-conducive conditions at Leavers, gender, accommodation location and survey modality.....	261
Table 65 Illicit drug at Leavers modelled using: intent, prior use, AOD-conducive conditions at Leavers, survey administration modality, gender and residential area	263
Table 66 Alcohol consumption at Leavers as estimated using: the standard drink response method and the detailed table/beverage specific method	265
Table 67 Use of other drugs and mean Leavers alcohol use.....	266
Table 68 Alcohol use estimations for peers and the average leaver prior to and after the celebrations.....	269
Table 69 Agreement that the same-sex average student would or did use drugs other than alcohol at Leavers	270
Table 70 Drinking hours at the last event and Leavers.....	271
Table 71 Drinking Pace at the last event and Leavers	272
Table 72 Reasons for attending Leavers and alcohol use intention.....	273
Table 73 Expectations of conditions at Leavers and alcohol use intention.....	275
Table 74 Other drug use across accommodation locations	278
Table 75 Estimations of peer and average leaver AOD use across accommodation locations (all post-Leavers respondents).....	279
Table 76 Intention to use drugs other than alcohol at Leavers by survey administration method (all pre-Leavers survey respondents)	281
Table 77 Other drug use by survey administration method	283
Table 78 Use of AOD in any one week, the last event and at Leavers	300

LIST OF FIGURES

Figure 1 Structural model of AOD use at Leavers, based on Triandis' Theory of Interpersonal Behaviour	67
Figure 2 Adapted standard drink guide	112
Figure 3 Intended alcohol use on a typical Leavers day (including prospective abstainers).....	149
Figure 4 Alcohol at the last social event (beverage specific method).....	156
Figure 5 Distribution of mean alcohol consumption at Leavers (standard drink response method).....	170
Figure 6 Mean alcohol consumption at Leavers and the 2001 NHMRC guidelines (standard drink response method)	175
Figure 7 Use of other drugs on any one Leavers day.....	180
Figure 8 Caffeine and illicit drug use at Leavers.....	181
Figure 9 When AOD used at Leavers were obtained (respondents who used alcohol and other drugs)	185
Figure 10 Distribution of alcohol use at the last event and at Leavers	203
Figure 11 Intention and actual use of drugs at Leavers (both unpaired and paired respondents)	215

Abstract

Objectives. To explore alcohol and other drug (AOD) use at school leavers' celebrations (*'Leavers'*) in Western Australia. Patterns of AOD use at the event, influences on, and the impacts of use were evaluated.

Methods. Core data were gathered using a two-part survey design with a self-report methodology. Participants were young people (mostly 17 years of age) who intended to, and attended the celebrations at Rottnest Island. Rottnest Island (RI) is a popular location for the event in Western Australia. The pre-*Leavers* survey assessed: expectations of personal and peer AOD use at *Leavers*; expectations of the *Leavers* context; experiences such as parental discussions about alcohol use; and AOD use at the last social event attended with friends ('usual' use). The post-*Leavers* survey investigated AOD use, perceptions of peer AOD use, experience of AOD-conducive conditions, negative consequences, and harm reduction strategies that were employed at the celebrations. The capture rate for the young people on RI was approximately 37% for the pre-*Leavers* survey (N=541) and 28% for the post-*Leavers* survey (N=405). Respondents were able to complete both surveys (the 'matched' sample; n=120), or one of the two.

Results. The first survey established that young people anticipated *Leavers* to be a permissive context for AOD use and 84% intended to use alcohol at the event. In the post-*Leavers* survey, the clear majority (93%) reported using alcohol during the celebrations. Of these drinkers, 87% drank at levels above the current guidelines for low risk consumption. On an average day, females drank 11.4 standard drinks, and males drank 17.1 standard drinks. One fifth used an illicit drug (cannabis, ecstasy or amphetamine), and 53% used caffeine (commonly in combination with alcohol). A slightly greater quantity of alcohol was consumed at *Leavers* than intended prior to the event, and in contrast to alcohol, illicit drug use appeared to be more opportunistic than pre-planned. Most (87%) reported experiencing at least one negative experience they attributed to AOD use. However, safety strategies appeared to be popular and significantly protective, even after controlling for AOD use. Parents had a significant role in alcohol supply (25%) and perceptions of their

approval, or not, of AOD use appeared to correlate with riskier patterns of use. The prevalence and quantity of alcohol used was higher compared to the last social event attended, but of other surveyed drugs, only ecstasy was more commonly used at *Leavers*. Models based on Triandis' Theory of Interpersonal Behaviour had substantial utility in accounting for individual variation in AOD use.

Conclusions. Young people with histories of riskier AOD use likely self select to attend *Leavers*, and to attend at locations such as Rottnest Island with reputations for heavy use. AOD use at the event was, to a certain extent, a continuation of established behavioural patterns that were amplified by the permissive context of *Leavers*. A similar drinking pace was exhibited across contexts (the last event and *Leavers*), and past use was a significant predictor of both alcohol and illicit drug use. However, there were conditions at the celebrations, such as a greater number drinking hours available, and the greater acceptability of intoxication-related behaviours which contributed to *Leavers* being an environment that was atypically more conducive to AOD use. To address these levels of use and harm, the continuation and expansion of current interventions was recommended. Current diversionary activities that aim to reduce drinking hours were supported. Also, a further focus on parental influence and the promotion of a greater variety of harm reduction strategies was suggested.

Chapter 1: Introduction

For thousands of young Australians, the milestone of completing schooling life is marked by a single festive event: school leavers' celebrations. For many, the multiple day celebrations, more commonly known as *Leavers* or *Schoolies*, are a much anticipated occasion for fun and frivolity with fellow graduates. The young people converge to socialise and unwind from the stress of their final exams in a location away from the scrutiny of parents and other adults. As the socialising is reputed to often co-occur with risky levels of alcohol and other drug (AOD) use, at least for a proportion of the celebrants, the celebrations can be bittersweet – substantial drug-related risks are also associated with the event. Despite intense media coverage on the highs and lows of *Leavers*, relatively little academic research has focused on school leavers' celebrations. Compelled by the modest field of existing *Leavers* literature, this thesis explores the topic of alcohol and other drug use at school leavers' celebrations at Rottnest Island (a popular location for the event in Western Australia). Patterns of AOD use at the event, influences on, and the impacts of use were evaluated. Data collection was framed using the Theory of Interpersonal Behaviour to help distinguish between previously identified influences on holiday related risky behaviour.

1.1 Rationale

School leavers' celebrations have a reputation for ubiquitous heavy alcohol use and, to a lesser extent, experimentation with other drug use and sexual behaviours (Smith & Rosenthal, 1997). While the phenomenon has existed for decades within Australia, the Western Australian events have only relatively recently burgeoned in size and notoriety. The outcomes of young peoples' risky behaviours have been documented in hospitalisations and arrests, and especially following the 'gang style' violence in Dunsborough in 2004, have ascribed the event some infamy for antisocial behaviour (Murphy, O'Hara, & Driscoll, 2006). In the late 1990s, *Leavers* became sufficiently prominent for local communities to take notice of the health and safety concerns for the celebrating young people as well as the harms to community property (Young, Midford, & Farrington, 2002). Even since these earliest interventions, it has been recognised that *Leavers* is a special event with AOD-related motivations, expectations and norms that may be context specific.

Adolescent AOD use appears to peak at particular special events such as *Leavers*. At special events, young people sometimes describe they feel as if more extreme AOD-use and AOD-related behaviour is tolerated due to the temporary suspension of regular rules of conduct (Duff, Johnston, Moore, & Goren, 2007; Winchester, McGuirk, & Everett, 1999). As special occasion AOD use is often linked with greater than 'usual' frequencies and quantities, context specific research is required to identify situation-specific influences, and to understand the behaviour contained within it. Existing AOD interventions, such as those run within schools targeting 'typical' AOD use patterns may not be perceived as relevant to the norms of special events (Neighbors, et al., 2007). Currently, there are no Australian published studies which provide quantity specific estimations that reliably gauge the extent of AOD use at the celebrations, and provide a holistic view of the influences on the behaviour.

1.2 Aims and objectives

Despite the belief of many students (and community members) that heavy drinking and illicit drug use are inextricably linked with *Leavers*, the list of health and other

harms attributed to AOD use at *Leavers* is sufficiently compelling to warrant concerted action (Smith & Rosenthal, 1997). It is likely that careful examination of predictors of AOD use amongst leavers will be useful in the development of public health interventions aimed specifically at this population.

The aim of this study was to document the phenomenon of school leavers' celebrations in Western Australia (WA) with a specific focus on levels of AOD use and associated adverse health and social outcomes experienced at the events. Furthermore, the project intended to establish an understanding of the influences on AOD use at *Leavers* in order to contribute to the safety of future celebrations. Of note is that as alcohol use is substantially more common compared to the use of other drugs, this project examined alcohol use in comparatively greater detail.

The thesis' objectives were as follows:

- (i) To estimate levels of AOD use at a popular *Leavers* location in WA (i.e. Rottnest Island).
- (ii) To estimate levels of AOD use at non-*Leavers* peer-based social events.
- (iii) To evaluate the extent to which, and how, AOD use at *Leavers* is comparable to AOD use at a non-*Leavers* peer based social event.
- (iv) To identify types and levels of outcomes associated with AOD use at *Leavers*.
- (v) To identify level of knowledge of and extent of use of harm minimisation strategies by leavers.
- (vi) To investigate the effect of potential mediating factors (identified *a priori*) on school leavers' AOD use and associated harms including:
 - prior individual AOD use/experience and beliefs/attitudes to AOD use at *Leavers*;
 - individuals' expectations regarding AOD use at *Leavers*;
 - conditions and experiences at *Leavers* that facilitated or impeded AOD use;
 - the meaning(s) and functions attributed to AOD use at *Leavers* by the leavers themselves; and

- the role of parents as assessed through perceptions of parental attitudes and communication about AOD use, and parental AOD supply

1.3 Significance

AOD consumption and related harm at *Leavers* is a relatively new research area. This project was the most in-depth, large-scale and detailed investigation of the extent and level of AOD use at *Leavers* to date. In particular, this study provided the first quantity specific estimates of alcohol use at school leavers' celebrations in Australia. It established an indication of risky alcohol and other drug consumption by young people at a major celebration, and the design allowed comment regarding the specific issues and risks arising in association with *Leavers*.

This study uses a pre-/post-event survey design which offers insight into factors that contribute to AOD-related behaviour. As noted, the design allows comparison of rates of AOD use at *Leavers* with rates reported at a pre-*Leavers* peer-based social event. The exploration of this similar context enabled the distinction between patterns of behaviour which are common to other adolescent AOD use episodes, and those which appear to be specific to *Leavers*. Also, by using a multifactor theoretical model (the Theory of Interpersonal Behaviour), the investigation evaluated the relative impact of various influences previously proposed by other authors to explain holiday-related increases in risky behaviour.

The results of this research will increase understanding about AOD-related behaviour at *Leavers*. Findings were to be used to inform responses to health and secondary harms associated with AOD use at the celebrations. It is likely that there will be lessons for other large scale events where risky AOD use occurs among young people.

1.4 Thesis structure

The chapters of this thesis are ordered as follows: introduction, literature review, methods, data descriptions, hypothesis and post hoc testing (results) and discussion. Chapter 2, the literature review, provides an overview of AOD use with a particular focus on the influences on and impacts of use amongst young Australians'. The specific context of school leavers' celebrations is described as an environment

associated with risky AOD use and related harms. The Theory of Interpersonal Behaviour (TIB) is presented as the conceptual framework guiding methods, analysis and interpretation of the data. The TIB has utility in accounting for the factors which influence holiday-related risky behaviour. Following a summary of the literature review, the study's rationale and hypotheses are presented. Chapter 3 describes the methods used in this study. In short, a pre-/post- survey design was used with a survey administered prior to *Leavers* and another survey administered after the celebrations. The large sample sizes from each survey enabled cross-sectional analyses. Also the data allowed matching for some, but not all, of the participants, to provide paired/longitudinal data. The results of the two surveys are presented in two chapters: a systematic presentation of the survey data (chapter 4) and the results of hypothesis and post-hoc testing (chapter 5). Chapter 6 discusses the outcomes of hypothesis testing, identifies the strengths and limitations of the study and considers the implications of the research. The final section of this thesis presents a set of policy and practice recommendations.

Chapter 2: Literature Review

This chapter begins with drug use within the wider population base, and then spotlights young Australians and the specific context of *Leavers*. Firstly, it is established that the use of intoxicating drugs has been a feature of human existence for thousands of years and some of the reasons and problems associated with use are broadly addressed. Alcohol and other drug (AOD) related behaviour is described with a focus on alcohol, the most regularly used drug (other than caffeine) amongst Australians, and the sub-population of young Australians. Regular patterns of youth AOD use are described along with how the impacts of their use may differ in compared to adults. Their AOD use is contextualised as a 'normal behaviour' within the period of adolescence, and two of the main influences on adolescent AOD use, peers and parents are considered.

In the second main section of this chapter, the notion that AOD use may differ depending on context is explored and examples of context-specific AOD use are presented. The specific context of school leavers' celebrations is considered in relation to the cultural significance of the event. Influences on AOD use within this context are conceptualised using Triandis' Theory of Interpersonal Behaviour (TIB). Lastly, the literature regarding the historical and current situation of school leavers' celebrations across Australia is described.

The literature review was conducted between November 2007 and July 2011. Relevant materials were accessed via databases, search engines, electronic alerts, grey literature and through using reference lists within germane articles.

Publications were sourced using the databases PsycINFO (via OvidSP), ScienceDirect, DRUG (via Informit) and Web of Science (via ISI Web of Knowledge); and the search engines Google and Google Scholar. The following keywords were used as a part of the searches: alcohol, illicit drugs, young people, youth, celebrations, schoolies, and school leavers' celebrations. Automatic alerts were set up using OvidSP, Web of Science and GoogleAlerts using the keywords: youth alcohol, youth drugs, youth party, youth celebration, Triandis, school leavers' celebrations, schoolies, and leavers Rottnest. Email alerts were received from these

sources at least once per week. Articles that were referenced within relevant articles were also later accessed. Grey literature was utilised extensively for information specific to *Schoolies* and *Leavers*. This literature includes technical reports written by various support agencies with an interest in *Leavers*, and those written by organising bodies. These reports were obtained primarily through personal or direct email contact, and Curtin University's interlibrary loan system.

2.1 A broad overview of AOD use

Throughout history and across cultures, alcohol and other drug use has been pervasive. For thousands of years diverse drugs have served to intoxicate, medicate, drive economies, and be used to placate or stimulate the masses, to celebrate, commiserate and confer symbolic meaning such as conclusion (Lee, 1997; Walton, 2001). Virtually every society traditionally and currently uses some psychoactive drugs (Walton, 2001).

Alcohol has been used for thousands of years, with the first documented evidence for its production, likely a thick nutritious beer, dating back to 3,200 BCE (The Social Issues Research Centre, 1998). Similarly there have been early accounts of cannabis use, with Herodotus describing the intoxicating effect of its smoke in 450 BCE, and its pollen found in mummies including that of Pharaoh Rameses II (Russo, 2007). Caffeine, which is naturally present in tea, coffee and chocolate, arrived in Europe in the 1600s. In more recent times it has been added to 'soft drinks', with the trend for caffeine-based energy drinks has growing exponentially since 'Red Bull' was introduced to the Austrian marketplace in 1987 (Reissig, Strain, & Griffiths, 2009).

Commencing in the 19th century, a range of technological advances helped synthesise or refine an increasingly diverse range of drugs. In 1805 opium was refined into morphine; and morphine into diacetylmorphine in 1874. In 1898 the German pharmaceutical company Bayer launched diacetylmorphine as Heroin. In a similar timeframe a cluster of stimulants were developed. This spate of stimulants began in the mid 1800s with the alkaloid in coca leaves (chewed by South American natives for centuries) being isolated and refined into cocaine. Amphetamine was

synthesised in 1887, and in 1912 MDMA (now commonly referred to as 'ecstasy') was produced. In 1943 a Swiss research chemist stumbled upon the hallucinogenic effects of LSD, although a variety of hallucinogens had been used for centuries in various cultures (Walton, 2001). Humanity's already comprehensive pharmacopeia continues to evolve to this day. Some claim this longstanding and geographical ubiquity is a sign that AOD use "must represent a basic human appetite" (Weil, 1973, p. 17). Although this statement might be hyperbolic, nevertheless, the persistence of AOD throughout time and different locations suggests that use is unlikely to be wholly maladaptive, and is likely to continue as a cultural feature (The Social Issues Research Centre, 1998).

2.1.1 Australian and worldwide AOD use

Alcohol

As suggested by Room over 20 years ago, drinking alcohol is a part of the stereotype we hold of the quintessential Australian (Fitzgerald & Jordan, 2009; Room, 1988).

Indeed, the average Australian appears to 'outdrink' many, according to rates of per capita alcohol consumption. In 2003, Australia was ranked 22nd in the world (World Advertising Research Centre, 2005) and in 2007 we consumed quantities higher than the OECD average, calculated mainly with high income countries (Organisation for Economic Co-operation and Development, 2009).

Recent analyses suggest that Australian per capita alcohol consumption has been increasing in recent years, correlating with increasing occurrence of alcohol related harms (Chikritzhs, Allsop, Moodie, & Hall, 2011). In 2008-2009, the yearly per capita consumption of Australians aged 15 years or more was estimated to be 10.08 litres of pure alcohol (Australian Bureau of Statistics, 2010). Excluding the estimated 17% of Australians who abstain from alcohol use, this volume is the equivalent of each Australian aged 15 or older, consuming 2.5 standard drinks a day (Evans, 2010).

The effect of globalisation can be detected in the convergence of some patterns of alcohol use. For example, there has been convergence amongst western countries in the quantity of alcohol used, and in consumption with the intent of

intoxication, particularly amongst youth. This pattern is evident even in countries such as France and Italy which are described as more 'sensible' or well-balanced drinking cultures (Järvinen & Room, 2007; Valentine, Holloway, & Jayne, 2010). Greater shared youth culture via media such as television and trans-national alcohol marketing means that many young people across the world are drinking in a similar fashion, and not according to cultural stereotypes traditional to their country (Velleman, 2009). Also, changes have been detected in consumer behaviour, for example, with discrepancies between countries in consumption of flavoured alcoholic beverages, also known as 'alcopops', decreasing over time (Mitry & Smith, 2009). So it is possible that, transmitted through popular culture, travel, and marketing, patterns of drinking in one society can have implications beyond physical borders. However, it is also possible that different countries are undergoing a similar shift in observed behaviour, despite dissimilar causal mechanisms (e.g. through taxation versus intergenerational shifts in beverage type popularity). That is, the net effect of 'convergence', which appears to be happening in Europe at least, may be reflecting an observed state of affairs without reference to whether or not the causal mechanisms are shared.

Illicit drugs

Compared to alcohol, the use of illicit drugs is considerably less common. In a 12 month period, only one in seven Australians aged 14 and over reported using any illicit drug, with cannabis accounting for the majority of this use (AIHW, 2011).

There is less literature comparing illicit drug use on a worldwide scale compared to what is available for alcohol. However, the use of cannabis has been compared between Australia and the US. Teesson, Baillie, Lynskey, Manor and Degenhardt (2006) contrasted 8,000 adult Australians with 7,000 adult Americans and found that 9.8% of Australians and 8.1% of Americans reported the use of cannabis on at least five occasions in the past year. Consistent with the national prevalence rates, a greater proportion of the Australian sample (2%) were classified, according to DSM-IV criteria, as having cannabis dependence, compared to the US sample (0.5%). Interpretation of these differences must bear in mind it is possible that factors such as willingness to disclose illicit drug use, or penetration of studies

into at-risk groups, may vary between countries. For example, some countries have a more punitive approach to drug use compared to Australia, which may have reduced participant disclosure. Also, how accurately each population is represented in each national drug focused survey may be affected by the comparatively much larger sample sizes (in relation to total population) in Australia compared to the US (Maxwell, 2008).

In attempting to highlight cross-national differences, ideally, a uniform approach should be used across regions (Pirkis, Irwin, Brindis, Patton, & Sawyer, 2003). Teeson's previously discussed greater adult use of cannabis in Australia compared to the US, were obtained using different surveys separated by a five year period. In contrast, Toumbourou et al. examined 8,000 adolescents, aged 12-17, from Victoria and 31,000 adolescents from two US states using a common survey (2005). The results of this study suggested that the cross-national adult trends in cannabis may be reversed for young people. They found the use of cannabis and other illicit drugs (LSD, amphetamines or cocaine) in the past 30 days was more prevalent amongst the US sample. This difference may be partially attributed to differing trajectories of drug use across regions. Studies which compare US and Australian teenage and adult drug prevalence (using respective national surveys) support the idea that cannabis/illicit drug use peaks at different ages between the countries. It appeared that during 1998-2004, use of cannabis/any illicit drug in the past year was highest amongst teenagers (14-19) in the US and amongst people in their 20s in Australia (Maxwell, 2008). However, a limitation of the Toumbourou et al. study was that due to jurisdictional variation in rates of illicit drug use (such as WA and SA teenagers reporting higher than national rates of illicit drug use in the past year), their Victorian sample may not have been representative of the behaviour of young people in other states or nationwide (AIHW, 2011).

2.1.2 Impacts of AOD use

The use of drugs is associated with both positive and negative outcomes. In this section, some of the harms are described: financial burden, physical and psychological health, and social consequences that are experienced by society as a

whole. The experience of these harms varies according to each society's conventions about how intoxicated behaviour manifests and what is accepted as AOD-related harm.

In 2004-2005 the total cost attributed to Australian alcohol consumption was estimated to 1.2% of gross domestic product, or \$10.8 billion. These costs relate to crime, health, lost production within the workplace and home, and road accidents (Collins & Lapsley, 2008). For example, a New South Wales study found that 62% of police attended incidents were alcohol related (Ireland & Thommeny, 1993).

The cost on AOD use on health is measured in both resources and its effects on quality of life. Injuries and other AOD related health harms can be described as chronic or acute. Chronic harms are attributed primarily due to excessive use over a long period of time. Chronic conditions for alcohol for example can include liver cancer, neurological damage and alcohol dependence (Liang, Chikritzhs, Pascal, & Binns, 2011; Winter & Donovan, 2006). Acute harms are attributed to use to the point of intoxication, for example, after a single drinking session.

Alcohol related harms constitute 3.3% of, and illicit drug related harms comprise 2% of Australia's total disease burden (Begg, et al., 2007). Compared internationally, in a study of 30,000 people from 26 countries, Australian women were ranked third and Australian men were ranked ninth in their levels of experiencing the negative effects of drinking (Graham, et al., 2011). Substantial hospital resources are dedicated to alcohol related cases with an estimated 10% of Australian injury-related hospitalisations being alcohol related (McKenzie, Harrison, & McClure, 2010), and between 2% and 40% of accident and emergency admissions (Charalambous, 2002; Indig, Copeland, Conigrave, & Rotenko, 2008; Poynton, et al., 2005). Drugs also have a multitude of psychological effects including risk of dependence. In a 12 month period, 5.3% of an Australian sample (N>10,000) reported being diagnosed with alcohol dependence (Teesson, et al., 2006).

Alcohol use not only has health consequences for the individual user, but also to others, such as unborn children. The quantity of alcohol consumed during pregnancy appears to have a negative linear association with the growth of offspring, in some studies even at doses as low as one drink per day (though

impairments are generally compensated for in privileged environments; Day & Richardson, 2004). Heavy in-utero exposure to alcohol can lead to Fetal Alcohol Syndrome (FAS) which is associated with growth retardation, a distinct facial appearance, and some behavioural or cognitive abnormalities in areas such as problem solving, language, motor functioning, or social behaviours (Riley & McGee, 2005). In Western Australia, the rate of Fetal Alcohol Syndrome (FAS) was 0.6 per 1000 in 2000-2005, up from 0.1 per 1000 in 1980-1984 (Bower, Rudy, Callaghan, Quick, & Cosgrove, 2010). In addition, FAS children tend to have below average IQ – averaging at 70 points (Mattson & Riley, 1998), and the condition has been considered by some as the leading known cause of mental retardation in the Western world (Abel & Sokol, 1987).

However, it appears that alcohol may also have some protective effects on health. Since the mid 1990s, epidemiologists have found that compared to abstaining populations, drinking ‘moderate’ quantities of alcohol appeared to be protective against cardiovascular disease resulting in death. Antioxidants such as resveratrol, found in red wine, as well as alcohol itself appeared to offer cardioprotection in live and in vitro animal studies (Ray, et al., 1999; Sato, Maulik, & Das, 2002; Wu, et al., 2001). However, recent examinations of the epidemiological data have found that factors associated with cardiovascular disease are more prevalent amongst non-drinkers, confounding possible protective effects on moderate drinkers (Naimi, et al., 2005). Researchers have suggested that the purported protective effects of alcohol have likely been exaggerated (Chikritzhs, Fillmore, & Stockwell, 2009). In an Australian population, it appears that any protective effects on cardiovascular disease only become apparent after 45 years of age with the net effect of alcohol being positive only amongst females over the age of 65 years (Begg, et al., 2007). That is, although alcohol confers health benefits for a small proportion of the population, the net health effect on alcohol for most Australians remains negative.

There are also a multitude of social harms which do not attract as much attention from researchers and media as they are less readily operationalised. User focused social harms include the loss of jobs, educational achievements, housing,

imprisonment as well as relationships. Consequences to others include the experience of family adversities, acquisitive crime and even international damage (e.g. deforestation of areas to grow drug crops; Nutt, King, & Phillips, 2010).

Some of these social harms acutely manifest. Negative social outcomes that may have occurred due to intoxication and impaired judgements include embarrassment, humiliation and degradation, loss of trust/respect, and fighting with friends/romantic partners (Smout, 1998). Also, in general, the chances of being physically and sexually assaulted increase if the potential victim is affected by alcohol (Felson & Burchfield, 2004). These harms that co-occur with alcohol intoxication can be explained in part by the 'alcohol myopia effect'. Alcohol myopia predicts that alcohol affects judgements, and individuals can be more or less likely to engage in a (possibly risky) behaviour compared to when unaffected by alcohol. This effect occurs as alcohol intoxication restricts the amount of information an individual can gather from a situation and reduces the ability to process and analyse the information that is taken in (Steele & Josephs, 1990).

These described harms may be compounded, especially in terms of illicit drug use, by legal repercussions. Longitudinal studies suggest that frequent alcohol use around the ages of 15-18, and cannabis use at around 15-16 may increase the risk of later delinquency/contact with police. However, these associations are sometimes rendered not significant once correlated factors such as social disadvantage are statistically controlled for (Loxley, et al., 2004). The social consequences of AOD use are later expanded upon within the context of young people's risk behaviour.

It is important to note here that the types of social harms associated with AOD use can differ between cultures. Some harms, such as vomiting, are predominantly the result of the pharmacological effects of alcohol. However, other results such as anti-social behaviour are mediated by what a culture understands to constitute drunken behaviour (MacAndrew & Edgerton, 1969; Room, 2001). Through socialisation, individuals learn what the limits are of drunken excess – what behaviours can be attributed to intoxication, and what they remain largely accountable for even if they were intoxicated during the performance. MacAndrew and Edgerton argued that cultures experience greater occurrences of the same

behaviour if it is attributed to the inebriated state compared to if it is not. In the end, "... societies, like individuals, get the sorts of drunken comportment that they allow ..." (MacAndrew & Edgerton, 1969, p. 173). By corollary, although alcohol myopia mediates judgement, it likely does not completely override an individual's perception of what is socially acceptable.

Alcohol related harms can also differ depending on culturally dominant patterns of drinking. Alcohol related aggression amongst adults and adolescents occurs more frequently in countries where drinking to intoxication is more common (Bye & Rossow, 2010). For example, Rossow aggregated data on alcohol sales and homicide rates from 15 European countries for the period 1950 to 1995. The strongest association between sales and homicide rates were found in the northern European countries characterised by a more 'explosive' drinking pattern where drinking often results in intoxication. Similar associations were found for suicide rates in Rossow's earlier work (2001). An implication of the information presented in this subsection is that as patterns of drinking and types of AOD-related consequences are culturally sensitive, they are also subject to change via cultural shift.

2.2 Patterns of youth alcohol use

When youth drinking occurs

Youth alcohol use is typified by episodic, heavy alcohol use which commonly occurs to the point of intoxication. Amongst older adolescents at least, this heavier use is centred on particular time points such as Friday and Saturday nights, and periods away from academic requirements (Bye & Rossow, 2010; Del Boca, 2004; Kairouz, Gliksman, Demers, & Adlaf, 2002 ; Kuntsche & Cooper, 2010). These peaks in alcohol use are typified by time periods that have low external demand (such as freedom from studying) on the individual (Greenbaum, Del Boca, Darkes, Wang, & Goldman, 2005; Grekin, Sher, & Krull, 2007). Although this research referenced US college students, it is not unlikely that Australian high school students would similarly, indulge in greater AOD use when academic and familial responsibilities are lower.

Longitudinal studies suggest risky patterns of alcohol use begins to emerge at 13-15 years of age in high income countries and peaks in the late teens and early 20s (Gmel, Kuntsche, & Rehm, 2011). Of note, is that although most Australian 13-15 year olds have used alcohol before, most do not drink regularly (in the last month) or appear to use alcohol at a risky level. Quantities of use associated with risk do however increase in prevalence throughout adolescence (White & Hayman, 2009). This heavier use during late adolescence is often termed 'binge', 'heavy', or 'risky' drinking (Gmel, et al., 2011). In the following section, these terms and their related concepts are operationalised.

What is 'risky' drinking?

The colloquially popular phrase 'binge drinking' is often used to describe the consumption of higher quantities of alcohol over a short period of time that results in intoxication (National Drug and Alcohol Research Centre, 2002; Renaud, 2001). Within research literature, this phrase has various definitions, including a more traditional description of extended heavy drinking over several days, as well as a newer, more specific definition where the term 'binge' can be replaced with 'risky'. This newer definition of risky drinking, is the consumption of large quantities of alcohol on a single occasion which leads to a high blood alcohol concentration, and potentially to effects such as injuries (Gmel, et al., 2011; Wechsler, Davenport, Dowdall, Moeykens, & Castillo, 1994). Gmel, Kuntsche and Rehm note that this definition is often operationalised as the consumption of x number of standard drinks or more on a single occasion. The concept of 'risky drinking' as used in this study is further stipulated using guidelines relevant to the Australian region. The Australian guidelines deliberately avoid using the term 'binge drinking' as it is difficult to quantify (NHMRC, 2009). Similarly, in this study, the term is not used unless in reference to existing studies which used the expression.

In Australia, the National Health and Medical Research Council (NHMRC) states a threshold for low risk alcohol consumption (NHMRC, 2001, 2009). The guidelines pertain to health risks for the individual drinker and do not consider alcohol-attributable social harm. In 2001, the NHMRC guidelines included three levels for risk of harm in the short-term: low risk, risky and high risk. For females,

use of up to four standard drinks in any one day was associated with a low risk level, use of 5-6 drinks was associated with a risky level and the use of seven or more drinks was associated with a high risk level. For males, use of up to six standard drinks in any one day was associated with a low risk level, use of 7-10 drinks was associated with a risky level and the use of 11 or more drinks was associated with a high risk level. While the 2001 guidelines were revised in 2009, the former are still important due to the body of research and analysis that were based on these guidelines.

In 2009, instead of specifying 'risky' and 'high risk' drinking levels, the NHMRC introduced the concept of progressively increasing risk of harm with the amount of alcohol consumed. They proposed that "For healthy men and women, drinking no more than four standard drinks on a single occasion reduces the risk of alcohol related injury arising from that occasion" (NHMRC, 2009).

In referring to the 2009 NHMRC guidelines for the purposes of this study, three issues are of note. Firstly, the current study's participants were mostly 17 years of age and the guidelines specify a separate directive for people under the age of 18. Namely, it is stated that for those between 15-17 years of age, "the safest option is to delay the initiation of drinking for as long as possible" and that "if drinking does occur in this age group, it should be at a low risk level and in a safe environment, supervised by adults" (NHMRC, 2009, p. 4). As the low risk guidelines for adults are recommended to adolescents aged 15-17 who drink, quantities above the low risk adult guidelines (>4 standard drinks) are termed 'risky' drinking in this study.

Secondly, the NHMRC defines a "single occasion of drinking" as "a sequence of drinks taken without the blood alcohol concentration (BAC) reaching zero in between" (NHMRC, 2009, p. 3). As the fluctuation of BAC is difficult to assess without substantially increasing response burden, this study refers to a single occasion of use, as use at the 'last event', a 'single session' and use in a single day at *Leavers*.

Lastly, the concept of risky drinking may or may not also refer to intoxication. Without knowledge of the exact pattern of consumption and other factors such as the drinker's weight and alcohol-tolerance, whether the

operationalised concept of risky drinking actually results in intoxication is unknown. For these reasons, the notion of risky drinking remains a proxy (though one of the more reliable proxies) to refer to the behaviour of consuming sufficient quantities of alcohol to lead to BACs associated with higher risks of experiencing harms (Gmel, et al., 2011).

So, the term 'risky drinking' in this study refers to the concept of single occasion drinking associated with higher BAC and potential for injuries (Gmel, et al., 2011), with the threshold quantity of use operationalised using the 2009 NHMRC guidelines.

2.3 Prevalence of youth AOD use

There are two main surveys which regularly document patterns of youth AOD use across Australia. These surveys are the Australian Secondary School Alcohol and Drug (ASSAD) survey and the National Drug Strategy Household Survey (NDSHS). The ASSAD survey has been conducted in every Australian state, every three years since 1984 with school students aged 12-17. In this section, both pooled national data and WA specific information are presented from the ASSAD (DAO WA, 2010a; White & Hayman, 2009). The NDSHS similarly, has run every three years since 1985, but surveys a greater range of Australians, sampling individuals aged 12 years of age and older (AIHW, 2008). In this section, alcohol use is described using data predominantly from the ASSAD and NDSHS, then illicit drug use using the ASSAD survey, followed by an examination of the two surveys.

2.3.1 Alcohol

Focusing on the 17 year old age group, this section aims to describe alcohol use patterns in terms of when drinking begins, how often it occurs, quantities of consumption and changes over time.

Age of initiation

Amongst 12-19 year old Australians, the average age at which they had their first full serve of alcohol was 14.5 years. About 20% of Australian 16-17 year olds had never consumed this much before (AIHW, 2008).

A minority of 17 year olds, 7.5% within Australia and 8.5% in WA, have

never tried (even a sip) of alcohol before (DAO WA, 2010a; White & Hayman, 2009).

Drinking frequency

When asked to describe themselves, a quarter (27%) of 17 year olds in Australia considered themselves as a non-drinker. A further 28% classed themselves as occasional drinkers, 7% as light drinkers, 35% as party drinkers and 3% as heavy drinkers (White & Hayman, 2009). The proportions were similar for WA 17 year olds (DAO WA, 2010a). Australia wide, 41% of 17 year olds (46% males and 37% females) drank at least one alcoholic drink in the past week. In comparison, in WA, 33% of 17 year olds (39% males and 27% females) drank at least one alcoholic drink in the past week (DAO WA, 2010a; White & Hayman, 2009).

Risky drinking

Chikritzhs, Pascal and Jones (2004) estimated that over 80% of the alcohol consumed by Australian 14-17 year olds is consumed at risky/high risk levels (>5 standard drinks for females and >7 for males). At 17 years of age, 43% of Australian males and 46% of females who drank in the past the week, were drinking at these levels (White & Hayman, 2009). In WA, the respective figures were 51% for males and 61% for females (DAO WA, 2010a).

So while it appeared that a smaller proportion of WA 17 year olds are drinking alcohol in the last week compared to the national average, of those that drank, a greater proportion were drinking at risky levels.

Drinking trends

The proportion of current drinkers and risky drinkers amongst Australian 16-17 year olds increased throughout the 1990s and decreased through the 2000s. However, though not significant, the average quantity of alcohol consumed by current WA drinkers appeared to be increasing since the early 1990s. These trends are described in greater detail below.

Among 16-17 year old Australians, the proportion of current drinkers (those who consumed alcohol in the past week) increased from the mid to late 1990s then decreased from 1999 to 2008. Similarly, the proportion of risky drinkers appeared to increase throughout the 1990s, stabilised from 1999-2005 then significantly

decreased from 2005 to 2008 (White & Hayman, 2009). The WA trends were comparable to the national current and risky drinker proportions (DAO WA, 2010a). The upward trend in youth frequency and risky alcohol use through the 1990s was corroborated using data from the NDSHS, with a similar pattern was also reported in Canada and the United States (Loxley, et al., 2004).

The average number of drinks consumed per week by current 16-17 year old WA drinkers appeared to be gradually rising from 1993 to 2008. Reported means were 6.6 (1993), 7.5 (1996), 8.4 (1999), 8.1 (2002), 7.5 (2005) and 8.8 (2008). However, the 2008 estimate was not significantly higher than estimates from previous years (DAO WA, 2010a). Quantity specific estimations were not reported for the national ASSAD dataset.

Note these trends may be subject to revision. For example, due to the recent finding that what was believed to be a stable Australian per capita consumption of alcohol has actually been increasing (Chikritzhs, et al., 2011). However, as most of this per capita estimation was due to increases in wine popularity and wine strength and youth typically do not cite wine as one of their preferred alcoholic beverages, the extent of potential revision may be limited. Also, as later discussed as an ASSAD limitation, the ASSAD and NDHS may not be sufficiently sensitive compared to other surveys and secondary data obtained from hospitals to detect increasing trends in risky alcohol use (Livingston, 2008).

2.3.2 Illicit drugs

This section aims to describe patterns in use of illicit drugs, focusing on the 17 year old age group.

Frequency of illicit drug use

Over a quarter (28%) of Australian 16-17 year olds have tried at least one illicit drug in their lifetime (cannabis, ecstasy, cocaine, amphetamines, opiates and hallucinogens). In WA, this lifetime rate for the 17 year old cohort is higher at 34%. However, only 16% of WA 16-17 year olds reported illicit use in the last month (DAO WA, 2010b; White & Hayman, 2009). So the majority of 17 year olds have not used an illicit drug, and the pattern of use amongst those that have, is likely

experimental with the consumption of illicit drugs not peaking until about 21-23 years of age (AIHW, 2011).

Commonly used illicit drugs

Cannabis is clearly the most popular illicit drug within the country, with a quarter (26%) of Australian 17 year olds and a third (33%) of WA students having used it before. In the past year, 22% used cannabis on a national level and 25% used it in WA (DAO WA, 2010b; White & Hayman, 2009).

Other illicit drugs used in the past year by Australian 17 year olds include tranquillisers (not for medical purposes, 12%; also 12% in WA); inhalants (9%; 7% in WA); ecstasy (8%; 9% in WA); amphetamines (6%; 9% in WA); hallucinogens (4%; also 4% in WA); and cocaine (3%; 4% in WA). Though not an illicit drug, the NDSHS and ASSAD do not currently assess caffeine use.

Of relevance are the differences in availability across Australia for various illicit drugs. Direct comparisons between national and state specific data are not routinely performed using ASSAD data (R. Hood, WA ASSAD coordinator, personal communication, February 15, 2011). However, other sources have identified that WA has the highest per capita dexamphetamine use of all the Australian jurisdictions, with a prescription rate 3.5 times the national average in 2003 (Buckmaster, 2004). After the United States and Canada, Australia has the third highest rate of consumption of dexamphetamine (Berbatis, Sunderland, & Bulsara, 2002), and there appears to be significant illicit use of the drug (Green & Moore, 2009).

More recently, Hollingworth, Nissen, Stathis, Siskind, Varghese and Scott examined rates of dispensed prescriptions of the stimulant medications dexamphetamine, methylphenidate and modafinil in Australia. They found there was an 87% increase in dispensed prescribed stimulants over the period 2002 to 2009, owing to a 13% drop in dexamphetamine prescriptions and a 300% increase in methylphenidate prescriptions (Hollingworth, et al., 2011). Despite methylphenidate's increasing popularity dexamphetamine remained the most commonly prescribed of the three drugs. Of note is that methylphenidate,

commonly branded as Ritalin, can also be used recreationally (Barrett, Darredeau, Bordy, & Pihl, 2005).

However, Hollingworth et al. did not make jurisdictional comparisons in their study. So later, Buckmaster plotted publically subsidised stimulant prescriptions across Australian states¹ (Buckmaster, 2011). Interestingly, Buckmaster found every Australian state except WA recorded an increase in prescriptions for stimulant medications between 2002-03 and 2009-10. In WA, prescriptions decreased 8 per cent within the time period, “possibly reflecting concerns expressed [*sic*] earlier in the decade about the rapid growth in stimulant use in that state”. Though not discussed by Buckmaster, the PBS data was presented in raw prescription numbers and not on a per capita basis. To generate per capita rates, population estimates were obtained from the Australian Bureau of Statistics, for the period between Dec 2009 and March 2010 (Australian Bureau of Statistics, 2011). When Buckmaster’s 2009/2010 prescription rates were plotted against each state’s population, despite Hollingworth et al.’s findings of a decreasing prescription trend, WA still had a higher per capita prescription rate compared to all other Australian jurisdictions.

Due to this region-based availability, in WA the ASSAD includes additional questions regarding the use of amphetamine type drugs such as dexamphetamine and Ritalin. Almost a tenth (9.4%) of WA 17 year olds reported using amphetamines in the past year, and 6.2% reported using dexamphetamines (DAO WA, 2010b). So, some of the differences between the national yearly amphetamine use rate of 5.9% and the rate of 9.4% in WA could be explained by the greater use of dexamphetamine in WA.

Trends in illicit drug use

The use of at least one illegal drug by high school aged children has been trending toward lower frequencies. The lifetime use of at least one illegal drug by WA 16-17 year olds fell from 64% (in 1996), to 59% (in 1999), to 50% (in 2002), to 39% (in 2005) and to 34% in the most recent survey (in 2008). Accordingly, rates of more regular

¹ Hollingworth et al. obtained their data on prescribed stimulants from two sources: Medicare’s database for publically subsidised prescriptions (92% of all prescriptions) and a representative sample of pharmacies for nonsubsidised prescriptions. In comparison, Buckmaster only used data on publically subsidised medications. However, as subsidised prescriptions represent the clear majority of the dispensations, the PBS data likely reflect genuine overall trends.

use also appear to be decreasing (DAO WA, 2010b). Similarly, in a national sample of 16-17 year olds, lifetime use of at least one illegal drug has diminished from 40% in 2001, to 33% in 2005 and to 26% in 2008 (White & Hayman, 2009).

2.3.3 Examining the NDSHS and the ASSAD

As data from the ASSAD and the NDSHS were relied upon to estimate youth AOD use, the main strengths and limitations of these surveys are discussed in this section (AIHW, 2008; White & Hayman, 2009).

Strengths

The ASSAD and the NDSHS were used to estimate prevalence as they have large sample sizes and produce trend statistics. The ASSAD is likely fairly representative of the youth population and publishes state-specific information. Also, the NDSHS produces some of the most accurate survey-based quantity estimates due to its comprehensive nature and regularly updated methodologies.

Within Australia, the NDSHS is the largest AOD-focused survey and the ASSAD is the largest study examining AOD-use among secondary students. In 2007, the NDSHS had a total of 23,356 respondents aged 12 and over and in 2008 the ASSAD had 24,408 respondents aged 12-17. Both the ASSAD and the NDSHS assess the quantity of alcohol used.

The ASSAD is reflective of the population relevant to this thesis. This study's target population were either enrolled, or had completed year 12. Similarly, the ASSAD excludes adolescents who are disconnected from school as they are working, institutionalised etc. School enrolled adolescents tend to experience lower levels of AOD-related risk (Livingston, 2008). So although the ASSAD may not be representative of all Australian adolescents, their sample is more comparable to this project's sample.

The schools which participate in the ASSAD are randomly selected and the proportion of students who opt not to complete the survey or submit spurious responses is unofficially estimated to be less than 1% (V. White, personal communication, July 7, 2008). As well as collating national data, the ASSAD publishes state-specific reports. As there are differences in the availability and use of

various drugs across Australia, the state-specific data is potentially more representative of local patterns (e.g. Sindicich & Burns, 2010; Stafford & Burns, 2010). Also, the response options for illicit drug use are fairly straightforward – if the drug was used at all and how often it was used in the four timeframes of the last week, four weeks, year and lifetime. This frequency assessment allows for the condensing of categories into the useful classification of ‘has’ or ‘has not’ used in the relevant timeframe.

Nine ASSAD surveys to date have been published since 1984. As the ASSAD has utilised a standard survey format over this time, the production of trend statistics have been possible (Loxley, et al., 2004). Although the NDSHS has not utilised an identical questionnaire since the survey’s inception in 1985, trend statistics have still been produced using comparable questions. The change in NDSHS format over time has been constructive with the questionnaire assessing currently relevant issues and updating methodology with more sophisticated techniques such as the beverage specific method (to produce very accurate estimates of alcohol consumption).

Limitations

There are a number of limitations the ASSAD and the NDSHS have that are of relevance to this study. Firstly, the ASSAD and NDSHS use a self-report methodology. While self-report measures are generally valid, they usually share the limitation of the underestimation of quantity of alcohol consumed (Lintonen, Ahlström, & Metso, 2004; Stockwell, Zhao, Chikritzhs, & Greenfield, 2008). Underestimation may occur due to factors such as the under sampling of at risk drinkers; deliberate or otherwise respondent underreporting, and lack of clarity or recall about how much was consumed. In addition to the underestimation shared by self-report measures, limitations more specific to the NDSHS and the ASSAD are discussed in the following paragraphs. Namely, as information on a fairly specific demographic was referred to in this study, survey generalisability was affected due to progressively reduced sample sizes. Also, the non-use of the standard drink concept and the arguably modest cut-off points potentially contribute to unnecessary variability and underestimation of results.

The NDSHS and ASSAD statistics presented above predominantly relate to the leavers demographic - 17 year olds, and 17 year olds in WA. Although the ASSAD and NDSHS are surveys with large total sample sizes, the sample sizes for the age and region relevant to this study are logically smaller. For example, while there were 3,217 national ASSAD respondents aged 17 years, there were only 262 seventeen year old respondents in the WA sample. Also, not all participants completed all questions – for example, WA 17 year old alcohol quantity estimates were based on a sample of 99. So although the ASSAD provides the most relevant information in relation to the leavers population, items with lower response rates and corresponding sample sizes of less than 100 may be less generalisable to the entire demographic.

Similarly, though the NDSHS had a sample size of 23,356 respondents aged 12 years and older, the authors note the rates of representation for younger people should be interpreted with caution due to the smaller sample sizes and the lower prevalence of various behaviours (AIHW, 2007a). The 2007 NDSHS had 563 respondents aged 16-17 years of age, Australia-wide (R. Pascal, personal communication, February 10, 2011). This smaller sample may have been the reason why some estimates, such as those for illicit drug use were considerably lower compared to the ASSAD results. In illustration of the discrepancy in estimations between the surveys, the NDSHS estimated 1.0% of 16-17 year olds used amphetamines in the last year compared to the ASSAD estimate of 5.9%. Due to these discrepant results, NDSHS data were not used above to describe prevalence rates of youth illicit drug use. Although the NDSHS estimates made for alcohol use were generally lower compared to the ASSAD, as alcohol use is significantly more prevalent/frequent, the results were likely more reliable.

Compared to the ASSAD, the representativeness of the NDSHS samples are less certain. Though the households selected by the NDSHS were randomly selected and stratified by area, the response rate was moderate at 49%. Also, in the NDSHS publications, only 'recent' use (use in the last 12 months) of illicit drugs is reported. Such a broad frequency cannot distinguish between experimental or occasional use versus more regular use (Loxley, et al., 2004).

There were also limitations in the questionnaire items. In the alcohol section of the ASSAD, respondents are asked to specify the number of 'alcoholic drinks' they consumed in the last seven days. However, the use of the term alcoholic drinks as opposed to the tangibly defined 'standard drinks' poses problems when comparing data from the same cohort and across cohorts. Firstly, what an alcoholic drink constitutes, in the absence of any definition or visual guide, is likely to be dissimilar between respondents, even if they are of the same age (Devos-Comby & Lange, 2008). Secondly, the increasing understanding of what a standard drink constitutes may have affected responses to the ASSAD's items. For example, in 1995 the compulsory labelling of Australian alcoholic beverage containers with the number of standard drinks contained within was introduced (Hawks, 1999). Thus it is possible that more recent ASSAD respondents would be more likely to conceptualise an 'alcoholic drink' as a beverage containing a single standard drink compared to respondents in 1984.

In a similar vein, the NDSHS use the term 'full serve of alcohol' in their item pertaining to lifetime alcohol use and age of initiation. As the standard drink guide is not yet presented when asking these questions, some response variation could have resulted from neglecting to use a standardised concept. Also, since some of the NDSHS interviews were completed using a telephone assisted method, not all respondents were able to see the standard drink chart prior to being asked questions in terms of the standard drinks.

In the ASSAD, students who report consuming more than 20 alcoholic drinks are excluded from many analyses. The survey authors explained that "students indicating they had more than 20 drinks may have given incorrect information, or misunderstood the question (i.e. more than 20 drinks is a very large quantity of alcohol to consume during a single day)" (DAO WA, 2010a, p. 23). As the consumption of greater than 20 'drinks' is not impossible, especially with the older respondents, the reported averages may underestimate the actual proportions of risky drinkers (Jones, 1999).

Lastly, when compared to other survey and hospital harms data, the ASSAD may have been underestimating the quantity of alcohol consumed by young people.

Over the period of 1998-2006, Livingston and Room noted a marked, upward trend in both hospital and emergency admissions rates for 16-24 year old Victorians (both male and female). However, of the three population surveys they examined, only one, the Victorian Youth Alcohol and Drug Survey (VYADS) found a significant increase in rates of risky drinking for young Victorians during the examined period (Livingston, 2008).

The Victorian ASSAD and the NDSHS data did not detect an increase in risky drinking rates. The researchers suggested two main explanations for the discrepancy between the stable trends of the ASSAD and NDSHS and the increasing trends in the VYADS and hospital data. Firstly, the surveys could have excluded some very high risk drinkers who have left, or otherwise do not attend, school or are homeless, but are represented in hospital statistics. Although not noted by the authors, the VYADS also does not survey institutionalised or homeless young people (Victorian Drug and Alcohol Prevention Council, 2010). Thus, even excluding these higher risk young people, a significant increase in 'risky' drinking was observed. Secondly, the researchers hypothesised that the survey data may have been accurately reflecting 'risky' drinking rates, but 'hiding' the increasing quantities of alcohol consumed within this bracket. This latter explanation was modestly supported by an increase, albeit insignificant, in the proportion of males consuming 20 or more drinks and females drinking 11 or more drinks in the VYAD surveys.

2.4 Health impacts of AOD on young people

Previously, a variety of positive and negative impacts of AOD use were described. In this subsection, the outcomes of AOD use are elaborated in relation to the harms that are more common amongst, or unique to young people.

Young people are more at risk of particular drug related problems. They are particularly susceptible for a variety of reasons, such as lack of experience in managing the effects and outcomes of drug use and vulnerabilities that exist because of continuing brain development. AOD contributes to a significant portion

of the experience of all negative outcomes amongst young people. Also, there have been suggestions that these harms, as assessed through hospital and emergency admissions, may have risen in recent years (Livingston, 2008).

Alcohol use is one of the largest risk factors for fatalities amongst young Australians with 13% of deaths in 14-17 year olds attributed to the drug. These deaths are commonly caused by road injury, suicide, assault, pedestrian road injury and drowning (Chikritzhs & Pascal, 2004). In WA alone, on average, every fortnight, a young person aged 15 to 24 years dies of an alcohol caused death (Xiao, Rowe, Somerford, Draper, & Martin, 2008). Also, between 15 and 22% of all hospitalisations of young people are alcohol-attributable (Chikritzhs, et al., 2004; Hulse, Robertson, & Tait, 2001). Even the seemingly benign drug, caffeine, popular with adolescents, has been associated with liver damage, seizures, psychotic conditions, heart failure and death (Seifert, Schaechter, Hershorin, & Lipshultz, 2011).

Acute harms

Typically, young people are more frequently affected by harms due to acute intoxication compared to conditions associated with chronic use. Common acute consequences for alcohol use include blackouts, hangovers, violence and unprotected sexual activity (Bonomo, Bowes, Coffey, Carlin, & Patton, 2004). In a study with 658 Victorian 16-17 year olds, Bonomo and colleagues found that of the 70% of the sample that used alcohol in the previous 12 months, 17% reported alcohol related violence (accidents or injuries) and 15% reported problems relating to sex engaged in whilst under the influence of alcohol (having had unprotected sex or having sex and later regretting it; Bonomo, et al., 2001). Some acute harms, such as vomiting, are a symptom of overdose, and some harms are mediated by alcohol's myopic effects. For example, Stoner et al. (2008) found that alcohol did not directly promote unprotected sex with their sample of 116 US women. However, they did find that alcohol use reduced the perceived likelihood of health consequences of having unprotected sex. Thus, lowered perceptions of health consequences appeared to reduce the likelihood of the women insisting on condom use. To further explicate Stoner's findings, it is possible that the lowered perceptions of

consequences were related to impairment in intoxicated participants' abilities to retrieve relevant information. Alcohol suppresses the activity of the excitatory neurotransmitter glutamate in the hippocampus and affects an individual's ability to form memories and make judgments. This glutamate suppression (amongst other processes) affects the production of long term memories (experienced as blackouts) and to a lesser extent, short term memory and the ability of an individual to monitor their own actions (White, 2003). Adolescents experience a raft of alcohol-related vulnerabilities compared to adults. For example, alcohol's disruption of long-term potentiation (related to memory formation) is more pronounced in adolescent compared to adult rats. Thus adolescents experience blackouts more easily than adults. Also, adolescent animals experience less sedation and motor impairment compared to adults, providing them with fewer signs of acute intoxication that may curb drinking (Witt, 2010).

Chronic harms

In addition to more commonly occurring acute harms, adolescents can experience longer term or permanent consequences of heavy AOD use (NHMRC, 2009). Such chronic consequences include liver disease, changes within the brain, risk of psychosis, and dependence.

Consistent with shifting trends in alcohol use and related hospitalisations (Livingston, 2008), chronic conditions that were previously observed only in older people were recently observed in younger people who began drinking at a very young age. Liang and colleagues (2011) found that the risk of Australians in their 20s being admitted to hospital with alcohol-related liver disease due to chronic heavy alcohol use increased more than tenfold over the period from 2002/2003 compared to the previous three years. Earlier AOD use is not only correlated with earlier onset of chronic conditions, but with harms that arise in younger people but manifest less severely, or not at all, amongst older individuals.

Brain development continues until the early twenties and heavy alcohol use can have adverse effects on this development. The regions of the brain responsible for basic functions such as movement, develop early on, whereas the prefrontal

region responsible for higher order functions such as decision making, critical thinking and self-regulatory skills do not fully mature until early adulthood (Lubman, Yücel, & Hall, 2007). Throughout adolescence, the speed of neural transmission and connectivity between the frontal cortex and other parts of the brain is increased through the myelination of axons in the frontal region, and 'synaptic pruning' (the elimination of less frequently used synapses). The axons with myelin sheathes are also known as 'white matter' and the density of white matter generally increases throughout adolescence (though Nagel, Medina, Yoshii, & Tapert, 2006 reported the opposite trend; Witt, 2010).

Heavy alcohol use at early ages can disrupt the neuromaturation process and can result in structural brain changes, altered neurotransmitter receptor densities, impair the brain's ability to convert information into memories or impede learning (Lubman, et al., 2007; Witt, 2010). The very heavy use of adults and adolescents with drug use disorders appears to reduce white and/or grey matter volume in various brain regions such as the hippocampus and prefrontal areas. These altered structures have been associated with performance on various neuropsychological tests designed to assess cognitive abilities (Hanson, Cummins, Tapert, & Brown, 2011). That is to say, the structural brain changes hypothesised to be related to clinical level drug use have also been associated with impaired cognitive abilities. These deficits appear to be compounded if drug use occurs at an earlier age. Rodent studies suggest that juvenile brains are more sensitive to alcohol induced brain damage compared to adults (Hanson, et al., 2011). Similarly, earlier exposure to cannabis results in greater lasting memory deficits and alterations in the hippocampus than in adult animals (Quinn, et al., 2007). So alcohol-disorder diagnosed adolescents demonstrate impairments in a range of brain functions including spatial working memory, verbal memory and verbal encoding. The broader group of adolescents with alcohol and/or other drug use disorders display reduced executive functioning, processing speed, IQ, attention, language, spatial working memory, and verbal and nonverbal memory compared to controls (Hanson, et al., 2011; Tapert, Granholm, Leedy, & Brown, 2002). Though these studies apply stringent selection criteria which limiting generalisability (e.g.

excluding those with a psychiatric illness which is comparatively common amongst those with diagnosed drug use disorders), and usually rely on more modest sample sizes, these impairments observed in chronic users are reasonably established.

However, recent studies suggest that structural brain changes can also be observed amongst individuals with more modest drug use patterns. McQueeney et al., and Squeglia et al. observed the effects of alcohol on neuromaturation amongst young 'binge' drinkers that did not have a drug-related diagnosis (McQueeney, et al., 2009; Squeglia, Schweinsburg, Pulido, & Tapert, 2011). Their findings are of great relevance to this project, as it is expected that many leavers would be classed as risky drinkers, but remain sub-clinical.

In 2009, McQueeney conducted a cross-sectional study with 14 'binge' drinking (>4/5 drinks in a single session in the past three months) 16-19 year olds and 14 matched controls. The participants underwent brain imaging and produced fractional anisotropy (FA) readings, which provide an estimate of white matter integrity. Higher FA scores are indicative of greater hindrance of water diffusion and suggest oriented structures and myelination. In previous studies, lower FA have been observed in adult alcoholics and to a less consistent degree, disordered adolescents in various regions including the corpus callosum. McQueeney et al. found that relative to controls, the risky drinkers yielded scores consistent with lower white matter integrity in 18 brain areas. There were no regions where the drinkers displayed greater values. The compromised areas included projections to networks which underlie learning, memory and executive function. Furthermore, tests within the risky drinking group revealed dose-dependent effects with a greater number of reported hangover/withdrawal symptoms (suggesting a higher dose) were related to lower FA scores in three areas including the corpus callosum. These findings are somewhat alarming as the drinkers consumed a mean of 15.43 drinks per month with the peak number of drinks averaging at 8.21. So despite these fairly modest and drinking patterns and absence of alcohol-related diagnoses, differences suggesting compromises in white matter integrity were observed throughout the brain. Also, though the sample size was relatively modest at 28, the findings were consistent with existing literature documenting the influence of alcohol on

frontocerebellar circuitry. Of note is that while the study suggested microstructural differences between high and low risk drinkers, and suggested that these discrepancies could have impacts on learning and memory, the IQ of the two groups were not significantly different (assessed to match them in premorbid intellectual functioning). That is, it is possible that any structural differences were not sufficient in magnitude to yield discernible deficits in cognition. Also as it is assumed a comprehensive follow-up battery of neuropsychological testing was beyond the scope of the study, it remained unknown whether these survey-based instruments would have been sufficiently sensitive to detect any differences between the groups. These implications are discussed further below in conjunction with Squeglia et al.'s findings.

The work of Squeglia et al. (2009) incorporated analyses of gender differences in alcohol-influenced brain activation and cognition. In a longitudinal study they began tracking 76 12-14 year olds with no or very little drug use experience and re-assessed their use and neuropsychological functioning after 1-5 years. Their test results suggested that measures indicative of heavier alcohol use (greater drinking days or hangover symptoms) deleteriously affected performance on visiospatial functioning in females and attention span in males. The authors suggested that areas of existing gender-associated weakness (generally spatial tests in females and psychomotor speed/accuracy in males), were the most susceptible to alcohol-related effects. Similar to that of McQueen et al.'s sample, the mean alcohol consumption was low (7.4 drinks/month at follow up), and only 4 of the 76 participants were eventually diagnosed with an alcohol related disorder.

In a later study, in addition to comparing neuropsychological performance as a function on drug use history and gender, Squeglia et al. (2011) recorded brain activation during the performance of a spatial working memory (SWM) task. Two groups were formed: 'binge' drinkers ($\geq 4/5$ drinks on at least one occasion in the past three months) and a control group (who used ≤ 3 drinks in the same time frame). Despite all participants being classed as high functioning individuals, differences were detected between this risky alcohol using group and controls. Intriguingly, the differences between drinkers and controls were reversed according

to gender. Namely, female drinkers demonstrated less SWM brain activation compared with controls, and male drinkers *greater* activation compared to controls. The impact of alcohol on the females was associated with poorer attention and working memory test scores. However, the male drinkers appeared to have equal or greater SWM-related activation compared to control males which also correlated with superior performance on spatial tasks. Though seemingly counterintuitive, the authors described these gender and alcohol interactions as consistent with previous findings. They suggested that the differences are potentially due a range of factors. For example, frontoparietal networks develop earlier in females and the effects of alcohol may differ depending on the stage of neuromaturation (assuming riskier drinking is initiated at a similar age). Also, similar to the point described in the earlier Squeglia et al. study, males may have been better able to recruit compensatory systems than females due to what are generally stronger pre-existing spatial abilities.

In summary, the studies of McQueeney et al. and Squeglia et al. suggest that the effects of relatively modest doses of alcohol on high functioning adolescents can be detected through altered white matter microstructure, brain activation patterns and/or neuropsychological test outcomes. However, this area of study is relatively new and existing studies have generally had modest human sample sizes or use animal based models. Furthermore, although it is understandable there may be gender-based vulnerabilities to alcohol, the seemingly counterintuitive results of occasional similar or even superior performance of drug-using adolescents (see also e.g. Bava, Jacobus, Mahmood, Yang, & Tapert, 2010; Takagi, et al., 2010), suggests further research is required to more comprehensively characterise causal mechanisms. Lastly, although differences in the sensitive measures of neural imaging and neuropsychological tests have been observed, whether this variation translates into practical implications on wider life outcomes requires further investigation.

In addition to potential changes in brain structure and activation, AOD use affects psychological health. In a recent meta-analysis, the use of cannabis was linked with earlier onset of psychotic illness, particularly schizophrenia (Large,

Sharma, Compton, Slade, & Nielssen, 2011). The results of the analysis supported the hypothesis that for some individuals, cannabis use plays a causal role in the development of psychosis. Methamphetamine has been linked with increased risk of experiencing psychotic symptoms and violence arising from delusions and perceived threat (Moore, 2010).

More optimistically, many negative effects of AOD use do not necessarily persist in the long term. While there appear to be cognitive deficits in overall IQ, processing speed and memory with heavy cannabis users beyond the period of acute intoxication, these effects are not detected in former cannabis users, suggesting the effects are reversible (Fried, Watkinson, & Gray, 2005). Similarly, in a well-controlled study of the residual cognitive effects in ecstasy users, researchers failed to find a neurotoxic effect on the users after they had not used any illicit drugs for at least 10 days (Halpern, et al., 2011). These medium-term cognitive deficits can however impact for example, on an adolescent's ability to perform in school and hamper subsequent life opportunities.

These listed harms have been primarily focused on health. In contrast, the benefits of AOD use are not usually health-focused, and it is important to understand AOD use as an act of balancing benefits and harms. Below, the context of young people's risky behaviour, the developmental relevance of AOD use and influences on this use are discussed.

2.5 Influences on AOD use

People cite a variety of reasons for their AOD use. Described functions include to relax, become intoxicated, to enhance an activity such as socialising, to alleviate a depressed mood and to increase confidence (Boys, Marsden, & Strang, 2001; Moore, 2010). Importantly, drugs of dependence produce biological rewards, often by triggering the release of dopamine in the brain which is experienced as euphoria (Carlson, 2004; Wise & Bozarth, 1985). Also, especially in terms of risky adolescent use, there can be a certain thrill, to lose control, to test personal limits, and to appear of feel more adult like (Jessor, 1992). Risky use can be inherently appealing and confer a multitude of peer-based benefits such as a desired reputation, prestige,

distinction, approval, and a sense of belonging and acceptance (Carroll, Houghton, Hattie, & Durkin, 1999; Hopkins, 1999; Houghton, Carroll, Odgers, & Allsop, 1998; Sheehan & Ridge, 2001). This AOD-related behaviour can be simultaneously perceived as both non-conforming and conforming by adolescents. It can be interpreted as non-conforming to wider societal mores, but conforming to immediate peer behaviour in order to be accepted (Houghton, et al., 1998). In contrast, some argue that AOD use is not necessarily motivated by an active desire to be accepted by peers, but is simply engaged in as it is perceived as normal adolescent behaviour (Beck & Treiman, 1996; Hughes, Julian, Richman, & Mason, 2008). Irrespective of the exact nature of influence, peers are of paramount importance in understanding adolescent AOD behaviour and this relationship is discussed further below.

In terms of conceptualising a specific instance of AOD use, three main elements can be used to explain what compels an individual to use a drug and how that drug affects them. Firstly, the pharmacology of the drug must be considered. The second aspect is the individual: their personality, attitudes, prior experiences and current emotional state. Thirdly, the social and physical setting within which the drug use occurs is important (Zinberg, 1984). A central supposition of the models and studies described in this chapter is that there are a countless number of ways in which drug use and its consequences can be influenced, depending on the interaction of individual factors, the context they are in and the drug they are using (Kairouz, et al., 2002 ; Triandis, 1977; Zinberg, 1984). In a later section of this chapter, Triandis' Theory of Interpersonal Behaviour is presented as the multifactoral framework used to account for youth AOD use at celebrations.

Individual factors will be later described in terms of elements which are either a risk for, or protective against AOD use. The impact of setting is discussed in greater detail as this study proposes there are certain elements about the celebratory context of *Leavers* which affect AOD use. Various parts of this literature review focus on the notion that AOD-related behaviour is context specific, and describes why this may be the case. As an illustration as to how individual and contextual factors can combine to affect motivation, a proximal factor to alcohol use, a model by Cox and

Klinger is described.

Cox and Klinger proposed a four-factor model of drinking motives which has been highly influential since the 1990s (Anderson, Grunwald, Bekman, Brown, & Grant, 2011; Cooper, 1994; Cox & Klinger, 1988). Their four factors relate to the outcome desired through drinking, and lie on two dimensions based on valence (positive or negative reinforcement) and source of motivation (internal or external [social]). The resulting classes of motives include drinking to enhance positive mood (a motivation that was internally generated with positive reinforcement); drinking to obtain positive social rewards (external, positive reinforcement); drinking to reduce or regulate negative emotions (internal, negative reinforcement); and drinking to avoid social rejection (external, negative reinforcement). Cooper tested this four factor theory with 1,200 adolescents and found it fit very well with the data. Each of the motives was associated with a distinctive pattern of drinking context antecedents and consequences related to drinking. Cooper suggested a similar pattern can be found across genders, races and age groups. Some of Cooper's more frequently cited drug use motivations are described below in relation to the role of risk behaviours in adolescent life.

The period of adolescence is characterised by change. Developments are occurring within cognitive, emotional, physical, sexual and social domains (Caspi & Moffitt, 1991; Eccles, et al., 1993). Some have suggested that adolescent behaviour is best understood within the wider context and varied goals of this transitional flux (Jessor, 1992).

While young Australians are generally healthy (AIHW, 2007b), some behaviours put them at risk for harm, such as risk taking, sexual and otherwise, eating disorders, school truancy, delinquency and of course AOD use (AIHW, 2010; Jessor, 1992). These activities are not necessarily deviant. Some researchers and commentators have in fact suggested that they can be construed as developmentally normal, at least for many adolescents, a part of growing up and trying new things. Interestingly, some authors propose that some of the long held concern for young people and drug use appears to arise (especially with more socially acceptable drugs such as alcohol) when use is adopted 'too young' as opposed to its adoption

per se (Room, 2004). However, depending on a multitude of factors such as the severity and context of performance, risk behaviours have the potential to contribute to compromised long-term life outcomes such as health and employability (Jessor, 1992).

There are not only costs (as discussed in the previous section) associated with risk behaviours, but benefits, such as being instrumental in gaining peer acceptance and affirming maturity through the performance of 'adult' acts (Jessor, 1992). Also, risk can be construed as a part of the process of emancipation from parents and other authority figures – a display of independence through the move away from 'preferred' standards of conduct (Room, 2004). Consequently, risk taking can be evolutionarily beneficial with an adolescent learning how to live away from their family (Baumrind, 1987; Room, 2004; Schulenberg & Maggs, 2002).

Using alcohol as an example, any benefits in reduced drinking may be accompanied by the risk that the adolescent may be viewed as immature and less interesting by their peers. Illustrations of this have been given in reports by Jarvinen and Ostergard (2009) who provided examples such as the following from focus group interviews: "I wasn't allowed to drink at all ... and I was a real loser"; "Jens, though, he hasn't touched a beer in his whole life and he has never been to parties. I don't think he has one single friend in the class." (Jarvinen & Ostergaard, 2009, p. 387). As alcohol is often an integral part of socialising, to abstain can have implications on a young person's ability to fit in amongst peers (Demant & Järvinen, 2006). So choices pertaining to AOD use may not be moral decisions about rebellion, but more pragmatic in nature – with AOD used merely to facilitate an individual's social life (Saulwick & Muller, 2006). Also, some argue that adolescent alcohol use further functions as means of gaining experience for an adult life in which alcohol consumption plays a substantial role (Parker, Aldridge, & Measham, 1998).

Although the benefits of AOD use, such as facilitating peer acceptance, are often difficult to quantify, the importance of these benefits should not be understated. So theorists have described various risk behaviours as not a product of general ignorance or the ignoring of health and warnings of danger, but instead a process that is similar to a rational weighing up of the pros and cons of

performance. Importantly, this controlled and strategic use does not necessarily equate with 'moderate' use (Moore, 2010). Rather, this 'calculated hedonism' is construed as a balance between pleasure and harm (Jessor, 1992; Moore, 2010; Pennay & Moore, 2010).

2.5.1 Risk and protection

Risk factors are conditions or agents that are associated with increased probabilities of compromised health or other life outcomes. Protective factors mitigate the impact of risk on behaviour and subsequent development. The degree to which an individual is "at risk" of harm as a result of AOD use can be conceptualised as an interaction between the risk and protective factors to which they are exposed (Jessor, 1992).

Protective factors for risky patterns of AOD use include: close parent-child relationships, high levels of family co-operation, high levels of parental monitoring; parental consistency and responsiveness; family cohesion; supportive adult authority figures who behave conventionally; higher IQ/school involvement; and religious identification. There are also many factors, such as policy/taxation based strategies, which exist beyond the individual and their family which reduce risky AOD use (Babor, et al., 2010; Chaloupka, Grossman, & Saffer, 2002; Kokkevi, Richardson, Florescu, Kuzman, & Stergar, 2007)

Risk factors include: a family history of dependence; having role models for 'deviant' behaviour; inconsistently communicated expectations from parent, low family cohesion; poor social coping skills; an earlier onset age of AOD use; overestimating peer risk behaviour; exposure to alcohol marketing and various other cultural factors (Jessor, 1992; Loxley, et al., 2004; Velleman, 2009; Velleman, Templeton, & Copello, 2005). Also, there is a wide body of literature that supports the contention that adolescents' drinking frequency and quantity is significantly influenced by alcohol advertising (Hastings, Anderson, Cooke, & Gordon, 2005; Smith & Foxcroft, 2009; Snyder, Milici, Slater, Sun, & Strizhakova, 2006).

In the following subsection the influence of peers and parents are elaborated as they represent risk and protective factors that are of greatest relevance to

adolescent AOD use behaviour. Particular contexts are also associated with risky AOD use, but this is discussed in a later segment.

Impact of peers on adolescents

Some research has found that by late adolescence, generally, peers provide the strongest influence on AOD related behaviour (Kandel, 1985; Nash, McQueen, & Bray, 2005; Perkins, 2002). The influence of peers on adolescent AOD use is perhaps most popularly recalled through resistance skills intervention programs targeting 'peer pressure' (Hansen & Graham, 1991). However, it seems more subtle forms of interpersonal influence occur rather than overt peer pressure. Adolescent drinking behaviour is likely influenced more by what is perceived as normal behaviour amongst close peers, rather than by a need for peer approval and acceptance (Beck & Treiman, 1996). Also, self selection occurs where adolescents select like-minded peers, resulting in mutual influence and high correlation in AOD use rates between peers (Velleman, 2009).

Social norms are beliefs and perceptions about what behaviours are 'normal'. These beliefs are especially influential on behaviour when they relate to groups that individuals identify with most, such as peers. There are two different types of norms – injunctive and behavioural. Injunctive social norms relate to an individual's concepts of what is moral or ethical; that is, what is, or isn't *morally acceptable*. Behavioural norms relate to what is *common* behaviour amongst others (Moreira, Smith, & Foxcroft, 2009). Adolescents attempt to maintain behavioural and attitudinal congruency within their friendships. If there is a discrepant state, for example, with a friend using cannabis and the adolescent not, Kandel (1985) argued that one of two things commonly occurs. Either the adolescent will separate from the friendship or they will modify their own behaviour to match their friend's to maintain the friendship. That is, the perception of what is peer behaviour can indirectly serve as a strong normative social pressure on individual behaviour (Wallace, 2001).

Generally, individuals estimate that the 'typical' student drinks more than them and estimations of peer use are higher for individuals who drink more

(Hughes, Julian, Richman, Mason, & Long, 2008; Hughes, Julian, Richman, & Mason, 2008; Perkins, 2002; Perkins, Haines, & Rice, 2005; Thombs, Wolcott, & Farkash, 1997). In a sample of over 70,000 US college students, 71% overestimated the norm of the number of standard drinks the typical student had the last time they 'partied'/socialized (Perkins, et al., 2005). The results have been replicated with high school and non-students of a similar age. Studies on specific events such as 21st birthdays have shown that where drinking norms are overestimated, young people will have a greater expectation to drink and will subsequently drink large amounts of alcohol (Neighbors, Oster-Aaland, Bergstrom, & Lewis, 2006). Similar patterns of overestimation of peer use occur with other drugs such as tobacco, cannabis, cocaine, amphetamines, sedatives, hallucinogens, opiates inhalants, steroids and 'designer drugs' (Perkins, Meilman, Leichter, Cashin, & Presley, 1999).

A lot of what we know about AOD social norms among young people has been researched within the context of the 'social norms approach' and providing interventions to reduce college/university alcohol use. Social norms theory was developed by Berkowitz and Perkins and predicts overestimations of group norm AOD will increase the prevalence of the AOD use (Berkowitz, 2004). As described above, young people generally estimate that their peers use more AOD than them, rarely less. Their social norms theory suggested that the overestimation of peer drinking may contribute to a greater expectation for use; that students attempt to match this perceived 'norm' and subsequently consume large amounts of alcohol (Perkins, et al., 2005). Interventions which present 'more accurate' peer norms were hypothesised to increase the likelihood that individuals would express attitudes or beliefs that were more health promoting (Berkowitz, 2004).

These social norms projects have been utilised more recently in Australia. In 2006 and 2007, Hughes and colleagues conducted the first major Australian project focused on social norms (2008). In their pre-intervention survey of 509 year 7-10 Tasmanian students, they found that while estimations of 'moderate' alcohol use (1-4 times a month) were relatively accurate, students underestimated the proportion of students that drank less frequently and overestimated the proportion of students that drank more frequently than once a week. Approximately 16% of students

reported drinking 1-2 times per week, but estimated that 43% of students were drinking this frequently. Similarly, infrequent instances of getting drunk were underestimated and frequent drunkenness was considerably overestimated. About 5% of students reported getting drunk 1-2 times per week, but estimated that 20% of students were getting drunk this frequently.

However, Hughes utilised gender-neutral student reference categories. This may have exaggerated the difference between self-reports and perceptions of others. Though the reports of personal alcohol consumption would have been approximately 50% female, some studies suggest that with social norms, males and females think of the typical drinking student as being male. Lewis and Neighbours found that the estimating drinking norms, the vast majority of their male participants perceived the 'typical college student' as male and about half of the females also perceive the typical student as male (Lewis & Neighbors, 2006). Therefore, the 'other' drinking scores may have been inflated as they reflect a hypothetical population that is greater than 50% males. Nevertheless, Hughes' Australian results are in line with well-established overseas findings.

As described above, social norms based interventions have been trialled within Australia in the recent past (Hughes, Julian, Richman, & Mason, 2008), with components also being incorporated in other Australian studies with substantial sample sizes of more than 7,000 (Hallett, Maycock, Kypri, Howat, & McManus, 2009; Kypri, Hallett, et al., 2009). In addition, these interventions have been popular within the US for longer and at a much larger scale, with half of American colleges running a social norm based program in 2001 (Wechsler, Seibring, Liu, & Ahl, 2004). These interventions appear, under certain intervention conditions, to be successful. Including 22 controlled trials, Cochrane reviewers concluded that interventions with feedback provided through the web/computer or through an individual face-to-face interaction were probably effective in reducing alcohol misuse (Moreira, et al., 2009).

Social norms theory describes three main types of misperception that account for common research findings: pluralistic ignorance, false consensus and false uniqueness (Berkowitz, 2004). Pluralistic ignorance is where a majority of

group members personally reject a norm, but incorrectly assume that most others accept it. This bias provides a potential explanation for the most common finding in social norms research where students believe they behave more conservatively or hold more conservative views (on alcohol use) than the average student (Suls & Green, 2003). Pluralistic ignorance is the main target of interventions to 'correct' misperceptions. The majority are informed that their less risky use and attitudes are more normative than they think, thereby giving them 'permission' to act in accordance to their values without fear of embarrassment from being different (Berkowitz, 2004). False consensus describes the situation where the minority of people with more extreme behaviours or attitudes incorrectly believe they are in the majority. False consensus provides a possible explanation of the finding that heavier drinkers are more likely to overestimate others' use, in the process, justifying their behaviour. This bias is understood as a 'self-serving' bias, (Berkowitz, 2004). Finally, false uniqueness is the perception that their behaviour is more unique than it really is. For example, abstaining students and those that employ safety strategies while drinking, believe they are rarer than they really are within a student population (Benton, Downey, Glider, & Benton, 2008). Although the social norms theory accounts for misperception in terms of these various cognitive biases, an alternate explanation, the motivational account, emphasises that differences between the self and peers may be emphasised in order to preserve a desired self-image (Agostinelli, Grube, & Morgan, 2003; Melson, Davies, & Martinus, 2011).

The underpinnings of social norm theory and interventions, have been called into question recently, with the findings that the methodology used by social norms researchers may exaggerate the differences between personal and peer alcohol use. A number of studies suggest that the general finding of overestimation of peer drinking may not be only attributable to cognitive biases and misperception, but also due to a motivation to present positive self-evaluations, relative to peers (Agostinelli, et al., 2003; Melson, et al., 2011). Melson, Davies and Martinus administered three similar surveys to 1,074 12-18 year old high school students. They aimed to evaluate whether including items referring to the self and peers within the same survey affected the discrepancy between reports on self and peer

behaviour and attitudes. Their 'multiple target' survey included items which referred to both the respondent as well as their peers. The two 'single target' surveys referred only to personal behaviour, or peer behaviour. Respondent's reports on their own behaviour and attitudes did not differ depending on survey, and in both the multiple target and single target surveys, a greater percentage of peers were reported as consuming alcoholic drinks with friends. However, this peer percentage was significantly higher in the multiple target survey compared to the single target surveys – that is, the self-peer discrepancy was exaggerated when personal and peer use were more saliently juxtaposed within the same survey. Similarly, attitudes toward alcohol held by peers were reported to be more permissive in the multiple referent survey. Other comparisons on frequency of alcohol consumption and frequency of drunkenness were not significantly different across survey types. Though the study did not assess mean quantity of alcohol consumed by peers or by the respondent (that which was used to compare peers and respondents in this study), it does flag some issues. Namely, that the methodology itself of presenting items on the self and peers within the same survey appear to affect judgements about peer behaviour, possibly by encouraging the respondent to present a more favourable self description (in line with the motivational account described above). Kypri and Maclennan point out that if norm misperceptions are artefacts of the data collection method, then the popularity of social norm interventions may be unwarranted, especially as their use is less likely to co-occur with effective policies such as restrictions on alcohol availability (Kypri & Maclennan, 2011).

The consistent (albeit potentially exaggerated) findings on peer use using social norms theory support the inclusion of behavioural norms within this study's conceptual framework. Triandis' Theory of Interpersonal Behaviour (TIB) and the theories of reasoned action and planned behaviour include subjective norms as an antecedent of intention (Ajzen & Fishbein, 2005; Maticka-Tyndale, Herold, & Mewhinney, 1998). Triandis' TIB posited that expectations regarding peer behaviour contributes to behavioural intent; and researchers have included perceptions of peer behaviour and pacts with peers in their TIB-based modelling of

holiday related risk behaviours (Maticka-Tyndale, Herold, & Oppermann, 2003; Sonmez, et al., 2006).

Impact of parents on adolescents

Although peers become more of a primary influence later in juvenile life, family can continue to influence drinking behaviour throughout adolescence and well into young adulthood. Parents are able to influence the degree to which peers and society as a whole have an effect on their child, and the timing at which these wider factors become more important in a young person's decision making (van der Vorst, Engels, Meeus, Dekovic, & Vermulst, 2006; Velleman, 2009). Moreover, parents are *initially* of great influence to their children's attitudes and intentions (Velleman, 2009), can influence the type of peers they choose, and are of great influence to their child's future ambitions (Kandel, 1985).

In a recent review of twelve parenting strategies over 77 longitudinal articles, eight strategies were identified to significantly reduce levels of adolescent alcohol use. These strategies were: disapproval of adolescent drinking, restricting alcohol availability, general discipline, parental monitoring, parental modelling, parent-child relationship quality, parental support and general communication (Ryan, Jorm, & Lubman, 2010). Some of these strategies such as parent-child relationship quality are protective against a variety of risk behaviours (Jessor, 1992). In this section, parental approval of AOD use, discussion of AOD use and supply of alcohol are described as parenting elements that are specifically related to AOD use.

Parental approval

Alcohol

Generally, parental disapproval of drug use has been shown to be associated with reduced levels of adolescent alcohol use (Hayes, Smart, Toumbourou, & Sanson, 2004; Ryan, et al., 2010). In 2005, Nash, McQueen and Bray surveyed 2,600 US high school students over three time points. They found that reports of greater parental disapproval for adolescent alcohol use predicted lower alcohol use and experience of associated problems. Also, these students were significantly associated with other protective factors such as positive family environments, fewer peers that used or

approved of alcohol use, and greater self efficacy for avoiding alcohol use (Nash, et al., 2005).

Similarly, Jarvinen and Ostergaard found in their 2,000 surveys with Danish 14-16 year olds and their parents, that more lenient parental attitudes were associated with greater frequency of high risk drinking episodes in their children. Once a parent consented to their child consuming more than three alcohol units, their child was more likely to "... enter a path toward binge drinking" (2009, p. 393). The authors also noted that although their focus group participants objected to the notion that parental control had significant influence on regulating their drinking, survey data suggested parental government was in fact, more conducive to more 'moderate' alcohol use patterns than adolescent self-government. An important implication of this study was there appeared to be a discrepancy between adolescents' and parents' notions on how alcohol consumption should be regulated. Whether self-regulated adolescent drinking actually produces what appears to be 'regulated drinking' has repercussions for environments where parents are absent. This notion of parent versus self-regulation is elaborated on in the following section, 'parental discussion'.

Though these studies were respectively conducted in the US and Denmark, and may not generalise to Australian populations, they illustrate the consistent finding that greater parental disapproval of alcohol use/higher quantities of alcohol use, correlate with lower adolescent alcohol consumption. It is important to keep in mind however, that parental disapproval of AOD use tends to co-occur within more positive family environments (Nash, et al., 2005; Velleman, 2009), and is likely but one of the influences within a constellation of other protective factors that reduce risky adolescent alcohol use.

Illicit drugs

Though the results are less consistent regarding illicit drug use, generally, a protective role for parental disapproval can be found. In a review article on predictors of adolescent cannabis drug use, it was reported that two out of the six relevant articles found a significant effect of parental approval (Petraitis, Flay, Miller, Torpy, & Greiner, 1998). Described below is a recent Australian study and a

large scale US study which found significant effects, and a French study which did not report significant effects.

In an Australian study with 2,800 year 9 students and 2,300 year 11 students, more permissive parental attitudes towards drug use were correlated with adolescent cannabis use in both years (Olsson, et al., 2003). Though the scale for approval of drug use was 'heavily skewed' toward disapproval, the effect of more permissive parental attitudes remained significant even after background factors and the other family measures were accounted for in analyses. Interestingly, a stronger effect was found amongst the younger participants suggesting that parental attitudes had greater predictive influence on younger adolescents than older.

A very large scale US survey with over 25,000 young people aged 12 to 17 found similar results to the Australian study (Substance Abuse and Mental Health Services Administration, 2002). The clear majority (89.5%) of adolescents reported they thought their parents would strongly disapprove of their trying cannabis once or twice. The researchers reported that past month use of cannabis was lower amongst respondents who believed their parents strongly disapproved of their drug use (4.9%) compared to adolescents who believed their parents would somewhat disapprove, or neither approve nor disapprove of their drug use (26.9%). Interestingly, the three response categories for this US survey were: neither approve nor disapprove, somewhat disapprove, or strongly disapprove. It is possible the first response option suggests respondent ambivalence about parental approval which is conceptually distinct from approval (which is assumed to be the opposite of 'strongly disapprove').

Lastly, a study of 559 French adolescents found that amongst cannabis users, 49% of their fathers were using or had used cannabis, compared to 10% of non-users fathers. Although father's cannabis use (amongst other factors) was a significant independent predictor of adolescent cannabis use, both cannabis users and non-users reported their parents were highly opposed to cannabis use, and parental approval was not a significant predictor of adolescent cannabis use (Chabrol, Mabila, Chauchard, Mantoulan, & Rousseau, 2008).

In the previous section, it was noted that parental disapproval of alcohol use tends to correlate with other protective family-based factors. In addition, the French study suggests it may be necessary for expressed parental disapproval to be congruent with other parental behaviours (i.e. parental drug use in the study) to have an effect. Thus, although it can be difficult to distinguish the effects of parental approval from related influences, it appears that parental disapproval is somewhat efficacious as a protective factor when it occurs within an assemblage of other congruent parental influences. Of note is that the effect of approval may differ between drugs. Parental disapproval for illicit drug use appears to be consistently high, with less variation compared to parental disapproval for adolescent alcohol use. For this reason, parental approval may have less discriminatory or predictive ability when used to refer to illicit drug use compared to alcohol use. However, as described in the following section, there appears to be some generalisation with parental attitudes (including approval) of a single drug, affecting adolescent use of a range of drugs.

Parental discussion

Whether a parent had discussed alcohol and related harm with their child appears to a reasonably common occurrence, though the results are mixed in terms of the impact of these discussions on eventual drug use. The Parent Omnibus Survey was used from 2001 to 2004 as a part of the Australian National Alcohol Campaign evaluation (King, Taylor, & Carroll, 2005b). The survey found that the majority (53-75% depending on survey year) of parents reported they had discussed the issue of alcohol with their 17 year old in the past three months (keeping in mind the limitations of self-report on issues that may be influenced by social desirability). Common reasons parents discussed alcohol use with their 16 year old child was because the teenager was going to parties (27%), as a part of good parenting (23%), as their child's friends drank (17%), their child was caught drinking (13%) and as a part of a general discussion (9%). The dangers associated with alcohol and topics about stopping and/or limiting their drinking were the two most frequently mentioned topics, and the majority of parents perceived their discussions were efficacious in discouraging any drinking or risky drinking. Although this

communication appeared to be widespread, in a review by Ryan, Jorm and Lubman, alcohol-specific communication was not found to have a significant effect on reduced levels of later drinking (2010). The review however only identified two alcohol relevant studies and at least two articles have found drug-specific parent-child communications with some effect on the use of other drugs. The problem of course is that there was no measure of the quality of what was done by parents – different approaches, that were objectively identified, may yield different results.

In an eight year longitudinal study, Andrews et al. examined the effect of parental behaviours on 645 adolescents' alcohol, cigarette and marijuana use (Andrews, Hops, Ary, Tildesley, & Harris, 1993). They found that parents' drug related behaviour (parent's drug use, attitude, cautionary statements and scolding if the adolescent used a drug) affected not only the use of the drug specifically referred to by the parent, but the use of other drugs, also. Although not all anticipated correlations were significant across the age groups and between differing categories (e.g. initiated any use vs. never used the drug) the authors described the general trends. They concluded that generally, early adolescents who initiate the use of a particular drug tend to have parents who less frequently caution the adolescent about the health consequences of drug use and have fathers with more positive attitudes toward that drug. In contrast, adolescents who had already initiated use and *continued* using drugs, were more likely to have parents who cautioned them and scolded them more frequently. Andrews et al. suggest that this group are likely to be "hard core" users rather than experimenters whose parents are unsuccessful in controlling their use.

More recently, Miller-Day (2008) investigated the style and content of parent-child communication on alcohol, tobacco and cannabis use. She conducted two studies. In the first study, 421 first year college students provided free-text descriptions of the AOD-related strategies their parents had used with them in the last four years. Seven main strategies were identified: using own judgment; hinting; no tolerance rule; provided information; threat of punishment; reward for nonuse; or, did not address the issue. In the second study, 424 students (enrolled in a different course to respondents from study 1) reported their drug use, family

communication patterns, and were asked to what extent their parents used each of the seven previously identified strategies. The most commonly reported strategy in both studies was to 'use your own judgement'. Despite this strategy seeming reasonable, as parents would find it difficult to monitor college age children, it appeared ineffective in inhibiting drug use. The only strategy which correlated with reduced drug use was a no tolerance rule. The no tolerance rule was negatively associated with cannabis, alcohol and tobacco use. The only other significant correlation was a positive relationship between threatening punishment with alcohol and tobacco use. To further explicate, the authors note that though it may appear most parents have misplaced confidence in their children's self-regulation, this may not be the case. It was unclear whether parents were expressing a genuine confidence in their child's self-regulation, or were instead, expressing an optimistic *hope* that their child would be 'sensible' in the absence of parental authority. As the survey period referred to a four year period of parental discussions, it would be useful to note in future studies whether self-regulation was promoted before or after the child left a supervised residential setting. That is, whether self-regulation was endorsed as a legitimate strategy when other strategies with parental involvement were available, or whether it was used merely as a parting caveat. This seemingly ineffective self-regulation of alcohol use amongst college students was consistent with the previously noted Danish study with adolescents.

However, very recently, a US study with 1,663 adolescent-parent dyads again demonstrated the mixed nature of alcohol-specific discussions. This study identified two main groups of alcohol specific messages: permissive messages and negative messages. Negative messages included discussions about health consequences and rule-based messages (e.g. 'can not ride with someone who has been drinking').

An important finding was that surprisingly, no protective effect of alcohol-specific discussions were detected, instead, messages with permissive content were identified to be a risk factor. Permissive messages were associated with more frequent adolescent alcohol consumption and to a lesser extent, alcohol-related negative consequences. This effect was especially pronounced amongst adolescents

who had already begun to drink. In contrast, negative messages about alcohol were not associated with alcohol use, suggesting these messages had little utility in reducing adolescent alcohol use. However, as the discussions were assessed via telephone contact with the parent, social desirability bias may have encouraged parents to endorse discussing negative messages over permissive messages. That is, the previously identified protective effects of negative messages (such as through Miller-Day's adolescent reports) may have not been detected due to over reporting by parents. So, despite differences in whether significant associations are found, it appears that studies generally find that the type of message conveyed in an AOD-specific discussion is important, and the influence of a discussion is sometime dramatically affected by whether or not AOD use has been initiated by the adolescent (including an indications of a bi-directional influence where the child's use prompts changes in parent behaviour).

To summarise, the effect of parental approval is likely more consistent than that of discussion. Approval can be conveyed in a variety of ways, for example through discussions as well as role modelling behaviour, and thus possibly encapsulate parental discussions. Also, the concept of parental approval conveys a less ambiguous parental attitude compared to discussions 'warning about health effects' etc. which may be framed within a variety of ways (such as condoning use, harm reduction once use has been initiated, or abstinence). Also, in view of how commonly this AOD-specific parent-child communication occurs, the specific ways in which parental disapproval for drug use is successfully conveyed warrants further investigation.

Parental alcohol supply

In contrast to parental approval and discussion of AOD, parental provision of alcohol is a more immediate and direct influence on adolescent behaviour. In the following section, four studies: three Australian-based and one from New Zealand, are used to explore the issue of parental alcohol supply. These studies suggest that the context of consumption is important in the issue of parental supply. Rates of supply seem to be lower when the alcohol supplied is to be used in an unsupervised and/or party context compared to when the alcohol will be likely consumed within

the home under parental supervision.

In 2008, 41% of WA 17 year old students who used alcohol in the past week obtained their last alcoholic beverage from their parents. Fifty-six per cent of 17 year old drinkers also consumed their last alcoholic beverage under the supervision of an adult (DAO WA, 2010a). The WA report did not explicitly examine the overlap in alcohol source and supervision status. However, the national report noted the majority of current drinkers who consumed their last alcoholic drink at home did so under adult supervision. Also, 16-17 year old current drinkers drank significantly less alcohol per week if they consumed it at home than at a friend's place or at a party (White & Hayman, 2009).

Similarly, in a sample of 388 Australian parents of 14-16 year olds, of the 70% of parents who believed their child drank alcohol, 37% of the parents reported supplying their child with more than a sip of alcohol in the last 3 months. Unsurprisingly, this supply percentage rose with adolescent age to 42% of parents supplying for their drinking 16 year olds (Ward & Snow, 2010). Ward and Snow found that parents who monitored their child were 1.44 times more likely to report supplying alcohol. While the context in which supply occurred was not assessed, this odds ratio suggests that supply may have been under parental supervision (in line with 2008 WA findings). Note however, the evidence for the generalisation of 'low-risk'/supervised alcohol use at home to other contexts is unclear (Ward & Snow, 2010).

In another study by King and colleagues, one in five Australian parents of 15-16 year olds reported having provided their children with alcohol to take to a supervised party in the last three months (King, et al., 2005b). The lower supply percentage may reflect parental recognition that the party environment is a higher risk situation for risky drinking (King, Taylor, & Carroll, 2005a).

Consistent with the Australian studies, New Zealand parents identified adult supervision to be the most important factor they considered when deciding whether or not to provide their child with alcohol (Kypri, Dean, & Stojanovski, 2007). Differences between adolescents and parental reports around the issue of alcohol supply have also been identified. In 2001, Kypri and colleagues

administered surveys to 872 New Zealand 15-17 year olds and 748 surveys to an unrelated sample of parents of 13-17 year olds (Kypri, Dean, Kirby, Harris, & Kake, 2005). There were striking discrepancies between what adolescents reported their parents supplied and what the parental sample reported (Kypri, et al., 2005). More than a third (36%) of the adolescent participants reported their parents had given them alcohol to consume in an unsupervised setting, with only 2% of parents reporting they had done so. Kypri, et al. explained that this discrepancy was due to the parents presenting more socially desirable responses, to differences in what the two groups interpreted as adult supervision, and due to the adolescent participants being on average a year older than the adolescents referred to in the parent surveys.

However, the Kypri et al. survey did not ask about whether the parentally supplied alcohol consumed in unsupervised settings was consumed in a risky manner. Thus it is possible that the supplied alcohol could have been consumed at low risk levels. Alternately, parent supplied alcohol could have contributed to intoxication, but only in a small part, as the remainder of the alcohol used was sourced elsewhere. So despite the association between unsupervised environments and higher risk drinking, without an explicit link between supply and type of subsequent use, it remains difficult to draw definitive conclusions about whether the supplied alcohol was used in a risky manner.

Although it seems parents are more willing to provide alcohol if it is to be consumed within a supervised setting, a supervised setting doesn't necessarily relate to safer alcohol consumption patterns later on. Recently, McMorris and colleagues annually surveyed 1,888 Australian and US students from grades 7-9 (2011). In grade 8, students were asked the number of times in the past year they had consumed alcohol in two contexts (at dinner/a special occasion/holiday, or at parties) with adult supervision. In grade 9, the study's main dependent variables, frequency of alcohol use and number of harmful alcohol-related consequences experienced were assessed.

The authors were interested in adult supervision-related effects between the countries due to differences in policies. Namely, supervised drinking was at odds with the US's abstinence based policy, whereas at the time of data collection,

Australia's alcohol guidelines supported supervised drinking as a part of responsible parenting. It was anticipated that supervised drinking would correlate with risky alcohol use in the US sample and with more moderate use in Australia. Interestingly, the results were similar across the two regions. Greater opportunity to use alcohol under adult supervision was associated with higher levels of alcohol related negative consequences. Also, adult supervised alcohol use mediated the association between pro-alcohol parental attitudes and higher alcohol use and harm. The authors described their findings as contesting harm minimisation notions that young people generalise (safer) alcohol consumption patterns established within controlled drinking settings to later use.

Though McMorris et al. acknowledged that the specific guideline that (they critique) describing supervised contexts to under 18 year olds was revoked in 2009, the applicability of the findings are discussed in relation to the more recent guidelines.

Firstly, the 2009 NHMRC guidelines stipulated that the safest option for young people was to abstain for alcohol. Secondly, the guidelines recommend "that if drinking does occur it should be at a low-risk level and in a safe environment, supervised by adults" (p. 57). Thirdly, the mediating influence of adult presence and small quantity were only made in relation to people between the ages of 15 and 17². In McMorris et al.'s study, frequency of supervised drinking was assessed amongst participants in grade 8 and aged 14 years old. So, McMorris et al.'s research results do not necessarily contradict the *current* NHMRC guidelines as the risks and impacts of supervised drinking may be different amongst older adolescents.

Secondly, the authors acknowledged that their measure on adult supervised alcohol use lacked specificity in terms of which adults were supervising the use. More explicitly, the adult providing the supervision may not have been a 'responsible' adult; especially in view that the sample was 14 at the time of the

² The NHMRC's working definition for 'children' is people under the age of 15, and those who are between 15-17 years of age are referred to as 'young people'. It is stated that "this guideline does not advocate that young people drink or that adults provide them with alcohol, but that if drinking does occur it should be at a low-risk level and in a safe environment, supervised by adults" (NHMRC, 2009, p. 57).

events. McMorris et al.'s results combined with findings described in the previous sections describe a double risk for Australian parents – that parental alcohol provision more likely if there is adult supervision of the consumption, and that adult supervision may implicitly signify positive drinking norms - that underage drinking is condoned – and contribute to later alcohol related problems.

In summary, it appears that when parental rules about alcohol use are more lenient, there is a positive correlation between adolescent alcohol-related problems and the availability of alcohol within the household (van den Eijnden, van de Mheen, Vet, & Vermulst, 2011). However, it seems the more specific context of parentally-supplied alcohol consumption remains an area for exploration. It is usually unknown what the exact quantities of alcohol supplied by parents are, and whether the supplied alcohol contributes to intoxication (Kypri, et al., 2007; Ward & Snow, 2010). For the most part though, it appears parents are more likely to supply alcohol if there is more adult supervision, though the extent of supply may be underestimated by parents with use occurring in situations that may not be as closely monitored as the parent believes. Furthermore, this supervised use may implicitly signify pro-alcohol adult attitudes and potentially have unintended longer term effects on drinking patterns and related harms (Reimuller, Hussong, & Ennett, 2011).

Lastly, it is clear that both peers and parents exert significant influences on adolescents. This relationship is interactive and examination of both factors leads to a fuller understanding of the development trajectory. For example, as many peers are *chosen* as they are like-minded, parents have influence on which friends the child chooses by influencing the child's attitudes and intentions in their early years (Velleman, 2009). Of note is that of the interventions which aim to reduce adolescent risky drinking, the ones based on the family unit have the greatest efficacy. Subsequent to enhancement of family bonding and relationships, effects on child alcohol use are longer term and have effect sizes 2-9 times greater compared to school, peer or individual based approaches. These family-inclusive approaches suggest that the influence of family remains important in mediating adolescent drinking behaviour (Velleman, 2009).

2.6 Context-specific AOD use

The preceding section addressed consumption during what might be considered 'usual' times. Of course, especially with young people, specific times, occasions or events may be associated with much lower or much higher levels of alcohol and other drug consumption. In the following section, AOD use with specific reference to context is appraised.

Alcohol and other drug use, socialising and celebration are familiar combinations. Parker, Aldridge and Measham, found that, in their longitudinal study of young people, 'special occasion' was the most frequently cited reason for alcohol consumption (1998). Demant and Østergaard described how an evening was only characterised by their young participants as a party once most participants got drunk. Prior to intoxication, an evening was understood simply as hanging out with friends (2007). The strong associations between AOD use and socialising in part explain the prevalence of heavy drug use at celebratory events (Ballard, Curd, & Roche, 1998).

There is an abundance of research on young peoples' AOD use, but little of it is focused on a particular event or point in time. Many suggest that the patterns of AOD use at 'special occasions' may differ from typical patterns. Often, drug use is reserved for, or increased within particular settings, and risky use within it does not entail risky use in other, broader, environments (Zinberg, 1984).

There are many expectations for particular events that influence behaviour only on that specific occasion (Lewis & Neighbors, 2004; Neighbors, et al., 2006). Current initiatives that aim to reduce overall drinking or typical drinking patterns may not be perceived as relevant, as the motivations and norms for typical drinking may be different to the motivations and norms for drinking at 'special events' (Neighbors, et al., 2007; O'Grady, Cullum, Tennen, & Armeli, 2011). In one study, illicit drug users intimated that they would 'binge' on special occasions as they felt regular rules of conduct were temporarily suspended and outrageous AOD associated behaviour was more likely to be tolerated by their peers (Duff, et al., 2007). This situation of greater permissiveness due to suspended norms is what is termed 'time out' as is discussed in the following section (MacAndrew & Edgerton,

1969).

AOD-related behaviour is specific to a special occasion in that the setting has its own set of rules and norms about what is acceptable. Individual motivations combine with what is perceived to be the norms of the setting to produce behaviour that has been especially adapted to the context (Kairouz, et al., 2002). A corollary of context-specific AOD use is that a cross-sectional observation is not necessarily indicative of use within a wider timeframe and variety of environments.

2.6.1 Holiday settings

It has been established that AOD use varies depending on context. Here, holidays and pleasure travel are presented as a 'special occasion' setting which is associated with particularly risky behaviour.

The 'holiday effect' is a phenomenon where individuals on holidays tend to engage in risky behaviours not otherwise attempted at home (Bellis, Hale, Bennett, Chaudry, & Kilfoyle, 2000; Clark & Clift, 1994; Hughes, et al., 2009; Maticka-Tyndale, et al., 2003; Milhausen, Perera, & Reece, 2006; Winchester, et al., 1999). It provides the psychological security that "what one does during Mardi Gras does not count as a mark on one's character" (Forsyth, 1992: 395 in (Milhausen, et al., 2006)). Students on Spring Break express similar sentiments: that "what happens in Daytona [a popular Spring Break location], stays in Daytona," and that "nothing that happens there comes home". The students also describe their holiday behaviour as "totally out of character" or behaving in a manner "they never would at home" (Maticka-Tyndale, et al., 1998, p. 262). Apostolopoulos, Sonmez and Yu further describe the holiday context itself as a "... conducive setting where personal and social codes are suspended, behavioural constraints are removed, inhibitions fade, and [where] subsequently travellers take extreme risks". They also note that risky patterns of sexual behaviour and AOD use at celebratory holidays are amplified when the events are youth-based (Apostolopoulos, Sönmez, & Yu, 2002).

The youth-travel literature is particularly extensive in relation to US college students who travel for Spring Break (Apostolopoulos, et al., 2002; Grekin, et al., 2007; Josiam, Hobson, Dietrich, & Smeaton, 1998; Lee, Maggs, & Rankin, 2006;

Maticka-Tyndale & Herold, 1999; Mattila, Apostolopoulos, Sonmez, Yu, & Sasidharan, 2001; Smeaton, Josiam, & Dietrich, 1998; Sonmez, et al., 2006). Similar patterns of 'anti-structure' and the increased acceptability of various party behaviours such as heavier AOD use and casual sex are observed at Russefeiring, a 17 day graduation party in Norway (Sande, 2002) and at Mardi Gras (Milhausen, et al., 2006). The risky acts observed at these events are partially attributed to elements of the holiday context which make the setting more conducive to the aforementioned behaviour. 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. These risk-conducive factors are discussed below when discussing school leavers' celebrations as a rite of passage.

2.6.2 Overview of Leavers/schoolies

In this section the holiday-setting event that is the focus of this thesis, school leavers' celebrations, is briefly described. The celebrations are more exhaustively considered in later sections following the presentation of the events' conceptual underpinnings.

School leavers' celebrations are an event for students who have recently completed their secondary education. In WA, the term '*Leavers*' is used to refer to the event itself, and the students participating in the event are known as 'school leavers' or 'leavers'. Elsewhere in Australia, respectively the terms '*Schoolies*' and 'schoolies' are used. Completing school is celebrated at multiple sites across Australia for a period of approximately one week in late November every year. 'Hotspots' or 'celebration points' are sites with a tradition of holding *Leavers* celebrations and where large numbers of leavers are expected to gather each year (Murphy, et al., 2006).

The school leavers gather to unwind from the stress of their final exams, celebrate the milestone of graduation, socialise with old school friends, make new friends, and to mark their passage toward greater independence and adulthood (Bogaards, Midford, & Farrington, 2000). It has been suggested that the stereotypical goal of *Leavers*, as perceived by students, is to have a responsibility

free, fun-filled time with prominence given to indulging in sex and AOD use. Indeed, it seems these expectations are largely fulfilled, although along with substantial experience of AOD-related negative consequences (Maticka-Tyndale, et al., 2003; Midford, Young, Farrington, & Bogaards, 2004; Salom, 2008; Smith & Rosenthal, 1997). To complicate matters, most leavers are aged 17 years – that is, they are under the age of 18, the minimum legal alcohol purchase age in Australia (Office of Crime Prevention & Smart Events, 2008a, 2008b). Also, school leavers' celebrations are a peer-based event where anecdotally, parental figures are absent.

As school leavers' celebrations are associated with risky AOD use, in the following section, possible explanations for higher use within this context are presented. Firstly, the celebrations are discussed as an Australian rite of passage, a time in which risky behaviour is more acceptable. Secondly, the conceptual framework of Triandis' Theory of Interpersonal Behaviour, is advanced to account for AOD use at *Leavers*.

2.7 Leavers as a rite of passage

Leavers and *Schoolies* can be interpreted as a rite of passage (Ballard, et al., 1998; Midford, et al., 2004; Winchester, et al., 1999). The concept of rite of passage describes the situation where an individual undergoes a ritual which marks a transition in their social status (van Gennep, 1960; Winchester, et al., 1999). The 'classical' rite of passage ritual, as first defined by Arnold van Gennep (1960), marks the transition between childhood and full inclusion within the social group as an adult. The three stages of a rite of passage are that of *separation* from an old status, *transition*, and the *re-incorporation* into society with a new status.

Students enter leavers' celebrations as high school students and re-emerge as young adults, typically with greater responsibility and independence. Post-graduation can be seen as one of the earliest times at which it is socially-acceptable for young people to make a decision as to what they want to do next with their lives: typically to enter the workforce, continue with education, or travel.

Winchester, McGuirk and Everett argued that in preparation for young adulthood, leavers' celebrations are a time for experimentation with the activities

and drugs which will characterise adult leisure time. At the same time, *Leavers* is also a celebration of youth; namely the freedom of not having responsibilities which may curb hedonistic behaviour. Participants are likely to be aware of and take advantage of the fact that they are within a period where they can enjoy adult pleasures and independence without adult responsibilities. The freedom of being away from the familial home for a few days and the anonymity of being 'another leaver' can be expressed through exploration beyond everyday boundaries (Winchester, et al., 1999). Also, Hopkins contends that although primal impulses are controlled for the most part, there is inherent appeal in more dangerous activities, and the net risk of these activities is reduced by performing them within a context of a rite of passage. Hopkins proceeds to describe school leavers celebrations as a "... week of risks and pleasures, and pleasures in risk" (1999, p. 203).

US-based research describes this transitory and more permissive time period more specifically in relation to alcohol use. Crawford and Novak posit that college students perceive themselves to be in a temporary situation when AOD experimentation is more socially acceptable. During college life, some students drink heavily as they believe not only is it acceptable, but that alcohol use is integral to the college experience (Crawford & Novak, 2006). A combination of a sense of entitlement to alcohol, conscious knowledge that there is lower responsibility during the period of adolescence coupled with flexibility and freedom, allows for heavy alcohol use that is perceived to have fewer negative consequences compared to if the same level of drinking occurred later during life (Crawford & Novak, 2006). Similarly, leavers may recognise that their situation is unique and temporarily permissive, compelling the realisation and a certain urgency to utilise the greater freedom while they can.

In this study, it is argued that although the process of graduating high school is generally recognised by Australian society as an achievement toward maturity, participation in *Leavers* is but one of many markers for entry into the next chapter of a young person's life. In contrast, 'classical' accounts of adolescent rites of passage are explicitly recognised by virtually all members of society as an official transition phase into adulthood (Room, 2004). Instead, it is posited that a specific

stage of the rite of passage phenomenon, rather than the entire rite, best describes the cultural experience of *Leavers*.

Van Gennep (1960) acknowledged that the three rite of passage phases are not developed in the same way across populations or all transitional ceremonies. For example, rites of separation are more prominent at funerals; rites of incorporation at marriages and transition rites at initiation. With respect to *Leavers*, the stage of transition is most relevant; and the concepts of liminality and situational disinhibition contained within this stage.

The concept of liminality describes the state of flux whereupon an individual has left their old status or group (as a high school student) but not yet joined another (as a young adult). The concept of liminality is similar to the concept of 'time out' (MacAndrew & Edgerton, 1969), in that they both describe a time and place where usual social norms are temporarily suspended. To further explore leavers' celebrations, the more specific version of liminality, situational disinhibition, is useful. Situational disinhibition refers to the effect of situational experiences and or conditions on an individual's propensity to engage in a particular behaviour (Maticka-Tyndale, et al., 2003). Meaning, situational disinhibition refers to the way in which the context itself of leavers' celebrations (a liminal space) influences students' AOD use.

These concepts of liminality/time-out/situational disinhibition are important in partially accounting for the 'holiday effect' described in previous sections. However, not all holiday-makers are susceptible to the holiday effect, and the 'spillover effect' attempts to account for this individual variation. The spillover effect posits that an individual's prior experience and current intentions are the most relevant factors in determining eventual holiday or celebration behaviour (Maticka-Tyndale, et al., 2003; Smith & Rosenthal, 1997). That is, spillover emphasises personality variables over contextual factors. This spillover effect is related to the notion that individuals with certain past experiences and intentions may self select to attend events with a reputation for an observed holiday effect.

It is important to disentangle to what degree the temporary festive context versus more persistent, individual-based factors are responsible for the holiday

effect. A more precise understanding of the antecedents of risky holiday behaviour is essential if a change in the behaviour is desired (Gillespie, Davey, Sheehan, & Steadson, 1991). In the following section, the two main explanations of the holiday effect, spillover and situational disinhibition, are simultaneously incorporated in the conceptual framework proposed by Triandis.

2.8 Triandis' Theory of Interpersonal Behaviour (TIB)

In the previous section, risky patterns of behaviour observed within the contexts of pleasure-holidays were termed the 'holiday effect'. Although the spillover effect and situational disinhibition can be advanced as being mutually exclusive (the context or the individual completely explaining the observed effects), some theorists posit they can be independent factors in explaining holiday behaviour. One such theorist is Triandis. The Triandis Theory of Interpersonal Behaviour (TIB) proposes that prior experiences, intentions regarding behaviour and the current context combine and interact to determine eventual behaviour (Maticka-Tyndale, et al., 2003; Triandis, 1977, 1980). That is, the TIB embeds the spillover effect and situational disinhibition within the same model. One of the main benefits of the TIB is that the relative influence of intention, situational disinhibition and spillover can be tested within the same mathematical model. This study utilises a theory that is based on Triandis' work.

Triandis' framework is generic in that it was intended to accommodate a range of behaviours so information could be shared between the social sciences (Triandis, 1980). It was originally intended primarily to organise information and as a framework to guide data collection (Triandis, 1977). The TIB has been used to explain a range of health behaviours including exercise, cervical cancer screening and influenza injections (Conner & Norman, 2005). Of greater pertinence to this study, the TIB has been used to conceptualise risk behaviours at celebratory events. For example, to explain risky sexual practices at Spring Break (Apostolopoulos, et al., 2002; Maticka-Tyndale & Herold, 1999; Sonmez, et al., 2006), Mardi Gras (Milhausen, et al., 2006); Schoolies (Maticka-Tyndale, et al., 2003); and in other

situations (Herold, Maticka-Tyndale, & Mewhinney, 1998). AOD use has sometimes been included in these TIB-utilising studies as a situational factor conducive to risky sex. However, no reports specifically examining AOD use as an outcome variable within a celebration context were identified.

2.8.1 An overview of the TIB structure

The TIB attempts to characterise the relationship between antecedents of behaviour. Triandis' model focuses on specific behaviours, which he refers to as acts. Acts are "a socially defined pattern of muscle movements" (1980, p. 201), and are ascribed with a certain meaning derived from the social context and particularly from the perceived causes of the acts. Sequences of acts combine to achieve a goal state of affairs. So, in the case of this study, the act of alcohol consumption may be performed toward a goal such as intoxication. See figure 1 for a model of AOD use at *Leavers*, based on Triandis' Theory of Interpersonal Behaviour.

Triandis proposed that the probability of an act being performed depends on three factors: the behavioural intention toward the act, the presence or absence of conditions which facilitate the performance of the act and the strength of habit for the act (1977).

Combining all the aforementioned TIB components, Triandis proposed two equations that described (i) the most immediate antecedent factors to an act (intent, habit and facilitating conditions), and (ii) influences on behavioural intention (social factors, affect and perceived consequences). In addition to these equations, Triandis described a variety of factors which affect the probability of an act in a more distal manner. Constructs including the wider society, culture and ecology, influence intent, which in turn influences behaviour. However, these distant factors are fully mediated by more immediate influences to behaviour; and their influence is captured these more proximal elements. Thus these distal factors do not increase the explanatory power of the TIB once all immediate factors are accounted for (Limayem, Khalifa, & Chin, 2004). In the following subsection, the two TIB equations are described.

Note that although the elements of behavioural intention are described here,

the testing of this second equation (predicting intent) was beyond the scope of this project. Also, the prediction of intent has been already been considered in many studies as it does not require longitudinal data; unlike the first equation that predicts behaviour (Maticka-Tyndale, et al., 2003).

TIB components

Intentions

The TIB belongs to a class of cognitive models that purport that intent is the primary determinant of novel behaviour (Ajzen, 1991; Ajzen & Fishbein, 2005; Maticka-Tyndale, et al., 2003). Triandis defined behavioural intent as “a cognitive antecedent of an act”, an instruction an individual gives themselves to behave in a certain way to achieve a specific behaviour (1977, p. 5; 1980). In his second equation, Triandis proposed behavioural intentions are comprised of three main elements: (i) social factors, (ii) affect attached to the behaviour and (iii) the perceived consequences of the behaviour (1977).

Social factors are an individual’s internalisation of the subjective culture of the group they most frequently interact with, and contractual arrangements made with other people (pacts or understandings). Subsequently, normative behaviours are produced through the individual’s conceptions of what behaviours are appropriate, desirable and morally correct. The individual’s internalisations include the individual’s perceptions of their cultures’ norms, roles and values (Triandis, 1980, p. 218). Norms are self-instructions to behave in a manner that is perceived as correct and appropriate by other members of a culture. They are operationalised by asking individuals to rate how appropriate a particular behaviour is in various situations. Roles refer to sets of behaviours which are acceptable for someone in a similar position in a group, society or social system. They are similar to norms but more specifically reference a sub-group within a society rather than the wider society. Values are preferred actions or state of affairs between abstract categories with strong affective components. For example, the positive affect felt when one category, humans, dominate another abstract term, nature, are reflected in the value of ‘human mastery over nature’.

The second element that influences intent is affect. Affect attached to the behaviour includes the emotional response to the thought of engaging in the act (e.g. euphoria or guilt following AOD use).

The third antecedent to intent is perceived consequence. Perceived consequences, also known as evaluative beliefs are judgements about the possible outcomes of the act (e.g. becoming more sociable or getting in trouble with the authorities following AOD use). This perception includes both the expectation of reinforcement as well as the values of the perceived consequences (Triandis, 1980).

Later authors utilising Triandis' theory have used the term 'attitude' to refer to the cognitive and affective attitudes which respectively encapsulate the judgements about the possible consequences of the act and affect toward the act (Apostolopoulos, et al., 2002; Maticka-Tyndale, et al., 1998; Milhausen, et al., 2006). That is, the now commonly used term 'attitude' encapsulates two (affect and perceived consequences) of the three main original components of intention.

Intention as a predictor of behaviour has been included in a variety of social psychology-based theories. However, the TIB is unique as it explicitly discusses prior experience and situational conditions as factors which may augment or possibly even replace intention as a main predictor of behaviour (Maticka-Tyndale, et al., 1998).

Habit/prior experience

Habits are "situation-behaviour sequences that are or have become automatic, so that they occur without self-instruction" (Triandis, 1980, p. 204). They include not only patterns of acts, but also patterns of thoughts or emotions that are under stimulus control (as opposed to intentional control). Habits are usually assessed using a self-report statement on the frequency at which an individual engages in the relevant behaviour (such as the usual frequency of risky drinking). Thus past behavioural frequency assessment serves as a proxy for the strength of established behaviours.

The TIB also describes ways in which habit may interact with intention. Triandis states the influence of prior experience is strongest when the current

situation closely resembles that where prior experiences have occurred. Conversely, then the situation is more novel, intent is predicted to serve as a superior predictor for behavioural variability. So repeated behaviours are generally determined primarily by habit and novel behaviours are primarily determined by intention (Conner, Warren, Close, & Sparks, 1999; Triandis, 1977). Of note is that although the *Leavers* situation is novel, the behaviours of AOD use, especially risky drinking, are likely to be frequently repeated acts that have formed habits.

Conner, Warren, Close and Sparks examined the influence of both intentions and prior experience (but not situational factors) on the last 2 week's of alcohol use in 178 university students (1999). They found that prior experience uniquely accounted for variance in drinking behaviour over and above intention. This suggests that for the behaviour of alcohol use at *Leavers*, at least two of the TIB factors may uniquely contribute to behavioural variance.

Facilitating conditions

Facilitating conditions are external elements of the environment which impact on an individual's ability to fulfil their intent. Behaviours which are easy to perform because they require minimal energy expenditure have high facilitating conditions. Conversely, behaviours which are difficult to perform because they require substantial effort have low facilitating conditions (Triandis, 1980).

Within the context of celebration-based literature, interpretations of the TIB's facilitating conditions have also accommodated the concept of situational disinhibition. Facilitating conditions and situational disinhibition have been combined to represent the 'disinhibiting atmosphere' of the celebration or holiday setting (Apostolopoulos, et al., 2002). An important consequence of adding situational disinhibition as a facilitating condition is the inclusion of internal assessments. For example, studies using the TIB have included internal assessments of external conditions (such as feeling pressured to drink) within their operationalisations of the facilitating conditions factor (e.g. Apostolopoulos, et al., 2002; Boyd & Wandersman, 1991; Maticka-Tyndale, et al., 1998; Milhausen, et al., 2006). Thus, understood more generally, facilitating conditions can be internal or

external situational experiences or conditions that either facilitate or impede the performance of an act. In this study, operationalised facilitating conditions to AOD use are referred to as 'AOD-conducive conditions'. They include the perception that there were plenty of opportunities to drink, that everyone around the individual was drinking and feeling pressured to drink. Barriers include the perception of high police presence.

Triandis suggested that, generally, intentions and prior experience are the main determinants for behaviour with situational factors serving a mediating role. This explicit incorporation of situational factors has made the TIB particularly useful in understanding behaviours that may be influenced by a social and/or physical environment (Maticka-Tyndale, et al., 1998; Milhausen, et al., 2006). Indeed, *Leavers* appears to be a highly social event that exists in a unique environment without home restrictions such as parents and curfews. Examples of the role a situation can play include when an individual low on AOD-use experience and intent engages in unplanned use due to being surrounded by friends who are all using. In a second instance, even if an individual has high AOD-use intentions and prior experience, if the situation is sufficiently impeding, such as being accommodated with a parent during *Leavers*, the behaviour may not eventuate. Also, it is acknowledged that the interpretation of situational factors may be affected by intent and prior experience. For example, those who intend to engage in risky AOD use at *Leavers* may be more likely to interpret situational factors as more conducive to AOD use compared to individuals who do not hold such intentions.

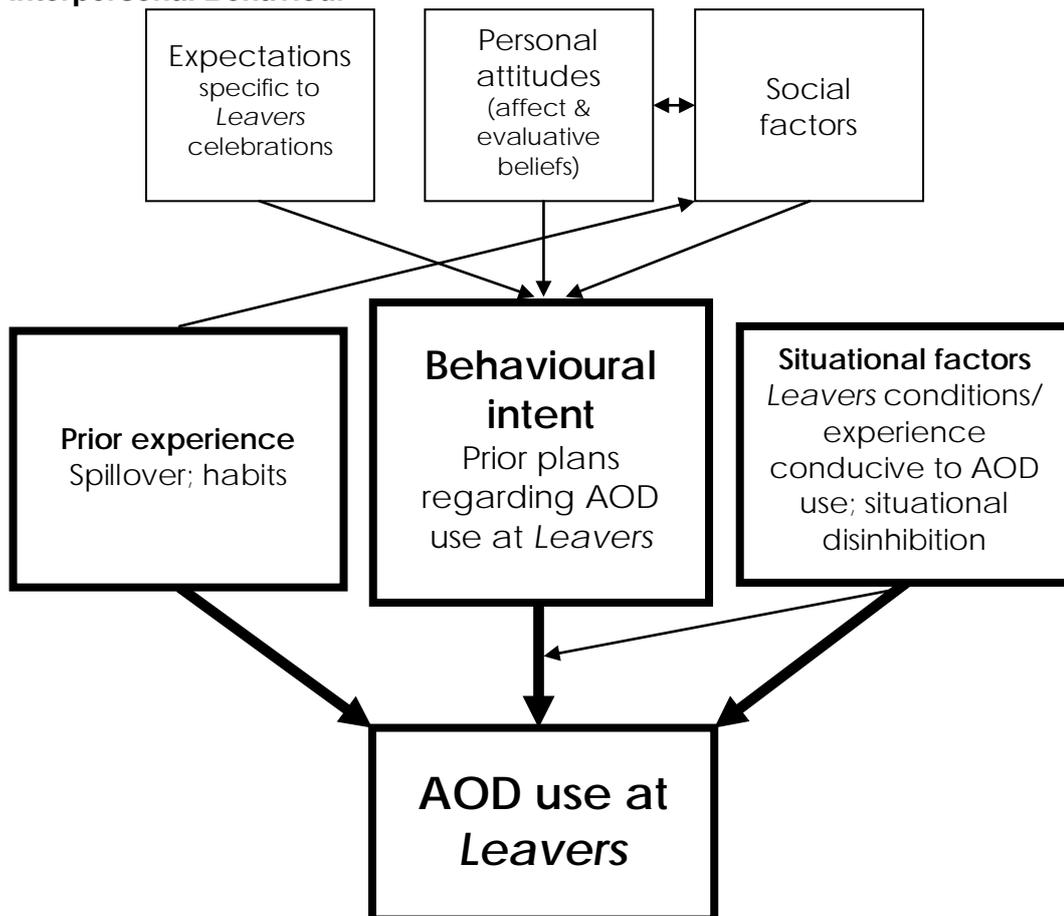
Relevant Arousal

Of note is that Triandis originally included 'relevant arousal' as a fourth influence on behaviour. Arousal refers to the physiological arousal that is relevant to the behaviour; with the lowest levels occurring when the individual is asleep, and with higher arousal levels facilitating behaviour. This arousal is increased due to an individual's high drive or when the behaviour is relevant to the individual's values (Triandis, 1980).

Conceptions of physiological arousal are not explicitly utilised in most applications of the TIB (Conner & Norman, 2005). In this study, the influence of

arousal was considered an internal facilitating condition. That is, arousal was considered an internal experience which either facilitated or impeded behaviour. Both arousal and facilitating conditions occupy a similar position of within the TIB and interact with all the other TIB elements using similar pathways (Triandis, 1980). Both factors are influenced by the social situation and biological factors and in turn, influence behaviour.

Figure 1
Structural model of AOD use at Leavers, based on Triandis' Theory of Interpersonal Behaviour



2.8.2 Testing the utility of the TIB

The TIB has notable utility in explaining substantial variability in behaviour as well as in differentiating possible influences on behaviour. Firstly, Triandis (1980) described a number of studies which utilised the TIB with accurate predictions of up to 81% of cases. More recent investigations relevant to this current study include predictions of casual sex on holidays using statistical models guided by variables from the TIB. Apostolopoulos, Sönmez and Yu surveyed 534 US college students

and were able to explain 75% of the variance in their engagement in casual sex at Spring Break (2002). Using an Australian sample, Maticka-Tyndale, Herold and Oppermann (2003) attempted to classify reports of casual sex at *Schoolies* using a TIB based logistic regression model. Of the 577 female school leavers, up to 87% were correctly classified and up to 81% of the 462 male cases were correctly classified.

Of note, is that both the Spring Break and *Schoolies* studies included variables which the authors described as not included in the original description of the TIB. Triandis (1977) recognised that his model may require modification to explain greater variability in a studied behaviour. He explicitly endorsed the insertion of influences relevant to the situation into his model to increase its explanatory value. In this respect, the structure of the TIB is subject to change with the potential for each researcher to redefine and re-operationalise his variables within the context of their field. Though, recent revisions to the TIB such as those used in the aforementioned studies have remained modest.

Additional influences include for example, the proportion of friends who engaged in the target behaviour have been included in the 'social factor' component of the TIB (Apostolopoulos, et al., 2002; Maticka-Tyndale, et al., 2003).

Secondly, expectations specific to the situation have been included as an influence on intentions. These situational expectations relate to anticipated conducive or restrictive situational conditions. They include for example, whether participants anticipate they will be pressured to drink alcohol at the upcoming celebrations. The inclusion of expectations relating to the conditions allow for an interactive relationship between facilitating conditions and intention. If this behaviour-conducive expectation is endorsed, participants are more likely to express intent that the behaviour will occur (Apostolopoulos, et al., 2002; Maticka-Tyndale, et al., 1998). Similarly, greater intention may also influence ratings of expectations.

Lastly, what have been described by Maticka-Tyndale et al. as more recent additions (such as pacts) have been in fact been previously described (albeit in dismissive detail) in Triandis' original conceptions of the TIB (Maticka-Tyndale, et al., 1998; Triandis, 1980). Similarly, in this study, the proportion of peers engaging in

the target behaviour, pacts and expectations of facilitating conditions were included in the TIB.

The second important feature of the TIB is the explanatory value resulting from the inclusion of situational factors. For example, Maticka-Tyndale, Herold and Mewhinney (1998) found evidence for situational disinhibition but not prior experience in significantly predicting casual sex amongst students who had travelled to Daytona Beach for Spring Break. However, the significance of these Spring Break situational factors may relate to the idea that usually, by definition, at least two people are involved in a social act such as casual sex. To facilitate casual sex, certain conditions within the external social environment are usually necessary (such as 'someone wanting to have sex with the respondent', captured by Maticka-Tynadale et al. as a part of the operationalisation of situational factors). Thus the significance of the assessed situational factors may not be surprising, and possibly overstated, given these conditions were almost essential to the endorsement of the dependent variable. In contrast, a behaviour such as alcohol use, though arguably, mostly a social affair at large youth events, is technically able to be performed alone. Thus the TIB's inclusion of situational factors in explaining AOD use is highly useful as an explanatory variable as the significant influence of the social environment is not guaranteed.

In this section, the TIB's utility due to its range of represented constructs and subsequent explanatory value has been illustrated. The TIB is often further examined alongside similar cognitive models. In the following section, these related theories are contrasted to the TIB and the advantages and disadvantages of the TIB are discussed in greater detail in relation to these theories.

Cognitive models related to the TIB

Triandis' TIB is situated within the class of cognitive models that include the more widely used Theory of Reasoned Action and Theory of Planned Behaviour (TPB) (Cameron, 2009; Conner & Norman, 2005). The Theory of Reasoned Action (TRA) was developed in 1975 by Ajzen and Fishbein and proposed that intention was the only immediate precursor to volitional behaviour. The TRA was later refined by

Ajzen in 1991 as the Theory of Planned Behaviour (TPB). The TPB acknowledged that behaviours were also influenced by factors which involved incomplete volitional control and added the factor of perceived behavioural control as an immediate precursor to behaviour (Ajzen, 1991).

The models of Triandis and Ajzen all posit that intent is the greatest predictor for behaviour (Ajzen & Fishbein, 2005; Maticka-Tyndale, et al., 2003; Milhausen, et al., 2006). Indeed, intent does appear to be a reliable indicator of behaviour with a mean correlation of .47 between behavioural intent and behaviour in a meta-analysis of 48 studies (Armitage & Conner, 2001). The TIB and TPB operationalise 'intent' similarly (Conner & Norman, 2005), and these models are compared in this section to describe some of the advantages and disadvantages of the TIB vis a vis its closest contender.

The TIB is more inclusive than the TPB and TRA. The TIB includes all aspects of the TRA and TPB models and further specifies a role for habit, facilitating conditions and affect (Boyd & Wandersman, 1991; Conner & Norman, 2005; Limayem, et al., 2004). An implication of including these factors is that the performance of an act is construed as a balance between being deliberate and unconscious/automatic; and being internally or externally/socially compelled (Egmond & Bruel, 2007). The inclusion of these less conscious and externally compelled factors contrasts the TIB to the more rational choice theories of the TRA and TPB. Although it may appear the TRA and TPB are less comprehensive models than the TIB, the goals of the theories differ. Namely, Triandis was interested in accounting for the greatest variance in total, with more variance potentially explained if more than a single explanatory influence was focused on (as in the TRA and TPB models). In contrast, the TRA and TPB focused on explaining the greatest amount of variance using the fewest variables (Robinson, 2010). The roles of habit and facilitating conditions are considered below as factors relevant to this study to support the selection of the TIB as this study's conceptual framework.

Habit

The inclusion of habit has been credited as one of the main contributors to the TIB's

explanation of variance. For example, Boyd and Wandersman found that much (but not all) of the increase in explanatory power of the TIB over the TRA (53% vs. 27%) was due to the inclusion of past behaviour (Boyd & Wandersman, 1991). They also noted that despite habit's substantial explanatory power, as it was something that by definition occurred in the past, was of limited interest to health promotion developers.

Of note, is that the inclusion of less conscious factors such as habit and facilitating conditions are of particularly useful in relation to the current study, when examining behaviours that are affected by AOD use. For example, prior intentions may be hampered by the state of intoxication whereupon other factors such as habit and situational conditions may be of greater influence or salience.

Facilitating conditions

One of the main advantages of the TIB is the inclusion of the role of situational conditions. However, Ajzen also acknowledged that influences other than intention affect ability to execute an action, and the TIB factor of facilitating conditions is partially captured by TPB's concept of perceived behavioural control. Ajzen posited that "to the extent that perceived control is realistic, it can be used to predict the probability of a successful behavioral attempt" (1991, p. 185). Both the TIB and the TPB's concepts attempt to capture the degree to which a behaviour is under the control of an individual (Maticka-Tyndale, et al., 1998). However, perceived behavioural control may be unrealistic under circumstances such as changes in available resources or when the individual has relatively little information about the situation (Ajzen, 1991). In comparison, the TIB's facilitating conditions allow for the influence of unforeseen external conditions on the performance on a behaviour (which perceived control does not accommodate).

Of note is that in the TPB, behavioural control is a determinant of both intention and behaviour, whereas in the TIB, facilitating conditions does not interact with intention (Limayem, et al., 2004). However, more recent versions of the TIB adapted to the celebration context have modelled situational experiences/conditions as having an interactive relationship with intentions and prior experience (Maticka-

Tyndale, et al., 2003).

Lastly, including and not including facilitating conditions is potentially double-edged for both models. The absence of context-specific factors means that the TPB's predictions are possibly applicable to a greater variety of situations, though it may capture less variance within a particular situation. In comparison, the predictions made by the TIB capture a more holistic view of behavioural antecedents to a specific context (such as a holiday setting), but may be of less utility if the aim was to explain 'usual' behaviour.

Experimental comparisons of the TRA/TPB and the TIB

Triandis (1980) noted that although similar terms, such as 'social factors', are used in both the TIB and TRA, the elements which comprised the factors are different. He noted that any comparisons between the models using the identical operationalisations of each factor (and using the same set of data) would be inappropriate due to the difference in definition of the factors. However, he noted that in one study, where the operationalised variables were defined appropriately in relation to each model, the TIB appeared to be superior to the TRA. More recently, other empirical studies have also found support for the TIB's extra variables providing greater predictive power, compared to the TPB, in predicting sexual practices (Boyd & Wandersman, 1991; Caron, Godin, Otis, & Lambert, 2004), exercise (Valois, Desharnais, & Godin, 1988), and student car use (Bamberg & Schmidt, 2003).

While the TIB appears to have substantial explanatory value, there appears to have been few TIB intervention based studies (Conner & Norman, 2005). Still, a relatively recent study using the TIB (albeit in combination with the TPB) in relation to safer sexual behaviour yielded promising results (Caron, et al., 2004). Caron and colleagues found that senior high school students who were involved in a TIB (and TPB) based intervention were more likely to use a condom consistently with their regular or casual sex partners compared to control participants. Of note, is that the psychosocial variables specific to the TIB (i.e. not in the TPB), such as perceived normative beliefs and role beliefs, and anticipated regret (similar to 'affect'

component of the TIB) appeared to be significantly affected by the intervention programme. Unfortunately, the comparison of the TIB and TPB was not specifically addressed in the study. The constructs comprising the respective theories were not combined into mathematical models. So whether the aforementioned additional significant constructs increased explanatory value substantially, were subsumed by other variables, or only a small increase in explanatory value is unknown.

In summary, compared to the TRA and the TPB, the TIB appears to hold greater explanatory value. However, the increases in explained variation may not always be considered economical considering a greater number of variables also require inclusion within the model. Parsimony aside, it is of note that especially if the target behaviour is of sufficient consequence, accounting for the greatest amount of variance remains important. In the next section of this chapter, school leavers' events across Australia is examined in greater detail, and it is established that understanding as many predictor variables as possible to potentially hazardous AOD use and associated consequences at these celebrations are indeed essential.

2.9 Schoolies across Australia

In the previous sections, some of the influences on school leavers' celebrations and other holiday behaviour were explored. The events have been considered as a cultural phenomenon in relation to the concepts of rite of passage. Triandis' Theory of Interpersonal Behaviour (TIB) has been presented in preparation for the statistical modelling of event-related AOD behaviour. In the following sections publications on school leavers' events are presented and the TIB is related to the literature where applicable.

Compared to the large amount of press coverage *Schoolies* and *Leavers* attracts each year, there has been relatively little formal research into the phenomenon. Most peer-reviewed articles have been focused on Queensland where the celebrations are largest, and grey literature was utilised in place of more widely published reports. The earliest *Schoolies* research located was performed in the early 1990s (Gillespie, et al., 1991), and the earliest *Leavers* specific publication was released in 2000 (Bogaards, et al., 2000). In this section, celebrations held in the states

of Queensland, South Australia and Western Australia are discussed. At the time of writing no publically available reports were identified for other Australian jurisdictions.

Queensland

The state of Queensland (QLD) is the best known location within Australia for school leavers' celebrations, which are reputed to have begun anywhere from the 1960s to the mid 1970s. The gatherings were termed '*Schoolies*' by the media and holiday/accommodation brokers in the early 1980s and grew in prominence in the 1990s (Curd, 2004; Scott & Smith, 2005). The main celebration sites in QLD are the Gold Coast and Sunshine coast, with smaller gatherings also occurring in Stradbroke Island, Hervey Bay, Whitsunday and Cairns (Curd, 2004; Wallace, 2001). A brief history the first *Schoolies* interventions on the Gold and Sunshine Coast are described in the following subsections.

The Gold Coast is currently the '*Schoolies Mecca*' of Australia with an estimated 45,000 people participating in the 2009 celebrations (Grove, 2010; Wallace, 2001). With the event size growing to about 15,000 in the mid 1990s, in 1996 the Gold Coast City Council found it necessary to form a Schoolies Week Task Force (Smith & Rosenthal, 1997; Wallace, 2001). The interagency Task Force addressed the mounting concerns over public drunkenness using a three phase harm minimisation approach.

Wallace described how the first phase of supply reduction, primarily through detecting underage youth in licensed premises, had limited success. Demand reduction was attempted through providing diversionary activities such as sporting events and AOD-free '*discos*' for the schoolies (Smith & Rosenthal, 1997). Also, the release of arrest and health statistics to the media was restricted in an effort to limit the proliferation of negative stereotypes which could influence expectations of the celebrations. Thirdly, harm reduction was addressed, including through a more protective as opposed to restrictive or punishing style of policing and through the promotion of the central message "make schoolies a week to remember, not one to forget". Teachers were encouraged to promote positive,

specific action-oriented messages specific to *Schoolies*, instead of exclusionary messages such as 'just say no' which presented peers as foes to defend against, and which adolescents are not generally receptive to (McBride, Mdford, & Farrington, 2000; Wallace, 2001).

During the 1990s, in an attempt to provide a safer alternative to the Gold Coast celebrations, the Sunshine Coast 'Schoolies Festival' was developed (Madden, 2005; Roche, et al., 2008). This Festival attracts about 5,000 young people each year and includes a multitude of diversionary activities aimed at reducing alcohol consumption (Ballard, et al., 1998). While the festival was hailed as a successful by some, others have critiqued the intervention as aiming to "transform *Schoolies* Week into a bland, more feminine form of celebration" (Wallace, 2001, p. 107).

Queensland Schoolies research

Since the establishment of the Gold Coast Task Force and the Sunshine Coast *Schoolies* Festival, a small number of Queensland-based primary research projects have documented the celebrations. In the section below, an early study which intended to inform a pre-*Schoolies* school based intervention, an annual survey run by Drug Arm and three single year fieldwork academic studies are described.

Sunshine Coast research

The earliest Australian research which had a *Schoolies* component was performed by Gillespie et al. in 1989 (Gillespie & Davey, 1990; Gillespie, et al., 1991; Gillespie, Davey, & Steadson, 1990). This research informed the harm reduction initiatives which culminated in the launching of Sunshine Coast *Schoolies* in 1993 (Ballard, et al., 1998).

Gillespie et al.'s research focused on end of year events associated with risky drinking such as post-formal parties and *Schoolies*. Of their 1,355 16-18 year old sample, 51% reported they planned on 'binge drinking' at *Schoolies* Week. For this study, 'binge drinking' was qualitatively defined as a planned activity where there is intention to drink in excess of 'normal' standards and stimulated by a social or celebratory event. Whether this definition was provided for survey respondents was unclear. Interestingly, drinkers intended to spend more time at *Schoolies* with 54% of

non-drinkers did not plan to attend at all.

Of the 319 participants that were followed up post-*Schoolies*, 21% reported not drinking during the celebrations, 21% reported getting drunk 1-2 times, 18% 3-5 times and 4% 6-7 times (Gillespie, et al., 1990). To achieve drunkenness, 82% of the drinkers consumed eight or more drinks. Importantly, the consequences of this 'binge' drinking at *Schoolies* were perceived to be both positive and negative. Consequences included having more fun (77%); relaxation (70%); being able to mix more easily (63%); as well as hangovers (51%); 'not remember' (assumed to mean blackouts; 33%); vomiting (30%); injury (13%); property damage (13%); fights (10%); passing out (10%); police contact (9%), losing respect (7%) and being involved in a car crash (2%). Also, 61% reported they behaved stupidly as a result of drinking; a consequence that could be interpreted as positive or negative depending on the individual. Furthermore, the following were identified as the 'best' liked aspects of *Schoolies*: socialising (28%), freedom (22%), relaxing (20%) and parties/fun (15%). They least liked drunkenness (26%), conflict (22%), goodbyes (20%) and financial problems (9%). The authors surmised that the implication of these and related findings was that socialising was considered more enjoyable than risky drinking. However, the degree to which the follow-up group (<25% of the original sample) were representative in risky behaviour engagement etc. was unknown. This research by Gillespie was used to inform a number of initiatives, such as pre-*Schoolies* school interventions, that are still currently used today as a part of the 'management by event' model. The 'management by event' model is later described in relation to the WA event.

Gold Coast research

Since 1999, Drug Arm and the University of Queensland have run a street intercept survey to assess AOD use and risk behaviours at *Schoolies*. In 2005 the intercept survey was supplemented by a pre-event survey administered within schools. The questionnaires attract substantial sample sizes of about 2,000 respondents every year and provide trend data allowing analysis of change over time (Salom, 2008). Demographically, young people are classed as 'schoolies' (those who graduate from year 12 in the survey year) and 'non-schoolies' (young people currently at

university, who work, are still at school etc.). Data are available for the 1999-2003 period and for the years 2008/2009 (DRUG ARM Australasia, 2011; Salom, Watts, Kinner, & Young, 2005).

In the only published article using the Drug Arm data, it was reported that the rates of AOD use and related risk behaviours at *Schoolies* was relatively stable between 1999-2003, and were comparable to the rates obtained by Smith and Rosenthal in 1995 (Salom, et al., 2005; Smith & Rosenthal, 1997). In 2009, unpublished rates of use during *Schoolies* appeared to be roughly similar to those described in earlier years (DRUG ARM Australasia, 2011). However, note that in 2009, 'non-schoolies', were found to be more likely to use illicit drugs and experience most AOD-related negative consequences than schoolies. As it was ambiguous whether earlier statistics were reporting on schoolies, or all respondents, it is difficult to compare rates of change. Amongst 2009 schoolies, 90.6% used alcohol, 21.2% cannabis, 9.0% ecstasy, 4.5% cocaine, 3.1% amphetamine, 3.3% LSD, 2.1% heroin and 1.9% benzodiazepines (n~1,400). These GC rates and those from this study are compared in the discussion chapter.

There are three main single year academic/primary research studies that have focused on risk behaviours during Gold Coast Schoolies (Maticka-Tyndale, et al., 2003; Smith & Rosenthal, 1997; Zinkiewicz, Davey, & Curd, 1999). Winchester, McGuirk and Everett's qualitative study (1999) was previously discussed in the rite of passage section of this chapter.

Within the Gold Coast, one of the most popular tourist accommodation areas is Surfers Paradise (Gold Coast Tourist Information Centre, 2011). In 1995 Smith and Rosenthal administered a survey to 1,796 young people who were attending Surfers Paradise *Schoolies* celebrations (1997). Their study assessed sex-related risk behaviours with respect to three reference points: behaviour in the past six months, expectations of, and actual behaviour at *Schoolies*. AOD use was assessed, though secondary in focus to sex-related behaviours.

The majority of males (75%) and females (60%) reported getting drunk most or every day or night during *Schoolies*, a proportion slightly smaller than what was expected (82% and 68% respectively). In a similar pattern, while 47% of males and

34% of females reported being stoned at least some days or nights, the expectation was 51% for males and 41% for females. Note however, the term 'stoned' was left undefined, so for some participants, it may have referred to any illicit drug use whereas for other participants, it may refer only to significant intoxication resulting from a larger quantity of illicit drug use. Of the 39% of respondents that had sex, 61% had casual sex. That is, 34% of all males and 15% of females had casual sex at *Schoolies*. Of those who had casual sex, 36% 'did not always' use condoms.

In 1996, one year after Smith and Rosenthal's study, Zinkiewicz, Davey and Curd compared AOD use and interpersonal conflict in three Queensland regions: the Gold Coast, Sunshine Coast and Wide Bay regions (1999). Recent graduates reported whether they engaged in 13 risk behaviours in the previous 24 hours at *Schoolies* (N=658). The majority (65%) of respondents drank alcohol and a fifth of self-reported non-drinkers reported alcohol use, suggesting *Schoolies* was a context where non-usual behaviours were engaged in. The prevalence of eleven of the thirteen risk behaviours followed the pattern of being highest at the Gold Coast, followed by the Sunshine Coast then the Wide Bay region. For example, in the aforementioned regional order, reports of being drunk were: 81%, 54% and 25%; use of marijuana: 39%, 22% and 11%; ecstasy use: 11%, 4% and 2%; and been hurt/injured: 24%, 6% and 6%. The authors suggested that some of these regional differences may have been due to whether the young people were tourists or accommodated in their own homes during *Schoolies*. That is, those celebrating in the Sunshine Coast and Wide Bay region were significantly more likely to have stayed in their own homes and thus were more likely to be subjected to greater parental controls (restricting AOD use/interpersonal conflict). They continued that "the original [*Schoolies* destination] is worst", and it was likely the reputation of the Gold Coast attracted young people who expected, and were prepared for various high risk behaviours (1999:284). When asked about whether they drank alcohol (usually, as opposed to in the past 24 hours), in comparison to the state average, those from the Gold Coast were more likely to class themselves as a drinker (82%), and those from the Wide Bay region were less likely (25%). This suggests that self-selection was occurring, with usual patterns of use spilling over into use at *Schoolies*, which

was also concluded in Smith and Rosenthal's study (1997). That is, the 'success' of the Sunshine Coast as a 'safer' celebration site may have been in part attributable to self-selection by students as opposed to, or in addition to the provision of extensive diversionary activities.

Last in the series of Gold Coast studies is Maticka-Tyndale, Herold and Oppermann's statistical modelling of casual sex (2003). In 1998 they assessed the relative impact of prior experience, intentions and situational disinhibition on whether casual sex was engaged in at *Schoolies* (N=1,749). The study tested an expanded version of Triandis' Theory of Interpersonal Behaviour which is also used as the theoretical framework for this thesis. Again, AOD use was not the main focus of the study but the number of times respondents had been drunk since arriving at *Schoolies* was published. On average, males reported being drunk 3.84 times and females 3.5 times during the celebrations (3day/4night survey inclusion minimum, with half having been at Surfers for 5-6 days).

Of the 35% of males and 24% of females that reported coital sex during the celebrations, 53% of the males and 37% of the females reported being drunk during the last encounter. Two thirds of coital activity for males and half for females was accounted for by encounters with casual partners (i.e. 11% of all females and 25% of males engaged in casual sex). Logistic regressions with separate analyses for each gender were used to compare those who reported casual sex versus those who did not report having any sex (casual or with a regular partner). For women, it appeared that intention to engage in casual sex at *Schoolies*, followed by having a large proportion of friends who engaged in casual sex at the event ('role models'), and reporting frequent exposure to sex-conducive conditions predicted casual sex. Having a pact with friends *not* to have casual sex at *Schoolies* was associated with a lower likelihood of reporting casual sex. For men, having role models and exposure to conducive conditions predicted casual sex. Unlike in the female model, having casual sex experience also predicted casual sex. The authors concluded that women were more likely to hold their plans (significant influence of intentions and pacts), whereas men were more affected by past experiences. Both men and women were influenced by peer behaviour and pro-casual sex conditions they experienced at

Schoolies week, factors not emphasised greatly by earlier studies (Smith & Rosenthal, 1997; Zinkiewicz, et al., 1999). Of note is that Maticka-Tyndale et al. used a cross-sectional design where past intentions and pacts (meant to be to have been established prior to arrival at the celebrations) were assessed in the same survey as event behaviour. Potentially, reports past intentions/behaviours may have been influenced by participants' behaviour at the celebrations.

In the following subsection the findings from the four most recent (post 1995) Queensland studies are compared and contrasted. Generally, the studies presented uniformly high alcohol use and varied, but still high, rates of illicit drug use. Also, in line with non-*Schoolies* ('usual') patterns, males reported greater AOD use and engagement in risk behaviours (Maticka-Tyndale, et al., 2003; Salom, et al., 2005; Smith & Rosenthal, 1997; White & Hayman, 2009; Zinkiewicz, et al., 1999). However, for at least four reasons the behaviours assessed are not directly comparable. Firstly, similar concepts are referred to in different ways. For example, illicit drug use was assessed by asking whether or not cannabis was used (Maticka-Tyndale, et al., 2003; Salom, et al., 2005; Zinkiewicz, et al., 1999), or by asking about whether or not they were stoned (Smith & Rosenthal, 1997).

Secondly, the time periods over which behaviours were assessed are dissimilar. Three of the studies assessed the prevalence of the relevant behaviour 'since/while at *Schoolies* week'; with this period being inconsistent across studies and within studies. In contrast, Zinkiewicz et al. use the reference period of the last 24 hours. Their estimations would assumedly, be lower than the other studies which covered a greater number of days.

Thirdly, respondent hometown is important as travellers tend to have a greater propensity for risk, with protective effects found for those who are accommodated closer to home (Lee, et al., 2006). Each study's sample was comprised of different ratios of usual places of residences. For example, the majority of respondents from Smith and Rosenthal's study (67%) and Maticka-Tyndale et al.'s study (64%) were not residents of Queensland. In comparison, almost all (99%) of Zinkiewicz et al.'s sample were Queensland residents.

Lastly, there was considerable variation in respondent ages across studies.

More than half (53%) of Smith and Rosenthal's sample were aged 18 or 19, whereas 21% of Zinkiewicz et al.'s sample and 29% of the 2009 Drug Arm sample were 18. The differing age proportions have implications for legal access to alcohol and the finding that illicit drug use tends to increase with age (White & Hayman, 2009).

South Australia

In South Australia, Hutton et al. used the 2009 Victor Harbour celebrations as a case example to examine a conceptual framework designed to describe and predict crowd behaviours at mass-gatherings (2010). Mass gatherings are events that are characterised by large crowds of spectators and participants. Some argue a mass gathering is defined by the attendance of more than 1,000 people, others argue for criteria of more than 25,000. Although generally attended by healthy individuals, these events generate higher incidence of injury and illness than would be expected from general population statistics (Arbon, 2007).

Patient presentation rates (PPR) are the number of patients presenting per 1,000 spectators to care services such as first aid posts, medical centres and mobile first aid teams (Arbon, Bridgewater, & Smith, 2001). Arbon, Bridgewater and Smith analysed 201 events, each attended by at least 25,000 people, to calculate the average Australian presentation rates. The highest PPR was 26.85/1,000 with the average of 0.992/1,000. Later, they generated a conceptual framework to describe various mass gathering factors which influence the type and frequency of injuries and illnesses experienced by patrons (Arbon, 2004).

In South Australia, *Schoolies* is centred on Victor Harbour and is coordinated by Encounter Youth, a faith based organisation. Hutton et al. calculated the average patient presentation rate to be 20.8/1,000 per day (using a population base of 5,475), much higher than the average for other Australian mass-gatherings. The authors acknowledged the *Schoolies* rates were high, with the qualification that the majority (68%) of the presentations were minor in severity. As most participants were living away from home, on-site medical services were likely used to resolve minor injuries that would likely be treated at home after other types of events. To further Hutton et al.'s explanation, it is pertinent to note that the national average was calculated

using the events of a larger scale and PPR tends to be higher at smaller events (Arbon, et al., 2001). Also, 24% of the Victor Harbour presentations were AOD related and prior research suggests that events attracting young people produce higher AOD related problems, and the number of medical presentations at mass gatherings is doubled when alcohol is on sale or readily available (Arbon, 2007; Arbon, et al., 2001; Milsten, Maguire, Bissell, & Seaman, 2002).

In addition to analysing patient presentation data, Hutton et al. engaged in ethnographic observation. Similar to the PPR, these observations were restricted to the areas within and around the entertainment area (and not around the accommodation areas). The authors observed that the majority of the alcohol related presentations appeared to be due to 'large consumptions' of alcohol prior to entering the entertainment zone. They also noted that despite the popular cultural perception that the majority of schoolies engage in high risk drinking, a large number of schoolies were in the entertainment zone to dance and celebrate with their friends, and were not affected by alcohol. However, as the researchers did not engage with the schoolies, it is possible the young people may have been affected by alcohol without the researchers realising it. These South Australian findings are further explored in relation to this study's results in the discussion chapter.

2.10 Leavers in WA

Traditionally, the two main *Leavers* celebration points in WA are Rottnest Island and the South West region of WA, centred on the town of Dunsborough (Office of Crime Prevention & Smart Events, 2008a, 2008b). The first documented celebrations were in 1993 when "a number of leavers" resided in a major caravan park in Dunsborough, located 250km south of Perth (Murphy, et al., 2006, :6). In 1998, the creation of a park in the Dunsborough CBD, Lions Park, provided a convenient congregation point for leavers during the celebrations. Since then, the number of young people visiting the South West region for *Leavers* has risen to around 5,500 (Cox, 2010). Prior to the rising popularity of the South West region's *Leavers*, Rottnest Island (RI), located 20km off the west coast of Perth, had an established reputation as a popular *Leavers* celebration point (Office of Crime Prevention &

Smart Events, 2007). In 1999-2001, RI was the most popular *Leavers* destination in WA with approximately 2,000 leavers per year compared to 800 in the Dunsborough and 900 in the Busselton area. Dunsborough gradually became the largest *Leavers* celebration point around the early 2000s, and the size of RI *Leavers* appeared to peak around the mid 2000s with 2,500 young people attending RI *Leavers* in 2006 (Office of Crime Prevention & Smart Events, 2007). Currently, approximately 1,400 young people attend the RI celebrations.

These large congregations of young people are not without incident. However, AOD-related antisocial acts are substantially less prevalent compared to AOD-related health harms at *Leavers*. Support services and the WA police anecdotally report that antisocial acts are mainly committed by non-leavers, “toolies” (Murphy, et al., 2006; Office of Crime Prevention & Smart Events, 2008b: 15). One description of a toolie is someone who is “too old for Schoolies” who stereotypically attends *Leavers* to harass leavers and to create other disturbances (Murphy, et al., 2006). A Toolie is also depicted as an older male who frequents the celebrations with the intention of sexually preying on younger women (Scott & Smith, 2005). The history of WA *Leavers* is described in further detail below.

2.10.1 The Leavers Live Project (1999-2001)

By 1999 *Leavers*-associated harms had grown to ‘unacceptable’ levels and the School Drug Education and Road Aware (SDERA) Program were prompted to intervene. The ‘Leavers Live’ program aimed to reduce alcohol related problems amongst celebrating students and the communities hosting the celebrations. The main practical intention was to evaluate which interventions would be the most efficacious at managing *Leavers* (Young, et al., 2002). The federally funded project was focused on Rottnest Island (the most popular destination at the time), and was informed and evaluated by the National Drug Research Institute (NDRI).

The NDRI research spanned the three year period between 1999-2001 (Bogaards, et al., 2000; Midford, et al., 2004; Young, Farrington, & Midford, 2001; Young, et al., 2002). The first year involved a ‘formative evaluation’, utilised to

inform an intervention programme. In 2000, at least 17 different strategies were introduced to the Island, and the effectiveness of each was assessed. In 2001, the role of programme coordination passed from SDERA to the Rottneest Island Authority (RIA). Without external coordination and limited resources, fewer interventions were undertaken, bar those that were considered the most effective from the evaluation process.

Strategies considered to be 'successful' included: the Chill out space; Schoolies Island Chaplains (now known as the Red Frog Crew); requiring large bond for accommodation (>\$1,000 per unit); support service/police presentations to students intending to attend *Leavers*; afternoon music programme (now the evening entertainment zone); having the Nursing Post open 24 hours with a security guard; police presence on jetty monitoring disembarking leavers; extra security at bottle shop to check ID; and Police checking bags for alcohol (Young, et al., 2002).

The NDRI studies were mainly qualitative and included open-ended survey questions for groups of leavers, participant observation and interviews with key stakeholders. The surveys and participant observation covered themes such as expectations of what would happen at *Leavers*, AOD use, best/worst aspects of the celebrations and currently employed harm reduction strategies. The survey instruments administered to groups of leavers were used as guides to prompt discussion as opposed to dictated verbatim. In 1999 and 2000, 250 leavers were interviewed and in 2001, 112 were interviewed.

Prior to arrival at RI, commonly cited expectations for *Leavers* included having fun, socialising and drinking. However, after one event night, expectations also included more negative experiences such as violence, overall disappointment or surprise. Alcohol use was reported to be widely consumed, with cannabis and dexamphetamines the most commonly reported illicit drugs used (Young, et al., 2002). However, it was noted that the young people were generally reluctant to discuss the use of illicit drugs, with the exception of cannabis (Bogaards, et al., 2000). From 1999-2001, between 6% and 13% of respondents admitted to smoking cannabis during *Leavers*. These percentages however, are likely underestimations. Firstly, for drug use *not* to be cited, the respondents only needed to remain silent on

the topic, as opposed to actively deny they used illicit drugs. To illustrate this underestimation, less than 50% mentioned using alcohol, though the researcher noted there was “almost unanimous acceptance that most [respondents] were going to drink” (Young, et al., 2001, p. 27). Secondly, as the interviews were conducted within a group setting, face-to-face with two researchers, the respondents could not respond anonymously. The group setting may have contributed to fear of disapproval from friends/ legal consequences from authorities, or alternately, encourage ‘boasting’. Also, more assertive members could have dominated the responses, thereby reducing representativeness. Furthermore, it was noted that the gender and interviewing style of researchers appeared to have a significant impact on the responses given year by year (Young, et al., 2002). As the focus of the data collection was not quantitative, estimations such as those for prevalence of AOD use were not systematically collected. Consequently, while the number of AOD related comments provide an indication as to which drugs were more prevalent or acceptable amongst the interviewees, it was not likely the most accurate way to estimate prevalence.

Both Queensland schoolies and RI leavers consistently reported that the most enjoyable aspect of the celebrations was socialising (Gillespie, et al., 1990). Importantly, alcohol use was seen more as a part of the social process rather than as an end in itself (Young, et al., 2001). The ‘worst’ parts of the celebrations were commonly reported to be being exposed to antisocial behaviours such as violence, and being physically sick/having a hangover; again, similar to what was found amongst QLD schoolies. The most popular safety strategies included staying in groups and to drink moderately to reduce hangover incidence.

The Chill Out tent was “widely regarded as the highlight of the [Leavers Live] intervention” (Young, et al., 2001, p. 64). Young people mentioned the tent favourably when it began running in the first year, and it was heavily utilised in later years, though the authors commented it appeared to be taken for granted (suggesting its presence was expected). Other strategies elicited more mixed reactions. For example, when a de-licensed area of the Island hotel was created for the leavers in 2000, some felt they were in a ‘crèche’, segregated from the adults

(Midford, et al., 2004). In the following year, the live music that was played in a non-segregated area was substantially more widely appreciated with the main criticisms lying with the styles of music played (Young, et al., 2002).

After the intervention, researchers directly observed and anecdotally heard fewer instances of violence. Also of note was in 2000, when the RIA introduced a three day period when a new batch of leavers arrived on the island. These 'freshies' spent their *Leavers* without the support of the Chill Out tent, sausage sizzles and extended trading hours for food outlets that the other leavers had enjoyed during the previous week. The researchers suggested it was likely not a coincidence that it was on these nights, without intervention activities, that the most serious cases of vandalism occurred. They concluded that "The decline in the incidence of vandalism and intoxication requiring medical treatment in 2000 is almost certainly linked to leavers not becoming restless and bored in the evenings" (Young, et al., 2001, p. 59).

The interventions and three-phase evaluation methodology used in RI were also used at Margaret River in 2001 (Midford, Midford, & Farrington, 2002, 2007). Margaret River *Leavers* is a smaller event with an estimated 500 celebrating students and a more relaxed atmosphere compared to other WA locations. Having interviewed 212 of the estimated 500 leavers in 2001, the researchers reported results similar to what was found from the RI surveys (Young, et al., 2002).

In conjunction with the harm minimisation focus of the above strategies, police officers were briefed to exhibit a generally tolerant attitude with the aim that leavers would not hesitate to report a serious offence (Midford, et al., 2004). This tactic was similar to that used in Queensland and in Margaret River in 2001 with the police undertaking more of a protective, rather than a restrictive role (Midford, et al., 2002; Wallace, 2001). Interestingly, Midford et al. (2004) noted that in certain years, sterner policing styles were not necessarily associated with decreases in leavers' reports of 'freedom'. In 2001, a legislative change occurred which gave police the power to confiscate any drug from a juvenile if they considered it would be used as an intoxicant. Police used this legislation to search the bags of underage leavers, to confiscate alcohol, following their arrival at the Island's ferry terminal.

Also in 2001, the RIA required at least one person aged 18 or over to be signed into each accommodation unit. Following this decision, more leavers were observed using the over 18s to bring alcohol to the Island – assumingly an unintended outcome (Young, et al., 2002).

In 2002, upon completion of the Leavers Live project, a handbook was produced to guide later planning (DAO WA, 2002). One of the central recommendations of the handbook was to create diversionary activities which focused on relaxing and socialising to reduce the importance of drinking as the only way to have a good time.

Of note is that since the last NDRI fieldwork was conducted in 2001, the presence of support agencies has substantially increased. Also, the mix of leavers interviewed/surveyed would be have changed over the years due to the stricter, leavers-only' accommodation process (e.g. up 38% of the young people interviewed in 2000 were non-leavers such as university students and apprentices; Young, et al., 2002).

2.10.2 The Drug and Alcohol Office (2003-2004)

In 2003 and 2004, the Drug and Alcohol Office (DAO) of WA coordinated *Leavers* on a state level and initiated two strategies which continue to be used. Firstly, they instigated the annual, multiple-day *Leavers* symposiums where stakeholders from all the WA celebration points unite. Similar to the Leavers Live evaluations, these workshops are intended to allow participants to debrief the previous year's celebrations, make new suggestions and to retire less successful interventions. Secondly, DAO developed the 'School Leavers Presentation', a handbook and Power Point presentation containing legal, social and health-related information relevant to the event. The presentation is intended to be used by police officers and local health or community representatives who deliver the presentation to year 12 students within their schools (DAO WA, 2005). In 2003, legislation was introduced so liquor sales at the RI Hotel could only commence after 11am, and to prohibit the sale of glass bottles to minimise glass-inflicted foot injuries (Executive Director of Public Health, 2003). Later, DAO developed a survey for year 12 school

coordinators, conducted by the Office of Crime Prevention in September 2005, to help anticipate where leavers would be staying during the celebration period (G. Akesson, personal communication, February 21, 2011). These unpublished (and unable to be located) estimations were intended to help local services coordinate and concentrate their responses to the relevant areas.

2.10.3 The violence of 2004

By the early to mid 2000s, *Leavers* had substantially increased in popularity. While RI had a management plan informed by the Leavers Live project, other regions relied on support from the State Government for support (Office of Crime Prevention & Smart Events, 2007). Dunsborough especially was observing a rapid increase in participant numbers – from 500 in 2000, 800 in 2001, 1,600 in 2002 and 3,000 in 2003. Permanent residents were also growing increasingly antagonistic toward the 10-14 day celebrations. Finally, the rapid growth came to a crisis point when, in 2004, substantial damage was caused in the commercial areas surrounding Lions Park following the celebrations. Four thousand young people had congregated in the park and it was “... the first time incidences of ‘gang style’ violence occurred during the celebrations with approximately five to ten acts of violence each evening of the celebrations” (Murphy, et al., 2006, p. 8).

2.10.4 The Office of Crime Prevention Era (2005 – current)

Following the disorder of 2004 Dunsborough *Leavers*, there was general recognition that greater government involvement may be required to reduce community damage and to ensure the safety of the celebrating young people. So in 2005, the Office of Crime Prevention (OCP), a subsidiary of WA Police, began coordinating *Leavers* across the state (Murphy, et al., 2006). The OCP used a ‘management by event’ model that had also been successfully utilised in other Australian *Schoolies* destinations such as Surfers Paradise and Victor Harbour (AIC, 2007; Murphy, et al., 2006).

Several reasons lie behind the idea of the management by event model. Research suggests that if quality entertainment is provided for a crowd, there will

be a reduction in violence and boredom levels (Arnold & Laidler, 1994). Generally, the history of *Leavers* supports the notion that drunken young people are more likely to behave in an antisocial manner in the absence of entertaining activities (Murphy, et al., 2006). For example, in 1999 on RI (pre-intervention), researchers described how the majority of the 254 young people they randomly interviewed pre-purchased their alcohol prior to arriving on RI. The authors coded the responses to each open-ended interview into themes and posited that the quantity of alcohol leavers brought with them to the Island was related to the number of activities they anticipated would be on offer during the celebrations. That is, if they expected there would be little else to do than socialise with one another, a greater quantity of alcohol was shipped to the island to facilitate the process of interaction. At the same celebrations researchers observed large groups of intoxicated males, once boredom had set in, sought out violence, punching other males for seemingly no particular reason (Bogaards, et al., 2000).

The central intervention of the management model was the establishment of an entertainment zone ('the Zone'). The area was supervised and located away from the CBD to effectively manage crowds of leavers. It provided diversionary activities such as music and amusement park style rides while increasing coordinators' abilities to control the duration of the celebrations (which, in the early 2000s, ran for up to two weeks; Murphy, 2006). Centralising activities had benefits for both stakeholders and leavers: the stakeholders were able to monitor the celebrations and maximise exposure to limited resources such as medical support; and for the leavers, centralisation facilitated socialising and provided greater safety (Midford, et al., 2007). At the conclusion of 2005 *Leavers*, most Dunsborough stakeholders agreed the Zone was a key factor in reducing the numbers of leavers congregating in Lions Park, and so indirectly reduced damage to the Dunsborough CBD area (Murphy, et al., 2006). The cleaning and repair costs to the Shire of Busselton in 2005 were \$11,875, a 48% reduction from the 2004 expenditure of \$22,710. Of note is that in later years, the entertainment zone was moved even further from the town centre (The Office of Crime Prevention, 2010). The majority of leavers catch a bus to reach the entertainment zone as the distance is not generally considered walkable and due

to the safety hazards of walking while intoxicated during lower temperature nights. On Rottneet, the entertainment zone remains situated in close proximity to the main accommodation area.

Stakeholders regularly express reluctance to increase the scale of the diversionary activities available, concerned that the activities might attract more leavers to a community where the infrastructure has already been stretched from the celebrations (e.g. Midford, et al., 2007, and personal communication at the Leavers/Schoolies symposium 2008 and 2009). However, stakeholders generally accepted that the celebrations would continue and that better outcomes would be achieved by the community being more proactive in preparing for the celebrations rather than being reactive (Midford, et al., 2007).

Along with the addition or improvement in diversionary activities, a number of legislative and operational changes occurred in the OCP era. In 2007, an amendment was made to the Liquor Control Act which reduced the availability of alcohol at *Leavers* from previous years. Also, the Department of Racing, Gaming and Liquor made it an offence for a person aged under 18 to consume or possess alcohol in a public place. This change in legislation combined with restrictions on liquor sales was credited by the WA Police and other support agencies for an apparent decrease in incidents of “unruly behaviour” (Office of Crime Prevention & Smart Events, 2008b: 11).

In earlier years, multiple cartons of beer could be regularly observed being transported to RI via ferry (Young, et al., 2001). The cartons of alcohol along with leavers’ other luggage were then transported by RIA truck directly to the accommodation units of young people. Around 2008, the ferry operators servicing the RI route agreed to cease transporting alcohol (that was uncovered and therefore visible to the operators) to RI during the *Leavers* period (Batcheler, 2008). Also, in 2009 the entire Island’s accommodation was reserved only for ‘genuine’ leavers and their over 18 guardians (Marcia Czerniak, personal communication, February 28, 2011). No bookings were made one day prior and one day after the official *Leavers* period in an attempt to discourage leavers from residing on the Island outside of the official dates.

Agencies Involved with Leavers

In describing 'what works' at *Schoolies/Leavers*, the use of support/safety net services have been recognised as assets who can respond efficiently, quietly (without attracting too much attention to the incident) and cost effectively to cases such as intoxication, psychological distress and more minor operational issues such as transportation issues. The use of support services was reported to reduce the burden of primary resources such as the Police, medical professionals and event coordinators (Curd, 2004).

At *Leavers*, the presence of support agencies has increased over time with 'over 40' volunteers at the 2006 RI celebrations (Office of Crime Prevention & Smart Events, 2007: iii), to 89 support agency volunteers/team leaders in 2009. There were at least six volunteer-based agencies that operated in 2009. Firstly, the Green Team (of the Baptist Churches) were responsible for organising the set up and operation of the Entertainment Zone. The Red Frog Crew (of the Chaplaincy Network) had four roles: visiting leavers in their accommodation, mediation (esp. between accommodation providers and leavers), referral to other agencies and entertainment. Drug Arm ran foot patrols to collect intoxicated young people (especially those without their friends) and recovery houses. More critical medical cases are reviewed by St John Ambulance staff and volunteers. Operating primarily during the day, the Royal Life Saving Society ran a 'Don't Drink and Drown' campaign, diversion activities such as volleyball games and distributed resources (Shaw & Nimmo, 2010). The WA AIDS Council (WAAC) encouraged safer sex and provided drug education (Copson & Wightman, 2007; WA AIDS Council, 2010). WAAC also administered the Alcohol Use Disorders Identification Test (AUDIT), a valid and reliable screening tool developed by the World Health Organisation to detect risky drinking patterns (Babor, Higgins-Biddle, Saunders, & Monteiro, 2001; World Health Organization, 2009). In 2009, the majority (72%) of the 87 AUDIT respondents were classed as engaging in hazardous – dangerous level drinking (WA AIDS Council, 2010). The services provided by these agencies are generally internally evaluated through brief surveys and the OCP's interagency evaluation survey since 2008. However, there remains scope for a more formal controlled

examination of the impact of these combined services in the future.

2.11 AOD use at WA Leavers

Based on the earlier discussion of 'usual' usage patterns and the reputation for AOD use at *Leavers*, for a significant proportion of attendees, the event revolves around alcohol and to a lesser extent, the consumption of other drugs. In illustration of the focus on alcohol over other drugs, in a 2007 survey of more than 100 RI and Dunsborough leavers, over 90% expected to use alcohol. In comparison 13% of Dunsborough leavers and 10% of Rottnest leavers reported intentions to use drugs other than alcohol during the celebrations (Copson & Wightman, 2007). While the greater expectation to use alcohol may reflect a reluctance to concede intentions to use controlled drugs, these expectation figures are similar to the discrepancy between rates of 'regular' alcohol and illicit drug use among 16-17 year old students in WA (DAO WA, 2007b). AOD use at *Leavers* contributes to various harms among young people. Reported harms are similar to those described earlier in this chapter and include: alcohol's direct effect on physical health (e.g. alcohol poisoning), unintentional injuries (e.g. falls, near drowning, assaultive injury), making decisions that are later regretted (e.g. regretted sexual activity), peer conflict, high risk sexual activity and increased vulnerability to sexual predation and violence (e.g. Office of Crime Prevention & Smart Events, 2008a, 2008b; Smith & Rosenthal, 1997; Young, et al., 2002; Zinkiewicz, et al., 1999). There is more detailed information available on injuries sustained during the celebrations, as described in the following section.

Amongst stakeholders, there is a consensus that historically and currently, alcohol is a major contributor to injuries and risky behaviour during *Leavers* celebrations (Murphy, et al., 2006). During 2009 *Leavers* there were a total of 80 presentations at the Rottnest Island Nursing Post (Charlton, 2010a, 2010b). Each presentation was assigned a primary diagnosis which was the main cause for admission. 'Alcohol' was the primary diagnosis for 39 (49%) of the presentations and 'drugs' were the primary diagnosis for a further 6 (8%). Other diagnoses included 18 foot injuries, 10 glass injuries, 3 physical assaults, 2 sexual assaults and 2 marine incidents. The majority (56%) of all presentations were classified as directly

due to AOD use; and this may have even been an underestimation if the clinical staff did not assess or detect the role of alcohol and other drugs in other presentations – a phenomenon that is not uncommon in emergency service presentations (McKenzie, et al., 2010), and as discussed below.

The term ‘alcohol-related’ refers to an event that “probably not would have been committed without the presence of alcohol” (Rossow, 2001;: 78). Nursing Post workers and event organisers noted that a significant proportion of leavers’ incidents with the primary diagnosis of minor injuries and assaults are AOD-related (Charlton, 2007; Murphy, et al., 2006). For example, AOD is often involved in the initial injury. However, the patient may have presented to medical services some time after the injury was sustained, no longer appearing intoxicated. The circumstances of the injury are not always specifically noted in addition to the primary diagnosis. So though it is difficult to ascertain an accurate estimate of AOD contribution to all cases, the already substantial presented statistics are likely underestimates of the impact of AOD on acute health outcomes.

In tandem with the Nursing Post, St John Ambulance ran a first aid tent within the Entertainment Zone and had a separate professional ambulance service during RI *Leavers* 2009. The tent was operated by four volunteers working in a first-aid capacity. During the three *Leavers* nights, there were a total of 45 tent presentations. The majority (67%) were classed as minor medical cases, 13% for wounds, 9% for injuries, 4% as emotional/behavioural (without physical injury present), 4% were major medical cases and 2% were sports related injuries (Luong, 2011). Interestingly, 84% of presentations were male (accounted predominantly by the 29 male cases in the total of 30 minor medical cases). The proportion of cases which were AOD-related was unavailable as clients were treated and classified according to the most life-threatening condition present at the time, without assessment as to how the condition occurred. Of note is that due to patient confidentiality there is the potential for duplications in the presented medical statistics. For example, an individual may have presented to the St John first aid tent for a ‘major medical’ issue, and then transferred to the RI Nursing Post. Also, an individual could have been responsible for more than one presentation if they were

treated by a single (or multiple) services on multiple occasions.

In addition to the medical services run through the Nursing Post and St John ambulance, the volunteer-based organisation Drug Arm performs non-emergency care at *Leavers*. In 2009 they treated 58 people (55% male) through their four recovery houses. The majority (86%) of clients were admitted for alcohol related reasons and 17% for illicit drug related reasons. Although the services ran from 11am-2am, in 2009 they only saw one client before 4pm, in other words, the majority of clients came in the evening and night. The Drug Arm service appears to cater to the niche of intoxicated young people who require monitoring by a reliable person (i.e. not peers who are possibly also inebriated) but are not so severely unwell they require emergency medical intervention. In 2007 Drug Arm conducted a one-off survey during RI *Leavers* to estimate AOD use in the last year as well as at *Leavers* (Summerfield, 2007a). The majority (62%) of the 209 participants reported drinking more 'than usual' at *Leavers* (potentially evidence of the 'holiday effect'). Currently this is the only study which assessed quantity specific use of AOD. However, respondents chose whether during *Leavers* they had consumed five or more, seven or more or 11 or more drinks in a row (Summerfield, 2007a). These categories were not gender specific so did not reflect the 2001 NHMRC risk categories. More of their findings are discussed in conjunction with this study's results in the last chapter.

Young people appear to be relatively aware of these health and safety risks associated with *Leavers*. In 2006 Smith surveyed 105 year 12 students from Perth and asked them what they were concerned with, in regard to the upcoming celebrations (Smith, 2006)³. The majority (65%) of the students had personal concerns, with commonly cited issues including fights (18%), the safety of friends (18%), and AOD-related issues (16%). In contrast, when asked about *Leavers*-related risks that applied to other people (not just themselves), excessive alcohol consumption (74%), [illicit] drug use (51%), and violence (30%) was cited. That is, although young people appear to acknowledge that certain patterns of AOD use at *Leavers* are potentially risky, they may underestimate the degree to which these risks apply to them.

³ Smith's study did not collect information on intention to use alcohol at *Leavers*. Instead, the context of *Leavers* was utilised primarily as an event example with which to frame various 'importance of drinking' questions.

2.11.1 Parental supply of alcohol at school leavers' celebrations

Although the celebrations have been discussed jurisdictionally, the topic of parental alcohol supply is common to all areas. Parental supply of alcohol to leavers is a contentious issue which attracts media coverage on a yearly basis (e.g. Bartlett, 2010; McKimmie, 2009). In this section, only *Schoolies/Leavers* focused parental supply research is described.

In 2008 the Queensland Sunday Mail newspaper investigated the reasons behind parental supply of alcohol to underage schoolies (QNP Media Insights & The Sunday Mail, 2008; Vogler, 2008). Of the 142 parents surveyed, 33% intended to supply alcohol to their teenager for *Schoolies* (51% did not intend and 14% were unsure). Similarly, at Rottnest Island in 2007, 30% of 121 respondents sourced at least some of their *Leavers* alcohol through their parents (Summerfield, 2007a). The most common reasons given for providing *Schoolies*-bound offspring with alcohol was because the parent trusted their teenager to be 'sensible' (61%) and around notions of control – so the parents would know how much alcohol their child will have (58%), and to stop them from buying it from someone else (58%). Thirty-eight percent of parents intended to supply as 'all of their friends will be taking alcohol'; with higher proportions of parents with private school children citing this reason. Just over a fifth (22%) of the parents supplied so their children would not spend the money reserved for food on alcohol, and a fifth (22%) reasoned their children deserved a celebration. This 'celebration' reason could be interpreted as implicit endorsement (over the supply itself) for the link between alcohol and celebration. Finally, 8% intended to supply as their children were not staying in a location which had access to alcohol. A possible risk is that, as the celebrations are not parentally monitored, alcohol supplied by parents may not be consumed in a responsible manner. Also, along with the physical product of alcohol, parental supply provides recognition and tacit support to a child's consumption (Wallace, 2001). As previously noted, parental approval of AOD use is also correlated to heavier AOD use.

2.12 Media coverage of the celebrations

This section briefly describes the media attraction to *Leavers*. Historically, following antisocial acts in the year 2000, the South West *Leavers* celebrations attracted significant media attention (Murphy, et al., 2006). Prior to this, the Rottneest celebrations had long been covered, with the media being criticised for "... consciously baiting each year's leavers to create havoc and live up to, or even surpass the behaviour of previous years" (Bogaards, et al., 2000, p. 45). In turn, leavers were well aware of the coverage they attracted and "... seemed to revel in their collective infamy ..." (Young, et al., 2002, p. 43), 'playing up to' their portrayed role as degenerates (Hopkins, 1999, p. 206).

The coverage of the celebrations has appeared to increase over time. In a computer automated content analysis of press articles about Gold Coast *Schoolies* from 1998-2001, articles with the keyword 'schoolies' increased from 63 in 1998 to 680 in 2004. The study also revealed the *Schoolies* articles were generally unfavourable in tone. The articles frequently featured the six negative keywords of: alcohol, damage, drugs, sex, Toolies and violence (Scott & Smith, 2005). Hopkins (1999) noted that *Schoolies*-related media follows one of two directions - the 'delinquent' and the 'at risk youth' theory. The former focuses on the destructive aspects of the celebrations, and the latter on the vulnerability of the young people involved.

2.13 Extending the literature

To summarise, drug use, especially risky levels of alcohol consumption, are common amongst Australian adolescents. While there are both positive and negative outcomes associated with AOD use, young people appear to be at greater risk of a variety of drug-related harms compared to adults - for example due to their incomplete brain development. Large youth events such as Spring Break and *Schoolies* are often associated with greater than usual AOD use. The 'usual' vulnerabilities to harms are compounded by the celebration context which includes AOD-conducive risk factors such as an expectation for indulgence, and a peer-based

environment with limited parental presence.

This current study attempted to both document patterns of AOD use at *Leavers*, as well as to identify some of the influences and consequences of the behaviour. Previous studies have broadly estimated AOD quantity in terms of risk categories. This research intended to produce quantity specific estimations that could be reported in risk categories defined by multiple criteria, as well as be used in more sophisticated analyses to identify predictors of use. In addition to estimating prevalence rates of AOD use, this project aimed to document harms that are not reported elsewhere. Presentations to medical services and authorities often only relate to more serious cases and do not capture the full extent of the consequences. The assessment of harms of varying severities would be useful to determine which are most common and so, which interventions may target the greatest number of young people. This study also sought to document the use of protective strategies and whether they successfully reduced the risk of experiencing negative consequences.

Only a small number of studies have examined the factors that contribute to AOD use at school leavers' celebrations. Maticka-Tyndale et al. reported that Triandis' Theory of Interpersonal Behaviour (TIB) had utility in examining possible influences of casual sex at Gold Coast's *Schoolies* (2003). The TIB asserts that intent, prior behaviour and context are important in influencing behaviour. Using the TIB as a conceptual framework, this study used a two part survey administered pre- and post-*Leavers* to ensure reports of intent and prior behaviour were not influenced by the behaviour of interest. Past patterns of behaviour were assessed through reports of AOD use at the last social event attended with peers. This last social event served as a proxy for a 'usual' drug use context to observe any unique characteristics of AOD use at *Leavers*.

2.14 Hypotheses

The thesis' aims and objectives were tested using the following nine hypotheses:

1. The proportion of students who use AOD during the *Leavers* period will be significantly greater than the proportion of students who used AOD during a non/pre-*Leavers* peer based social event.
2. Levels of AOD consumption among students who used AOD during the *Leavers* period will be significantly greater compared to the level of AOD used during non-*Leavers* celebratory events.
3. There will be a significant positive association between AOD use during *Leavers* and pre-*Leavers* AOD use experience at celebratory events.
4. There will be a significant positive association between AOD use during *Leavers* and the expression of intent to use AOD at *Leavers*, prior to the celebrations.
5. There will be a significant positive association between AOD use during *Leavers* and exposure to conditions at *Leavers* that are conducive to/facilitate AOD use.
6. There will be significant positive associations between estimations of close peer, the average leavers' and respondents' AOD use at *Leavers*.
7. There will be significant positive associations between student perceptions of parental attitudes/behaviours, and AOD intentions/AOD use/the experience of AOD-related negative consequences at *Leavers*.
8. Knowledge, prior discussion of, and use of harm minimisation strategies will be negatively associated with intentions for AOD use, actual AOD use and AOD-related negative consequences.
9. Students will rate AOD-related behaviour as more acceptable at *Leavers* compared to a non-*Leavers* celebratory event.

Chapter 3: Methods

Core data for this project was gathered using a two-part survey design with a self-report methodology. The first survey, the pre-*Leavers* survey, sampled young people who intended to attend *Leavers*. This group was approached to complete the second survey, the post-*Leavers* survey, after the celebrations. Those who hadn't completed the first survey were also approached to complete the second survey. As there was a sub-population of participants who had completed only the post-*Leavers* survey or only the pre-*Leavers* survey, repeated measures analyses were not performed for all participants. The study design is described as a pre/post (celebrations) survey method.

The survey data were supplemented and supported through informal observation of *Leavers* and using information from agencies servicing the celebrations. The primary purpose of the informal observation was to gather logistical information on how to best access a large number of participants at the beginning and end of the celebration. Also, the observations along with support agency information aided the construction of a more comprehensive understanding of the context of *Leavers*.

This chapter is divided into two main sections: discussion of the pre- and post-*Leavers* surveys (section 3.1), and the informal observation of *Leavers* in 2008 and 2009 (section 3.2). The bulk of this chapter is comprised of section one which is further subdivided into five parts:

- (i) Piloting of the surveys – pilot group procedures, and general outcomes of the piloting/test-retest process
- (ii) Use of online surveys compared to paper and pen methods
- (iii) The pre-*Leavers* survey – administration, confidentiality/consent, recruitment, survey incentives, and survey components. The survey components section delineates the rationale for each item's inclusion and/or alteration.
- (iv) The post-*Leavers* survey instrument – survey administration, recruitment and

survey components.

- (v) Statistical analyses – including research design, sample sizes and rational for maximum value scores.

3.1 The Pre-Leavers and Post-Leavers Surveys

The pre- and post-*Leavers* surveys were administered online as well as using paper and pen. The majority of survey questions were quantitative in nature. Response options included multiple choice, five point Likert-type scales and continuous options (e.g. to describe the quantity of alcohol consumed). There were three open-ended qualitative-type questions in the pre-*Leavers* survey.

The primary purposes of the pre-*Leavers* survey were to determine expectations surrounding personal and peer AOD related behaviour at *Leavers* and to determine what AOD was consumed at previous peer-based social events. The post-*Leavers* survey investigated AOD use at *Leavers*, perceptions of peer AOD use, harms that occurred, and harm minimisation strategies that were employed at the celebrations.

The last sections of the pre- and post-*Leavers* surveys consisted of six questions that produced a respondent generated identification code. This code was designed to match the responses of participants who completed both surveys while retaining respondent anonymity. Those who completed both the pre- and post-*Leavers* surveys, are referred to as 'matched' or 'paired' respondents.

Longitudinal data was gathered using the paired respondents to allow for a more complete testing of the theoretical framework utilised by this study, Triandis' Theory of Interpersonal Behaviour (TIB; 1977, 1980). Triandis' TIB states that expectations contribute to an individual's intent to engage in AOD-related behaviour (Apostolopoulos, et al., 2002). Cross-sectional studies commonly assess intent or expectations at the same time (within the same survey instrument) as the behaviour of interest (Maticka-Tyndale, et al., 2003; Smith & Rosenthal, 1997). However, with these designs it is possible that the expectations or intent described may have been altered to justify the eventual behaviour. One of the benefits of using

a pre/post survey method is that intent is surveyed prior to the event. In short, the use of the pre/post method means that data are logically directional – intent and expectations can influence outcomes but the outcomes cannot influence intent (Apostolopoulos, et al., 2002).

3.1.1 Pilot testing

Pilot testing of the pre- and post-*Leavers* surveys underwent a number of phases including colleague review, in pilot groups with 33 young people who were previously members of the target demographic and trialling of pilot group suggestions. The pilot testing phase is described in five sections: the piloting procedure, participant recruitment, participant confidentiality, general outcomes of piloting and psychometric outcomes of piloting.

Piloting procedure

In April 2009, a group of five colleagues provided feedback on the comprehensibility and appropriateness of the language, sequencing and readability of preliminary versions of the pre- and post-*Leavers* surveys.

From May to July 2009, 33 young people (24 females and 9 males) who had attended 2008 Rottnest Island *Leavers* piloted the surveys. The largest group included six participants and some sessions were run with a single participant due to non-attendance of bookings. Of the 33 participants, 20 completed the surveys twice to produce test-retest data. This piloting with young people was completed over two phases and is described in greater detail below.

In May 2009, the first phase of target demographic piloting was run with 13 young people. They were asked to imagine they were completing the pre-*Leavers* survey a month prior to the celebrations and the post-*Leavers* survey the day after *Leavers* had finished, to produce responses relevant to the intended timeframe of the surveys. Following survey completion, they provided verbal feedback on the interpretability of the surveys, guided by a list of questions (see appendix A), and described their personal *Leavers* experiences. The feedback was digitally recorded and later transcribed. It was intended that the piloting/test-retest procedure would determine: whether survey instructions and items were easy to comprehend;

whether the survey items 'flowed' in a logical manner; whether certain items were regularly skipped; whether the questions elicited the intended information; the reactivity of questions (whether questions appeared confrontational or leading); and whether the scales used within the survey were reliable (Fowler, 1993; Punch, 2003; Walter, 2006). Minor changes to the survey were made using feedback from the initial piloting period and from the researcher's supervisors.

The second phase of the target demographic piloting procedure was run from June to July 2009 with 20 young people in test-retest sessions to produce psychometric data. During the first (test) session, the two *Leavers* surveys were completed. One week after, the participants returned for the retest session, to complete the two surveys again, and to provide survey feedback and relevant personal *Leavers* experiences.

In September 2010, a short online survey with 15 items, 'Alcohol use and social events' was created. The survey was produced to firstly trial the survey software later used to run the online versions of the surveys, and secondly to trial rephrased items. Feedback from colleagues suggested there would not be any difficulty in understanding the new phrasing and the format of the online surveys.

After the surveys were reviewed through the pilot groups and the trial online survey, the instruments were sent to project's stakeholders at the Office of Crime Prevention, the Office for Youth and Baptist Churches. One change was made following this stakeholder review process. The Office for Youth suggested including potential embarrassment rising from the posting of multimedia from *Leavers* on the Internet in the survey's list of negative AOD related harms.

Pilot group recruitment, and confidentiality and consent

Pilot group participants were recruited from December 2008 to July 2009. In December 2008, young people who had recently attended *Leavers* 2008 were targeted via two popular social networking websites, 'facebook' (through the 'Official Leavers WA 2008' webpage) and 'MySpace' (through the 'Perth Leavers 2008' page). Also, an advertisement was forwarded through the WA Office for Youth to 'the Panel', a group of young people who advise on youth issues. From March to April

2009, advertising was concentrated on first year university students as a relatively accessible pilot group population. Advertisements were placed electronically, through flyers, and lecture announcements at Curtin University, the University of Western Australia, and Edith Cowan University.

An information and consent form was emailed to the participants as a part of their pilot session booking confirmation and was presented again prior to the commencement of the pilot group sessions (see appendix A for a copy). They were required to write their name, sign and date the consent form to signify they had read and understood the project's information, were over the age of 16, that any questions they had, had been satisfactorily answered and that they agreed to participate. The paper surveys were anonymous and participants were instructed not to mark the survey forms with any identifying information. The final version of the questionnaire was submitted for approval to the Higher Degrees Ethics and Research Committee at Curtin University. Participants who attended a single pilot group session were reimbursed \$30 for their time and test-retest participants received \$15 per session (a total of \$30 for the test-retest procedure).

Outcomes of the piloting/test-retest procedure

Overall, pilot group participants had little difficulty in comprehending survey instructions and items. Respondents agreed that the surveys adequately summarised their experiences with AOD at *Leavers* with the exception of a question which determined whether the respondent was satisfied with their *Leavers* experience. A 'general satisfaction' item was later added to the final version of the post-*Leavers* survey.

The average time it took participants to complete the surveys was 13.73 minutes for the pre-*Leavers* survey (sd=2.89; n = 32) and 10.55 minutes for the post-*Leavers* survey (sd=2.19; n = 32; 1 missing).

Pilot group participants agreed with anecdotal evidence that few people were drinking on the last day of *Leavers* and that most students would have left Rottnest Island by 2pm (B. Pearson, [Rottnest Island Authority event manager for *Leavers*], personal communication, April 28, 2009). They described how most leavers

were too fatigued to continue drinking on the last day, and the day was dedicated primarily to vacating the Island. Furthermore, there was no place to drink on the last day as accommodation keys were usually returned earlier that morning. By administering the post-*Leavers* survey on the last day of *Leavers*, the majority of the alcohol and other drug use at the celebrations would likely have already occurred. More specific alterations to items resulting from the piloting process are discussed in further detail below as a part of the description of each survey's items.

An analysis of the psychometric data from the test-retest procedure concluded that the overall reliability of the surveys was considered adequate. A description of the procedure, findings and a full listing of the pilot reliability statistics are found in appendix A.

3.1.2 Online surveys

A mixture of recruitment and administration methods was utilised in this study to maximise response rates. The pre- and post-*Leavers* surveys were accessible online as well as through paper and pen formats. The question design, including response option styles, was devised to be appropriate for both the paper and online surveys (Couper, Traugott, & Lamias, 2001). Online surveys are a faster and cheaper alternative to paper and pen surveys for recruiting large numbers of young respondents (Wright, 2005). Response rates are argued to be enhanced compared to more traditional surveys due to the convenience and anonymity associated with Internet-based information and services (Gray, Klein, Noyce, Sesselberg, & Cantrill, 2005). Indeed, many studies have found higher response rates for web surveys compared to postal survey equivalents (e.g. Crawford, McCabe, Couper, & Boyd, 2002; McCabe, Boyd, Couper, Crawford, & D'Arcy, 2002). Test/retest reliability of online surveys is high (Miller, et al., 2002), and the use of online surveys reduces data entry errors due to the ability to directly export data into statistical software packages.

When computer-assisted surveys and paper and pencil equivalents have been simultaneously employed, there have been mixed results as to whether the mode of administration affects responses. In general, studies have found no or few

and selective mode effects for reports of alcohol and illicit drug use (Kypri, Gallagher, & Cashell-Smith, 2004; McCabe, 2004; Miller, et al., 2002). However, some studies have found computer aided survey techniques, such as web-surveys, are more likely to yield information on sensitive behaviours such as illicit drug use (Turner, et al., 1998). Several recent studies have concluded they did not detect any overall modality effects, with only a small minority of sensitive or risk behaviours yielding modality effects (e.g. Eaton, et al., 2010 ; Vereecken & Maes, 2006). This project's responses from the paper and web surveys were combined and mode effects were controlled where possible in analyses.

Internet penetration was high in the target sample at the time of survey development (Australian Bureau of Statistics, 2007). Retrospectively, it appeared that in the 2008 to 2009 period (i.e. when the surveys were available for completion), 94% of Australian 15-17 year olds accessed the Internet and 89% of them accessed the Internet from home (Pink, 2009, 19-20). It also appeared that there was some degree of online privacy achieved with home Internet access, with 95% of 15-17 year olds who had home Internet access using the Internet for 'personal or private purposes' (Pink, 2009, 23). The online surveys were created and hosted using QuestionPro software (QuestionPro, 2009). The survey data was directly imported from the QuestionPro server into the statistical analysis program, SPSS.

3.1.3 Pre-Leavers survey instrument

The pre-*Leavers* survey is explained in four sections: survey administration, confidentiality and consent, participant recruitment and lastly a description of the survey's components.

Pre-Leavers survey administration procedure

The pre-*Leavers* survey was made available in an online survey format from the 22nd of September 2009 to the 23rd of November 2009 (the day before the official *Leavers* period began), and in paper and pen form on the first day of *Leavers*, the 24th of November 2009.

Originally, the pre-*Leavers* survey was web-based only and the post-*Leavers* survey was to be administered in two modalities (online and on paper). However,

due to unforeseen restrictions on advertising the project on the official *Leavers* social networking website, the pre-*Leavers* survey was also administered using dual modalities to maximise response rates. The mean time it took for respondents to complete the pre-*Leavers* survey online was 15.64 minutes (95% CI [14.79, 16.49], n = 215 [six extreme outliers removed]). Completed surveys were downloaded at regular intervals.

The paper and pen surveys were distributed on five ferries travelling from the mainland to Rottnest Island on the first official day of *Leavers*. In November 2009, two ferry companies serviced a mainland to Rottnest Island route. Both companies agreed to allow researchers aboard to administer surveys to their passengers and to keep a survey return box on the ferry. Five researchers administered the surveys and each wore a Curtin University polo shirt so respondents could easily identify them. Four researchers boarded the ferries travelling to Rottnest Island to distribute and collect surveys while on board. One researcher remained at the ferry terminal to supplement the on-board surveys as there was only one researcher available for the two remaining ferry departures that morning. This researcher handed out surveys and respondents were instructed to use the survey return box on board the ferry. Following the ferry-based survey distribution phase, two researchers approached beach docked boats to distribute surveys to leavers accommodated in private vessels (<10 surveys distributed).

Survey confidentiality and consent

A hardcopy of project information was provided to paper survey recipients and displayed onscreen for those online. Respondents were required to confirm they had read, understood and agreed with the information presented to them, including that they were 16 years of age or older. The online survey software required a checked box prior to allowing the respondent to proceed to the main survey form. Surveys were anonymous and participants were instructed not to include identifying information on the form. Signatures and names were not requested at any point. Signed consent was not deemed appropriate as participant responses covered potentially sensitive topics such as illicit drug use and consent was taken as implied by completion of the survey (NHMRC, 2007). See Appendix A for copies of

the information forms.

Once survey data were entered into an SPSS database, any hard copies were stored in locked filing cabinets at the National Drug Research Institute. Electronic data were stored on the survey software company's server with Secure Socket Layer (SSL) encryption and on the researcher's password protected laptop.

Pre-Leavers survey recruitment

Participant recruitment for the first survey began in late September 2009 for a period of approximately two months prior to the commencement of the official *Leavers* period. The survey was promoted through the official *Leavers* website, the official facebook webpage, two student generated MySpace webpages, the Rottnest Island Authority webpage, the Office for Youth webpage, a presentation alerting local teachers to the project, school-based email lists, university newsletters, through various community newspapers and via existing survey respondents.

The Office of Crime Prevention (OCP) are the organisers of *Leavers* in Western Australia and run the official event webpage, www.leaverswa.com.au. A banner image hyperlinked to the online survey was on display from September 2009 to the end of the official *Leavers* period on the official homepage. The OCP also administered the official 2009 *Leavers* WA facebook webpage. This 'fanpage' had over 2,700 group members in late 2009. Originally, mass messages were to be sent twice – once in late October and the second time in mid November. However, in November, it was revealed that the website was not able to send mass messages as previously arranged. Instead, 'notes' (bulletins) linked to the online survey were posted on the fanpage at two dates in September and November. Also, messages were individually sent to approximately 1,600 members of the official 2009 WA *Leavers* facebook page. Seven facebook accounts were generated so four researchers could simultaneously send messages to group members.

A bulletin message advertising the survey was posted on two MySpace groups dedicated to the 2009 WA year 12 group. Each group had approximately 1,500 members. The group administrators were advised of the upcoming bulletins via email prior to them being posted. A project description and survey hyperlink

was also included on the WA Office for Youth's website.

A banner advertising the pre-*Leavers* survey was posted on the Rottnest Island Authority's (RIA) '*Leavers* information' webpage for the month of November 2009. The RIA is the government agency which manages Rottnest Island. The RIA provides the majority of the accommodation on Rottnest Island, and bookings for accommodation and rental boat moorings can be made via their webpage. In 2007 and 2008 the Rottnest Island Authority generated a list of schools that their *Leavers* guests originated from. Thirteen schools that were well represented in these lists were contacted to help advertise the pre-*Leavers* survey. Five independent WA high schools agreed to send an email out to all their year 12 students with a link to the online survey. Local teachers were made aware of the project through a project presentation at a Professional Learning Workshop evening focused on binge drinking in June 2009. The survey was also advertised through school mailing lists.

Siblings of potential leavers were targeted via three Perth-based universities. The university advertisements asked readers if they knew anybody who was intending to attend *Leavers*. The project was promoted electronically and through flyers at Curtin University, the University of Western Australia and Edith Cowan University.

The pre-*Leavers* survey was advertised in seven community newspapers, with an emphasis on the newspapers which were distributed to the catchment area which most Rottnest Island leavers list as their home suburb.

Lastly, respondents who had already completed the pre-*Leavers* survey were emailed a prize-draw entry confirmation email which included a link to the survey for them to forward onto their friends.

Survey incentives

Incentives were offered to participants for completion of the pre- and post-*Leavers* surveys. Upon completion of the survey, participants were informed they could enter the prize draw for one of 50 \$20 JB Hi-Fi vouchers by supplying their email address. Online survey data were kept in a separate database from the email addresses and paper survey participants were advised to detach the page with the

email address on it from the rest of the survey prior to handing it back to the research team. All email addresses were entered into a database and an online random number generator was used to select 25 winners from the pre-*Leavers* survey participants and 25 winners from the post-*Leavers* survey participants. Winners were notified in January 2010 via email and the vouchers were distributed via post. Also, while distributing paper copies of the survey, a confectionary item was offered at the same time as the survey and a pen to complete the survey with.

Pre-Leavers survey components

Demographic information

The first section collected basic demographic and survey eligibility information. To be eligible to complete the survey, individuals must have intended to attend *Leavers* in 2009 at Rottnest Island and to have completed grade 12 in 2009. This criterion intended to identify which respondents were 'genuine leavers' – those who completed year 12 in the same year as the celebrations.

Questions 4, 'what is the most important reason you want to attend *Leavers*?', intended to sample the motivation for attending any *Leavers* celebrations, irrespective of specific location. Response options were derived from pilot group responses and previous studies which had asked an open ended variation of the question (Smith, 2006; Young, et al., 2002). Question 5, 'why did you celebrate *Leavers* at Rottnest Island?', assessed the motivation for choosing the specific location of Rottnest Island. Response options were derived from items previously used to examine what destination characteristics were attractive to travelling young people and through survey piloting (Hesse, Tutenges, Schlieve, & Reinholdt, 2008; Josiam, et al., 1998; Smeaton, et al., 1998). Prior to the piloting of the surveys, the two 'most important reason' questions were open-ended. After tallying open-ended pilot results, most endorsed a response that was from a list that existed prior to the decision to make the item open ended (item list compiled from: Hesse, et al., 2008; Josiam, et al., 1998; Smeaton, et al., 1998; Smith, 2006; Young, et al., 2002). Multiple choice response options were chosen to minimise participant time requirements and to streamline data entry and data analysis.

Questions 6 to 9 collected demographic information including home postcode, month of birth, year of birth, gender and type of school attended in year 12. Questions 6 (home postcode) and 9 (state or private school enrolment) were included to confirm respondents belonged to the expected demographic. The celebrations at Rottneest Island are typically heavily represented by students from independent schools and from residential areas with higher socio economic indexes (Office of Crime Prevention & Smart Events, 2008b). The five schools which were most frequently represented in RIA unit rental records during *Leavers* (and accounted for over 60% of the leavers) were contacted (M. Czerniak, personal communication, February 23-March 03, 2011). All five independent schools ran a school-specific drug education program, with at least eight hours of AOD education in both years 9 and 10. Whilst the Health and Physical Education programme does not run in grades 11 and 12, all schools ran AOD education through additional talks given either in house by health teachers, or more frequently, through guest speakers from AOD experts. Most of these talks covered AOD-use within the context of school balls and *Leavers*.

Intended and expected alcohol use

In question 10 respondents indicated whether they intended, did not intend or were not sure about whether they would drink alcohol at *Leavers*. This multiple choice question was followed by quantity specific questions on alcohol use. Respondents indicated the number of alcoholic drinks they intended to consume over a 'typical' *Leavers* day, as well as what they expected a same-sex peer in their immediate friendship group and a same-sex average student would be drinking on a typical *Leavers* day (questions 11 to 13). These questions were based on the format of questions E27-E35 in the 2007 National Drug Strategy Household Survey (NDSHS) (AIHW, 2008). The format used the standard drink response method, as described below.

The standard drink response method

Quantity specific alcohol use intentions, expectations and estimations throughout the pre- and post-*Leavers* surveys were assessed using the standard drink response method. This method asks respondents to specify alcohol quantities

in standard drinks. Quantity specific measures were utilised, as opposed to NHMRC 'low risk'/'risky' brackets, to yield more precise information. Definitions of risk categories can change over time (e.g. from 2001 to 2009), however, a single standard drink is always defined as containing 10g of alcohol (NHMRC, 2009)⁴. Also, as Livingston noted, it is possible that average quantities of alcohol consumed by a population can increase over time without a corresponding increase in the proportion of the population classed as 'risky'. This effect of apparently stable levels of risky drinking may appear due to insufficient discrimination within the 'risky' bracket (Livingston, 2008)

To assist in identifying what a standard drink was comprised of, participants were first shown pictures of the typical number of standard drinks contained in common alcoholic beverages. See figure 2. The standard drink guide used in this project was based on a chart generated by the National Health and Medical Research Council (NHMRC) (National Health and Medical Research Council (NHMRC), 2009). See appendix B for a copy of the original NHMRC chart.

⁴ The quantity of alcohol per 'standard drink' varies across countries. For example, a 'drink' contains about 12 grams of alcohol in the US, and 8 grams in the UK (Room, 2007).

Figure 2

Adapted standard drink guide

SPIRITS & PRE-MIXED SPIRITS				BEER								
												
22 700 ml Bottle of Spirits 40% alc/vol	1.1 275 ml Full Strength Pre-mixed Spirits (e.g. Bacardi Breezer, Vodka Cruiser) 5% alc/vol	1.2 330 ml Full Strength Pre-mixed Spirits (e.g. Smirnoff Ice, Lemon Ruski, UDL) 5% alc/vol	1.8 330 ml High Strength Pre-mixed Spirits (e.g. Cruiser/Ruski/ Smirnoff "Black") 7% alc/vol	1.4 375 ml Full Strength Beer 4.8% alc/vol	1 375 ml Mid Strength Beer 3.5% alc/vol	0.8 375 ml Low Strength Beer 2.7% alc/vol	1.1 285 ml (middy) Full Strength Beer 4.8% alc/vol	2.2 570 ml (pint) Full Strength Beer 4.8% alc/vol	0.8 285 ml (middy) Mid Strength Beer (e.g. Carlton Mid, XXXX Gold) 3.5% alc/vol	1.6 570ml (pint) Mid Strength Beer (e.g. Carlton Mid, XXXX Gold) 3.5% alc/vol	0.6 285 ml (middy) Low Strength Beer (e.g. Hahn Premium "Light") 2.7% alc/vol	1.2 570 ml (pint) Low Strength Beer (e.g. Hahn Premium "Light") 2.7% alc/vol
												
1 30 ml Shot 40% alc/vol	1.5 375 ml Full Strength Pre-mixed Spirits (e.g. Jim Beam & Cola) 5% alc/vol	1.7 440 ml Full Strength Pre-mixed Spirits (e.g. Woodstock Bourbon & Cola) 5% alc/vol	2.1 375 ml High Strength Pre-mixed Spirits (e.g. Jim Beam "Black" & Cola) 7% alc/vol									
WINE (inc. champagne)								CIDER				
												
8 750 ml Bottle of Wine 13% alc/vol	7.5 750 ml Bottle of Champagne 12.5% alc/vol	41 4 litres Cask of Wine 13% alc/vol	21 2 litres Cask of Wine 13% alc/vol	1 100 ml Standard Serve of Wine 13% alc/vol	1.5 150 ml Restaurant Serve of Wine 13% alc/vol	1.5 150 ml Restaurant Serve of Champagne 12.5% alc/vol	1.4 335 ml Bottle of Cider (e.g. Strongbow) 5% alc/vol					

Changes made to the 2009 NHMRC standard drink chart

The standard drinks guide used in this project differed from the template of the NHMRC chart in six ways: alcohol category presentation order, the provision of brand-specific examples of beverage categories, Western Australian specific beer glass names and beer glass sizes, the inclusion of an apple cider category, red and white wine presented as a single category and the use of the term 'shot' as opposed to 'nip'.

In contrast to the original, this project's beverage category presentation order was spirits & pre-mixed spirits, beer, wine, then cider to reflect the preferences of

16-17 year old West Australian students (DAO WA, 2007a, p. 25).

Unlike the NHMRC chart, brand specific examples were provided for some beverage categories where similar drinks had different container sizes. For example, the pre-mixed beverages 'Bacardi Breezers' are sold in 275ml bottles whereas 'Smirnoff Ice', of the same beverage category and alcohol concentration, is sold in 330ml bottles (Drug and Alcohol Services South Australia, 2008).

There were two changes made in relation to beer glasses. Firstly, as beer sizes have different names in different Australian states, for this project the beer glasses were labelled with terminology relevant to Western Australia – for example, a middy glass (285ml) and a schooner glass (425ml). Secondly, the actual glass sizes included in the guide were changed. The NHMRC chart depicts 285ml and 425ml glasses. The chart used in this project depicts 285ml (middy) and 570ml (pint) glasses. The two largest hospitality glassware providers for Western Australian public houses, Hisco and Bidvest, stated in 2009 that 285ml middy glasses were sold most frequently within WA, followed by 560-570ml pint glasses. Schooner glasses (425ml) were not popular and/or the least sold of the three beer glass sizes (WA branch of the Australian Hotels Association, Elizabeth Kerep [Bidvest] and Matther Mees [Hisco], personal communication, September 02, 2009). Of note is that since the respondents are underage, it is likely the number consuming beer from glasses (in a licensed venue) is likely to be small. Only 7% of WA 17 year old current drinkers consumed their last alcoholic beverage in a licensed venue (DAO WA, 2010a).

A depiction of alcoholic apple cider was also included in the chart. Although a small percentage (0.5%) of 17 year old WA students drank cider in 2005 (DAO WA, 2007a), anecdotally in 2009, the beverage category was increasing in popularity. Retrospectively, cider was the fastest growing liquor category in 2009. Over 20 new brands of cider were introduced into the Australian marketplace from 2008-2010; and in the last quarter of 2009, value sales of cider increased by 37% (The Nielsen Company Australia, 2010).

Red and white wine were merged into the single category of 'wine'. The National Drug Strategy Household Survey standard drinks chart has a generic

depiction of wine (AIHW, 2008) and similarly the 2005 Australian Secondary School Alcohol and Drug survey also does not differentiate between white and red wine when asking about the alcoholic drinks students usually consume (DAO WA, 2007a). The number of standard drinks contained in each wine receptacle was calculated at the alcohol strength of 13% alc/vol (the average of NHMRC's red and white wine alcohol concentrations [13.5% alc/vol and 12.5% alc/vol respectively]).

The term and image of a 'nip' of spirits (30ml) was replaced by the term 'shot' (also 30ml) and the image of a shot glass. Drinking 'shots' was anecdotally more commonly used terminology amongst young people. Pilot group participants also used the term 'shots' frequently and did not utilise the term a 'nip' of spirits. Standard drink guides provided by other government websites such as www.alcohol.gov.au depict spirit shots alongside spirit nips (Department of Health and Ageing, 2009).

Intended use of drugs other than alcohol at Leavers

Respondents' intentions to get drunk and stoned/high at *Leavers* were assessed using a five point Likert scale (strongly agree – strongly disagree). Similar items were also assessed by Smith and Rosenthal (1997) and Sonmez et al. (2006).

Respondent intentions to use and expectations of peers' use of drugs other than alcohol at the celebrations were also ascertained in this section. The drugs other than alcohol assessed were amphetamines, caffeine, cannabis, ecstasy, and a respondent-specified 'other' option. A five point Likert scale was used to assess strength of agreement to the statements describing personal intentions and peer expectations.

Attitudes, norms and expectations related to AOD-conducive conditions at Leavers

Question 15 of the survey explored personal attitudes, social norms and expectations hypothesised to influence perceptions of AOD-conducive conditions at *Leavers* and in turn, serve as predictors of behavioural intent (Triandis, 1977).

Fifteen statements described perceived norms, shared understandings between friends, expectations to feel pressure to use various drugs and expectations

of AOD to facilitate a positive *Leavers* experience. The strength of respondents' agreement with the various statements was recorded using a five point Likert scale (strongly agree – strongly disagree).

Most items from question 15 were based on similar items used in studies on *Schoolies*, Spring Break and Mardi Gras. These studies found evidence that situational conditions/expectations of situational conditions were important in eventual alcohol and/or drug use (Herold, et al., 1998; Maticka-Tyndale & Herold, 1999; Maticka-Tyndale, et al., 1998; Maticka-Tyndale, et al., 2003; Milhausen, et al., 2006; Sonmez, et al., 2006). See appendix D for a detailed description of the development of the individual items.

Of the 15 items assessing AOD-conducive conditions used during piloting (when test-retest information was collected), 11 items remained unaltered in the final survey. These 11 items had adequate reliability with Spearman's rho correlations between test and retest scores ranging from .47 to .79, and were all significant at the .05 level (n=20). Cronbach's alpha for the 11 items was .61 (test data) and .62 (retest data). Using the final survey dataset, the 15 statements obtained a Cronbach's alpha .87, suggesting the items were assessing the same underlying construct.

AOD use at the last social event attended

The last social event attended with peers was examined. This event represented a 'usual' (non-*Leavers*) social occasion where alcohol and other drugs may have been used. This 'last event' section covered the location of the event, when the event was held, use of alcohol and drugs other than alcohol at the event, the number of drinking hours at the event, the source of alcohol/other drugs used and measures of usual alcohol use. See appendix D for the development of the location of the last event item.

Alcohol use at the last social event

In question 18 respondents were asked a dichotomous response question (yes/no) as to whether they used any alcohol at the last social event. In question 19 quantity estimates for alcohol used at the event were made using the 'beverage specific'

approach. This beverage specific approach, also known as the detailed table method, requires the respondent to provide a detailed description of the alcoholic beverages they consumed over a single day (the day of the social event). The method requires the respondent to specify for every type of drink they consumed on that day, the type of alcohol they consumed (e.g. wine), the size of the beverage receptacle and the quantity of each beverage type they consumed using a pre-drawn table. The number of standard drinks consumed is calculated from the detailed table by the researcher. See table 1. The detailed table used in this study was adapted from question E18 of the 2007 National Drug Strategy Household Survey (see appendix C for a copy of question E 18's table. In the following two sections, changes made to the NDSHS table made for this project are described and the beverage specific approach is compared to the standard drink response method.

Changes made to the NDSHS response table

Various changes were made to the detailed table of the National Drug Strategy Household Survey (NDSHS) for this study. Terminology relevant to young people and Western Australia was substituted, the use of fractions as a response option was explicitly endorsed, beverage types anticipated to be unpopular were omitted or given less prominent placement, the pre-mixed spirits category was segmented by alcohol strength, examples of beverage types were introduced or changed, and glass size volumes were redefined.

Similar to the changes made to the standard drink guide described above, the term 'nip' was replaced with 'shot', WA-appropriate terms for beer glass sizes were added, and beverage types were re-ordered to reflect the preferences of young people (DAO WA, 2007a).

The use of fractions to quantify consumption of a beverage was revealed to be common amongst this study's pilot groups and within literature (e.g. Gill, Donaghy, Guise, & Warner, 2007). Pilot group participants commonly spoke of sharing casks of wine and bottles of spirits evenly between friends. Alcohol quantity was often described in terms of the beverage type and a fraction; for example, a fifth of a 4 litre cask of wine. As the size specifications for cask wine in the NDSHS table only included wine glasses and wine bottles, cask wine drinking respondents would be required to perform mental calculation to describe quantity; for example $1/5$ of a 4L cask = 800ml, then write the number 4 in the '200ml glass' field. To facilitate quantity descriptions using fractions and in recognition of how commonly cask wine was consumed at *Leavers* (according to pilot group participants), two extra categories '2L cask' and '4L cask' were added to the detailed table. The sizes 2L and 4L were chosen as a result of informal surveys of commonly stocked cask wine sizes at local liquor stores. The following instruction was presented prior to the detailed table: 'If you consumed less than an entire bottle/cask of wine/spirits you can describe the proportion you consumed in decimals. E.g. if you equally shared a bottle of spirits between four people, write '0.25' (i.e. a quarter of the bottle)'. The instructions requested the respondents use a decimal fraction for ease of later analysis; however if they specified a common fraction (e.g. '1/4'), this was later

converted to a decimal fraction ('0.25') by a data entry officer.

The NDSHS table included the beverage category 'fortified wine'. This category was removed for this study's surveys. Fortified wine was not anticipated to be a popular alcohol beverage choice amongst young people and it is not mentioned as an individual category in the NDSHS results - assumingly due to lack of respondent endorsement (AIHW, 2008). The Australian Secondary School Alcohol and Drug survey does not list fortified wine as a response option and pilot group respondents did not describe the use of fortified wine.

The NDSHS table lists three types of wine: home-made, cask and bottled, and four types of beer: home-brewed, regular strength, mid strength and low alcohol. The categories home-made wine and home-brewed beer were removed from this study's survey as they were anticipated to be less commonly endorsed than their commercially manufactured equivalents. Neither of these home-made/brewed beverages were specifically mentioned in the 2007 NDSHS results or within pilot groups. The categories of cask wine and bottled wine were merged in to the descriptor 'bottled/cask wine' and were assigned an identical alcohol strength.

The categories 'full strength' pre-mixed spirits (5% alc/vol) and 'high strength' pre-mixed spirits ($\geq 7\%$ alc/vol) were introduced into the detailed table to increase the accuracy of alcohol use estimates. Brand specific examples of beverages belonging to each category were added to the table (Drug and Alcohol Services South Australia, 2008).

As a part of the wine category label, the phrase 'includes sparkling wine e.g. champagne' was included. Pilot group respondents commonly included sparkling wine in the 'other' category.

Examples of spirits were reordered from 'gin, vodka, rum, Kahlua' to 'vodka, rum, gin, Baileys', in anticipation of popularity amongst young people, especially that vodka would be more popular than gin. Recently, a US study assessed the alcohol brands consumed by 16-18 year olds in the past 30 days. The popularity of particular spirit types, assessed as a percentage of the total volume of alcohol consumed, followed the order of: vodka, bourbon, gin, rum, whiskey,

scotch, tequila and cognac (Siegel, DiLoreto, Johnson, Fortunato, & DeJong, 2011).

The NDSHS table includes an 'other' category where respondents are able to specify a type of alcohol not described elsewhere within the table. Original glass sizes for this other alcoholic beverage category were 60 ml (a 'small' glass), 120 ml (a 'medium' glass) and 180 ml (a 'large' glass). It was anticipated these glass sizes were smaller than what most respondents would be using, with the smallest glass size holding the equivalent of two shot glasses worth of liquid. In this study, the beverage glasses were relabelled as small (150 ml), medium (250 ml) and large (375 ml). The 150ml size was chosen as it is the official Australian standard glass size; though not a measure commonly used in recent times (Christina Pollard [Manager of the Nutrition & Physical Activity Branch, WA Health], personal communication, 19 August 2009). The 250 ml size was chosen to indicate a medium glass size as it is currently the common standard serving size for a beverage (Food Standards Australia New Zealand, 2009). The 375ml size was chosen to represent a large glass as it is a commonly used single serve size in Australia. Australian manufacturers of non-alcoholic beverages are advised that for beverages sold in a single serve container, the serving size of the drink should be the same volume as the container. So for beverages sold in 375ml cans, 375ml should be considered the serving size (Australian Beverages Council, 2011). A 375ml can is a commonly used beverage container for a variety of non-alcoholic and alcoholic beverages in Australia (Food Standards Australia New Zealand, 2009), and the standard size of packaged beer (in a can or bottle) and some RTDs (National Health and Medical Research Council (NHMRC), 2009).

Comparing two alcohol quantity estimation approaches: the standard drink response method and the beverage specific method

In the pre- and post-*Leavers* surveys, two response methods were used to estimate alcohol quantities: the beverage specific approach and the standard drink approach. In this subsection, the methods are directly compared and the rationale for the use of each is explained.

The standard drink method is a 'global' measure of consumption which summarises the quantity of all types of alcoholic beverages consumed with a single

question such as ‘in those days when you drank, how many drinks did you usually have?’ It is used commonly when there is limited space available in a survey (Stockwell, et al., 2000) and when a variety of timeframes are assessed (AIHW, 2008). Pilot group respondents agreed that they were familiar with the concept of standard drinks as it is a syllabus item taught during years 7-8 in high school (Department of Education and Training Western Australia, 2007; SDERA & Drug Aware). Also, questions about intentions and expectations (questions 11 to 13 in the pre-*Leavers* survey) were answered in terms of standard drinks as pilot group participants suggested further beverage specificity was difficult to generate on a prospective basis and for peers.

The beverage specific approach provides alcohol quantity estimations of greater accuracy than those achieved through the standard drink method. Also, additional information such as the type of beverage consumed was captured by using the beverage specific approach.

Past research has demonstrated that the beverage specific approach is a more valid measure than global measures of alcohol consumption (Dawson, 1998; Stockwell, et al., 2000; Stockwell, et al., 2004). Namely, the increased validity of the beverage specific method is largely due to a smaller under-reporting effect (Russell, Welte, & Barnes, 1991). However, while the beverage specific approach usually produces more accurate volume estimates, the considerably longer question length can seem ‘annoyingly repetitive’ to participants if there are many reporting days (Stockwell, et al., 2004:44). This item length related frustration may affect the validity of responses by reducing item response rates (Punch, 2003). Although the detailed table initially appeared daunting, some of this project’s pilot group participants expressed a preference for detailed response question format as less mental calculation was required compared to the standard drink response method.

Note that two response methods were used to assess alcohol quantity as the methods answered different hypotheses. The standard drink response method was used to estimate intended alcohol use in the pre-*Leavers* survey and actual alcohol use in the post-*Leavers* survey. Using the same reporting method for both intended and actual alcohol use eliminates the possibility that any observed differences

between intended and actual use stems from the use of different estimation methods (that is, that any difference is due to a methodological artefact). Similarly, estimations of what peers were expected to drink and estimated to have drunk were also made using the standard drink method. The beverage specific approach was used to provide the most accurate estimation of alcohol use possible through self-report. Also, the use of two response methods allowed direct comparison of the methods. While the literature suggests the methods would provide discrepant findings, whether a difference would be found in this particular population was unknown (Stockwell, et al., 2004). The two approaches are compared in post-hoc test 2 of chapter 5.

Drinking hours and source of alcohol used at the event

Question 20 asked respondents to specify the number of hours over which the drinking at the last social event occurred. Question 21 asked about the source of the alcohol they used at the event. The response option listing for the source was adapted from question 27a of the Australian School Student Alcohol and Drug (ASSAD) survey. The ASSAD provides 16 response options and this survey omitted less frequently endorsed options, in particular, the type of retail outlet where self-purchases were made (DAO WA, 2007a).

Usual frequency of consumption of more than 4 alcoholic standard drinks

Questions 22 and 23 assessed the frequency of risky alcohol consumption. Respondents were asked how many times in the last 12 months they drank more than 4 standard drinks in a single session. This cut-off point of 4 standard drinks referred to the current Australian alcohol use guidelines for lower risk single occasion drinking (NHMRC, 2009). Also, the reference period of the previous 12 months was used to compensate for fluctuations in drinking patterns immediately prior to *Leavers* when the Tertiary Entrance Examinations would have been held.

Question 23 was based on question 3 of the The Alcohol Use Disorders Identification Test (AUDIT). The item 'how often do you have six or more standard drinks on one occasion' included the response options daily or almost daily, weekly, monthly, less than monthly and never (Babor, et al., 2001; World Health

Organization, 2009). In this study, the response option of 'every 6 months' was added and the 'less often' category became 'less often than every 6 months'. This additional response option was included to reflect the episodic nature of adolescent alcohol use (e.g. Kuntsche & Cooper, 2010).

Use of drugs other than alcohol at the last social event attended with friends

The use of other drugs at the last event, and the source of the drugs were assessed in questions 24 and 25. Five drugs were included in this section: amphetamines, caffeine, cannabis, ecstasy or a respondent-specified 'other' drug. These drugs were commonly used by young people and were anticipated to be popular choices within a 'party' context (AIHW, 2007a; DAO WA, 2007b, 2010b).

The use of the five types of drugs at the event was assessed using a dichotomous response (yes/no). If the respondent did use the drug they were asked to specify the quantity of the drug they used with reference to the drug administration method (e.g. 1 tablet and 2 lines of ecstasy). If caffeine was used, the respondent was asked whether the caffeine was used with alcohol. This item about caffeine used in combination with alcohol was included as anecdotally, the use of caffeine was prevalent at *Leavers* with the grounds of the entertainment zone littered with 'No Doze' (caffeine in tablet form) packets at the end of the night (L. Murphy [co-ordinator of WA Leavers 2005-2008], personal communication, Friday February 15, 2008). Even after adjusting for alcohol consumption, young people who consume alcohol mixed with energy drinks have higher rates of serious alcohol-related consequences (Marczinski & Fillmore, 2006; O'Brien, McCoy, Rhodes, Wagoner, & Wolfson, 2008; Thombs, et al., 2010).

Question 25 asked about the source of the drugs other than alcohol used at the event. The response options were adapted from the Australian Ecstasy and Related Drugs survey (George & Lenton, 2007). Response options that were directly transferred into this study included 'friends', 'workmates', 'acquaintances' and 'other'. 'Known dealers' was rephrased as 'a dealer I know' to clarify what 'known' implied, and 'unknown dealers' became 'unknown/street dealers'.

The last social event attended with friends when more than 4 standard drinks were consumed

Question 26 asked respondents if they consumed more than 4 standard drinks at the last social event they were making reference to in questions 16-25. If respondents did not consume more than 4 standard drinks, they were asked about the last occasion they consumed more than 4 standard drinks in a single session (if ever). Details about this last occasion where more than 4 standard drinks were consumed were obtained from questions 27-33 which are identical to questions 16-25.

Conditions experienced at the last social event attended

Particular elements of the celebration environment were considered either 'conducive to AOD use', that is, encouraged or condoned AOD use; or as 'not conducive', acting as a deterrent to AOD use. For example, 'I had plenty of opportunities for drinking' was considered conducive, whereas 'if I were street drinking there was a good chance I would get into trouble with the law' was a deterrent. These conditions considered to influence alcohol and other drug use were assessed in relation to the event where the respondent last consumed more than 4 alcoholic drinks in question 34. All 14 items of question 34 were answered using a 5 point Likert scale (strongly agree, agree, neutral, disagree, strongly disagree). The same table appears in the post-*Leavers* survey to assess the conditions at *Leavers*. See the appendix D for item development detail.

The first 13 items of question 34 were used to create a summary measure of AOD-conducive conditions - the 'conducive conditions' scale. However, the three items about street drinking, being drunk and disorderly and drug possession, though having face validity, were removed from the summary scale as they did not adequately correlate with the other items, and their inclusion reduced the alpha. The alpha for the remaining 10 items (Q34a-j) was .83. An alpha of .83 suggests the conducive conditions summary score has good internal reliability and its 10 items are measuring the same underlying construct.

Perceptions of alcohol and other drug use at Leavers

Questions 35-37 explored the AOD-related reputation of *Leavers* and assessed the acceptability of AOD-related behaviours at *Leavers* compared to other contexts.

Question 35 was an open-ended question that asked respondents to briefly describe the kind of reputation *Leavers* has with regard to alcohol and other drug use. The reputation of *Leavers* was examined as the literature purports that 'social environments in which large proportions of people assume that everyone is drinking heavily tend to be more supportive of heavy drinking' (Perkins, et al., 2005).

Question 36 included six questions with a five point Likert scale response option. The first two items asked respondents about the reputation of *Leavers* and the next four questions assessed the acceptability of two alcohol-related behaviours depending on context.

During the piloting phase, the first two items of question 36 were presented as a single item: '*Leavers* has a reputation for heavy drinking and other drug use'. However, when asked about the *Leavers* reputation using an open ended question (question 35) and in the post-survey discussion period, many pilot participants distinguished between the reputation of alcohol and other drugs. There was near unanimous agreement with piloting participants that *Leavers* was known for heavy alcohol use. However, opinions were more varied with regard to the role of other drugs at *Leavers*. Thus, following feedback from the piloting procedure, the reputation item was separated into two items: '*Leavers* has a reputation for heavy alcohol use' and '*Leavers* has a reputation for other drug use'.

Four questions assessed the acceptability of the behaviours including vomiting after drinking and having casual sex after drinking, depending on the context of the behaviour. The two contexts assessed were *Leavers* and at a 'usual' social event with peers. This series of questions was designed to determine whether the acceptability of alcohol-related behaviours differed at *Leavers* compared to other peer-based social events. As the reputation of *Leavers* is anecdotally one where heavy alcohol use is normative, it was hypothesised that alcohol-related behaviours would also be more acceptable within a *Leavers* context.

Question 37 asked respondents whether they believed there were certain behaviours that were more acceptable at *Leavers* compared to if the behaviours occurred at regular social events with their friends. If respondents answered 'yes' to

the dichotomous question, they were asked to specify in an open ended response section what these behaviours would include.

Harm minimisation discussions with peers/parents and parental approval of AOD use

Question 38 was open-ended and asked respondents to list some harm reduction strategies that might help keep themselves and their friends safe while affected by AOD at *Leavers*. Question 39 consisted of six items. The first two items related to parental discussion of alcohol and other drugs in general. The third and fourth item assessed perceptions of parental approval of risky alcohol and other drug use. The last two items assessed whether harm minimisation strategy discussions had taken place with their parents and friends. All items had a six-point Likert type response options. Note a yes/no/don't know response option would have sufficed for items 39 a, b, e and f as the items relate to a concrete event (whether or not a general discussion and harm minimisation specific discussion occurred), as opposed to an opinion. However, the same scale used previously throughout the survey was utilised to maintain consistency and reduce respondent confusion/burden.

The questions 'in the last three months I have had a discussion with my parents about alcohol/ drugs other than alcohol' were based on an item from the Parent Omnibus Survey (King, et al., 2005b, p. 35), and included as parental approval of AOD use is correlated with riskier adolescent use (Hayes, et al., 2004).

Self generated identification code

The last section of the survey asked a series of questions that would be used to generate a unique identification code (Damrosch, 1986). The resulting code was used to link pre- and post-*Leavers* surveys (if both had been completed) while retaining respondent anonymity. Two of Damrosch's items, respondents' month of birth and whether the respondent was born in an even-numbered year, were omitted as that information was already requested at an earlier point in the survey.

Previous studies found that success of correctly matching using the code was inversely proportional to the time elapsed between survey administrations, with high match rates associated with one to four month administration intervals

(DiIorio, Soet, Marter, Woodring, & Dudley, 2000). For example, Kearney and colleagues yielded matches of 92% over a one month administration gap and matches of 78% over a one year gap using their self-generated code (Kearney, Hopkins, Mauss, & Weisheit, 1984). Successful matching prevents paired samples from being incorrectly analysed as independent samples. Where data from the surveys are directly compared (e.g. perception of peer AOD use over time), this incorrect analysis will reduce statistical power and increases the probability of a Type II error occurring (Bedeian & Feild, 2002; Yurek, Vasey, & Sullivan Havens, 2008).

3.1.4 Post-Leavers survey instrument

The post-*Leavers* survey is described in two sections: survey administration and participant recruitment and description of survey components.

Post-Leavers survey administration and participant recruitment

The post-*Leavers* survey referred to the first three days of the *Leavers* period, the 24-26th of November 2009. Respondents were recruited using two main methods: through individuals who had previously completed the pre-*Leavers* survey and via a research team stationed on Rottneest Island on the last day of the celebrations. Similar to the procedure in the pre-*Leavers* surveys, two recruitment approaches were utilised to maximise the number of post-*Leaver* surveys completed

After completing the online pre-*Leavers* survey, participant email details were collected to notify them if they have won a prize and for further notices. This email address was used to alert the respondents on the 27th of November 2009 that the post-*Leavers* survey was available for completion. They were sent an email with an embedded link to the web survey. Also, subsequent to submitting a completed post-*Leavers* survey, respondents were able to enter their email address to enter the prize draw. Respondents were contacted via this email address to confirm their prize draw entry and to be reminded they could tell friends about the survey.

The majority (86%) of the post-*Leavers* surveys were administered on Rottneest Island on the last day of *Leavers*, the 27th of November 2009. On the last

day, the research team which comprised of the candidate, one research assistant and 25 survey administrators, distributed paper and pen surveys in various locations around the island.

The research team administered surveys in teams of two and remained in an area close to participants, to encourage serious attempts at survey completion and to collect completed surveys. The 25 survey administrators were volunteers from the WA AIDS council and the Red Frogs (Baptist Youth) who had been volunteering at *Leavers* in previous days. All research team members wore Curtin University branded polo tops to identify them as research staff.

Survey administration began at 8am on the 27th of November 2009. There were six groups of survey administrators, each targeting different parts of the island. Groups were instructed to target four different accommodation areas, the island's commercial precinct, the grassed areas overlooking the main jetty and ferries departing the island.

Survey administrators were instructed to target leavers waiting outside their accommodation units for an accommodation inspection with the person who had signed the accommodation paperwork and was required to be present at the time of inspection (the 'key holder') to obtain a \$2,000 *Leavers* security deposit. The inspection times were staggered throughout the morning and early afternoon (8:30 am – 2pm) and the survey administrators were given these times so they were able to survey their allocated area prior to the inspection official arriving.

Surveys were distributed on ferries leaving the Island by members of the research team who were also leaving for the mainland. Survey collection boxes were placed on the ferries and later collected by the researcher. Also, surveys were left at the Rottnest Island Nursing Post on the 25th of November to be placed on the Nursing Post's counter on the 27th of November for leavers passing through. Eight surveys were later posted back to Curtin University from the Rottnest Island Authority (RIA) and the Rottnest Island Nursing Post.

It was anticipated from observation of the 2008 celebrations that the bulk of survey administration would occur during the hours of 12 noon and 2pm when

many leavers were sitting outside their units waiting for an inspection of their accommodation for a bond refund. However, in 2009, many leavers left the Island earlier than expected and the majority of the survey administration was completed by 12 noon. The accommodation areas were not densely populated throughout the morning in 2009 as in 2008. It appeared that many 'key holders' were left to complete the accommodation inspection on their own, or no unit occupants remained for the inspection. The busier areas where survey administration was most successful were the commercial areas of the island. The survey confidentiality and consent procedures for the post-*Leavers* survey were identical to those employed for the pre-*Leavers* survey.

Post-Leavers survey components

The post-*Leavers* survey is divided into seven sections to be individually described. Those items in the post-*Leavers* survey which were identical or similar to those found in the pre-*Leavers* survey have not been repeated here. It is noted in the post-*Leavers* survey description section where referral to the pre-*Leavers* survey is necessary.

Demographic information

The first section collected survey eligibility criteria and demographic information. To be counted as a valid response, individuals must have attended *Leavers* in 2009, attended the celebrations at Rottnest Island, and completed grade 12 in 2009.

Question 4 asked respondents whether they resided in a Rottnest Island holiday unit, a private boat or other style of accommodation during *Leavers*. It was anticipated that leavers on boats would be more difficult to reach via personally distributed surveys than leavers residing on the Island. Thus question 4 aimed to assess the degree to which leavers accommodated on private boats were represented in the results. Question 5 asked respondents to specify whether their *Leavers* accommodation was located within the main settlement or Geordie Bay region of Rottnest Island. Anecdotally, through informal conversations with leavers during 2008 celebrations, the Geordie Bay area was more known for illicit drug use than the main settlement area. Subsequently, this item was included in the survey.

Questions 6 to 9 were demographic questions also asked in the pre-*Leavers* survey.

Alcohol use at Leavers

Questions 10 to 18 assessed alcohol use at *Leavers*. The section estimated the quantity of alcohol consumed, drinking hours, levels of intoxication, alcohol source, when alcohol was obtained, perceptions of peer alcohol use at *Leavers* and parental discussion of harm minimisation.

Personal alcohol use

In question 10, respondents indicated whether they consumed or did not consume alcohol at *Leavers*. Drinkers went on to describe the quantity of alcohol they consumed over the first three days of *Leavers*. Alcohol use on each individual day was estimated using two methods: the beverage specific and the standard drink response method. The two methods were discussed in detail and compared in the pre-*Leavers* survey instrument description (see section 'Comparing two alcohol quantity estimation approaches').

The question 'over how many hours did the drinking occur' was asked following each day's quantity estimates of alcohol consumption. Then, drinking respondents were asked how drunk they felt on each day at *Leavers* on a scale where 1= 'not at all' and 10 = 'extremely'. The item intended to assess the subjective effects of alcohol on the respondent and was adapted from a study by Martin and Earleywine (1990). Their item, 'how intoxicated do you feel at this time?' was answered by circling a number on a scale that ranged from 1 ('not at all') to 10 (labelled 'extremely'). The term 'intoxicated' was substituted with 'drunk' to make the item specific to alcohol. Items phrased similarly to 'how much did you feel the effects of alcohol right now', 'what is your subjective level of intoxication?' and 'how drunk did you feel this day' correlate well and appear to yield similar responses (Martin, et al., 1985; Viken, Rose, Morzorati, Christian, & Li, 2003). Ratings of subjective intoxication correlate with estimated blood alcohol concentration (BAC), mood and behavioural impairment (Martin, Rose, & Obremski, 1991; Sayette, Martin, & Perrott, 2001).

Perceptions of peer alcohol use

Respondents were asked to specify the number of standard drinks they thought (i) the same-gender people in their immediate friendship group drank on a typical *Leavers* day (question 17), and (ii) the average same-gender student drank on a typical *Leavers* day (question 18).

These two questions were intended to evaluate perceptions of the consumption patterns of peers as existing literature has established that personal alcohol use is highly correlated with perceptions of peer drinking rates (Hughes, Julian, Richman, & Mason, 2008; Korcuska & Thombs, 2003; Lewis & Neighbors, 2004). Some authors suggest that young people 'anchor' their drinking with gender-specific perceived norms (Korcuska & Thombs, 2003).

Although questions 17 and 18 appear similar, they were both asked to determine whether the respondent perceived their peer drinking behaviour to be reflective of the larger leavers population. It was anticipated that the perceptions of peer use would correlate more closely with personal use than those of the wider *Leavers* population (Beck & Treiman, 1996). Also, the perceptions of what the 'typical' student is using may be indicative of the social environment that supports risky drinking (Hughes, Julian, Richman, & Mason, 2008).

Question 19 asked how strongly they agreed that they had discussed with their parents the ways in which they could keep safe whilst affected by alcohol and/or other drugs to gauge whether harm reduction strategies had previously been discussed with the respondents' parents.

Use of drugs other than alcohol at Leavers

This other drug use section included items on perceptions of peer other drug use, respondent other drug use, the source of other drugs used at *Leavers*, when other drugs used at *Leavers* were obtained, and two items which pertained to both alcohol and other drug use: locations where respondent was intoxicated during *Leavers* and how much money was spent on alcohol and other drugs at *Leavers*. Items regarding peer other drug use and drug offers were presented prior to questions about personal drug use, a segue to reduce potential reactivity to questions about personal use of drugs other than alcohol (Josiam, et al., 1998).

Negative consequences

Negative consequences experienced at *Leavers* were determined using the Alcohol and Other Drug Related Problem Scale in question 29 of the post-*Leavers* survey. An existing scale was altered to make it *Leavers*-specific, and to survey more closely the cause of the negative consequence. The development of the scale is discussed below.

Alcohol and Other Drug Related Problem Scale

AOD-related negative consequences were assessed using an adaptation of the Alcohol Related Problem Scale developed by McGee and Kypri (2004). McGee and Kypri's scale focuses on the acute negative consequences of alcohol use including physical consequences, interpersonal problems and anti-social problems. The scale appears to measure the unidimensional latent construct of alcohol related problems and to have good internal reliability with a coefficient alpha of 0.76 (Kypri, Paschall, et al., 2009). Lavikainen and Lintonen (2009) found that the use of structured questions, such as multiple choice, with 14-16 year olds made it easier for the adolescents to concede to experiencing more sensitive alcohol-related negative consequences compared to using open-ended questions. This study's adapted scale is called the Alcohol and Other Drug Related Problem Scale (AOD Related Problem Scale).

Other commonly used scales designed to assess AOD problems include many items on, or focus on AOD dependence rather than acute problems (e.g. Core Institute, 2006; White & Labouvie, 1989). However, largely, the negative consequences addressed by the Alcohol Related Problem Scale are those associated with acute intoxication. It was important that the scale used for this study addressed acute AOD problems and not problems relating to dependency, as *Leavers* runs for less than a week and examination of longer-term AOD problems such as dependence is beyond the scope of this project. Furthermore, especially in younger populations, problems relating to acute intoxication as opposed to AOD dependence are more prevalent (DAO WA). This means scales that are primarily designed to assess dependence with a small number of items assessing problems associated with acute intoxication are likely to underestimate the majority of problems experienced by young people, and especially in the short time frame over

which *Leavers* occurs.

Alterations made to the Alcohol Related Problem Scale

Item changes

The 14 item Alcohol Related Problem Scale was altered to include drugs other than alcohol and to make the scale specific to the context of *Leavers*. Also, one extra negative consequence was added to the scale.

The original item 'inability to pay your bills as a result of spending too much money on alcohol' was changed to 'inability to pay for things as a result of spending too much money on alcohol'. The payment of bills was considered too specific of criteria due to the brief timeframe of *Leavers* and as the target group would likely have a limited number of bills they would be responsible for. The alteration of this 'inability to pay' item did not appear to reduce the reliability of this item which had Cohen's kappa statistic of 0.63 (substantial agreement) in the pilot group results.

The item 'you were removed or banned from a pub or club' became 'you were evicted from your accommodation/Rottneest Island'. The majority of leavers are under the age of 18 and are not permitted to enter the licensed venues on Rottneest Island. However, leavers are able to be evicted from their accommodation or the Island for a period of up to seven days (Government of Western Australia, 1987, 1988)

Two items were augmented to accommodate drugs other than alcohol within the scale: the item 'inability to pay for things as a result of spending too much money on alcohol' became 'inability to pay for things as a result of spending too much money on alcohol/other drugs', and the item 'arrested for drunken behaviour' became 'arrested for intoxicated behaviour'. The effect of these alterations on the item reliability for accommodation eviction and arrest could not be computed as all 20 test-retest participants responded in the negative to these items, both times they were presented.

An extra, 15th item 'had an accident/injured yourself' was included in the scale, in line with the existing literature which reports that injury/accidents are amongst the most common problems experienced by young people while using

AOD (Bonomo, et al., 2001; Chikritzhs, et al., 2004; Sindelar, Barnett, & Spirito, 2004). There appeared to be substantial agreement ($\kappa = 0.79$) in the pilot group test-retest results with reports of accidents due to alcohol use. There was one report of an accident due to other drug use in the test phase which was not reported in the retest phase (disagreement in one case out of 20).

Response option changes

This study changed the Alcohol Related Problem Scale's response options to allow respondents to specify whether the problem was mostly due to alcohol, drugs other than alcohol or due to reasons other than AOD use. Response options for the Alcohol Related Problem Scale items were 'no', 'yes', and 'prefer not to answer'. In this study, the available response options were 'yes, due to alcohol', 'yes, due to drugs other than alcohol', 'yes, due to reasons other than alcohol or other drug use', and 'no'.

The negative consequences assessed by the Alcohol Related Problem Scale are mostly due to the state of intoxication and not due to the specific pharmacological effects of alcohol. As the consequences were able to be experienced due to alcohol and/or other drugs the response options were expanded to simultaneously collect information about alcohol-related as well as other drug-related harms.

Large scale surveys such as the one used by the European School Project on Alcohol and Other Drugs (ESPAD) have also used a single list of harms in relation to both alcohol and drugs other than alcohol (Hibell, et al., 2004). The 2003 ESPAD survey listed 14 harms and asked respondents whether they had experienced the problems with the options 'never', 'yes, because of my alcohol use', 'yes, because of my drug use', and 'yes, for reasons other than alcohol or drug use'. This survey also included the response category 'yes, for reasons other than alcohol or drug use' as it allows the estimation of the proportion of harms such as injuries that are AOD-related. Also, the original harm table that was piloted did not have this 'reasons other than AOD' category and participants stated that they were looking for such an option to endorse.

Sub-scales of the Alcohol and Other Drug Related Problem Scale

Certain AOD-related negative consequence items were grouped together for analysis. The original authors of the Alcohol Related Problem Scale thematically grouped their items into the groups: personal problems, antisocial behaviour and sexual problems (Kypri, Paschall, et al., 2009). These clusters were not generated based on psychometric criteria, but were instead created to address specific questions (K. Kypri, personal communication, July 01, 2010).

For this study, all items were individually analysed and the following groupings for some items were created:

(1) Sexual risk taking and sexual problems (unprotected sex, being in a sexual situation the respondent was unhappy about at the time and having a sexual encounter the respondent later regretted), and

(2) Legal problems behaviour (stealing, vandalism, removal/banning from Rottneest Island/accommodation and being arrested for intoxicated behaviour).

The range of consequences was aggregated into single measures as the individual items were hypothesised to occur less frequently than other negative outcomes. By grouping the outcomes the outcome variable would be larger and it was anticipated statistical models would have greater ability to predict the occurrence of the problem aggregate. These categories were coded as having occurred/not occurred due to AOD use.

This study's AOD-related Negative Consequences Scale obtained a Cronbach alpha coefficient of 0.78 with the original data with four response options, and a Cronbach alpha coefficient of 0.80 with the recoded binary variable (0=did not experience negative consequence/did not experience negative consequence due to AOD use; 1 = experienced negative consequence due to AOD use). These alpha coefficients suggest both the original data as well as the binary data have good internal reliability and are measuring the same underlying construct.

Harm minimisation strategies

Question 30 assessed the use of harm minimisation strategies at *Leavers* using 16 items. The first two listed strategies referred to respondents' alcohol and other drug

use. The following 14 strategies referred to respondents' alcohol use, and were based on the Protective Behavioural Strategies Survey (Martens, et al., 2005).

Alcohol and other drug harm reduction strategies

A search of journal articles and materials designed for young people/the general public was conducted to locate a harm minimisation strategy list that covered a range of illicit drugs (Akram & Galt, 1999; Allott & Redman, 2006; Allsop, Chikritzhs, & Rechichi, 2006; Australian Drug Foundation, 2005; Baggott, 2002; Bowen, 2002; Centre for Addiction and Mental Health, 2006; DAO WA, 2006a, 2006b, 2006c; Hall, 2001; Panagopoulos & Ricciardelli, 2005; Swift, Copeland, & Lenton, 2000). However, due to difficulty in locating a list that covered a range of illicit drugs (as opposed to just one drug), no pre-existing list of harm reduction strategies specific to drugs other than alcohol was used in this study. It was decided that having a scale specific to each drug of interest would increase the survey length substantially, and potentially reduce response rates. Also, the relevance of each scale to the majority of respondents would be limited as it was anticipated, based on focus group outcomes and support service literature that most leavers would not be using drugs other than alcohol.

Instead, two items that covered the use of alcohol and/or other drugs were developed by the researchers. The items 'I made sure I/my friends were never alone whilst intoxicated from using drugs other than alcohol' and 'I knew who to call for help if my friends got into difficulty with alcohol and/or other drugs' were included in the survey. These two items were chosen as they made reference to two key safety messages promoted by *Leavers* support agencies. These safety messages included the 'together forever' (stick together) tagline of the *Leavers* 'brand' (Office of Crime Prevention & Smart Events, 2008b) and the work of support agencies such as the Red Frogs (Baptist Youth) and Drug Arm who promote themselves as people to seek out, if help is required during *Leavers*. The response options for all 16 items of question 30 were a six point Likert scale ('Never', 'Rarely', 'Occasionally', 'Sometimes', 'Usually' and 'Always'). These response options were used by Martens et al. for their Protective Behavioural Strategies Survey (discussed below).

The Protective Behavioural Strategies Survey (PBSS) and alcohol harm reduction strategies

The use of alcohol related harm minimisation strategies were assessed using the last 14 items of question 30. These 14 items were based on the Protective Behavioural Strategies Survey (PBSS). The PBSS is a list of behaviours that minimise the quantity of alcohol consumed and acute harm caused by alcohol use (Martens, et al., 2005).

The PBSS asks respondents to 'please indicate the degree to which you engage in the following behaviors [*sic*] when using alcohol or 'partying''. The listed 15 behaviours are divided into the three subscales of 'stopping/limiting drinking' (first 7 items of the PBSS), 'manner of drinking' (the next 5 items) and 'serious harm reduction (the remaining 3 items)'. The PBSS scores are significantly correlated with alcohol use and are associated with fewer alcohol-related problems (Bennett, Kang, Alperstein, & Kakakios, 2004; Benton, et al., 2008; Clapp, Shillington, & Segars, 2000; Delva, et al., 2004; Martens, Pederson, LaBrie, Ferrier, & Cimini, 2007; Martens, et al., 2004).

Changes made to the PBSS

The PBSS was used in this project with small variations to terminology and the omission of an item referring to drink driving. Terminology changes were made to two items of the PBSS. The original PBSS item 'leave the bar/party at a predetermined time' was changed to 'leave the party at a predetermined time'. As most leavers are under 18, it was anticipated the majority of the drinking would not occur within Rottnest Island's licensed premises. Secondly, the original item 'drink shots of liquor' was changed to 'drank shots of spirits'. The term 'spirits' was anticipated to be more frequently used in Australia. Also the tense of most items was changed from present to past tense e.g. 'drink' became 'drank'.

The original PBSS includes the item 'use a designated driver', which was omitted from the post-*Leavers* survey. This drink driving item was not considered applicable to the context of Rottnest Island, as private cars are not permitted on the island.

The changes made to the PBSS did not appear to affect the reliability of the scale used in this project. Spearman's rho correlations and Cronbach's alpha scores

were computed using data from the test-retest procedure with 20 participants. Alpha scores were obtained using the final data set with over 260 participants.

The Spearman's rho correlations for all 16 harm reduction strategy items were statistically significant at the .05 level and ranged from .45 to .80. The item 'drank shots of spirits' was reverse coded and a summary score was calculated by summing the responses of the last 14 items derived from the PBSS. The Spearman's rho correlation for these summary scores using test and retest data was .78. The Spearman's rho correlations between the summary scores and mean alcohol use at *Leavers* were .53 (test data) and .48 (retest data).

The alpha scores (a measure of internal consistency) for the original PBSS's three sub-scales are .81 for 'limiting/stopping drinking', .73 for 'manner of drinking', and .63 for 'serious harm reduction' (Martens, et al., 2005). Cronbach's alpha scores were computed for each of the three PBSS subscales (minus the drink driving item) on the pilot test data, pilot retest data and the final data set. Scores for the stopping limiting subscale were .73 (test), .72 (retest) and .78 (final dataset). For the manner of drinking subscale the following values were obtained: .52 (test), .48 (retest) and .73 (final dataset). Finally, for the serious harm reduction subscale the alphas were: .76 (test), .86 (retest) and .64 (final dataset). The lower alpha value (.64) obtained from the serious harm reduction subscale using the final dataset may be explained due to the subscale containing two items (one item not relevant to the current study was removed from the original PBSS). The alpha for the summary PBS score (combining all three subscales) was .83. An alpha of .83 suggests the PBS summary score has good internal reliability its 14 items are measuring the same underlying construct.

Experience of AOD conducive conditions at Leavers

The items used in this section were identical to those used for question 34 in the pre-*Leavers* survey. The 'conducive conditions' scale originally consisted of the first 13 items. However, the last three items about street drinking, being drunk and disorderly and drug possession were removed from the summary scale as they did not adequately correlate (Spearman's rho < .14) with the other items and their inclusion reduced the alpha. The alpha for the remaining 10 items (Q31a-j) was .76.

An alpha of .76 suggests the conducive conditions summary score has good internal reliability and its 10 items are measuring the same underlying construct.

Overall satisfaction with Leavers

Question 32 asked respondents ‘overall, how satisfied were you with your Rottneest *Leavers* experience?’ (very satisfied, satisfied, neither satisfied nor dissatisfied, dissatisfied, and very dissatisfied). Pilot group participants suggested this item might be of interest as a general summary of the event experience. It was anticipated ratings of satisfaction might correlate with a number of areas such as experience of negative consequences at Leavers.

Self generated identification code

Respondents were asked six questions in the last section of the post-*Leavers* survey in order to generate a code to link the survey responses of participants who completed both the pre- and the post-*Leavers* surveys (Damrosch, 1986). The identification code has been previously described (see section nine of the pre-*Leavers* survey instrument description).

3.1.5 Statistics

Research designs

Students were encouraged to complete both pre- and post-*Leavers* surveys to yield longitudinal/paired data. Paired data was particularly useful in linking intentions and past use with current AOD use. However, new respondents were also accepted into the post-*Leavers* survey pool. The inclusion of new post-*Leavers* survey respondents allowed for cross-sectional analyses to be conducted on the post-*Leavers* survey responses in the event that attrition was higher than anticipated. These cross sectional analyses are particularly useful in comparing differences between groups using a large sample size.

Statistical tests

To identify associations between the pre- and post-*Leavers* surveys as well as within individual surveys, statistical analyses that are applicable to cross-sectional comparisons (e.g. logistic regression and multiple regression) were used. All

reported p-values are two-tailed.

To address hypotheses where the dependent variable was continuous (e.g. consumption levels), multivariate analyses which include multiple predictors and interaction effects and which capitalise on the repeated measures design among individual students were appropriate (e.g. multiple linear regression). To address hypotheses where the dependent variable was binary (e.g. AOD-related harm vs. no harm), logistic regression was the statistical analysis of choice. Demographic factors such as gender were examined and where necessary, adjusted for, by inclusion as predictor variables.

Parametric tests were used where the dependent variable was found using a Kolmogorov-Smirnov test to be normally distributed, or was able to approximate a normal distribution after a square root transformation (as data were typically positively skewed). Non-parametric tests were used when data was not able to be successfully transformed to approximate a normal distribution.

Non-parametric tests used for this study include the Mann-Whitney U test (non-parametric equivalent of the independent samples t-test), the Wilcoxon-Signed Rant test (non-parametric equivalent for a paired samples t-test equivalent), the Kruskal-Wallis test (non-parametric equivalent for a one-way ANOVA test), the Friedman test (non-parametric equivalent for a one-way repeated measures ANOVA), and Spearman rank order correlation (non-parametric equivalent for Pearson product-moment correlation coefficient).

This study sampled the same students before and after *Leavers* so that potential predictor variables such as previous AOD use at celebratory events may be paired with *Leavers* outcome variables (such as AOD related harm). Compared to non-repeated measures designs, this approach has the advantage of requiring fewer subjects to achieve adequate statistical power for detecting significant differences.

Survey sample sizes

The sample sizes achieved for the pre-*Leavers* survey were 541 (56% female) and 405 (50% female) for the post-*Leavers* survey. The total sample size was 946 respondents. There were 120 participants who responded to both the pre- and post-*Leavers*

surveys (62% female). Reported sample sizes differ throughout the results section as not all respondents answered all the questions in the survey. Sample sizes reflect the number of individuals who responded to the item being tested.

In 2009, the Rottneest Island Authority sold 1466 entertainment wristbands for *Leavers*. This wristband sale number was estimated by the Authority to capture the majority of *Leavers'* participants (B. Pearson, personal communication, May 5, 2010). Based on this estimation, the capture rate for the surveys was approximately 37% for the pre-*Leavers* survey and 28% for the post-*Leavers* survey.

The smallest significant effect size between pre- and post- comparisons was 0.14 (comparing ecstasy use at last event versus day 1 of *Leavers* using a Wilcoxon Signed Rank test, $n=103$). The smallest significant odds ratio from a significant logistic regression model which included pre- and post-*Leavers* survey variables was 4.45 (comparing caffeine use at the last social event attended versus use on any one day at *Leavers*, $n=107$). The smallest standardized regression coefficient value (Beta) from a significant multiple linear regression model with both pre- and post-*Leavers* survey variables was 0.16 (describing the contribution of gender to predicting average alcohol use at *Leavers*, $n=87$).

Analysis software

All quantitative analyses were conducted using PASW SPSS version 18. Data collected via online surveys were automatically collated by the survey software for statistical analysis and data from the paper surveys was manually entered into the same statistical analysis program. Qualitative data obtained through the short-answer survey questions were analysed using SPSS Text Analysis for Surveys version 3.

Maximum scores for alcohol descriptions

The rationale for which scores were considered upper limits within the survey databases is described in two sections: firstly, in terms of respondent's actual consumption and secondly in terms of intentions and estimations of peer use.

Maximum value for alcohol consumption at Leavers

The upper limit of the quantity of alcohol reported to have been personally

consumed by respondents at *Leavers* was 50 standard drinks. Other surveys have chosen lower limits such as 20 drinks (DAO WA, 2010a) or 25 drinks (Perkins, et al., 2005) per occasion. In a study on Spring Break, Smeaton et al. set their maximum as 24 drinks despite the average male consuming 18 drinks (Smeaton, et al., 1998). Smeaton's large number of respondents which reported very high quantities of alcohol use suggest that some 'spurious responses' (>24 drinks) may actually be genuine. Similar to Spring Break, higher alcohol use is reputed to be commonplace at *Leavers*. Also, *Leavers* is a multiple day event and greater drinking hours are associated with greater alcohol consumption (Chikritzhs & Stockwell, 2002).

The maximum value of 50 standard drinks was chosen following an examination of the blood alcohol concentrations produced by higher consumption levels as well as an examination of the distributions of the relevant data sets. Firstly, lethal blood alcohol concentrations (BACs) were investigated. Secondly, BACs were calculated for a number of alcohol consumption levels. Lastly, it was determined whether the estimated BACs were located in the lethal BAC range.

BAC lethal range

The BAC lethal range is commonly considered to be a concentration greater than 0.4-0.5% (e.g. Kaye & Haag, 1957). However, some studies have questioned the use of the 0.4-0.5% concentration to describe the lethal alcohol concentration (Jones, 1999; Minion, Slovis, & Boutiette, 1989). For example, Minion, Slovis and Boutiette found that in their study with 204 emergency department patients with BACs in excess of 0.4%, the patients rarely experienced life threatening vital sign abnormalities and 88% were mentally stable at time of admission (Minion, et al., 1989). The literature documenting non-lethal presentations of individuals with BACs above 0.6% is sparse, though the highest non-lethal BAC recorded was 1.5% (Minion, et al., 1989; O'Neill, Tipton, Prichard, & Quinlan, 1984).

Estimated BAC

The quantity of alcohol required to achieve a range of BACs was calculated. As the majority of the higher alcohol quantities were male, BAC calculations were made using the average weight for an Australian male (Australian Bureau of Statistics,

2006). For example, an average weight (78.4kg) 18-24 year old male drinking 50 standard drinks over a 24 hour period would produce an approximate BAC of 0.6% (Western Australian Office of Road Safety, 2007).

Maximum alcohol quantity in this study

As non-lethal BAC presentations of up to 0.6% are documented, the upper limit of the non-lethal BAC was chosen as 0.6%, and values that would generate this BAC or higher were eliminated from the dataset (more than 50 standard drinks).

To confirm that the selection of a 50 standard drink cut off point was appropriate, the data set was examined using the extreme studentised deviate (ESD) test and box and whisker plots (GraphPad Software, 2010; Walfish, 2006). Values of 50 standard drinks were flagged as furthest from the other data points, but not significant outliers ($p > 0.05$). Box and whisker plots were generated and scores up to 50 were closely clustered with lower values. Also, the 2007 National Drug Strategy Household Survey dataset revealed the highest alcohol quantity consumed the day prior to the survey was 47 standard drinks (R. Pascal, personal communication, April 9, 2010).

Maximum value for intentions and expectations of alcohol consumption at Leavers

The higher cut off point of 60 standard drinks was selected for items addressing personal intentions and perceptions of peer alcohol use. Whilst the consumption of 60 standard drinks within 24 hours by an average weight male would produce a very high (and likely lethal) BAC of 0.8%, it was possible respondents may have genuinely believed consuming 60 standard drinks in a day would be feasible. Values of 44 standard drinks were flagged by the extreme studentised test as the highest non-significant outliers ($p > 0.05$). However, the cut off point of 60 standard drinks was retained as the maximum retained score following the examination of score clustering using box and whisker plots.

3.2 Informal Observation

The Rottnest Island celebrations were attended in the years 2008 and 2009 for the purposes of informal observation. In both years a research permit was obtained

from the Rottnest Island Authority.

In 2008, the researcher and a research assistant resided on Rottnest Island during the official *Leavers* period from the 25-28th of November. The research team observed the celebrations naturalistically, conducted informal interviews with young people and support staff participating in the celebrations and determined where best to administer surveys that would be distributed in the following year on the island. The observations and conversations took place in the Thompson Bay area where *Leavers*-specific facilities and activities such as the entertainment zone and support agency information stalls were located. The informal interviews were conducted mainly outside the entertainment zone in the evenings and in the Thompson bay residential areas in both the afternoons and evenings. The research team interviewed approximately 300 young people during the official *Leavers* celebration period. The team asked the leavers questions such as what they had expected the celebrations to be like before they arrived on the island, what their experiences were like so far, and what their personal and their peers' alcohol and other drug use resembled during the celebrations. Brief field notes were written by the research team subsequent to each informal interview (Parker, et al.). Notes were reviewed at the end of each field day and edited as necessary. The informal observation aided the understanding of the celebrations and contextualised AOD use at the celebrations. In 2009, the researcher and one research assistant resided on Rottnest Island during the official *Leavers* period from the 23rd to the 27th of November. Similar to what occurred in 2008, the research team performed general observations and conducted informal interviews with celebrating young people and *Leavers* support staff. These observational data were not highly structured and are not included as 'official' data for this thesis. However general outcomes of the observations are presented in the data descriptions chapter.

Chapter 4: Data Descriptions

This chapter describes the data from the pre- and post-*Leavers* surveys. It aims to provide an overview of the collected data and the information is presented in a similar order as the items appeared in the surveys. This chapter is limited to descriptive statistics such as response frequencies, measures of central tendency, and 'within item' gender comparisons. More complex analyses, including hypothesis and post-hoc testing are described in Chapter 5.

Firstly, descriptions of pre-*Leavers* survey information are described in nine sections:

- Participant demographics
- General intentions for *Leavers*
- Intentions and expectations relating to alcohol and other drug (AOD) use at *Leavers*
- Expectations of how conducive *Leavers* will be to AOD use
- The last social event attended with friends
- Usual frequency of alcohol use
- The reputation of *Leavers*
- Acceptability of AOD-related behaviour
- Safety behaviours

Secondly, descriptions of Post-*Leavers* survey data are divided into seven sections relating to behaviour at *Leavers*:

- Participant demographics
- Alcohol use
- Use of other drugs
- Estimations of peer AOD use
- Negative outcomes

- Harm reduction strategy use
- Conditions conducive to alcohol and other drug use

Thirdly and lastly, a description of the outcomes of the informal observation of the 2008 and 2009 celebrations are presented.

4.1 Pre-Leavers Survey

4.1.1 Participant demographics

A total of 541 pre-*Leavers* surveys were completed. Not all participants responded to all the questions in the survey. Percentages reported in this study were calculated with the number of valid responses (as opposed to the total participant number) as the denominator. Most statistics are reported with: percentages calculated using valid responses, the total number of valid cases for the item ('N') and the number of non-valid/missing data points. See Table 2 for participant demographics.

Table 2
Pre-Leavers survey participant demographics

		Count	Valid %
Survey modality	Online	284	52%
	Paper	257	48%
Gender	Female	295	56%
	Male	237	44%
	Not specified	9	
Year of birth	1992 (17 at time of survey)	473	91%
	1991 (18 at time of survey)	49	9%
	Not specified	19	
School	Private/independent	467	87%
	State	70	13%
	Not specified	4	
TOTAL SURVEYS		541	

4.1.2 General intentions for Leavers

Most respondents (397; 73%) intended to celebrate *Leavers* on Rottnest Island only and 27% (144) of the respondents intended to celebrate *Leavers* on Rottnest Island as well as at other locations. Most respondents wanted to attend *Leavers* to 'celebrate/have fun' and to 'party/get drunk'. Most chose Rottnest Island as a location as their friends were going there and as the Island had reputation as a popular place to go for *Leavers*. Other reasons are illustrated in Table 3.

Table 3

Reasons for attending Leavers at Rottneest Island

The most important reason for wanting to attend Leavers			The most important reason for celebrating Leavers at Rottneest Island		
Reason	Count	Valid Percent	Reason	Count	Valid Percent
Be with friends	60	12%	Friends going there	202	39%
Celebrate/have fun	263	51%	Has a reputation as a popular place to go for Leavers	133	26%
Holiday	6	1%	Good party reputation	57	11%
Relax	26	5%	Good recreation (entertainment zone/beaches etc.)	41	8%
Party/get drunk	128	25%	Price was right	1	0%
Meet new people	5	1%	Has a reputation for safety	13	3%
Do things I didnt get to do during year 12	13	3%	No cars on Island	20	4%
Other	12	2%	Rottneest is a small area/has short walking distances	26	5%
Missing	28		Other	27	5%
Total valid	513		Missing	21	
			Total	520	

4.1.3 Intentions and expectations (AOD related)

Alcohol use - personal intentions and peer expectations

The majority of respondents (84%) categorically stated they intended to use alcohol at *Leavers*, 9% were not sure and 7% did not intend to use alcohol (N = 531; 10 missing). There were no significant gender differences ($\chi^2 = 0.74$, $df = 2$, $n = 524$ [17 missing], $p = 0.96$).

Quantity specific intentions and expectations for alcohol consumption on a typical *Leavers* day were also assessed. Respondents were asked to specify the number of standard drinks they (i) intended to personally consume, (ii) expected someone of the same gender from their immediate friendship group to drink and, (iii) expected the average leaver of the same gender would consume.

Males intended to consume 14.86, and females intended to consume 9.79 standard drinks on a typical *Leavers* day. For all three reference groups, compared to females, male estimations were significantly higher. See Table 4 and Figure 2. See hypothesis 6 for further analysis of peer alcohol use estimates in relation to personal alcohol use intentions.

Table 4
Intentions and expectations for personal and peer alcohol use

		Mean	SD	95% CI	Min	Max	Missing N	N
Personal intent (inc. those who intend to abstain) ¹	Female	9.20	7.64	[8.27, 10.13]	0	57	30	265
	Male	13.75	11.00	[12.27, 15.23]	0	60	23	214
	Total	11.36	9.62	[10.51, 12.22]	0	60	53	488
Personal intent (inc. only those who intend to drink) ²	Female	9.79	7.50	[8.86, 10.73]	1	57	46	249
	Male	14.86	10.69	[13.37, 16.36]	1	60	39	198
	Total	12.16	9.45	[11.29, 13.03]	1	60	85	456
Same-sex immediate peer estimate ³	Female	10.62	8.47	[9.60, 11.64]	0	50	28	267
	Male	13.61	8.67	[12.43, 14.79]	0	50	27	210
	Total	12.00	8.65	[11.23, 12.77]	0	50	55	486
Same-sex average student estimate ⁴	Female	10.40	7.66	[9.48, 11.32]	0	60	27	268
	Male	12.63	8.09	[11.54, 13.73]	1	60	25	212
	Total	11.46	7.92	[10.75, 12.16]	0	60	54	487

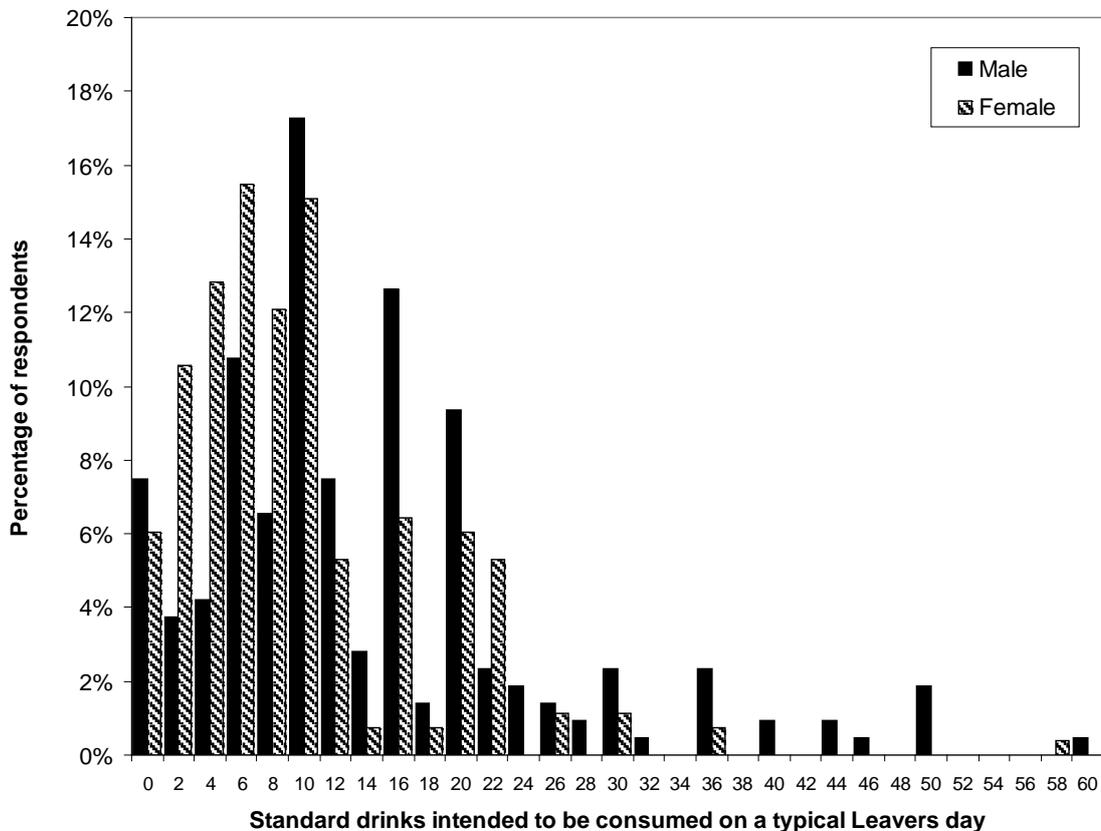
¹ Male > female intention (Mann-Whitney U = 20612, z = - 5.16, p = .0005, r = -.24 [small-medium effect]).

² Male > female intention (Mann-Whitney U = 16500, z = - 6.03, p = .0005, r = .29 [small-medium effect]).

³ Male > female expectation (Mann-Whitney U = 20901, z = - 4.79, p = .0005, r = -.22 [small-medium effect]).

⁴ Male > female expectation (Mann-Whitney U = 22935, z = - 3.65, p = .0005, r = -.17 [small-medium effect]).

Figure 3
Intended alcohol use on a typical Leavers day (including prospective abstainers)



Note. 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.

Personal intoxication intentions

The majority of the respondents (72%) agreed or strongly agreed they intended to get drunk at *Leavers*, with males more likely to agree than females (Mann-Whitney $U = 29008$, $z = -2.39$, $p = .02$, $r = .11$ [small effect size]). Interestingly, while 84% intended to use alcohol, only 85% of these respondents intended to get drunk at *Leavers* (see Table 5).

Unsurprisingly, due to the relatively low prevalence of regular illicit drug use amongst Australian youth, the majority of respondents (66%) disagreed or strongly disagreed that they intended to get stoned or high at *Leavers* (see Table 5). There were no significant gender differences in intention to getting high/stoned.

Table 5
Intentions for intoxication at Leavers

		Strongly agree	Agree	Undecided	Disagree	Strongly disagree	Missing N	Total count
Intention to get drunk ^a	Female	42%	28%	11%	8%	10%	5	290
	Male	55%	19%	10%	7%	8%	11	226
	Total	48%	24%	11%	7%	9%	17	524
Intention to get stoned/high	Female	4%	9%	16%	19%	53%	9	286
	Male	11%	10%	17%	12%	51%	13	224
	Total	7%	9%	17%	15%	51%	23	518

^a Males were more likely to agree.

		Intention to get drunk at Leavers			
		Agree ^a	Undecided	Disagree ^b	Total
Intention to use alcohol at Leavers	Yes	364	35	31	430
	No	0	2	35	37
	Not sure	7	20	21	48
Total		371	57	87	515

^a Includes "strongly agree" ^b Includes "strongly disagree".

Personal intentions for other drug use

Respondents were asked how strongly they agreed they intended on using a number of drugs at *Leavers*. The majority disagreed or strongly disagreed they intended to use amphetamines, cannabis, ecstasy and other drugs. However, the majority (61%) agreed or strongly agreed they intended to use caffeine at *Leavers*. Responses in the direction of agreement are from this point referred to as 'agreeing' when describing Mann-Whitney U or independent t-test results. Males were more likely to agree they intended to use ecstasy and other drugs, compared to females (Table 6).

Table 6
Intentions for the use of other drugs

		Strongly agree	Agree	Undecided	Disagree	Strongly disagree	Missing N	Total count
Amphetamine	Female	2%	2%	8%	12%	75%	11	284
	Male	7%	3%	9%	12%	70%	14	223
	Total	5%	3%	8%	12%	73%	26	515
Caffeine	Female	26%	35%	15%	5%	19%	8	287
	Male	33%	28%	13%	4%	22%	11	226
	Total	29%	32%	14%	4%	20%	20	521
Cannabis	Female	4%	9%	13%	14%	61%	11	284
	Male	11%	10%	11%	11%	57%	12	225
	Total	7%	10%	12%	12%	59%	24	517
Ecstasy ^a	Female	3%	1%	8%	11%	77%	12	283
	Male	11%	3%	9%	9%	68%	13	224
	Total	6%	2%	9%	10%	73%	26	515
Other drugs ^b	Female	2%	2%	5%	13%	78%	42	253
	Male	12%	2%	7%	8%	72%	39	198
	Total	6%	2%	6%	10%	75%	82	459

^a Males more likely to agree (Mann-Whitney U = 28298, z = - 2.66, p = .008, r = .12 [small effect size]).

^b Drugs other than alcohol, amphetamine, caffeine, cannabis or ecstasy. Males more likely to agree (Mann-Whitney U = 23010, z = - 1.96, p = .049, r = .1 [small effect size]).

Expectations for same-sex average students' use of drugs other than alcohol.

Respondents were asked how strongly they agreed that the average student of the same gender would be using drugs other than alcohol at *Leavers*. Compared to males, female respondents were more likely to agree the average female leaver would be using amphetamine (see Table 7).

Table 7

Expectations the average student will be using other drugs

		Strongly agree	Agree	Undecided	Disagree	Strongly disagree	Missing N	Total count
Amphetamine ^a	Female	9%	28%	32%	17%	15%	19	276
	Male	11%	17%	28%	27%	17%	16	223
	Total	10%	23%	30%	21%	16%	35	506
Caffeine	Female	58%	29%	8%	1%	4%	17	278
	Male	52%	27%	10%	5%	6%	18	221
	Total	55%	28%	9%	3%	5%	35	506
Cannabis	Female	17%	47%	23%	4%	9%	18	277
	Male	23%	35%	22%	12%	8%	18	221
	Total	20%	41%	23%	8%	8%	36	505
Ecstasy	Female	14%	36%	30%	8%	13%	15	280
	Male	17%	28%	23%	22%	11%	17	222
	Total	15%	32%	27%	14%	12%	32	509
Other drugs ^b	Female	6%	16%	42%	11%	26%	76	219
	Male	10%	7%	44%	14%	25%	60	179
	Total	8%	12%	43%	12%	25%	136	405

^a Females more likely to agree (Mann-Whitney U = 27099, $z = -2.36$, $p = .02$, $r = .11$ [small effect size]).

^b Drugs other than alcohol, amphetamine, caffeine, cannabis or ecstasy.

4.1.4 AOD-conducive conditions at Leavers

Respondents were asked how strongly they agreed with 15 statements on personal attitudes, social norms and expectations that described *Leavers* as an environment conducive to alcohol and other drug use. Males were more likely than females to agree with eight of the expectations of conducive conditions and females were more likely to agree with one description of a condition *not* conducive to AOD use (see Table 8).

Table 8
Expectations of how conducive Leavers will be to AOD use

		Strongly agree	Agree	Undecided	Disagree	Strongly disagree	Total Count
I am interested in 'letting loose' at Leavers and doing something I usually wouldn't do at home ^a	Female	18%	37%	23%	16%	6%	284
	Male	37%	35%	18%	8%	2%	217
	Total	27%	36%	20%	12%	5%	508
It is acceptable/OK for someone of my age and gender to get drunk at Leavers ^a	Female	34%	45%	10%	9%	2%	284
	Male	49%	35%	10%	5%	1%	218
	Total	41%	40%	10%	7%	2%	509
My friends and I have an understanding that we will get drunk at Leavers ^a	Female	37%	35%	8%	13%	6%	283
	Male	50%	27%	11%	8%	3%	216
	Total	43%	31%	9%	11%	5%	506
My friends and I have an understanding that we will not get drunk at Leavers ^b	Female	4%	8%	13%	32%	43%	282
	Male	6%	6%	12%	22%	55%	213
	Total	5%	7%	12%	27%	48%	502
My friends and I have an understanding that we will experiment with drugs other than alcohol at Leavers ^a	Female	3%	6%	19%	29%	43%	281
	Male	10%	11%	27%	13%	40%	216
	Total	7%	8%	22%	22%	41%	504
My friends and I have an understanding that we will not experiment with drugs other than alcohol at Leavers	Female	33%	24%	25%	6%	11%	282
	Male	35%	14%	25%	9%	17%	215
	Total	34%	20%	25%	8%	14%	503
I would get drunk if it seemed like everyone was drinking at Leavers ^a	Female	16%	25%	18%	26%	15%	274
	Male	31%	23%	21%	14%	12%	213
	Total	23%	24%	19%	20%	13%	494
I will feel pressured to drink alcohol at Leavers	Female	5%	16%	10%	38%	30%	282
	Male	10%	16%	13%	23%	38%	214
	Total	7%	16%	12%	31%	33%	502
I will feel pressured to use cannabis at Leavers	Female	1%	5%	7%	30%	57%	283
	Male	5%	8%	9%	16%	61%	214
	Total	3%	6%	8%	24%	58%	504
I will feel pressured to use amphetamine at Leavers	Female	1%	2%	5%	29%	62%	283
	Male	2%	5%	11%	15%	67%	213
	Total	2%	4%	8%	23%	63%	503
I will feel pressured to use ecstasy at Leavers	Female	1%	3%	6%	28%	62%	283
	Male	3%	6%	11%	16%	65%	217
	Total	2%	4%	8%	23%	63%	507
I will feel pressured to use drugs other than the above substances at Leavers	Female	1%	2%	4%	31%	62%	272
	Male	4%	5%	14%	14%	64%	214
	Total	3%	3%	9%	23%	62%	493
You need to consume alcohol to "fully experience" Leavers ^a	Female	9%	22%	19%	27%	23%	281
	Male	21%	23%	22%	19%	16%	216
	Total	15%	22%	20%	23%	20%	504
You need to consume drugs other than alcohol to "fully experience" Leavers ^a	Female	1%	1%	6%	25%	66%	281
	Male	6%	7%	16%	15%	56%	214
	Total	4%	4%	10%	21%	61%	501
Using alcohol and other drugs at Leavers will help me act in a way that is amusing and memorable to my friends ^a	Female	6%	14%	15%	28%	36%	282
	Male	16%	22%	23%	16%	23%	214
	Total	11%	18%	18%	23%	30%	503

^a Males more likely to agree. ^b Females more likely to agree.

	Mann-Whitney U Test Statistics for gender difference				
	U	Z	N	p	r ¹
I am interested in 'letting loose' at Leavers and doing something I usually wouldn't do at home ^a	22990	-5.07	501	.000	-0.23
It is acceptable/OK for someone of my age and gender to get drunk at Leavers ^a	26206	-3.17	502	.002	-0.14
My friends and I have an understanding that we will get drunk at Leavers ^a	26235	-2.88	499	.004	-0.13
My friends and I have an understanding that we will not get drunk at Leavers ^b	27144	-1.97	495	.049	-0.09
My friends and I have an understanding that we will experiment with drugs other than alcohol at Leavers ^a	25751	-3.05	497	.002	-0.14
My friends and I have an understanding that we will not experiment with drugs other than alcohol at Leavers	28105	-1.44	497	.149	-0.06
I would get drunk if it seemed like everyone was drinking at Leavers ^a	23742	-3.61	487	.000	-0.16
I will feel pressured to drink alcohol at Leavers	30098	-0.05	496	.960	0.00
I will feel pressured to use cannabis at Leavers	29968	-0.22	497	.823	-0.01
I will feel pressured to use amphetamine at Leavers	29884	-0.19	496	.849	-0.01
I will feel pressured to use ecstasy at Leavers	30632	-0.05	500	.957	0.00
I will feel pressured to use drugs other than the above substances at Leavers	28091	-0.77	486	.443	-0.03
You need to consume alcohol to "fully experience" Leavers ^a	24362	-3.86	497	.000	-0.17
You need to consume drugs other than alcohol to "fully experience" Leavers ^a	25006	-3.69	495	.000	-0.17
Using alcohol and other drugs at Leavers will help me act in a way that is amusing and memorable to my friends ^a	22163	-5.21	496	.000	-0.23

¹ Effect size: .1=small, .3=medium, .5=large.

^a Males more likely to agree. ^b Females more likely to agree.

4.1.5 The last social event attended with friends

Respondents were asked a series of questions about the last pre-*Leavers* social event they attended with their friends. The described event excluded any *Leavers* celebrations they may have previously attended.

Location and date of last event

The majority of the respondents (76%) attended their last social event with their friends at either their home or at someone else's home. Three-hundred and sixty-five (71%) attended their event at someone else's home, 27 (5%) at their home, 31 (6%) at a dance venue, 18 (4%) at a beach, 14 (3%) in a park, 12 (2%) in a hotel/pub/bar/tavern or RSL club, 12 (2%) at a sports club, 5 (1%) at a school ball, 3 (0.6%) at a music festival and 26 (5%) at another location (28 missing responses).

The last social event that the respondents attended with their friends was held, on average, 18 days prior to completing the survey ($sd = 29.48$; $N = 497$, 44 missing responses). At the time of survey completion, the majority (65%) attended their respective social event one week or less ago, 22% attended the event from one week to a month ago, 10% attended between 1 to 3 months ago and 3% attended their event more than 3 months ago.

Alcohol use at the last event

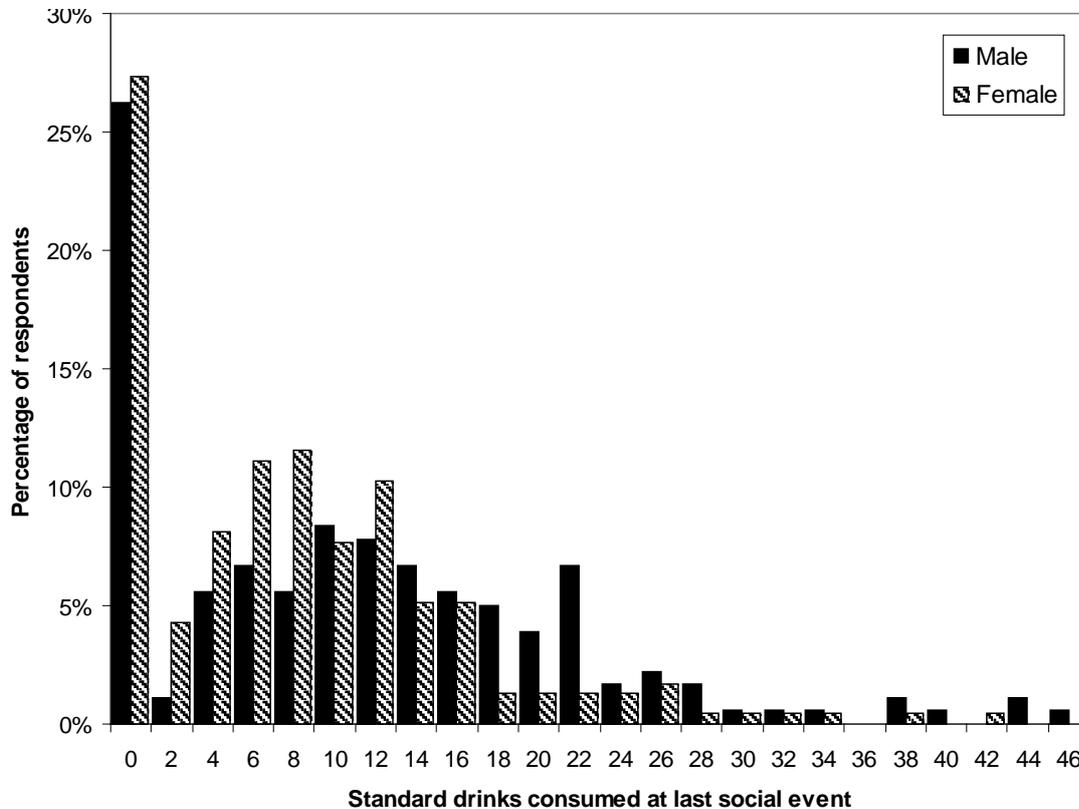
The majority of respondents (78%) drank alcohol at the last social event they attended with their friends (403 drank, 112 abstained and 26 missing). There were no significant gender differences in whether alcohol was used (females: 78%, males: 79%; X^2 with Yates continuity correction = 0.9, $df = 1$, $p = 0.77$, $\phi = -.02$).

Of the 78% that drank at the last social event, the average quantity they consumed was 11.94 standard drinks ($sd = 8.32$; $N = 306$, 112 abstainers excluded from analysis, 123 missing responses).

Females drank an average of 10.09 standard drinks ($sd = 7.16$, $n = 170$), significantly less than males who drank an average of 14.32 standard drinks ($sd = 9.16$, $n = 132$; Mann-Whitney $U=7815$, $z = -4.52$, $p = .0005$, $r = -.26$ [medium effect

size]). See figure 4 for the distribution of alcohol used at the last event by gender (male N=179, 58 missing; female N=234, 61 missing).

Figure 4
Alcohol at the last social event (beverage specific method)



Note. 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.

Drinking hours

The mean time that drinking occurred over was 5.37 hours (sd = 6.07, N = 361, 112 abstainers excluded, 65 missing). Males reported significantly longer drinking hours (males: mean = 6.28 hours, sd = 8.58, n = 153; females: mean = 4.72 hours, sd = 3.03, n = 203; Mann-Whitney U = 12726, z = -2.96, p = .003, r = -0.16 [small - medium effect size]).

Source of alcohol

Respondents were asked where they obtained the alcohol they consumed at their last social event. More than one option could be selected and the item was considered answered if at least one option was selected. Of the 403 drinkers, 363 provided 454 responses (40 drinkers missing).

Of the drinkers, 31% were given their alcohol by a friend, 26% bought it, 24% got someone to buy it for them, 21% were given the alcohol by their parents, 12% were given the alcohol by a sibling, 4% took the alcohol from home without permission and 8% obtained it in another way. A series of Chi square tests for independence with Yates continuity correction revealed no gender differences in source of alcohol.

Use of other drugs at the last social event

At the last event, 6% used amphetamine, 10% used cannabis, and 4% used ecstasy. Of the 40% that used caffeine, 57% used caffeine in combination with alcohol. Three per cent used drugs other than alcohol, amphetamines, caffeine, cannabis or ecstasy ('other drugs'). These other drugs included cigarettes (5 respondents), cocaine (1), heroin (1), LSD/mushrooms (3), painkillers (1) and Valium (1).

Thirteen per cent of respondents used at least one illicit drug at the last social event (amphetamines, cannabis or ecstasy). Almost half (46%) used at least one drug other than alcohol at the last social event (caffeine, amphetamines, cannabis or ecstasy; N = 447, 94 missing). A series of chi-square tests for independence with Yates continuity correction revealed males were significantly more likely to report using amphetamines, cannabis and an illicit drug (see Table 9).

Table 9
Other drugs at the last social event

	Females that used		Males that used		All that used		Missing N	Total N (using & non-using)
	Count	%	Count	%	Count	%		
Amphetamine ^a	8	3%	18	10%	26	6%	88	453
Caffeine	103	39%	78	41%	184	40%	86	455
Caffeine used with alcohol ^b	55	59%	36	54%	92	57%	22	162
Cannabis ^c	15	6%	28	15%	44	10%	91	450
Ecstasy	6	2%	9	5%	16	4%	93	448
Other drugs ^d	6	2%	7	4%	13	3%	116	425
An illicit drug ^e	23	9%	36	19%	60	13%	84	457

^a Males more likely to use amphetamine ($X^2(1, n = 450) = 7.25, p = .007, \phi = .14$ [small effect]).

^b A subset of caffeine users.

^c Males more likely to use cannabis ($X^2(1, n = 446) = 9.90, p = .002, \phi = .16$ [small effect]).

^d Drugs other than alcohol, amphetamine, caffeine, cannabis or ecstasy.

^e Amphetamine and/or cannabis and/or ecstasy. Males more likely to use an illicit drug ($X^2(1, n = 453) = 9.02, p = .003, \phi = .15$ [small effect]).

Quantity of other drugs at the last social event

If a respondent used amphetamines, caffeine, cannabis or ecstasy at the last pre-*Leavers* social event they attended, they were asked to specify the quantity of the drug in question they used. They specified the quantity in relation to the various forms the drugs could come in (tablets, bottles, joints, lines etc.).

Of the 26 respondents who used amphetamine, 16 specified quantity of use. Twelve used tablets/pills, 5 used lines, 4 smoked, 1 injected and 2 respondents used tablets, lines, smokes and injections. The mean quantity of amphetamine used was 3.17 tablets/pills (sd = 2.41, n = 12), 2.00 lines (sd = 2.24, n = 5), 8.25 'smokes' (sd = 4.50, n = 4) and 2.00 shots/injections (n = 1).

Of the 184 who used caffeine, 143 specified the quantity they consumed. The most popular form of use was in can/bottle form with 134 using caffeine in this way. Sixteen used caffeine in tablet form and 7 used caffeine in both can/bottle form and in tablet form. The mean quantity of caffeine used was 2.22 cans/bottles (sd = 2.35, n = 135) and 1.61 tablets (sd = 1.09, n = 18).

Of the 44 who used cannabis, 33 specified the quantity they consumed. Cones were the most common form of use (n=24), 15 used joints, 8 used both cones and joints and 2 ate the cannabis in cookies and brownies. The mean quantity used was 4.88 cones (sd = 4.17, n = 24) and 2.94 joints (sd = 2.43, n = 16).

Of the 16 who used ecstasy, 10 specified the quantity they consumed. Ten used ecstasy in tablet/pill form, one used ecstasy in tablet/pill form as well as in lines and one used tables/pills, lines, smokes and injections. The mean quantity used was 2.73 tablets/pills (sd = 2.53, n = 11), 3.50 lines (sd = 3.54, n = 2), 2 smokes (n = 1) and 3 injections (n = 1).

Source of other drugs at the last event

Respondents were asked from whom they got the drugs they consumed at their last social event. The question was considered answered if at least one option was endorsed (363 participants provided 403 valid responses; 178 missing).

The majority (64%) stated that the question was not applicable to them as they did not get any drugs other than alcohol at their last event. The remaining

obtained the drugs from friends (20%), a shop (11%), a dealer they knew (6%), an acquaintance (3%), an unknown street dealer (2%), workmates (1%) and another source (4%). No gender differences were identified (with a series of Chi square tests for independence with Yates continuity correction).

Conditions at the last event which may have been conducive to alcohol and other drug use

Respondents were asked how strongly they agreed with a number of statements describing the last social event they attended with their friends where they consumed more than 4 standard drinks in a single session (see Table 10).

Using a series of Mann-Whitney U tests, it was revealed males were more significantly likely than females to agree to the following seven items describing AOD-conducive conditions at the last event:

- They were in a 'let-loose' mood where they could do things they normally wouldn't do ($U = 12218$, $z = -2.26$, $p = .02$, $r = .12$);
- They had plenty of opportunities for drinking alcohol ($U = 11337$, $z = -3.34$, $p = .001$, $r = .18$);
- It seemed like everyone around them was using alcohol ($U = 12057$, $z = -2.18$, $p = .03$, $r = .12$);
- They had plenty of opportunities for using drugs other than alcohol ($U = 11160$, $z = -3.17$, $p = .002$, $r = .17$);
- It seemed like everyone around them was using drugs other than alcohol ($U = 11751$, $z = -2.62$, $p = .009$, $r = .14$);
- They felt pressured to use drugs other than alcohol ($U = 12207$, $z = -1.98$, $p = .048$, $r = .11$); and
- They encouraged someone else to use drugs other than alcohol ($U = 11383$, $z = -2.75$, $p = .006$, $r = .15$).

Females were more likely to agree that if they were street drinking there was a good chance they would get into trouble with the law ($U = 11951$, $z = -2.00$, $p = .046$, $r = .11$).

Table 10

Conditions at the last social event where more than 4 standard drinks were consumed

		Strongly agree	Agree	Neutral	Disagree	Strongly disagree	Valid N
I was in a letloose mood where I could do things I normally wouldn't do ^a	Female	13%	34%	37%	13%	4%	190
	Male	23%	38%	23%	10%	7%	149
	All	18%	36%	30%	11%	5%	342
I had plenty of opportunities for drinking alcohol ^a	Female	24%	63%	11%	2%	1%	189
	Male	44%	45%	6%	3%	1%	148
	All	33%	55%	9%	3%	1%	341
It seemed like everyone around me was using alcohol ^a	Female	24%	53%	15%	6%	2%	187
	Male	39%	41%	12%	5%	3%	148
	All	31%	47%	14%	6%	2%	339
I felt pressured to drink alcohol	Female	3%	3%	14%	36%	45%	188
	Male	5%	6%	20%	27%	41%	147
	All	4%	4%	17%	32%	43%	339
I got drunk because it seemed like everyone was doing it	Female	1%	3%	13%	41%	41%	187
	Male	5%	10%	18%	26%	41%	149
	All	3%	7%	15%	34%	41%	340
I encouraged someone else to use alcohol	Female	6%	19%	14%	32%	29%	187
	Male	14%	22%	14%	21%	28%	145
	All	10%	21%	14%	27%	28%	336
I had plenty of opportunities for using drugs other than alcohol ^a	Female	5%	14%	11%	26%	43%	187
	Male	18%	21%	11%	16%	35%	148
	All	11%	18%	11%	21%	39%	339
It seemed like everyone around me was using drugs other than alcohol ^a	Female	2%	6%	11%	30%	52%	188
	Male	8%	9%	18%	22%	43%	148
	All	5%	8%	14%	26%	47%	340
I felt pressured to use drugs other than alcohol ^a	Female	1%	2%	2%	24%	71%	184
	Male	5%	5%	10%	16%	65%	148
	All	3%	3%	5%	21%	68%	336
I encouraged someone else to use drugs other than alcohol ^a	Female	2%	2%	2%	20%	74%	182
	Male	8%	5%	10%	14%	64%	146
	All	5%	4%	5%	17%	69%	332
If I were street drinking there was a good chance I would get into trouble with the law ^b	Female	16%	33%	18%	22%	11%	187
	Male	13%	24%	23%	19%	21%	146
	All	15%	29%	20%	21%	15%	337
If I were being drunk and disorderly there was a good chance I would get into trouble with the law	Female	13%	30%	20%	24%	13%	186
	Male	13%	32%	18%	21%	17%	145
	All	13%	30%	19%	23%	15%	335
If I were in possession of drugs there was a good chance I would get into trouble with the law	Female	18%	33%	13%	17%	18%	184
	Male	26%	25%	14%	10%	25%	146
	All	21%	29%	13%	15%	22%	334
I was worried that embarrassing/sensitive photos or videos taken of me at the event could end up on the Internet	Female	5%	14%	14%	33%	34%	186
	Male	10%	13%	16%	22%	39%	147
	All	7%	14%	15%	28%	36%	337

^a Males more likely to agree. ^b Females more likely to agree.

4.1.6 Usual frequency of alcohol use

In an open-ended question, respondents were asked to specify the number of times in the last 12 months they consumed more than 4 standard drinks of alcohol in a single session. Respondents consumed more than 4 standard drinks an average of 16.24 times in the last 12 months (sd = 32.17, 95% CI [13.12, 19.37], median = 8 times; N = 409, 132 missing/invalid responses). There were no significant gender differences in the consumption frequency of more than 4 standard drinks (Mann-Whitney U: 18788, $z = -.81$, $p = .42$).

In a similar question, respondents were asked how often they drank more than 4 standard drinks in a single session using a multiple choice response option. Forty-one per cent drank more than 4 standard drinks in a single session on a monthly basis, 28% on a weekly basis, 16% never, 7% less often than every six months, 7% every six months, and 2% on a daily or almost daily basis (N = 471, 70 missing).

4.1.7 The reputation of Leavers

Respondents were asked how strongly they agreed with statements describing the reputation *Leavers* had for alcohol and other drug use (see Table 11).

The majority agreed or strongly agreed that *Leavers* had a reputation for heavy alcohol use (92%; N=420; 121 missing), and for other drug use (56%;N=418; 123 missing). While 47% agreed or strongly agreed that it was acceptable to throw up after drinking at *Leavers* (N = 419; 122 missing), only 32% agreed or strongly agreed that it was acceptable to throw up after drinking at a regular social event (N = 418; 123 missing). Also, although 40% agreed or strongly agreed that it was acceptable to have casual sex after drinking at *Leavers* (N = 419; 122 missing), only 38% agreed or strongly agreed that it was acceptable to have casual sex after drinking at a regular social event (N = 420; 121 missing).

Males were more likely to agree that it was acceptable to:

- Throw up after drinking at *Leavers* (Mann-Whitney U = 18501, $z = -2.34$, $p = .02$, $r = .11$ [small effect size]);
- Have casual sex after drinking at *Leavers* (Mann-Whitney U = 10961, $z = -8.66$, $p = .0005$, $r = .42$ [medium - large effect size]);
- Have casual sex after drinking at a regular social event (Mann-Whitney U = 10460, $z = -9.13$, $p = .0005$, $r = .45$ [medium - large effect size]).

The acceptability of throwing up and having casual sex after drinking was further examined over the contexts of *Leavers* and at a regular social event with friends as a part of hypothesis 9.

Table 11
The reputation of Leavers

		Strongly agree	Agree	Undecided	Disagree	Strongly disagree	Valid N
<i>Leavers</i> has a reputation for heavy alcohol use	Female	55%	39%	4%	2%	1%	236
	Male	57%	33%	6%	2%	2%	181
	Total	56%	36%	5%	2%	1%	420
<i>Leavers</i> has a reputation for other drug use	Female	17%	40%	30%	11%	2%	233
	Male	21%	32%	27%	18%	2%	182
	Total	19%	37%	29%	14%	2%	418
It is acceptable/OK to throw up after drinking at <i>Leavers</i> ^a	Female	12%	30%	27%	20%	10%	235
	Male	22%	29%	28%	15%	7%	181
	Total	17%	30%	27%	18%	9%	419
It is acceptable/OK to throw up after drinking at a regular non- <i>Leavers</i> social event with your friends	Female	6%	21%	27%	33%	12%	235
	Male	14%	24%	21%	30%	11%	180
	Total	10%	22%	24%	32%	12%	418
It is acceptable/OK to have casual sex with someone after drinking at <i>Leavers</i> ^a	Female	8%	17%	17%	28%	31%	235
	Male	29%	31%	19%	13%	7%	181
	Total	17%	23%	18%	21%	21%	419
It is acceptable/OK to have casual sex with someone after drinking at a regular non- <i>Leavers</i> social event with your friends ^a	Female	7%	12%	18%	28%	35%	236
	Male	26%	34%	16%	16%	8%	181
	Total	16%	22%	17%	23%	23%	420

^a Males more likely to agree.

4.1.8 Behaviours more acceptable at Leavers

Respondents were asked whether there were certain behaviours which were more acceptable at *Leavers* compared to at a regular social event with their friends. While the majority (67%) disagreed, 33% believed there were some behaviours which were more acceptable at *Leavers* (N = 401). There were no significant gender differences in the endorsement of this item (X^2 with continuity correction = .45, df = 1, N = 398, p = .50).

4.1.9 Safety behaviours

Suggested safety strategies

Respondents were asked to briefly describe some of the ways in which they could keep themselves and their friends safe while affected by alcohol and or other drugs at *Leavers*. Three hundred and twenty eight participants (61%) provided a response to the question (213 missing). The short responses were analysed using the software

SPSS Text Analysis for Surveys. Responses were grouped according to common themes and could contain more than one theme. The two most popularly endorsed themes were centred around relying on friends (see Table 12).

Table 12
Ways to keep safe while intoxicated at Leavers

Theme	Count	Percent of responses
Stick together	137	42%
Keep an eye out for one another	61	19%
Use a Designated Sober Person ^a	39	12%
Restrict alcohol use	36	11%
Drink water	31	9%
Know when/who to call for help	30	9%
Know/use first aid	18	5%
Stick to safer areas	17	5%
Eat food ^b	17	5%
No swimming whilst intoxicated	11	3%
Count alcoholic drinks	12	4%
Stay away from strangers	12	4%
Prior discussions about acceptable behaviour ^c	12	4%
Don't use illicit drugs	10	3%
Use mobile phones	8	2%
Use contraception	8	2%
Be aware of sexual predators	7	2%
Drink in accommodation	6	2%
Prevent drink spiking	4	1%
Tolerate illicit drugs/use clean pills	4	1%
Don't force feed intoxicated friends	3	1%
Have a responsible adult (18+) around	3	1%
Prevent heat exhaustion	2	1%
Don't know	9	3%
Other	30	9%

^a A Designated Sober Person (DSP) or a "Sober Sally" is a friend who is not, or only slightly intoxicated and is responsible for looking after other friends.

^b Eat food before drinking/give food to intoxicated friends.

^c Discussions between friends designed to minimise regretted behaviour/so friends won't do things at *Leavers* they usually wouldn't do: "Talking about what you're comfortable doing with your friends before getting drunk so they can intervene if you get too drunk to care at the time".

Discussion with parents and peers, and parental approval

Respondents were asked how strongly they agreed that they had (i) discussed AOD use with their parents, (ii) whether their parents would approve of their AOD use, and whether they had discussed ways in which they could keep safe while affected by AOD with their (iii) parents and (iv) peers (see Table 13).

Most respondents agreed/strongly agreed they had a discussion with their parents about alcohol, but not other drugs, in the last three months. Over a third

(36%) agreed/strongly agreed their parents would approve of them drinking more than 4 standard drinks in a single sitting at *Leavers*, with males more likely to agree.

The majority (74%) disagreed/strongly disagreed that their parents would approve of them using drugs other than alcohol at *Leavers*, again with males were more likely to agree.

The majority agreed/strongly agreed they had discussed with their parents and friends the ways in which they could keep safe while affected by AOD. Females were more likely than males to agree they had the safety discussion with their friends.

A series of Wilcoxon Signed Rank Tests were run to compare agreement that they had discussed the ways in which they could keep safe while affected by AOD with parents compared to their friends. There was no significant difference in strength of agreement with parental versus peer discussion ($z = -1.68$, $p = .09$). However, with males and females analysed separately, females were more likely to agree they had discussed safety with their friends compared to their parents ($z = -2.48$, $p = .01$, $r = .17$ [small effect size]). There was no significant difference in male agreement between parents and friends ($z = -.19$, $p = .85$).

The relationship between the discussion about alcohol and other drugs and intended alcohol use is discussed as a part of hypothesis 8.

Table 13

Discussions, approval, and safety behaviours with parents and peers

		Strongly agree	Agree	Neutral	Disagree	Strongly disagree	Don't know	Valid N
In the last three months I have had a discussion with my parents about alcohol	Female	38%	39%	11%	7%	3%	2%	228
	Male	37%	37%	9%	7%	6%	3%	179
	Total	38%	38%	10%	7%	4%	3%	409
In the last three months I have had a discussion with my parents about drugs other than alcohol	Female	20%	22%	11%	25%	17%	4%	228
	Male	22%	25%	9%	19%	20%	5%	179
	Total	21%	23%	11%	23%	18%	5%	409
My parents would approve of me drinking more than 4 standard drinks in a single sitting at Leavers ^a	Female	11%	16%	22%	25%	20%	7%	228
	Male	20%	30%	24%	17%	7%	3%	173
	Total	14%	22%	23%	21%	14%	5%	403
My parents would approve of me using drugs other than alcohol at Leavers ^b	Female	1%	1%	6%	12%	67%	13%	227
	Male	6%	6%	9%	10%	58%	11%	176
	Total	3%	3%	7%	11%	63%	12%	405
I have discussed with my parents the ways in which I can keep safe whilst affected by alcohol and/or other drugs (in any situation, including Leavers)	Female	26%	36%	14%	11%	9%	4%	227
	Male	20%	32%	21%	11%	10%	6%	177
	Total	23%	34%	17%	12%	10%	5%	406
I have discussed with my friends the ways in which we can keep safe whilst affected by alcohol and/or other drugs (in any situation, including Leavers) ^c	Female	28%	41%	13%	9%	6%	3%	224
	Male	20%	32%	22%	9%	12%	6%	179
	Total	24%	37%	17%	9%	9%	4%	405

^aMales more likely to agree (Mann-Whitney $U = 12368$, $z = -5.23$, $p = .0005$, $r = .27$ [small – medium effect size]; 'don't know' response option excluded from analysis).

^bMales more likely to agree (Mann-Whitney $U = 13249$, $z = -2.90$, $p = .004$, $r = .15$ [small effect]; 'don't know' responses excluded).

^cFemales more likely to agree (Mann-Whitney $U = 15193$, $z = -2.99$, $p = .003$, $r = .15$ [small effect size]; 'don't know' responses excluded).

4.2 Post-Leavers Survey

4.2.1 Participant demographics

A total of 405 post-*Leavers* surveys were completed, mostly using a paper form on the last day of *Leavers*. The majority of respondents were under the age of 18, attended a private school and resided in a unit run by the Rottnest Island Authority in the main settlement area. Males and females were equally represented (see Table 14).

Table 14
Post-Leavers survey demographics

		Count	Valid %
Survey modality	Online	55	14%
	Paper	350	86%
Gender	Female	200	50%
	Male	200	50%
	Not specified	5	
Age ^a	< 18 years old	366	94%
	> 18 years old	23	6%
	Not specified	16	
School	Private/ independent	371	92%
	State	32	8%
	Not specified	2	
Where Leavers was celebrated	Rottnest only	380	94%
	Rottnest and other location(s)	23	6%
Accommodation type ^b	RIA unit	335	84%
	Boat	33	8%
	Rottnest Lodge	25	6%
	Other	8	2%
	Not specified	2	
Accommodation location ^c	Main settlement	287	72%
	Geordie Bay	110	27%
	Other	4	1%
	Not specified	4	
TOTAL SURVEYS		405	

^aAge at November 2009 calculated using month and year of birth information.

^bRIA units are run by the Rottnest Island Authority and the Rottnest Lodge is the only private accommodation available during Leavers.

^cMain settlement includes the Thompson Bay and Bathurst regions. The 'Geordie' area encapsulates the regions of Geordie Bay, Fay's Bay and Longreach Bay. Bookings for Leavers were randomly allocated an area (main settlement versus Geordie) by the Rottnest Island Authority (Bronwyn Pearson Rottnest Island Authority Leavers Coordinator, personal communication, 13 October, 2010).

Overall satisfaction with experience of Leavers

Respondents were asked how satisfied they were, overall, with their experience of *Leavers* on Rottnest Island. The majority (52%) were satisfied with their experience,

25% were very satisfied, 11% were neither satisfied nor dissatisfied, 8% were dissatisfied and 4% were very dissatisfied (N=335; 70 missing). There were no gender differences in reported level of satisfaction (Mann-Whitney $U = 13161$, $z = -.965$, $p = .34$).

4.2.2 Alcohol use at Leavers

Personal alcohol use

Respondents were asked a dichotomous response question (yes/no) as to whether they consumed any alcohol at *Leavers*. The majority (373; 93%) reported they consumed alcohol, and 30 (7%) reported they did not (N=403, 2 missing). There was no significant gender difference in whether alcohol was used at *Leavers* ($X^2 = .0005$, $df = 1$, $N = 399$, $p = 1.00$).

Standard drink alcohol estimation method

The majority (76%; 287) drank alcohol every day at *Leavers*. Below, statistics are presented on those who used alcohol (excluding abstainers). This 'drinkers only' sub-sample is likely to be a more accurate depiction of mean alcohol use at *Leavers*.

Alcohol use on an average *Leavers* day was represented by calculating the mean use over days 1-3. Means were calculated using the scores available - if quantities from days 1 and 2 were listed, but not 3, a score was computed using the scores from day 1 and 2.

Females drank 11.44 standard drinks (95% CI=10.24, 12.64; median=10; n=174; 15 abstainers excluded; 11 missing), and males drank 17.05 standard drinks on an average day at *Leavers* (95% CI= 15.57-18.53; median=15.67; n = 172, 15 abstainers excluded; 13 missing).

Males reported consuming significantly more alcohol than females on days 1, 2, 3, and on the average of those days. For both genders, alcohol use was significantly lower on day 1 compared to day 2 and day 3. The lower use on day 1 may be related to the detail that for most leavers, a portion of day 1 was dedicated to transferring to the island and settling into their accommodation. Estimated alcohol consumption over days 1, 2, 3 and the average of days 1-3 are presented in

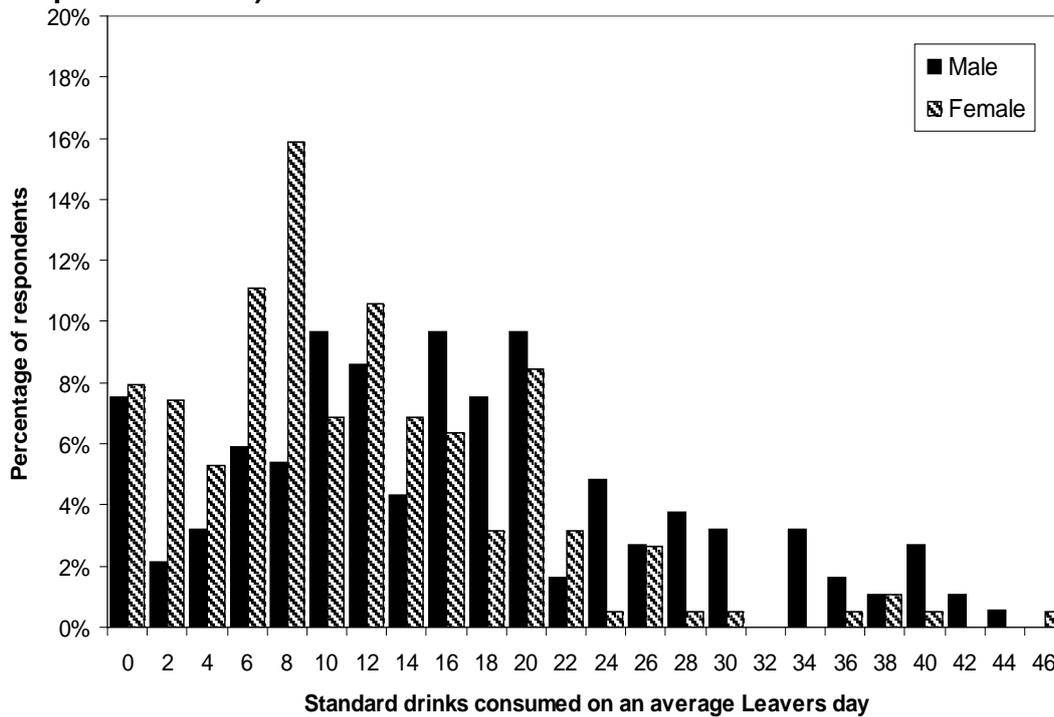
Table 15. The distribution of scores by gender for mean alcohol at *Leavers* is presented in figure 5.

Table 15
Alcohol at Leavers – standard drink response method

		Descriptives				
			Day 1	Day 2	Day 3	Average (days 1-3)
Female	Mean		9.81	10.28	10.73	10.53
	SD		8.33	8.23	9.51	8.29
	N		183	183	182	189
All respondents (including abstainers)	Mean		14.44	16.42	15.62	15.76
	SD		10.76	11.52	11.63	10.46
	N		180	182	179	186
Total	Mean		12.09	13.34	13.13	13.11
	SD		9.85	10.43	10.86	9.76
	N		365	367	363	377
Female	Mean		10.68	11.20	11.69	11.44
	SD		8.13	7.96	9.35	8.02
	N		168	168	167	174
Drinkers only	Mean		15.75	17.90	17.05	17.05
	SD		10.28	10.87	11.10	9.83
	N		165	167	164	172
Total	Mean		13.17	14.52	14.31	14.20
	SD		9.56	10.06	10.57	9.36
	N		335	337	333	348
Test 1: Gender differences (drinkers only)						
Independent t-test with a square root transformed variable						
		t	df	p	Mean difference	95% CI of mean difference
Day 1		5.02	331	0.005	5.07	[3.07, 7.06]
Average (days 1-3)		6.13	345	0.005	5.61	[3.71, 7.50]
Mann-Whitney Test						
		U	z	p	r ^a	
Day 2		8708	-6.01	0.01	0.39	
Day 3		9551	-4.77	0.001	0.26	
Test 2: Differences across days (paired drinkers)						
Wilcoxon Signed Rank Test						
		Day means	z	N	p	r ^a
Day 1 vs. 2	Female	10.32, 11.01	-2.18	162	0.03	0.12
	Male	15.76, 17.98	-4.91	160	0.001	0.27
Day 1 vs. 3	Female	10.53, 11.43	-2.25	162	0.03	0.12
	Male	15.41, 17.00	-3.04	158	0.002	0.17
Day 2 vs. 3	Female	10.95, 11.41	-1.35	163	0.18	0.11
	Male	17.41, 17.09	-0.29	162	0.78	0.02

^aEffect size: .1=small, .3=medium, .5=large.

Figure 5
Distribution of mean alcohol consumption at Leavers (standard drink response method)



Note. 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.

Summary of alcohol use at Leavers with estimations made using the standard drink response method

Female drinkers consumed 11.44, and males drank 17.05 standard drinks on an average day at *Leavers* (standard drink method). For both genders, alcohol use was significantly lower on day 1 compared to day 2 and day 3. On all three surveyed days, males drank significantly more than females (5.61 standard drinks more on the average *Leavers* day).

Estimated alcohol consumption at Leavers – beverage specific estimation method

Respondents were asked to provide an estimate of their alcohol use using the beverage specific/detailed table response method. Females drank a mean of 13.24 (95% CI=11.64, 14.84; median=11.23; n=122, 15 abstainers excluded and 63 missing), and males drank 18.44 standard drinks on an average *Leavers* day (95% CI=16.72, 20.16; median=17.90; n=118, 15 abstainers excluded and 67 missing). See Table 16.

Males consumed significantly more alcohol than females on days 1, 2, 3 and on the

average of those days.

Similar to the pattern observed when estimations were made using the standard drink response method, females drank significantly less on day 1 compared to day 2 and 3, and there was no significant difference between days 2 and 3. In contrast, there were no significant differences between male consumption over the three days. This discrepancy in daily male consumption patterns between response methods may have been affected by the lower response rates of the beverage specific method (male $n \sim 100$ vs. $n \sim 170$ in the standard drink response).

Estimation differences between the standard drink and the beverage specific method are compared in post-hoc test 2.

Table 16
Alcohol consumption at Leavers (beverage specific response method)

		Descriptives				
			Day 1	Day 2	Day 3	Average (days 1-3)
	Female	Mean	11.32	11.92	11.99	11.79
		SD	9.28	9.53	10.65	9.39
		N	125	106	111	137
All respondents (including abstainers)	Male	Mean	15.02	16.42	16.94	16.36
		SD	10.88	11.74	12.14	10.63
		N	122	114	113	133
	Total	Mean	13.16	14.25	14.55	14.06
		SD	10.21	10.92	11.67	10.23
		N	249	221	225	272
	Female	Mean	12.87	13.88	13.87	13.24
		SD	8.83	8.85	10.25	8.93
		N	110	91	96	122
Drinkers only	Male	Mean	17.13	18.91	19.54	18.44
		SD	9.93	10.55	10.90	9.42
		N	107	99	98	118
	Total	Mean	14.96	16.49	16.79	15.80
		SD	9.56	10.05	10.93	9.49
		N	219	191	195	242
Test 1: Gender differences (drinkers only)						
Mann-Whitney Test						
	U	z	p	r ^a		
Day 1	4353	-3.31	0.00	0.22		
Day 2	3159	-3.55	0.0005	0.26		
Day 3	3235	-3.76	0.0005	0.27		
Independent t-test with a square root transformed variable						
	t	df	p	Mean difference	95% CI of mean difference	
Average (days 1-3)	-4.59	238	0.001	5.20	[2.87, 7.53]	
Test 2: Differences across days (paired drinkers)						
Wilcoxon Signed Rank Test						
		Day means	z	N	p	r ^a
Day 1 vs. 2	Female	12.60, 14.47	-2.76	84	0.006	0.30
	Male	17.25, 18.86	-1.87	92	0.06	0.20
Day 1 vs. 3	Female	12.56, 14.45	-1.99	88	0.046	0.21
	Male	17.44, 18.68	-1.65	89	0.10	0.17
Day 2 vs. 3	Female	13.92, 14.08	-0.66	82	0.51	0.07
	Male	19.00, 19.71	-0.69	88	0.49	0.07

^aEffect size: .1=small, .3=medium, .5=large.

Summary of alcohol use at Leavers with estimations made using the beverage specific response method

Female drinkers consumed a mean of 13.34, and males a mean of 18.44 standard

drinks on an average day at *Leavers* (using the beverage specific method). On all three surveyed days, males drank significantly more than females. Females drank significantly less on day 1 than on days 2 and 3. There were no significant differences in male consumption over days 1, 2, and 3.

Alcohol consumption at Leavers and NHMRC drinking guidelines

Estimated alcohol consumption at *Leavers* is presented below in relation to the 2009 and 2001 NHMRC guidelines. Alcohol estimates for drinkers garnered through the standard drink response method and the beverage specific method are both presented.

2009 NHMRC categories

Using the standard drink response method, 87% of drinkers consumed alcohol above low risk levels (>4 standard drinks) on an average day at *Leavers*. A significantly greater proportion of males (92%) consumed more than 4 standard drinks on an average day compared to females (81%; X^2 with Yates continuity correction (2, $n = 346$) = 8.80, $p = .003$, $\phi = .17$ [small effect]).

Using the detailed table response method, 91% consumed more than 4 standard drinks on an average day at *Leavers*. A significantly greater proportion of males (96%) consumed more than 4 standard drinks on an average day compared to females (86%; X^2 with Yates continuity correction (2, $n = 240$) = 5.66, $p = .02$, $\phi = .17$ [small effect]).

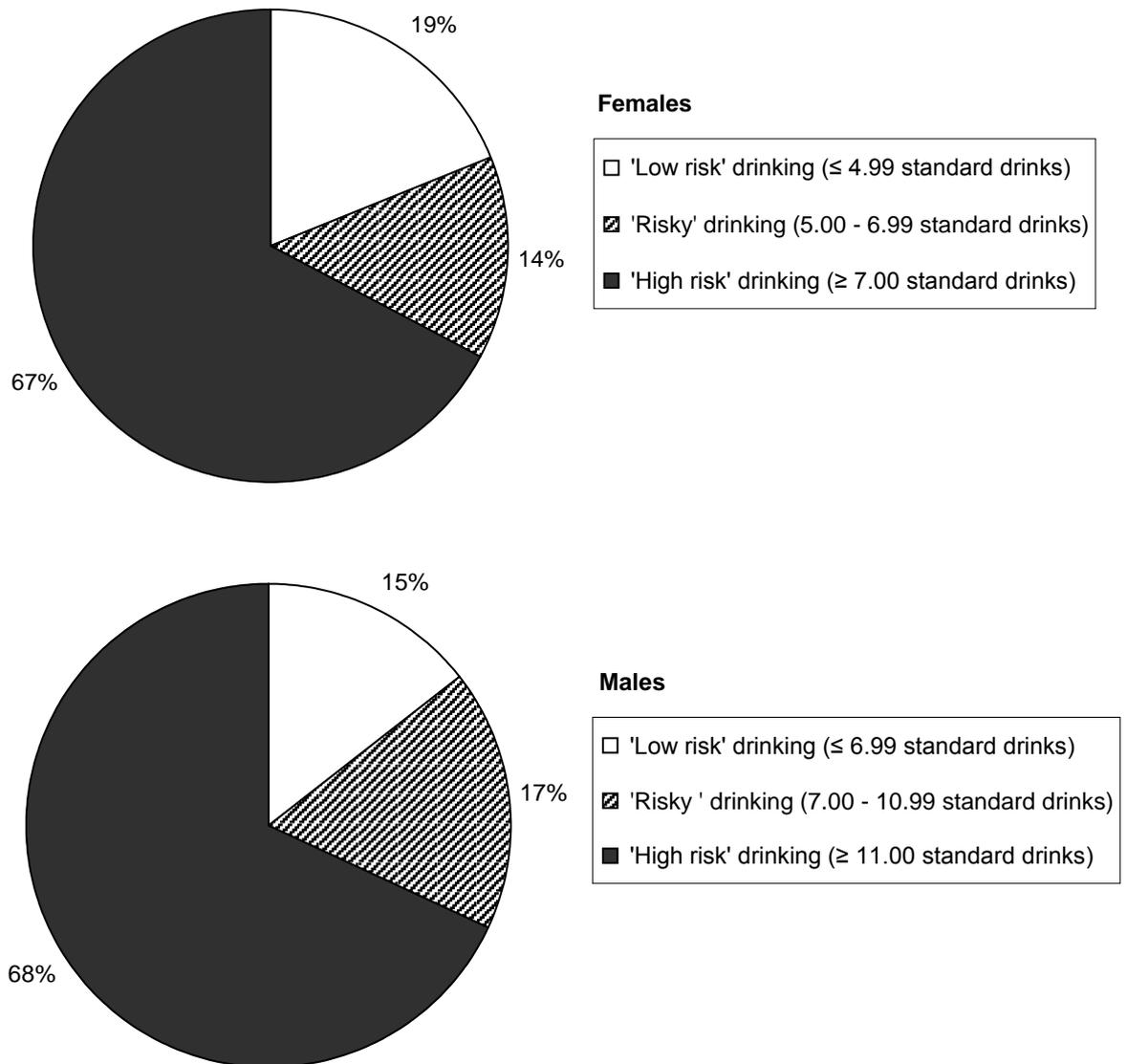
2001 NHMRC categories

Using the standard drink response method, 19% of females drank at low risk levels (≤ 4.99 standard drinks), 14% at risky levels (5 – 6.99 drinks) and 67% at high risk levels (≥ 7 drinks) on an average day at *Leavers*. Fifteen percent of males consumed at low risk levels (≤ 6.99 standard drinks), 17% at risky levels (7 – 10.99 drinks) and 68% at high risk levels (≥ 11 drinks) on an average day. Similar proportions of males and females were classed in the 'low risk', 'risky' and 'high risk' drinking categories (X^2 (2, $n = 346$) = 1.76, $p = .42$). It is important to note that, the same risk levels are defined differently for males and females in the 2001 NHMRC guidelines).

Using the detailed table response method, 14% of females drank at low risk levels, 8% at risky levels and 78% at high risk levels on an average day. Twelve percent of the males consumed at low risk levels, 15% at risky levels, and 73% at a high risk levels on an average day. Similar proportions of males and females fell

across the three risk categories ($X^2(2, n = 240) = 2.96, p = .23$; see Figure 6).

Figure 6
Mean alcohol consumption at Leavers and the 2001 NHMRC guidelines (standard drink response method)



Drinking hours

On an average *Leavers* day, drinking occurred over 7.42 hours with males drinking for longer than females on all days, by a mean of 1.27 hours. There was only one significant difference in drinking hours across days: males reported significantly shorter drinking hours on day 1 compared to day 2 (see Table 17).

Table 17
Drinking hours at Leavers

		Descriptives				Test 2: Wilcoxon Signed Rank Test for differences over days			
		Day 1	Day 2	Day 3	Average (days 1-3)	Day 1 vs. 2	Day 1 vs. 3	Day 2 vs. 3	
Female	Mean	6.63	6.87	6.65	6.80				
	SD	5.57	5.53	5.67	5.18	Z	-1.18	-0.15	-1.26
	N	168	176	174	178	p	.239	.880	.206
Male	Mean	7.93	8.41	7.90	8.07				
	SD	5.80	5.48	5.25	4.99	Z	-2.45	-0.18	-1.16
	N	169	174	172	176	p	.014	.860	.248
Total	Mean	7.26	7.62	7.26	7.42				
	SD	5.71	5.54	5.49	5.11				
	N	339	352	348	356				
Test 1: Gender difference	Mann-Whitney U	11981	12396	12152	12662				
	Z	-2.49	-3.09	-3.03	-3.12				
	p	.013	.002	.002	.002				

Source of alcohol

Respondents were asked where they obtained the alcoholic beverages they consumed at *Leavers* using a multiple choice list where more than one option could be selected. Three hundred and forty drinkers provided 538 responses to this item (33 missing drinkers and 30 abstainers not included in the analysis). See Table 18.

Table 18
Source of alcohol used at Leavers

	Age		
	All	Under 18	18+
I got someone to buy it for me ^a	46%	50%	0%
Friends gave it to me	38%	39%	23%
I bought it ^{bc}	26%	21%	95%
Parents gave it to me ^a	25%	27%	0%
Sibling gave it to me	14%	16%	0%
I took it from home without permission	5%	5%	5%
Other ^b	4%	3%	5%
	158%	160%	127%
Response N	538	490	28
Respondent N	340	306	22
N Missing respondents	33	59	2

^a Under 18s more likely. ^b Males more likely. ^c Over 18s more likely

A series of chi-square tests for independence with Yates Continuity correction tested for gender and age differences in reported alcohol source. Males were more likely to (i) report they purchased the alcohol they used at *Leavers* (35% of males vs. 18% of females; $X^2 = 11.64$, $df = 1$, $p = 0.001$, $\phi = -.19$), and to (ii) report an 'other' alcohol source (6% of males vs. 1% of females; $X^2 = 4.32$, $df = 1$, $p = 0.04$, $\phi = -.13$). Although the difference was not significant, 30% of females (51 out of 170) compared to 21% of males (35 out of 168) reported their parents supplied alcohol to them for *Leavers*.

Compared to younger respondents, those aged 18 or over were significantly more likely to have purchased the alcohol they used at *Leavers* ($X^2 = 55.58$, $df = 1$, $p = 0.001$, $\phi = .43$). Conversely, those under 18 were significantly more likely to have sourced their alcohol from (i) their parents ($X^2 = 6.62$, $df = 1$, $p = 0.01$, $\phi = -.16$) and to (ii) have someone to buy it for them ($X^2 = 18.42$, $df = 1$, $p = 0.001$, $\phi = -.25$).

When alcohol was purchased

Almost half of the respondents (47%) obtained or purchased the alcohol they used during *Leavers* both before arriving on Rottneest Island as well as during *Leavers*; 38% obtained their alcohol before they arrived on the island and 15% obtained their alcohol during the celebrations (N=341, 30 abstainers excluded, 34 missing).

4.2.3 Use of drugs other than alcohol at Leavers

Offers of drugs other than alcohol

Respondents were asked whether anyone offered them drugs other than alcohol during *Leavers*. Half (50%) reported nobody offered them, 46% did have someone make an offer and 4% were not sure whether anyone made an offer (N = 361, 44 missing). There was no significant gender differences in offers ($X^2 = 4.57$, $df = 2$, $n = 358$, $p = .10$).

Of the 166 who were offered drugs other than alcohol, 31% did not use any drugs other than alcohol at *Leavers*, 31% used caffeine and 39% used at least one illicit drug (with or without caffeine). Of the 176 who were not offered, 58% did not use any drugs other than alcohol, 39% used caffeine and 3% used illicit drugs (3 respondents did not report other drug use). Of the 16 who weren't sure if anyone offered them other drugs, 50% did not use other drugs, 44% used caffeine and 6% used an illicit drug at *Leavers* (this one respondent may have supplied their own illicit drugs).

Personal use of drugs other than alcohol

Respondents were asked whether they had used any of a list of drugs other than alcohol, on each day of *Leavers* (see Table 19 and Figure 7). A summary variable was created where if a drug was used on day 1, 2 or 3, they were coded as having used that drug on 'any one day at *Leavers*'. On any one day of *Leavers*, 11% used amphetamine, 53% used caffeine, 15% used cannabis, and 12% used ecstasy. A total of 112 used caffeine with alcohol on any one day (75% of caffeine users and 30% of all respondents). Five per cent used 'other drugs' (drugs other than alcohol, amphetamine, caffeine, cannabis or ecstasy). These included cigarettes/nicotine (3 respondents), cocaine (2), painkillers/Panadol (4) and hallucinogens (2).

A series of chi-square tests for independence with Yates continuity correction revealed that compared to females, males were more likely to use amphetamine, cannabis, ecstasy, other drugs and an illicit drug on any one day at *Leavers*. There were no significant differences between the genders in caffeine use

and the use of caffeine with alcohol on any one day at *Leavers*.

Table 19
Other drug use at Leavers

		Females		Males		All respondents	
		Used drug	N	Used drug	N	Used drug	N
Leavers Day 1	Amphetamine	3.5%	172	13.3%	166	8.2%	340
	Caffeine	39.4%	170	47.5%	162	43.1%	334
	Caffeine use with alcohol (subset of caffeine users)	70.5%	44	75.5%	53	73.2%	97
	Cannabis	6.6%	167	15.4%	162	10.9%	331
	Ecstasy	4.7%	171	10.9%	165	7.7%	338
	Other drugs	0.0%	156	7.4%	148	3.6%	306
	An illicit drug	9.9%	172	22.9%	166	16.2%	340
Leavers Day 2	Amphetamine	3.0%	167	7.1%	156	4.9%	325
	Caffeine	32.7%	162	37.3%	161	35.0%	323
	Caffeine use with alcohol (subset of caffeine users)	68.6%	35	87.5%	40	78.7%	75
	Cannabis	3.6%	165	14.3%	154	8.7%	321
	Ecstasy	4.2%	165	9.6%	157	6.8%	324
	Other drugs	0.0%	153	3.4%	145	1.7%	300
	An illicit drug	6.6%	167	18.9%	159	12.5%	328
Leavers Day 3	Amphetamine	3.5%	170	5.7%	157	4.6%	329
	Caffeine	36.1%	169	35.7%	157	35.7%	328
	Caffeine use with alcohol (subset of caffeine users)	67.4%	43	76.7%	30	71.2%	73
	Cannabis	3.0%	164	10.5%	153	6.6%	319
	Ecstasy	7.1%	168	10.3%	155	8.6%	325
	Other drugs	0.6%	155	2.8%	144	1.7%	301
	An illicit drug	10.2%	167	16.6%	157	13.2%	326
Use on any one day at Leavers	Amphetamine ^a	6.9%	175	15.4%	169	11.0%	346
	Caffeine	50.9%	175	56.1%	173	53.1%	350
	Caffeine use with alcohol (subset of caffeine users)	71.2%	73	78.9%	76	75.2%	149
	Cannabis ^b	8.0%	174	22.4%	170	15.0%	346
	Ecstasy ^c	8.6%	175	16.5%	170	12.4%	347
	Other drugs ^d	0.6%	166	9.6%	157	4.9%	325
An illicit drug ^e	13.7%	183	27.6%	185	20.5%	371	

Note. 'Total N' was 405 (200 males, 200 females and 5 that did not specify gender). In this table, 'N' represents valid responses - whether the drug was used or not used. An 'illicit drug' is the use of amphetamine and/or cannabis and/or ecstasy.

^a Males more likely to use amphetamine: $X^2(1, n = 344) = 5.52, p = .01, \phi = .14$ [small effect].

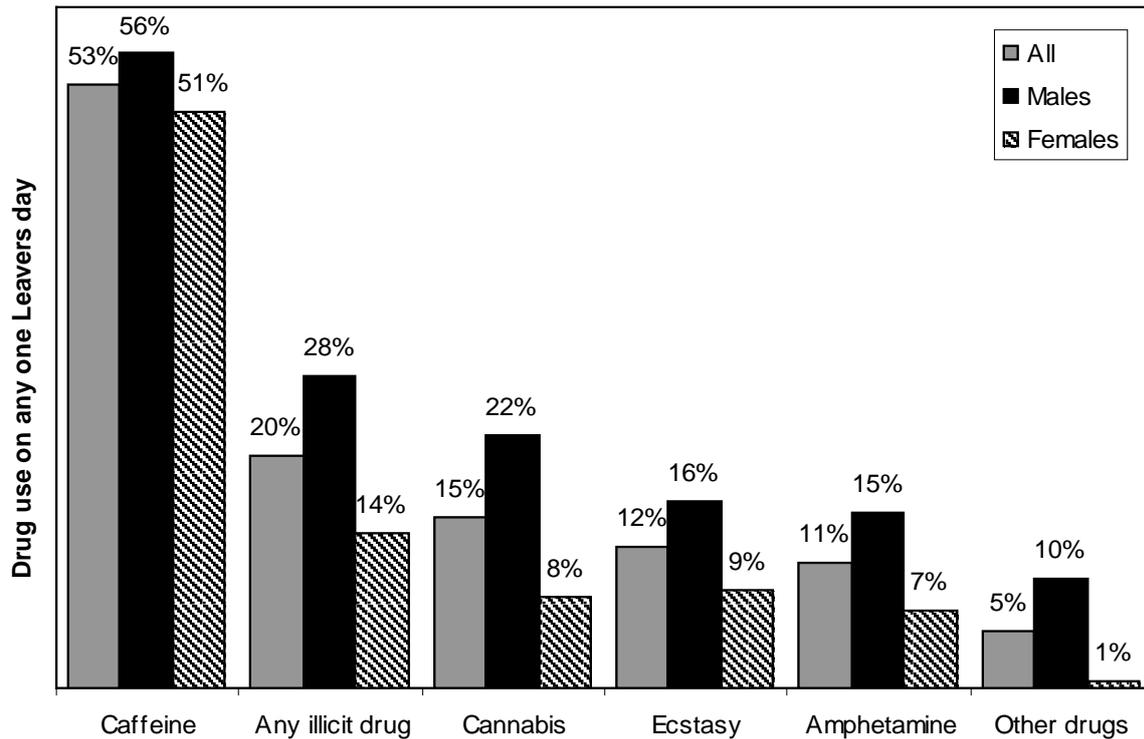
^b Males more likely to use cannabis: $X^2(1, n = 344) = 12.63, p = .0005, \phi = .20$ [small effect].

^c Males more likely to use ecstasy: $X^2(1, n = 345) = 4.23, p = .04, \phi = .12$ [small effect].

^d Males more likely to use other drugs: $X^2(1, n = 323) = 11.90, p = .001, \phi = .21$ [small - medium effect].

^e Males more likely to use an illicit drug: $X^2(1, n = 368) = 10.03, p = .002, \phi = .17$ [small effect].

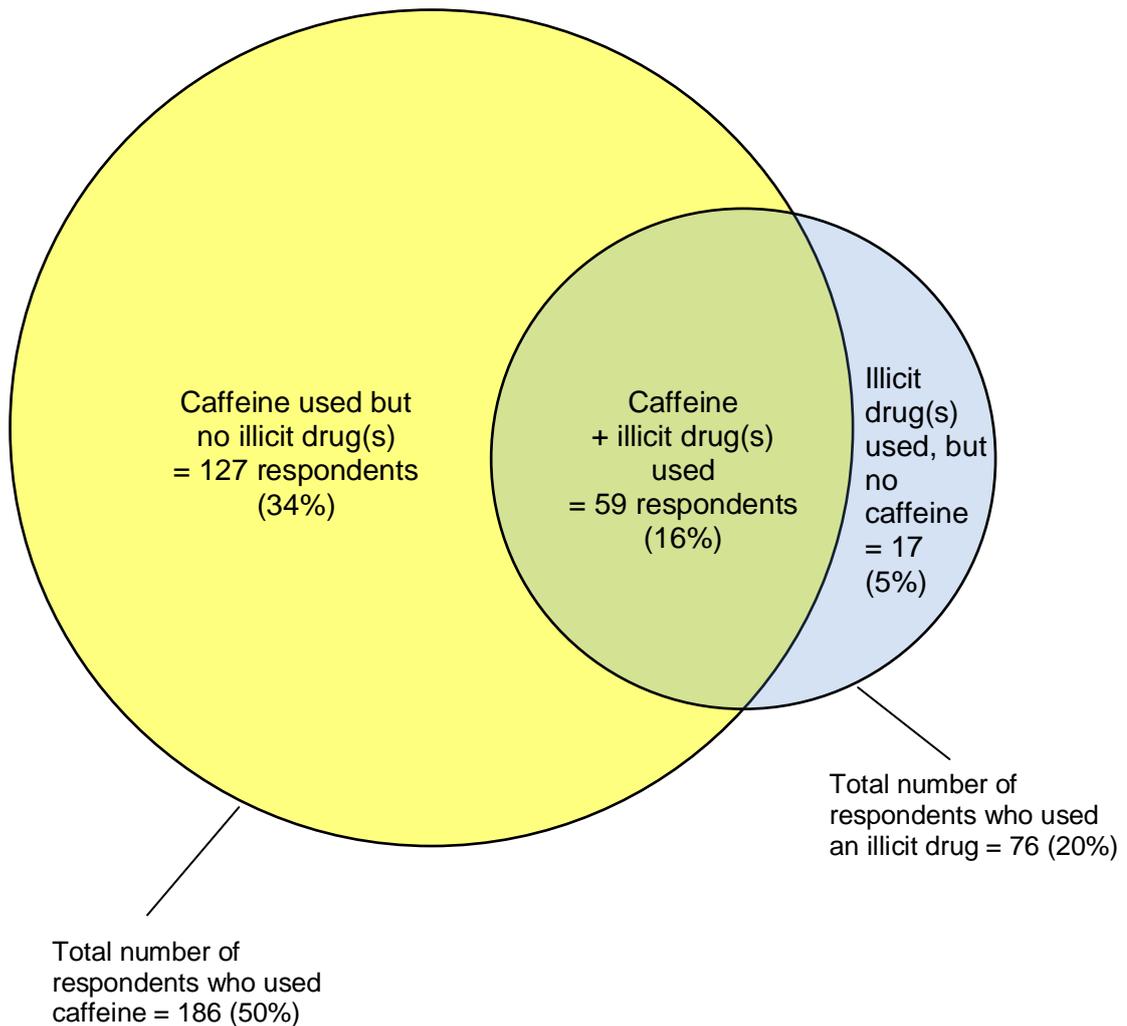
Figure 7
Use of other drugs on any one Leavers day



Note. 'Any illicit drug' includes amphetamine, cannabis or ecstasy.

A fifth (21%; 76) of respondents used at least one illicit drug at *Leavers* (amphetamine or cannabis or ecstasy). A further 34% (127) used caffeine but no illicit drugs, and the remaining 45% (168) did not use any caffeine or illicit drugs during *Leavers* (N = 371, 34 missing responses). See figure 8 for a Venn diagram of how caffeine use overlapped with illicit drug use at *Leavers*.

Figure 8
Caffeine and illicit drug use at Leavers



Note. Percentages reflect the proportion of other drug use over all 371 respondents (34 missing responses). Respondents were coded as having used an illicit drug if they used amphetamine and/or cannabis and/or ecstasy on any one day at *Leavers*.

Differences between days 1, 2 and 3 in other drug use

There were no significant differences in the use of amphetamine, cannabis, ecstasy or other drugs over days 1, 2 and 3. However, a series of Wilcoxon signed rank tests revealed that caffeine use was significantly more likely on day 1 (43%) compared to on day 2 (35%) and 3 (36%; day 1 vs. 2: $z = -4.01$, $n = 320$, $p = .0005$, $r = .16$ [small effect]; day 1 vs. 3: $z = -1.96$, $n = 317$, $p = .05$, $r = .08$ [small effect]; day 2 vs. 3: $z = -0.65$, $p = .52$).

Quantity of other drug use at Leavers

If a respondent used amphetamine, caffeine, cannabis or ecstasy at *Leavers*, they were asked to specify the quantity of the drug in question in the various forms the drugs could come in (tablets, bottles, joints, lines etc.). Reported quantities were averaged over days 1, 2 and 3 (see Table 20). For example, if a respondent used 2 tablets of ecstasy on day 1, no ecstasy on day 2 and 3 tablets of ecstasy on day 3, a score of 2.5 was computed as their mean ecstasy tablet/pill use quantity per session (the number of pills used, if at all).

Of the 38 who used amphetamine on at least one day during *Leavers*, 29 provided information on the quantity they used. The most popular form of amphetamine was tablets/pills with 21 respondents using a mean of 3.98 tablets/pills per session. Twelve used amphetamine through more than one form: 7 used in tablet/pill and in line form, 2 used in tablets and through smoking, 2 used in tablets, lines and through smoking and 1 used in lines and injections.

Of the 186 who used caffeine, 140 provided quantity information. One hundred and twenty six used an average of 2.60 cans/bottles (e.g. RedBull) of caffeine and 35 used an average of 3.52 tablets per session.

Of the 52 who used cannabis on at least one day during *Leavers*, 43 provided quantity information. Thirty-three used an average of 4.03 cones, 27 used an average of 2.36 joints and 17 used both.

Of the 43 who used ecstasy on at least one day during *Leavers*, 37 provided quantity information. An average of two tablets/pills were used by 34, 9 reported that they used an average of 2.70 lines and 6 reported that they used both tablets and lines.

Table 20
Quantity of other drugs used at Leavers

Drug	Form of use	Day 1			Day 2			Day 3			Leavers average (Days 1- 3)		
		Mean	SD	N	Mean	SD	N	Mean	SD	N	Mean	SD	N
Amphetamine	tablet/pills	4.08	5.21	12	4.14	3.39	7	5.06	6.73	8	3.98	4.92	21
	lines	3.42	3.63	12	3.50	1.29	4	3.33	2.08	3	3.31	2.91	15
	smokes	7.51	4.98	4	5.00	.	1	50.00	.	1	15.51	19.71	5
	shots	2.00	.	1	4.00	.	1	2.00	.	1	2.50	0.71	2
Caffeine	cans/bottles	2.77	3.45	90	2.59	1.64	68	2.35	1.93	69	2.60	3.00	126
	tablets	4.05	4.74	20	3.65	4.76	20	3.70	4.48	22	3.52	3.82	35
Cannabis	cones	3.48	3.03	21	5.33	4.96	18	2.83	1.85	12	4.03	3.52	33
	joints	2.32	2.35	19	2.09	1.38	11	3.88	4.73	8	2.36	2.44	27
Ecstasy	tablets/pills	2.18	2.37	17	2.11	1.86	14	1.55	1.15	21	2.00	2.05	34
	lines	3.33	2.34	6	1.33	0.58	3	2.33	2.31	3	2.70	2.03	9
	smokes			0			0			0		0	
	shots			0			0			0		0	

Source of drugs other than alcohol

Following reports of other drug use at *Leavers*, respondents were asked from whom they obtained their drugs. A multiple choice list was provided with the possibility of selecting more than one option. A total of 382 responses were provided by 333 participants (72 did not respond/select at least one response option). See Table 21.

Table 21

Source of other drugs used at Leavers

Source of drug(s) other than alcohol	N	Percent of Cases
Did not get any drugs other than alcohol	191	57%
Friends	69	21%
I bought it from a shop	56	17%
A dealer I know	25	8%
Acquaintances	16	5%
Unknown street dealer	14	4%
Workmates	4	1%
Other	7	2%
		115%
Total number of responses		382
Number of valid respondents		333
Missing respondents		72

Females were more likely to report not having obtained other drugs during *Leavers* (64% of females versus 44% of males; $X^2 = 5.36$, $df = 1$, $p = 0.02$, $\phi = -.13$).

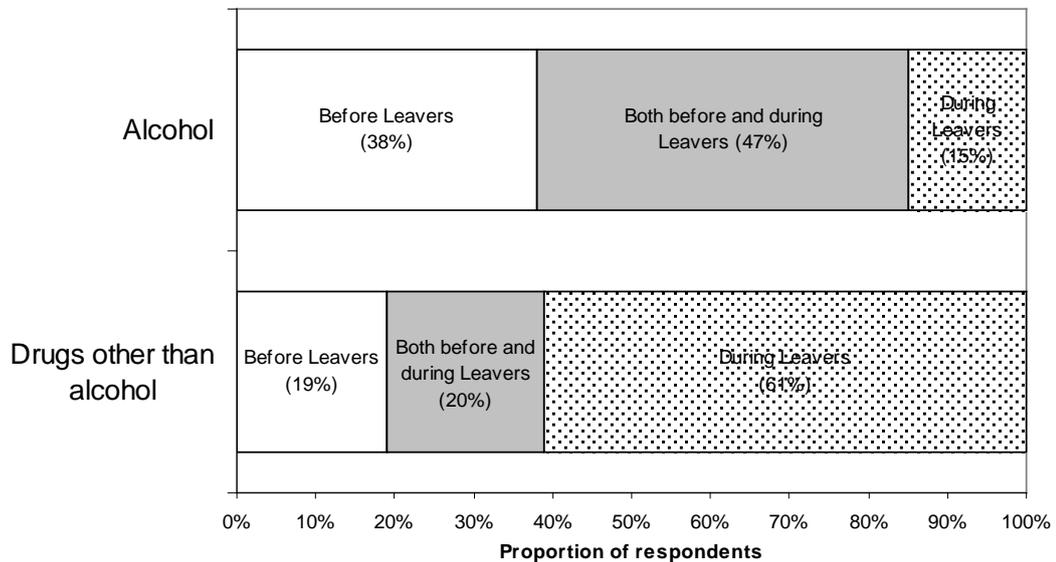
Males were more likely to report having obtained other drugs from a dealer they knew (12% of males versus 4% of females; $X^2 = 6.38$, $df = 1$, $p = 0.01$, $\phi = .15$), and an unknown street dealer (8% of males and 0.5% of females; $X^2 = 9.16$, $df = 1$, $p = 0.002$, $\phi = .18$).

When drugs other than alcohol were obtained

Respondents were asked when they obtained the drugs other than alcohol they used during *Leavers*. Most (57%) stated that the question was not applicable to them as they did not get any drugs other than alcohol. Of those who did obtain drugs other than alcohol, 61% obtained them during the celebrations (26% of all respondents); 20% obtained them both before arriving on Rottneest Island as well as during *Leavers* (9% of all); and 19% obtained them before they arrived on the island (8% of all; N = 332, 73 missing). Figure 9 summarises when alcohol and other drugs were obtained (N=341 who used alcohol, 34 missing; N=143 who used other drugs, 60 missing).

Figure 9

When AOD used at Leavers were obtained (respondents who used alcohol and other drugs)



Summary of use of drugs other than alcohol at Leavers

On any one day during *Leavers*, 11% of respondents used amphetamine; 53% used caffeine; 75% of those who used caffeine, used it with alcohol; 15% used cannabis; 12% used ecstasy; and 5% used 'other drugs' (drugs other than alcohol, amphetamine, caffeine, cannabis or ecstasy).

Males were more likely to use amphetamine, cannabis, ecstasy and other drugs on any one day compared to females. Most respondents (74%) used only alcohol during *Leavers*; 18% used both alcohol and illicit drugs; 0.5% used illicit drugs but not any alcohol and 7% used neither alcohol nor illicit drugs.

Location of intoxication

Respondents were asked where they spent time intoxicated with any drug during *Leavers*. A multiple choice list was provided and they could select more than one option. A total of 334 participants provided 646 responses (71 did not respond to the item).

The majority of the respondents were intoxicated either in their own accommodation (56%) or in another's (53%). Thirty-nine per cent were intoxicated in the entertainment zone, 9% were intoxicated on a boat and 11% selected the 'other' location option. Of the 38 who specified they spent intoxicated time at 'other' places, 34 specified where these areas were. Fourteen specified 'the streets'/'walking around', 11 'everywhere'/'around', 5 at the beach/the dunes, 2 at the pub, 1 on a roof and 1 at the central shops. Twenty four per cent answered that they were 'never intoxicated' at *Leavers*.

A series of chi-square tests for independence with Yates Continuity Correction revealed two gender differences: males were more likely to report being intoxicated on a boat (14% of males versus 5% of females; $X^2 = 6.88$, $df = 1$, $p = 0.009$, $\phi = .15$), and in a 'other' location (16% of males and 7% of females; $X^2 = 4.94$, $df = 1$, $p = 0.03$, $\phi = .13$).

The number who answered that they were 'never intoxicated' at *Leavers* (81) was greater than the number who abstained from using alcohol and/or other drugs during *Leavers* (18). Respondents who selected this option may have used alcohol and/or other drugs but did not feel intoxicated, or may have misunderstood the question to be asking about drugs other than alcohol only (instead of including alcohol as a drug). Approximately 15% of these respondents reported a mean subjective drunkenness score across *Leavers* days of 1 (1='not intoxicated at all'). Thus for the majority, it appears that they simply misunderstood the question as it followed on from the other drug section of the survey.

Price of alcohol and drugs other than alcohol

Respondents were asked how much money they spent on alcohol and other drugs during the entire *Leavers* period. A third (32%) spent between \$0-49, 30% spent \$50-

99, 21% spent \$100-149 and 17% spent more than \$150 (N=324, 18 did not use AOD [and did not respond to item], 63 missing responses). Males spent significantly more money on AOD compared to females (Mann-Whitney U = 10440, $z = -3.22$, $p = .001$, $r = .18$ [small effect]).

4.2.4 Estimations of peer alcohol and other drug use at Leavers

Peer alcohol use estimations

Respondents were asked how many standard drinks they thought people in their immediate friendship group of the same gender would be drinking on a typical *Leavers* day. Females reported a mean of 11.74 (sd = 8.32; n = 173, 27 missing), and males reported a mean of 15.67 standard drinks (sd = 9.15; n = 165, 35 missing). Males reported significantly higher means for peer alcohol use than females (Mann-Whitney U = 10077, $z = -4.69$, $p = .005$, $r = .26$ [small-medium effect]).

In a similar item, respondents were asked how many alcoholic drinks they thought the average student of the same gender would be drinking on a typical *Leavers* day. Females reported a mean of 12.00 (sd = 7.10; n = 177, 23 missing), and males reported a mean of 14.76 standard drinks (sd = 8.31; n = 165, 35 missing). Males reported significantly higher means than females (Mann-Whitney U = 11395, $z = -3.53$, $p = .005$, $r = .19$ [small effect]).

Estimations of peer use of drugs other than alcohol

Respondents were asked to rate how strongly they agreed the average student of the same gender used a list of drugs other than alcohol at *Leavers* (see Table 22).

Table 22

Agreement the average student used other drugs at Leavers

	Strongly agree	Agree	Undecided	Disagree	Strongly disagree	Missing N	Total count
Amphetamine	12%	29%	22%	23%	14%	62	343
Caffeine	64%	24%	5%	2%	4%	58	347
Cannabis	22%	37%	22%	10%	9%	58	347
Ecstasy	22%	33%	20%	12%	12%	57	348
Other drugs	10%	15%	42%	12%	21%	232	173

The following percentages strongly agreed or agreed the average student used the preceding drug other than alcohol at *Leavers*: amphetamine (41%), caffeine (88%), cannabis (59%), ecstasy (55%) and drugs other than alcohol, amphetamine, caffeine, cannabis or ecstasy (25%). There were no significant gender differences for estimations of peer use of drugs other than alcohol. Estimations of peer AOD use are further investigated as a part of hypothesis 6.

4.2.5 Negative consequences at Leavers

Respondents were asked whether they experienced any of 15 negative situations, such as injuring themselves, listed by the survey. If they did experience that situation, they were asked what the one main reason was that caused the situation. Reasons included: being due to alcohol, due to drugs other than alcohol and due to a reason other than alcohol/other drug use. They were also able to specify if they did not experience that situation at all. See Table 23.

The majority of respondents (272, 87%) experienced at least one negative experience at *Leavers* that they attributed to AOD use (N=313, 92 missing). They experienced an average of 3.5 AOD-attributed negative consequences (N=314, 91 missing). There was no significant gender difference in the overall number of negative AOD-attributed consequences experienced (Mann-Whitney U test; $U = 11903$, $z = -0.43$, $p = .67$). Gender differences for individual negative consequences are explored in the following section.

A summary variable called 'sexual problems/risks' was created where if a respondent experienced any one of three sexual problems or sexual risk taking (having unprotected sex, being in a sexual situation they weren't happy about at the time or being in a sexual encounter they later regretted), they were coded as having at least one sexual problem/risk. A third (32%; 97) reported at least one sexual problem or risk behaviour (N=301, 104 missing).

Similarly, a summary variable called 'legal problems' was created where if a respondent experienced any one of four legal problems (stealing public or private property, committing an act of vandalism, was removed or banned from Rottneest Island/their accommodation or arrested for intoxicated behaviour), they were coded as having at least one legal problem at Leavers. Almost a fifth (18%; 55) of respondents reported at least one legal problem (N=301, 104 missing).

There were four significant gender differences in the experience of negative consequences (tested using a series of chi-square tests for independence with Yates continuity correction). Females were more likely to report an emotional outburst, and males were more likely to report (i) an act of vandalism, (ii) removal from accommodation, and (iii) a legal problem compared to females.

Table 23
Negative consequences experienced at Leavers

	Experienced due to Alcohol	Experienced due to drugs other than alcohol	Experienced due to reasons other than alcohol or other drug use	Did not experience	Missing N	Valid N
A hangover	61%	6%	0%	33%	95	310
Emotional outbursts	36%	4%	6%	55%	98	307
Vomiting	34%	2%	2%	62%	99	306
A heated argument	26%	3%	7%	64%	108	297
You had an accident/injured yourself	34%	2%	5%	59%	105	300
You were physically aggressive towards someone	15%	2%	3%	81%	110	295
Periods of time that you could not remember (blackouts)	52%	5%	1%	42%	103	302
Inability to pay for things as a result of spending too much money on alcohol/other drugs	9%	4%	0%	88%	104	301
You had unprotected sex	8%	2%	4%	86%	104	301
You ended up in a sexual situation you weren't happy about at the time	13%	1%	1%	85%	106	299
A sexual encounter you later regretted	16%	2%	3%	79%	105	300
You stole private or public property (e.g. a street sign, shopping trolley)	9%	2%	1%	88%	107	298
You committed an act of vandalism (e.g. damaged a fence)	6%	2%	1%	90%	106	299
You were removed or banned from Rottneest Island/your accommodation	1%	1%	1%	97%	105	300
Arrested for intoxicated behaviour	4%	1%	0%	95%	106	299

	Female			Male		
	Experienced outcome		Valid N	Experienced outcome		Valid N
	Count	Percentage		Count	Percentage	
Hangover	98	63%	156	110	72%	153
Emotional outburst ^a	84	55%	154	54	36%	152
Vomiting	62	40%	155	54	36%	150
Heated argument	52	35%	148	53	36%	148
Accident/injury	69	46%	151	52	35%	148
Physically aggressive	29	19%	150	27	19%	144
Blackout	87	57%	153	87	59%	148
Inability to pay for things	13	8%	153	24	16%	147
Unprotected sex	16	10%	153	25	17%	147
Sex not happy about at the time	23	15%	152	23	16%	146
Sex later regretted	32	21%	153	31	21%	146
Stealing	13	8%	153	24	17%	144
Vandalism ^b	7	5%	153	22	15%	145
Removed or banned from RI/accommodation ^c	1	1%	153	9	6%	146
Arrested for intoxicated behaviour	4	3%	154	11	8%	144
Sexual problem or risk	46	30%	153	50	34%	147
Legal problem ^d	20	13%	155	35	24%	145

^aFemales > males for emotional outburst ($X^2 = 10.42$, $df = 1$, $n = 306$, $p = .001$).

^bMales > females for an act of vandalism ($X^2 = 8.34$, $df = 1$, $n = 298$, $p = .004$).

^cMales > females for removal from accommodation (1 cell had an expected count <5; Fisher's Exact Test $p = .009$, $df = 1$, $n = 289$).

^dMales > females for a legal problem ($X^2 = 5.59$, $df = 1$, $n = 300$, $p = .02$).

Summary of negative consequences experienced at Leavers

The majority of respondents (87%) experienced at least one negative experience at *Leavers* they attributed to AOD use. The most commonly experienced negative consequences were hangovers (67% of respondents), blackouts (57%), emotional

outbursts (40%), vomiting (36%), an accident/injury (36%), a heated argument (29%) and having a sexual encounter later regretted (19%). Females were more likely to report an emotional outburst and less likely to report an act of vandalism or removal from accommodation.

4.2.6 Harm reduction strategy use

Parental discussion

Respondents were asked how strongly they agreed that they had discussed with their parents the ways in which they could keep safe while affected by alcohol and/or other drugs (in any situation, including *Leavers*). A quarter (24%) strongly agreed, 36% agreed, 23% were neutral, 6% disagreed, 7% strongly disagreed, and 3% didn't know (N = 358, 47 missing responses). There were no significant gender differences in strength of agreement (Mann-Whitney U = 13080, $z = -1.93$, $p = .054$).

Protective Behavioural Strategies Scale (PBSS)

Respondents were asked to indicate the degree to which they engaged in 16 harm minimisation behaviours at *Leavers*. Females engaged in the following five behaviours significantly more frequently than males: (i) making sure their friends were never alone while intoxicated; (ii) knowing who to call for help if friends got into difficulty with alcohol/drugs other than alcohol; (iii) being determined not to exceed a set number of drinks; (iv) having a friend let the respondent know if they have had enough to drink; and (v) making sure they went home with a friend (see Table 24).

Protective Behavioural Strategies summary score

The Protective Behavioural Strategies (PBS) summary score was created by summing the scores from each of the 14 items from the Protective Behavioural Strategies Survey items together. The item 'drank shots of spirits' was reverse coded. The PBS summary score ranges from a minimum of 14 to a maximum score of 84. Lower scores indicate more frequent engagement in protective strategies and higher scores indicate infrequent engagement. The mean PBS score for males was 57.62 (sd = 13.39, n = 109) and the mean female PBS score was 54.80 (sd = 13.59, n =

139). An independent samples t-test revealed there were no significant gender differences in PBS summary scores ($t(246) = -1.65, p = .10$).

Table 24

Use of harm reduction strategies at Leavers (including the Protective Behavioural Strategies scale)

	Always	Usually	Sometimes	Occasionally	Rarely	Never	Valid N
I made sure my friends were never alone whilst intoxicated with alcohol and/or other drugs ^a	40%	33%	11%	5%	5%	6%	303
I knew who to call for help if my friends got into difficulty with alcohol and/or other drugs ^b	64%	16%	10%	3%	3%	4%	297
Determined not to exceed a set number of drinks ^c	9%	11%	14%	11%	18%	37%	283
Alternated alcoholic and nonalcoholic drinks	18%	18%	17%	11%	16%	20%	283
Had a friend let you know when you'd had enough ^d	12%	11%	11%	10%	22%	34%	284
Left the party at a predetermined time	5%	3%	9%	8%	18%	57%	279
Stopped drinking at a predetermined time	5%	5%	9%	8%	16%	57%	275
Drank water while drinking alcohol	22%	19%	16%	14%	12%	17%	280
Put extra ice in your drink	6%	6%	9%	9%	13%	57%	281
Avoided drinking games	11%	5%	8%	8%	19%	49%	284
Drank shots of spirits	27%	24%	24%	5%	6%	13%	281
Avoided mixing different types of alcohol	14%	12%	8%	10%	17%	39%	277
Drank slowly rather than gulping or chugging	9%	13%	16%	13%	18%	30%	281
Avoided trying to "keep up" or outdrink others	20%	16%	13%	11%	11%	30%	276
Made sure you went home with a friend ^e	39%	17%	10%	7%	8%	18%	282
Knew where your drink was at all times	45%	19%	12%	6%	7%	11%	283

^a Females reported more frequent use ($U = 9226, z = -2.98, p = .003, r = .17$ [small effect]).

^b Females reported more frequent use ($U = 8928, z = -3.17, p = .002, r = .18$ [small effect]).

^c Females reported more frequent use ($U = 7954, z = -2.94, p = .003, r = .17$ [small effect]).

^d Females reported more frequent use ($U = 8186, z = -2.65, p = .008, r = .16$ [small effect]).

^e Females reported more frequent use ($U = 7218, z = -3.96, p = .0005, r = .24$ [small – medium effect]).

Summary of harm reduction strategy use at Leavers

Popular harm reduction strategies respondents always or usually utilised included: knowing who to call for help if friends got into difficulty with AOD (80% of respondents), making sure friends were never alone while intoxicated (73%), knowing where their drink was at all times (64%), making sure they went home

with a friend (56%), drinking water while drinking alcohol (41%), alternating alcoholic drinks with non-alcoholic drinks (36%) and avoiding trying to keep up or outdrink others (35%). Females engaged in five of the 16 listed harm reduction strategies more frequently than males.

4.2.7 Conditions at Leavers conducive to alcohol and other drug use

Respondents were asked how strongly they agreed with a number of statements describing the conditions or circumstances that may have contributed to *Leavers* being an environment conducive to alcohol and other drug use. Males were more likely than females to agree that they (i) felt pressured to use drugs other than alcohol and (ii) that they encouraged someone else to use drugs other than alcohol (see Table 25).

Table 25
Conditions at Leavers conducive to AOD use

	Strongly agree	Agree	Neutral	Disagree	Strongly disagree	Valid N
I was in a 'let-loose' mood where I could do things I normally wouldnt do	27%	28%	28%	12%	5%	317
I had plenty of opportunities for drinking alcohol	68%	24%	6%	2%	1%	320
It seemed like everyone around me was using alcohol	60%	29%	8%	3%	1%	320
I felt pressured to drink alcohol	8%	11%	18%	27%	37%	318
I got drunk because it seemed like everyone was doing it	6%	5%	17%	28%	45%	318
I encouraged someone else to use alcohol	16%	21%	16%	21%	27%	316
I had plenty of opportunities for using drugs other than alcohol	12%	15%	24%	20%	29%	316
It seemed like everyone around me was using drugs other than alcohol	5%	11%	21%	25%	38%	313
I felt pressured to use drugs other than alcohol ^a	2%	2%	10%	20%	65%	316
I encouraged someone else to use drugs other than alcohol ^b	3%	5%	6%	14%	72%	309
If I were street drinking there was a good chance I would get into trouble with the law	27%	33%	19%	9%	11%	315
If I were being drunk and disorderly there was a good chance I would get into trouble with the law	19%	30%	24%	14%	12%	315
If I were in possession of drugs there was a good chance I would get into trouble with the law	25%	23%	24%	13%	16%	314
I was worried that embarrassing/sensitive photos or videos taken of me at the event could end up on the Internet	13%	11%	22%	22%	32%	314

^a Males more likely to agree (Mann-Whitney U = 10853, z = -2.20, p = .03, r = .12 [small effect]).

^b Males more likely to agree (Mann-Whitney U = 10469, z = - 2.15, p = .03, r = .12 [small effect]).

4.2.8 Informal observation outcomes

The informal observation exercise was useful as it provided a context for AOD use at *Leavers* and allowed the research team to test prior assumptions that had been made about the celebrations. Firstly, the research team's assumptions about the expectations leavers held about the celebrations and AOD use at the celebrations were generally corroborated through observation and interview outcomes. Secondly, the methodology that was originally proposed to guide survey data collection at the 2009 celebrations was revised following observations made during the 2008 celebrations.

There was a near unanimous response from interviewed young people that alcohol use was very widespread at *Leavers*. Some people reported they were drinking more at *Leavers* than they would at a regular party, while others estimated they drank a similar amount to what they would usually be consuming within a party setting. The research team encountered a minority of leavers who were abstaining from alcohol/had only consumed a very small amount of alcohol.

Also, some young people explained that they were drinking heavily "because it's *Leavers*", or "because it's fun". Further explanation of the role of alcohol at *Leavers* was rare. Firstly, many leavers at the time of the brief conversations were distracted – intoxicated and attending a party. Secondly, it was the researchers' perception was that for many, these limited explanations were reflective of the equally straightforward analysis that heavy drinking was simply what was expected to occur at *Leavers*.

There was a variety of responses from young people regarding the availability of drugs other than alcohol on the island. Most of the interviewed young people were aware of some degree of illicit drug use, especially ecstasy, on the island. Ecstasy was referred to as "gibbons" on multiple occasions. "Gibbon" was defined by the online slang dictionary, [urbandictionary.com](http://www.urbandictionary.com), as a "term coined by members of the Scotch College community in Perth, Australia which is used to describe methylenedioxymethamphetamine (Ecstasy) pills.

(<http://www.urbandictionary.com/define.php?term=gibbon>, 14 September 2010).

Other illicit drugs mentioned by leavers as available during the celebrations included dexamphetamine, cannabis, amphetamine and cocaine. Other leavers did not condone the use of drugs other than alcohol and were not offered, and/or were not aware of other drug use on the island.

Chapter 5: Hypothesis and post-hoc testing

This results chapter is presented in two main sections: 'hypothesis testing' and 'post-hoc tests'. The first section, hypothesis testing, presents the results of the nine hypotheses described in chapter two. The second section, post-hoc testing, explores nine relationships that supplement the original thesis hypotheses. Following each of the hypotheses and post-hoc tests is a summary of the test findings in boxed text. An overall summary of risk factors associated with increased alcohol and other drug use at *Leavers* is presented at the end of this chapter.

5.1 Hypothesis Testing

5.1.1 Hypothesis 1: Alcohol and other drug (AOD) use at non-Leavers social events and at Leavers.

H1. The proportion of students who use AOD during the *Leavers* period will be significantly greater than the proportion of students who used AOD during non-*Leavers* celebratory events.

Proportion of alcohol use

A significantly greater proportion of respondents used alcohol during the *Leavers* period (93%) and on each *Leavers* day (~88%) compared to the last social event attended with friends (78%). Wilcoxon signed rank tests with paired respondents revealed a similar pattern (see table 26).

Table 26
Proportion of drinkers at the last event and at Leavers

	Descriptives			Last event vs. Leavers: chi-square test for goodness of fit			
	Drinkers	Missing N	Valid N	χ^2	df	N	p
Last event	78.1%	29	512			-	
Leavers day 1	88.5%	40	365	22.96	1	365	0.0005
Leavers day 2	88.3%	38	367	22.16	1	367	0.0005
Leavers day 3	87.3%	42	363	17.99	1	363	0.0005
Any Leavers day	92.5%	3	402	49.11	1	403	0.0005

	Descriptives			Last event vs. Leavers: Wilcoxon signed rank test			
	Drinkers	Missing N	Valid N	z	N	r ^a	p
Last event	64.2%	0	120			-	
Leavers day 1	81.0%	4	116	-4.15	116	-0.27	0.0005
Leavers day 2	76.7%	4	116	-3.30	116	-0.22	0.001
Leavers day 3	79.5%	8	112	-4.03	112	-0.27	0.0005
Any Leavers day	84.9%	1	119	-4.90	119	-0.32	0.0005

^a Effect size: .1=small, .3=medium, .5=large.

Other drugs

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 *Leavers* ($z = -2.65$, paired $n = 103$, $p = .008$, $r = .18$ [small-medium effect size]) compared to the last pre-*Leavers* event they attended. Paired respondents were not any more likely to use ecstasy on day 2 of *Leavers* compared to their last social event ($z = -1.73$, paired $n = 103$, $p = .08$). See

Table 27.

Paired respondents were not any more likely to use amphetamine, caffeine, caffeine with alcohol, cannabis, other drugs or an illicit drug on days 1, 2 or 3 of *Leavers* compared to their last pre-*Leavers* social event.

In hypothesis 3, prior drug use (use at the last pre-*Leavers* social event) was used to predict the use of drugs other than alcohol at *Leavers*.

Table 27

Other drugs at the last pre-*Leavers* social event and at *Leavers*

All respondents

	Amphetamine		Caffeine		Caffeine used with alcohol ^a		Cannabis		Ecstasy		An illicit drug ^b	
	Used	Valid N	Used	Valid N	Used	Valid N	Used	Valid N	Used	Valid N	Used	Valid N
Last event	6%	453	40%	455	57%	162	10%	450	4%	448	13%	541
Leavers day 1	8%	340	43%	334	73%	97	11%	331	8%	338	16%	340
Leavers day 2	5%	325	35%	323	79%	75	9%	321	7%	324	13%	328
Leavers day 3	5%	329	36%	328	71%	73	7%	319	9%	325	13%	326

Paired respondents^c

	Amphetamine		Caffeine		Caffeine used with alcohol		Cannabis		Ecstasy		An illicit drug	
	Used	Valid N	Used	Valid N	Used	Valid N	Used	Valid N	Used	Valid N	Used	Valid N
Last event	5%	110	32%	111	44%	34	5%	108	0%	108	8%	110
Leavers day 1	5%	115	32%	114	62%	29	6%	115	3%	115	10%	115
Leavers day 2	1%	115	29%	111	65%	23	4%	115	4%	114	6%	116
Leavers day 3	1%	117	32%	116	58%	26	4%	115	6%	115	9%	116

Note. The use of other drugs at the last social event was assessed using the pre-*Leavers* survey and use on *Leavers* day 1, 2 and 3 was assessed using the post-*Leavers* survey.

^a Subset of caffeine users.

^b Amphetamine and/or cannabis and/or ecstasy.

^c Respondents who completed both the pre- and post-*Leavers* surveys.

Summary of H1 testing

Hypothesis 1 was partially supported. A greater proportion of respondents consumed alcohol at *Leavers* compared to the last event (~88% vs. 73%). Also, respondents were twice as likely to use ecstasy on *Leavers* day 1 and day 3 compared to their last social event (~8% vs. 4%).

5.1.2 Hypothesis 2: Quantity of AOD use at non-Leavers social events and at Leavers

H2. Levels of AOD consumption among students who used AOD during the *Leavers* period will be significantly greater compared to the level of AOD used during non-*Leavers* celebratory events.

Alcohol quantity

Drinking respondents consumed an average of 11.94 standard drinks at their last pre-*Leavers* social event, and 15.80 standard drinks on a mean *Leavers* day (see Table 28 and figure 10). Both alcohol quantity estimates were made using the beverage specific response method.

Paired respondents who drank alcohol at both their last event and at *Leavers*, drank 15.47 standard drinks on an average day at *Leavers* (95% CIs [13.09, 17.86]) and 10.40 standard drinks at the last event (95% CIs [8.55, 12.25]). These respondents drank significantly more, an average of 5.07 standard drinks more, in the *Leavers* context (95% CIs [2.92, 7.23]; Wilcoxon signed rank test statistics: $z = -4.38$, $n = 58$, $p = .0005$, $r = .59$ [large effect]).

Table 28

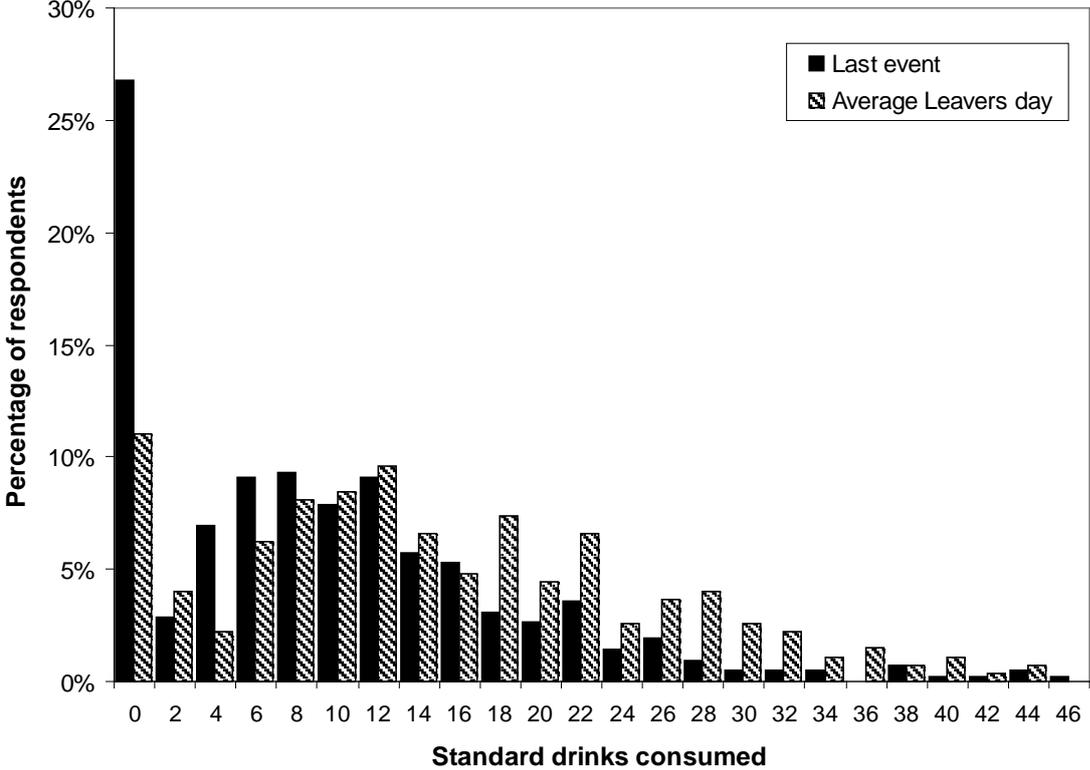
Alcohol quantity at the last social event and on an average day at Leavers

		Last event	Leavers
Females	Mean	10.09	13.24
	SD	7.15	8.93
	95% CI	[9.00, 11.17]	[11.64, 14.84]
	Minimum	.30	.50
	Maximum	42.00	43.80
	Valid N	170	122
Males	Mean	14.32	18.44
	SD	9.16	9.42
	95% CI	[12.73, 15.89]	[16.72, 20.16]
	Minimum	1.20	1.87
	Maximum	45.60	42.60
	Valid N	132	118
All respondents	Mean	11.94	15.80
	SD	8.32	9.49
	95% CI	[11.01, 12.88]	[14.60, 17.00]
	Minimum	.30	.50
	Maximum	45.60	43.80
	Valid N	306	242
	Missing N ^a	123	133

Note. Alcohol estimations made using the beverage specific approach with both paired and unpaired respondents.

^a Not including 112 respondents who abstained from alcohol at the last event and 30 who abstained at Leavers.

Figure 10
Distribution of alcohol use at the last event and at Leavers



Note. Alcohol estimations 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.

Quantity of drugs other than alcohol used at last event and Leavers

If a respondent used amphetamine, caffeine, cannabis or ecstasy at the last social event they attended or at *Leavers*, they were asked to specify the quantity of the drug they used. Respondents specified the quantity of the drug they consumed in the various forms the drugs could come in (tablets, bottles, joints, lines etc.). Table 29 lists the quantity of amphetamine, caffeine, cannabis and ecstasy they used at the last pre-*Leavers* social event attended and at *Leavers*.

Table 29
Quantity of other drug use at last social event and at Leavers (all respondents)

Drug	Form of use	Last social event				Leavers (mean use over days 1-3)			
		Mean	SD	95% CI	N	Mean	SD	95% CI	N
Amphetamine	Tablet/pills	3.17	2.41	[1.64, 4.70]	12	3.98	4.92	[1.74, 6.21]	21
	Lines	2.00	2.24	[0.78, 4.78]	5	3.31	2.91	[1.70, 4.92]	15
	Smokes	8.25	4.50	[1.09, 15.41]	4	15.51	19.71	.	5
	Shots	2.00	.	.	1	2.50	0.71	.	2
Caffeine	Cans/bottles	2.22	2.35	[1.82, 2.62]	135	2.60	3.00	[2.07, 3.13]	126
	Tablets	1.61	1.09	[1.07, 2.15]	18	3.52	3.82	[2.21, 4.83]	35
Cannabis	Cones	4.88	4.17	[3.11, 6.64]	24	4.03	3.52	[2.78, 5.28]	33
	Joints	2.94	2.43	[1.64, 4.24]	16	2.36	2.44	[1.39, 3.32]	27
Ecstasy	Tablet/pills	2.73	2.53	[1.03, 4.43]	11	2.00	2.05	[1.29, 2.76]	34
	Lines	3.50	3.54	.	2	2.70	2.03	[1.14, 4.26]	9
	Smokes	2.00	.	.	1	-	-	-	0
	Shots	3.00	.	.	1	-	-	-	0

Note. A dash symbol (-) indicates data were not obtained for the drug form. A dot symbol (.) indicates a calculation was not able to be computed due to sample size.

Due to the smaller number of quantity estimates obtained, Mann-Whitney U tests were run with non-paired participants (i.e. excluding paired participants) to compare the quantity of other drugs used at the last event and at *Leavers*.

The quantity of caffeine used by non-paired participants, either in bottles/cans or in tablet form, was significantly higher on an average day at *Leavers* than at the last social event. The mean number of cans of caffeinated beverages consumed at *Leavers* (2.90 cans, 95% CIs [2.15, 3.64], sd = 3.49, n = 86) was significantly higher than at the last event (2.36 cans, 95% CIs [1.87, 2.84], sd = 2.55, n = 109; U = 3809, z = - 2.32, n = 195, p = .02, r = .17 [small effect]). The mean number of caffeine tablets consumed at *Leavers* (3.10 tablets, 95% CIs [2.17, 4.02], sd = 2.20, n = 24) was significantly higher than at the last event (1.69 tablets, 95% CIs [0.98, 2.41], sd = 1.18, n = 13; U = 83, z = - 2.08, n = 36, p = .04, r = .35 [medium effect]).

No other tests revealed significant differences in quantity of use across contexts (amphetamine tablets/pills, amphetamine lines, amphetamine smokes, amphetamine shots, cannabis cones, cannabis joints, ecstasy tablets, ecstasy lines).

Of note is that compared to quantity specific estimates, binary indications of other drug use (used/did not use) are likely to be a more reliable indicator of differences across contexts as the latter attract substantially higher response rates.

Summary of H2 testing

The hypothesis that levels of AOD use would be greater between the contexts of *Leavers* and the last non-*Leavers* social event attended was partially supported. Paired respondents drank five standard drinks more and those who used caffeine used a larger quantity at *Leavers*. However, the quantity of drugs used other than alcohol and caffeine were not significantly different between contexts. This may have been because there was only a small proportion that used other illicit drugs.

5.1.3 Hypothesis 3: Relationship between AOD use experience and AOD use at *Leavers*.

H3. There will be a significant positive association between AOD use during *Leavers* and pre-*Leavers* AOD use experience at celebratory events.

The quantity of alcohol used at the last social event attended and at *Leavers* was significantly, moderately and positively correlated amongst paired respondents (Spearman's rho coefficient = .41, $n = 58$, excluding 42 respondents who did not use alcohol at the event and or at *Leavers*, 20 missing, $p = .001$).

Alcohol use at *Leavers* and alcohol use at last social event attended (standard multiple regression)

Standard (simultaneous) multiple linear multiple regression was used to assess whether 'alcohol use at the last pre-*Leavers* social event attended' predicted levels of alcohol use at *Leavers*. Only respondents who consumed alcohol at *Leavers* were included in the analysis as the inclusion of abstainers skewed the data set and prevented the use of the statistical test which requires a normalised distribution.

There were five independent variables: (1) alcohol use at the last social event attended, controlling for (2) gender, (3) location of accommodation, (4) survey administration modality for the pre-*Leavers* survey and (5) modality of the post-*Leavers* survey. Alcohol use at the last social event was estimated using the beverage specific response method.

The model was statistically significant and approximately 21% of the variance in reports of alcohol use at *Leavers* was accounted for by the model (Adjusted R Square; $F(5, 50) = 3.90, p = .005$; see Table 30). As the regression model was run using a dependent variable that had undergone a square root transformation, additional calculations were performed to determine the impact of each independent variable on predicted alcohol use, all other variables held constant.

Alcohol use at the last event uniquely explained 20% of the total variance with greater alcohol use at *Leavers* predicted by higher alcohol use at the last social event. For example, respondents who reported they consumed 15 standard drinks at the last event were predicted to have consumed 3.22 extra drinks at *Leavers* compared to respondents who reported they consumed 10 standard drinks at the last event, controlling for all other factors.

Table 30

Alcohol use at Leavers modelled using prior alcohol use, controlling for gender, location and survey modality (multiple linear regression with paired respondents)¹

Model Summary				Change Statistics				
R	R Square	Adjusted R Square	SE of the Estimate	R Square Change	F Change	df1	df2	Sig. F Change
.530	.281	.209	1.01	.281	3.90	5	50	.005

ANOVA								
	Sum of Squares	df	Mean Square	F	Sig.			
Regression	19.85	5	3.97	3.90	.005			
Residual	50.86	50	1.02					
Total	70.72	55						

	Unstandardized Coefficients		Standardized Coefficients	t	p	95% C.I. for B	
	B	SE	Beta			Lower Bound	Upper Bound
Alcohol use at last event	0.08	0.02	0.48	3.76	0.0004	0.04	0.12
Gender (female)	0.26	0.30	0.11	0.87	.388	-0.34	0.87
Residential area (main settlement)	0.04	0.33	0.02	0.13	.898	-0.62	0.70
Pre-Leavers survey modality (online)	-0.18	0.34	-0.08	-0.52	.604	-0.86	0.51
Post-Leavers survey modality (online)	-0.07	0.36	-0.03	-0.19	.852	-0.79	0.66
(Constant)	2.95	0.86		3.43	.001	1.22	4.67

¹ Reference group of categorical variables in parentheses.

Use of drugs other than alcohol at Leavers and at the last social event (logistic regression)

Logistic regression was performed to assess the impact of past drug use on the likelihood that respondents would report using amphetamine, caffeine, caffeine with alcohol, cannabis and an illicit drug (a summary variable including amphetamine/cannabis/ecstasy) on any one day at *Leavers*. Each drug was examined separately in a model which contained five independent variables: (1) respondents' use of the drug respective to the logistic model at the last pre-*Leavers* social event, (2) gender, (3) accommodation location at *Leavers* (4) pre-*Leavers* survey modality and (5) post-*Leavers* survey modality.

As the models included variables from both pre- and post-*Leavers* surveys, a paired sample was used (N=120). There were no matched participants who used ecstasy at the last event so the variable was not entered into a logistic regression model.

Amphetamine

The full model containing all five predictors was statistically significant and

amphetamine use at the last event was the only unique significant predictor for reporting amphetamine use at *Leavers* (see Table 31).

Table 31
Use of amphetamine modelled using: amphetamine use at the last event, gender, location, and modality (logistic regression with paired respondents)¹

Dependent variable	Omnibus Tests of Model Coefficients					Variance explained by model		Correct classifications by model
	X ²	df	Missing N	N	p	Cox & Snell R Square	Nagelkerke R Square	
Amphetamine use	15.38	5	14	106	0.009	13.5%	35.1%	94.3%
Independent variable	B	S.E.	Wald	df	p	Odds Ratio	95% C.I. for Odds Ratio	
							Lower	Upper
Amphetamine at last event (did not use)	4.12	1.33	9.58	1	.002	61.85	4.54	842.61
Gender (female)	1.20	0.99	1.48	1	.223	3.32	0.48	22.90
Location (main settlement)	0.96	0.98	0.95	1	.329	2.61	0.38	17.86
Pre-Leavers modality (online)	-1.02	1.02	1.00	1	.317	0.36	0.05	2.65
Post-Leavers modality (online)	1.36	1.24	1.20	1	.273	3.89	0.34	44.02
Constant	-4.62	1.31	12.51	1	.000	0.01		

¹ Reference group in parentheses.

Those who used amphetamine at their last event were 61.85 times more likely to have used amphetamine at *Leavers* compared to those who did not use amphetamine at the last event, controlling for all other factors.

Caffeine

The full model containing all predictors was statistically significant and the only significant unique predictor for reporting caffeine use was whether the respondent used caffeine at the last event they attended (Table 32).

Table 32
Use of caffeine predicted using: caffeine use at the last event, gender, location, and modality (logistic regression with paired respondents)¹

Dependent variable	Omnibus Tests of Model Coefficients					Variance explained by model		Correct classifications by model
	X ²	df	Missing N	N	p	Cox & Snell R Square	Nagelkerke R Square	
Caffeine use	13.48	5	13	107	0.019	11.8%	15.8%	65.4%

Independent variable	<i>B</i>	S.E.	Wald	df	p	Odds Ratio	95% C.I. for Odds Ratio	
							Lower	Upper
Caffeine at last event (did not use)	1.49	0.48	9.86	1	.002	4.45	1.75	11.29
Gender (female)	0.27	0.44	0.38	1	.535	1.31	0.56	3.09
Location (main settlement)	0.49	0.53	0.87	1	.352	1.64	0.58	4.64
Pre-Leavers modality (online)	-0.66	0.50	1.77	1	.183	0.52	0.20	1.37
Post-Leavers modality (online)	0.17	0.54	0.10	1	.756	1.18	0.41	3.44
Constant	-0.58	0.48	1.49	1	.222	0.56		

¹ Reference group in parentheses.

Respondents who used caffeine at their last event were 4.45 times more likely to have used caffeine at *Leavers* compared to those who did not use caffeine at the last event, controlling for all other factors.

Caffeine used with alcohol

The full model containing all predictors was not statistically significant ($X^2(5, 20) = 5.53, p=.35$), indicating the model was not able to distinguish between respondents who reported and did not report using caffeine with alcohol at *Leavers* (see Table 33). Note the high odds ratio generated for the location variable is likely due to small cell sizes.

Table 33

Use of caffeine with alcohol modelled using: caffeine use with alcohol at the last event, gender, location, and modality (logistic regression with paired respondents)¹

Dependent variable	Omnibus Tests of Model Coefficients					Variance explained by model		Correct classifications by model
	X^2	df	Missing N ¹	N	p	Cox & Snell R Square	Nagelkerke R Square	
Caffeine used with alcohol	5.53	5	33	20	0.35	24.2%	32.7%	80.0%
Independent variable	<i>B</i>	S.E.	Wald	df	p	Odds Ratio	95% C.I. for Odds Ratio	
							Lower	Upper
Caffeine with alcohol at last event (did not use)	2.06	1.21	2.90	1	.088	7.85	0.73	84.05
Gender (female)	1.08	1.26	0.74	1	.390	2.95	0.25	34.64
Location (main settlement)	21.64	40192.97	0.00	1	1.000	2492218281	0.00	.
Pre-Leavers modality (online)	1.09	1.38	0.62	1	.430	2.98	0.20	45.02
Post-Leavers modality (online)	-0.39	1.52	0.07	1	.797	0.68	0.03	13.24
Constant	-1.14	1.44	0.63	1	.428	0.32		

¹ Reference group in parentheses.

Cannabis

The full model containing all predictors was not statistically significant ($X^2(5, 104)=7.82, p=.17$), indicating the model was not able to distinguish between respondents who reported and did not report using cannabis at *Leavers* (see Table 34).

Table 34

Use of cannabis modelled using: cannabis use at the last event, gender, location, and modality (logistic regression with paired respondents)¹

Dependent variable	Omnibus Tests of Model Coefficients					Variance explained by model		Correct classifications by model
	χ^2	df	Missing N	N	p	Cox & Snell R Square	Nagelkerke R Square	
Cannabis use	7.82	5	16	104	0.17	7.2%	17.3%	91.3%
Independent variable	<i>B</i>	S.E.	Wald	df	p	Odds Ratio	95% C.I. for Odds Ratio	
							Lower	Upper
Cannabis at last event (did not use)	1.92	1.08	3.15	1	.076	6.81	0.82	56.58
Gender (female)	1.18	0.81	2.14	1	.143	3.26	0.67	15.80
Location (main settlement)	1.02	0.85	1.44	1	.230	2.77	0.53	14.61
Pre-Leavers modality (online)	0.05	0.90	0.00	1	.958	1.05	0.18	6.07
Post-Leavers modality (online)	-0.20	0.95	0.04	1	.838	0.82	0.13	5.31
Constant	-3.40	0.94	13.07	1	.000	0.03		

¹ Reference group in parentheses.

Illicit drugs

The full model containing all predictors was statistically significant and the only significant predictor for reporting illicit drug use (amphetamine, cannabis and/or ecstasy) was whether the respondent used an illicit drug, at the last pre-*Leavers* social event they attended. See table 35.

Table 35

Use of an illicit drug predicted using: illicit drug use at the last event, gender, location, and modality (logistic regression with paired respondents)¹

Dependent variable	Omnibus Tests of Model Coefficients					Variance explained by model		Correct classifications by model
	χ^2	df	Missing N	N	p	Cox & Snell R Square	Nagelkerke R Square	
Illicit drug use	21.36	5	11	109	0.001	17.8%	32.3%	89.9%
Independent variable	B	S.E.	Wald	df	p	Odds Ratio	95% C.I. for Odds Ratio	
							Lower	Upper
Illicit drug/s at last event (did not use)	2.98	0.84	12.56	1	.000	19.63	3.78	101.83
Gender (female)	0.94	0.66	2.04	1	.153	2.55	0.71	9.21
Location (main settlement)	0.76	0.71	1.16	1	.281	2.14	0.54	8.56
Pre- <i>Leavers</i> modality (online)	-0.93	0.79	1.36	1	.243	0.40	0.08	1.88
Post- <i>Leavers</i> modality (online)	-0.38	0.75	0.26	1	.612	0.68	0.16	2.99
Constant	-2.27	0.64	12.50	1	.000	0.10		

¹ Reference group in parentheses.

Those who used an illicit drug at their last event were 19.63 times more likely to have used an illicit drug at *Leavers* compared to those who did not use an illicit drug at the last event, controlling for all other factors.

Summary of H3 testing

The hypothesis that AOD use at *Leavers* would be significantly positively associated with pre-*Leavers* AOD use experience at celebratory events was partially supported. Higher levels of alcohol use significantly predicted higher alcohol use at *Leavers*, controlling for gender, accommodation location and survey administration modality.

Also, use at the last social event significantly predicted the use of amphetamine, caffeine, and at least one illicit drug (either amphetamine, cannabis

or ecstasy) at *Leavers*, controlling for gender, accommodation location, and survey modality. However, the models predicting caffeine use with alcohol and cannabis use were not significant.

5.1.4 Hypothesis 4: The impact of intent to use AOD on actual AOD use.

H4. There will be a significant positive association between AOD use during *Leavers* and the expression of intent to use AOD at *Leavers*, prior to the celebrations.

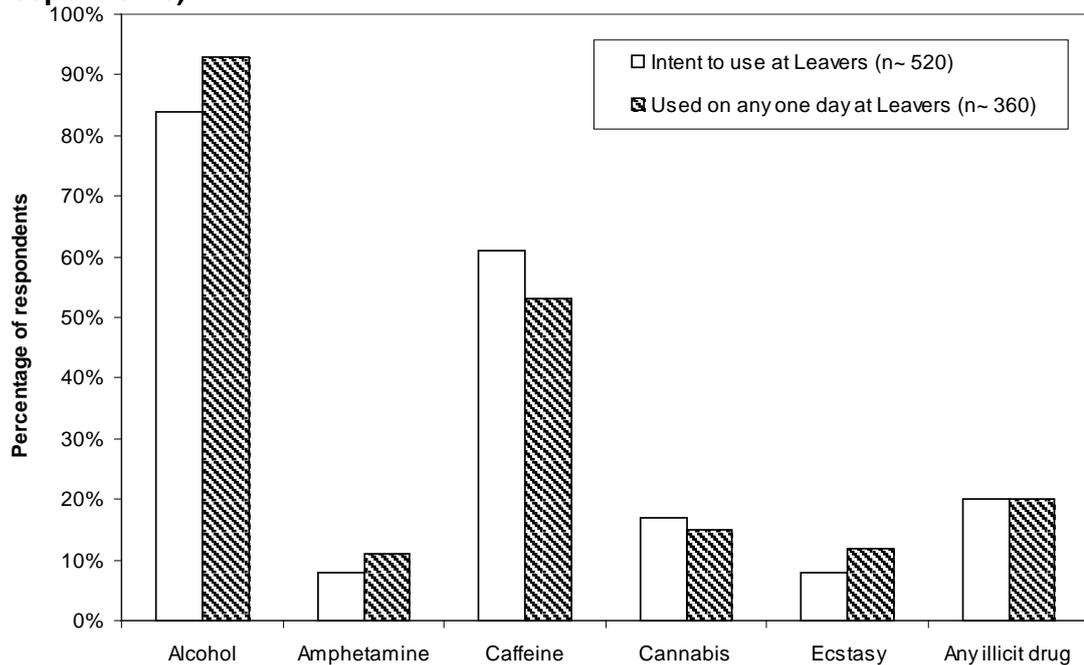
Intent to use alcohol and actual use of alcohol at Leavers

General intentions for alcohol use

In the pre-*Leavers* survey, 84% of the sample stated that they intended to consume alcohol at *Leavers*, 7% did not intend to use alcohol and 9% stated they were not sure whether they would use alcohol (N=531, 10 missing). Not including those who weren't sure about their intent to use, 92% stated that they intended to use alcohol at *Leavers* and 8% stated they did not intend to use (n=481, 50 excluded, 10 missing). In the post-*Leavers* survey, 93% of respondents stated that they used alcohol and 8% stated they did not use alcohol (N= 402, 3 missing). Figure 11 depicts intent for use and actual use of all drugs (i.e. including alcohol) at *Leavers*, amongst all (unpaired and paired) respondents.

A Wilcoxon signed rank test revealed that paired respondents' pre-*Leavers* intentions did not significantly differ from their eventual use ($z = -1.00$, $p = .32$), with the majority (96%; 93) fulfilling their original intent.

Figure 11
Intention and actual use of drugs at Leavers (both unpaired and paired respondents)



Note. Percentages are obtained from two unpaired samples (intent from the pre-Leavers survey and use from the post-Leavers survey). "Any illicit drug" denotes the intention or use of amphetamine and/or cannabis and/or ecstasy.

Quantity specific intentions for alcohol use

The quantity of alcohol that respondents intended to drink at *Leavers* was strongly and positively correlated with their actual use at *Leavers* (Spearman's $\rho = .81$, $p = .0005$, $n = 92$; correlation including only those who intended to drink and those who did drink). To compare whether there was a significant difference in intended versus actual quantity of alcohol use, a Wilcoxon signed rank test was run.

Paired respondents who intended to drink, intended to consume on average 9.32 standard drinks on a typical *Leavers* day (see Table 36). The mean alcohol use amongst these paired drinkers was 11.22 standard drinks per *Leavers* day (paired $n = 92$, 15 abstainers excluded, 13 missing responses). That is, they drank significantly more, around 20% or 1.93 standard drinks more, than they intended to prior to the celebrations (95% CI: 0.71 to 3.15; $z = -4.36$, $p = .0005$, $r = .46$ [medium – large effect size]). See Table 36.

Table 36
Intentions and actual use of alcohol at Leavers

	Alcohol use (standard drinks)	Mean	SD	95% CI for mean		Median	Minimum	Maximum	N
				Lower	Upper				
All respondents	Intentions for use	12.16	9.45	11.29	13.03	10.00	1	60	456
	Use at Leavers ¹	14.20	9.36	13.21	15.19	12.17	0.17	45	348
Paired respondents	Intentions for use	9.32	7.91	7.68	10.96	6.00	1	46	92
	Use at Leavers	11.22	7.90	9.59	12.86	10.00	0.17	42	92

Note. Calculations made with respondents who intended to consume alcohol and did consume alcohol at Leavers.

¹ Quantity averaged over days 1-3 of Leavers.

See post-hoc test 1 for a linear regression model predicting alcohol use at *Leavers* with intent as an independent variable.

Prediction error

'Prediction error' reflects the discrepancy between intended and actual alcohol. This was calculated amongst paired respondents by subtracting the quantity of alcohol intended to be consumed, from the quantity of alcohol actually consumed at *Leavers*. The majority (61%) consumed more alcohol than they intended, 12% consumed the same as what they intended and only 27% of respondents drank less than they anticipated (N = 107, 13 missing responses). There were no significant gender differences in prediction error (Mann-Whitney U=871, $z = -1.17$, $p = .24$).

Intent to use and actual use of other drugs

Logistic regression was performed to assess the impact of intent to use other drugs on the likelihood that respondents would report using amphetamine, caffeine, cannabis, ecstasy and the summary variable of 'illicit drugs' (amphetamine and/or cannabis and/or ecstasy) on any one day at *Leavers*. The logistic models contained five independent variables: (1) pre-*Leavers* intention to use the drug at *Leavers*, controlling for (2) gender, (3) accommodation location, (4) pre-*Leavers* survey administration modality, and (5) post-*Leavers* survey administration modality.

Original responses assessing intention to use drugs at *Leavers* were recorded on a five-point Likert scale (strongly agree-strongly disagree). For ease of analysis 'strongly agree' and 'agree' were merged into a single category, the responses 'strongly disagree' and 'disagree' were merged, and the 'undecided' category remained unaltered.

Amphetamine

The full model for amphetamine use containing all predictors was statistically significant (see Table 37); however, no independent variable made a unique statistically significant contribution to the model.

Table 37
Amphetamine use at Leavers modelled using: intent to use amphetamine, and controlling for gender, location and survey modality (logistic regression with paired respondents)¹

Dependent variable	Omnibus Tests of Model Coefficients					Variance explained by model		Correct classifications by model
	χ^2	df	Missing N	N	p	Cox & Snell R Square	Nagelkerke R Square	
Amphetamine use	22.05	6	4	116	0.001	17.3%	47.3%	96.6%
Independent variable	B	S.E.	Wald	df	p	Odds Ratio	95% C.I. for Odds Ratio	
							Lower	Upper
Intent to use (disagree)								
Undecided	1.59	1.31	1.49	1	.222	4.93	0.38	63.66
Agree	24.89	23153	0.00	1	.999	64731642148 ^a	0.00	.
Gender (female)	0.58	1.07	0.30	1	.587	1.79	0.22	14.62
Location (main settlement)	0.30	1.28	0.05	1	.817	1.35	0.11	16.70
Pre-Leavers modality (online)	-1.51	1.30	1.34	1	.248	0.22	0.02	2.86
Post-Leavers modality (online)	0.93	1.29	0.52	1	.473	2.52	0.20	31.51
Constant	-3.88	1.26	9.52	1	.002	0.02		

¹ Reference group in parentheses.

^a A very high odds ratio was calculated as all three respondents who agreed they intended to use amphetamine, ended up using amphetamine at Leavers (i.e. there was a '0' entry in the variable crosstab cells).

Caffeine

The full model containing the five predictors was statistically significant and intent to use caffeine uniquely predicted reports of caffeine use at *Leavers* (see Table 38).

Table 38

Caffeine use at Leavers modelled using: intent to use caffeine, and controlling for gender, location and survey modality (logistic regression with paired respondents)¹

Dependent variable	Omnibus Tests of Model Coefficients					Variance explained by model		Correct classifications by model
	χ^2	df	Missing N	N	p	Cox & Snell R Square	Nagelkerke R Square	
Caffeine use	35.87	6	4	116	0.0005	26.6%	35.5%	75.0%
Independent variable	B	S.E.	Wald	df	p	Odds Ratio	95% C.I. for Odds Ratio	
							Lower	Upper
Intent to use (disagree)								
Undecided	-0.58	0.76	0.58	1	.448	0.56	0.13	2.50
Agree	2.15	0.51	17.57	1	.000	8.59	3.14	23.47
Gender (female)	0.22	0.46	0.22	1	.636	1.24	0.51	3.05
Location (main settlement)	0.29	0.57	0.26	1	.611	1.34	0.44	4.07
Pre-Leavers modality (online)	-1.00	0.55	3.31	1	.069	0.37	0.13	1.08
Post-Leavers modality (online)	0.52	0.61	0.71	1	.399	1.68	0.50	5.58
Constant	-1.23	0.62	3.90	1	.048	0.29		

¹ Reference group in parentheses.

Respondents who agreed they intended to use caffeine were 8.59 times more likely to report using caffeine at *Leavers* compared to those who disagreed they intended to use, controlling for all other factors.

Cannabis

The full model containing the five predictors was statistically significant and intent to use cannabis uniquely predicted reports of eventual cannabis use (see Table 39).

Table 39

Cannabis use at Leavers modelled with: intent to use cannabis, and controlling for gender, location and survey modality (logistic regression with paired respondents)¹

Dependent variable	Omnibus Tests of Model Coefficients					Variance explained by model		Correct classifications by model
	χ^2	df	Missing N	N	p	Cox & Snell R Square	Nagelkerke R Square	
Cannabis use	20.93	6	4	116	0.002	16.5%	37.2%	91.4%
Independent variable	B	S.E.	Wald	df	p	Odds Ratio	95% C.I. for Odds Ratio	
							Lower	Upper
Intent to use (disagree)								
Undecided	3.04	0.92	10.91	1	.001	20.87	3.44	126.68
Agree	1.88	1.08	3.04	1	.081	6.57	0.79	54.54
Gender (female)	1.69	0.88	3.67	1	.055	5.44	0.96	30.74
Location (main settlement)	0.94	0.86	1.20	1	.272	2.56	0.48	13.69
Pre-Leavers modality (online)	0.74	0.98	0.57	1	.450	2.10	0.31	14.30
Post-Leavers modality (online)	-0.41	1.03	0.16	1	.692	0.67	0.09	4.98
Constant	-4.68	1.05	19.78	1	.000	0.01		

¹ Reference group in parentheses.

Respondents who were undecided whether they intended to use cannabis were 20.87 times more likely to report using cannabis at *Leavers* compared to those who disagreed they intended to use cannabis, controlling for all other factors.

Ecstasy

The full model containing the five predictors was statistically significant and intent to use ecstasy and gender uniquely predicted reports of ecstasy use at *Leavers* (see Table 40).

Table 40

Ecstasy use at Leavers modelled using: intent to use ecstasy and controlling for gender, location and survey modality (logistic regression with paired respondents)¹

Dependent variable	Omnibus Tests of Model Coefficients					Variance explained by model		Correct classifications by model
	χ^2	df	Missing N	N	p	Cox & Snell R Square	Nagelkerke R Square	
Ecstasy use	29.07	6	5	115	0.0005	22.3%	50.1%	94.8%
Independent variable	B	S.E.	Wald	df	p	Odds Ratio	95% C.I. for Odds Ratio	
							Lower	Upper
Intent to use (disagree)								
Undecided	2.98	1.03	8.37	1	.004	19.71	2.62	148.54
Agree	25.11	21524	0.00	1	.999	80467941884 ^a	0.00	.
Gender (female)	2.11	1.06	3.99	1	.046	8.26	1.04	65.66
Location (main settlement)	0.75	1.01	0.55	1	.459	2.12	0.29	15.42
Pre-Leavers modality (online)	-0.01	1.13	0.00	1	.995	0.99	0.11	9.04
Post-Leavers modality (online)	-0.96	1.11	0.74	1	.388	0.38	0.04	3.37
Constant	-4.04	1.03	15.31	1	.000	0.02		

¹ Reference group in parentheses.

^a A very high odds ratio was calculated as all respondents who agreed they intended to use ecstasy, ended up using ecstasy at *Leavers* (i.e. there was a '0' entry in the variable crosstab cells).

Respondents who were undecided whether they intended to use ecstasy were 19.71 times more likely to report using ecstasy at *Leavers* compared to those who disagreed they intended to use ecstasy, controlling for all other factors.

Male respondents were 8.26 times more likely to report using ecstasy compared to females, controlling for all other factors.

Illicit drugs

The full model containing the five predictors was statistically significant and intent to use predicted reports of illicit drug use at *Leavers* (see Table 41).

Table 41
Illicit drug use modelled using: intent to use an illicit drug and controlling for gender, location and survey modality (logistic regression with paired respondents)¹

Dependent variable	Omnibus Tests of Model Coefficients					Variance explained by model		Correct classifications by model
	χ^2	df	Missing N	N	p	Cox & Snell R Square	Nagelkerke R Square	
Illicit drug use	24.7	6	2	118	0.0005	18.9%	34.5%	89.0%
Independent variable	B	S.E.	Wald	df	p	Odds Ratio	95% C.I. for Odds Ratio	
			d				Lower	Upper
Intent to use (disagree)								
Undecided	1.72	0.79	4.74	1	.030	5.61	1.19	26.53
Agree	2.98	0.79	14.38	1	.000	19.75	4.23	92.31
Gender (female)	0.86	0.66	1.71	1	.191	2.35	0.65	8.50
Location (main settlement)	0.16	0.73	0.05	1	.825	1.17	0.28	4.89
Pre-Leavers modality (online)	-0.38	0.78	0.24	1	.627	0.68	0.15	3.18
Post-Leavers modality (online)	-0.63	0.77	0.67	1	.413	0.53	0.12	2.42
Constant	-2.61	0.69	14.43	1	.000	0.07		

¹ Reference group in parentheses.

Note: The 'intent to use an illicit drug' variable was respectively coded as 'agree' or 'undecided' if these were the responses for at least one of the following drugs: amphetamine, cannabis or ecstasy. 'Disagree' was coded if for all three drugs, the response was 'disagree'.

Respondents who were undecided whether they intended to use an illicit drug were 5.61 times as likely, and those who agreed they intended to use an illicit drug were 19.75 times more likely to have used at least one illicit drug at *Leavers* compared to those who disagreed that they intended to use illicit drugs, controlling for all other factors.

Summary of H4 testing

The hypothesis that AOD use during *Leavers* will be significantly positively associated with expression of intent to use AOD at *Leavers*, prior to the celebrations, was supported. Respondents' intent to use alcohol was positively correlated with their actual use of alcohol. However, respondents typically used more than they intended. Expression of intent to use significantly and uniquely predicted the use of

caffeine, cannabis, ecstasy or the summary variable of any illicit drug at *Leavers*, controlling for gender, location and survey modality.

5.1.5 Hypothesis 5: The relationship between AOD-conducive conditions and AOD use

H5. There will be a significant positive association between AOD use during *Leavers* and exposure to conditions at *Leavers* that are conducive to/facilitate AOD use.

There was a significant positive correlation between respondents' perception of how conducive *Leavers* conditions were to AOD use and how much alcohol they consumed. Excluding respondents who abstained, the Spearman's rho between the measure of AOD conducive conditions and alcohol use was .32 ($p=.0005$, $n = 257$, 22 abstainers excluded, 126 missing responses). Including abstainers, the rho was .36 ($p=.0005$, $n = 279$, 126 missing responses). That is, reports that *Leavers* was more conducive to AOD use were associated with higher levels of alcohol use.

Alcohol use at Leavers predicted using six post-Leavers survey variables

Standard multiple regression was used to identify predictors of alcohol quantity. The dependent variable, alcohol quantity, was the averaged quantity used over days 1-3 of *Leavers* as estimated using the standard drink response method. The six predictor variables were: (1) estimates of same gender immediate peer alcohol use, (2) frequency of use of harm reduction strategies, (3) experience of AOD-conducive conditions at *Leavers*, controlling for (4) gender, (5) accommodation location and (6) post-*Leavers* survey administration modality.

The dependent and independent variables were all from the post-*Leavers* survey. No pre-*Leavers* variables were included to keep the sample size as large as possible. The model included 227 respondents and excluded the 30 who abstained from alcohol use.

The model was statistically significant and approximately 55% of the variance in reports of alcohol use at *Leavers* was accounted for by the model. Four independent variables made a significant unique contribution: greater alcohol use

was predicted by having higher estimates of peer alcohol use, less frequent use of harm reduction strategies, being male and having greater exposure to AOD-conducive conditions at *Leavers* (see Table 42).

Table 42

Alcohol use at Leavers modelled using: peer alcohol use, conditions at Leavers, use of harm minimisation strategies, gender, accommodation location, and survey modality (regression model with all post-Leavers survey drinkers)¹

Model Summary								
R	R Square	Adjusted R Square	Std. Error of the Estimate					
.751	.564	.552	0.85					
ANOVA								
	Sum of Squares	df	Mean Square	F	Sig.			
Regression	206.43	6	34.41	47.414	.000			
Residual	159.64	220	0.73					
Total	366.07	226						
Coefficients								
	Unstandardized Coefficients		Standardized Coefficients		95% Confidence Interval for B			
	B ²	Std. Error	Beta	t	Sig.	Lower Bound	Upper Bound	
Survey modality (online)	-.055	.168	-.015	-.326	.745	-.386	.276	
Gender (female)	.432	.116	.170	3.714	.000	.203	.661	
Residential area (main settlement)	.091	.133	.032	.686	.493	-.171	.354	
Same-sex peer alcohol use estimate	.071	.008	.502	9.412	.000	.056	.086	
Protective Behaviours Strategies Score	.022	.005	.230	4.486	.000	.012	.031	
AOD conducive conditions at Leavers	.027	.010	.130	2.745	.007	.007	.046	
(Constant)	-.039	.470		-.083	.934	-.966	.888	

¹ Reference group for categorical independent variables in parentheses.

² The B used to calculate the unique contribution of the independent variable to the outcome variable was squared as the outcome variable had previously been normalised using a square root transformation.

Estimates of peer alcohol use uniquely explained 18% of the variance in alcohol use. As the number of standard drinks peers were estimated to have consumed increased, the number of predicted standard drinks increased. For example, the model predicted a respondent would consume 2.46 standard drinks more at *Leavers* if their peer alcohol use estimate changed from 10 to 15 standard drinks, all other variables held constant.

The use of harm reduction strategies uniquely explained 4% of the variance

in alcohol use. Less frequent use of harm minimisation strategies was associated with higher alcohol consumption levels. For example, the model predicted a respondent would consume 1.55 standard drinks more if their harm minimisation score increased from 50 to 60 (indicating less frequent use of strategies), all other variables held constant.

Gender uniquely explained 3% of the variance in respondents' alcohol use. Males consumed 3.03 standard drinks more than females, all other variables held constant.

Lastly, the experience of AOD-conducive conditions at *Leavers* uniquely explained 1% of the variance in alcohol use. For example, the model predicted the respondent would consume 1.86 standard drinks more if their AOD-conducive conditions score increased from 20 to 30 (indicating greater exposure to AOD-conducive conditions at *Leavers*), all other variables held constant.

Other drug use at Leavers predicted using: AOD-conducive conditions, gender, location and modality

Logistic regression was performed to assess the impact of conditions at *Leavers* that were perceived to be conducive to the use of drugs other than alcohol. The models contained four independent variables: (1) experience of AOD-conducive conditions at *Leavers* (scores assessing conditions divided into quartiles), and controlling for (2) gender, (3) location of accommodation and (4) post-*Leavers* survey modality. All independent variables were from the post-*Leavers* survey. Note the reference category for the variable of AOD-conducive conditions is the 'most conducive' quartile for the three dependent variables of amphetamine, cannabis, and ecstasy use. The reference category is the 'least conducive' quartile for caffeine used with alcohol, and illicit drug use. This was performed to avoid the use of a reference category with empty or very small cell entries in the cross tabulation with the dependent variable (which would result in very high or very low odds ratios which are uninterpretable).

Amphetamine

The full model containing four predictors was statistically significant with more

conductive conditions, gender and location uniquely and significantly predicting reports of amphetamine use at *Leavers* (see Table 43).

Table 43
Amphetamine use at Leavers modelled using: AOD-conductive conditions, gender, location and survey modality (logistic regression with post-Leavers respondents)¹

Dependent variable	Omnibus Tests of Model Coefficients					Variance explained by model		Correct classifications by model
	X ²	df	Missing N	N	p	Cox & Snell R Square	Nagelkerke R Square	
Amphetamine use	35.42	6	133	272	0.0005	12.2%	29.9%	92.6%
Independent variable	B	S.E.	Wald	df	p	Odds Ratio	95% C.I. for Odds Ratio	
							Lower	Upper
Conductive conditions (most conductive)								
Least conductive	-19.74	4350	0.00	1	.996	2.68E-09 ^a	0.00	.
Second least	-1.36	0.61	5.05	1	.025	0.26 ^b	0.08	0.84
Second most	-1.90	0.70	7.23	1	.007	0.15 ^c	0.04	0.60
Gender (female)	1.09	0.55	3.84	1	.050	2.96	1.00	8.78
Location (main settlement)	1.30	0.52	6.20	1	.013	3.67	1.32	10.20
Source (online)	-0.02	0.85	0.00	1	.983	0.98	0.19	5.15
Constant	-2.37	0.84	8.05	1	.005	0.09		

¹ Reference group in parentheses.

^a Note: this odds ratio is not interpretable as there were no amphetamine-using respondents who experienced the lowest quartile of AOD conductive conditions; i.e., there were empty cells in the variable cross tabulation.

^b The inverse score is 3.90.

^c The inverse score is 6.65.

Respondents who experienced the most conductive AOD conditions were between 3.90 and 6.65 times more likely to have used amphetamine compared to those who experienced the second least and second most AOD-conductive conditions, controlling for all other factors.

Male respondents were 2.96 times as likely as females to report the use of amphetamine, all other factors held constant.

Respondents residing in the Geordie Bay region were 3.67 times as likely to report the use of amphetamine compared to those in the main settlement area, all other factors held constant.

Caffeine

The full model containing all four predictors was not statistically significant ($X^2(6, 274) = 10.25, p=.11$), indicating the model was not able to distinguish between those

who reported and did not report using caffeine at *Leavers*. Of note is that half (53%) used caffeine at *Leavers* and these users were spread roughly evenly (23-28%) over the AOD-conducive quartiles.

Caffeine with alcohol

The full model containing four predictors was statistically significant with experience of AOD-conducive conditions uniquely and significantly predicting reports of use of caffeine with alcohol at *Leavers* (see Table 44).

Table 44

Use of caffeine with alcohol at Leavers modelled using: AOD-conducive conditions, gender, location and survey modality (logistic regression with post-Leavers respondents)¹

Dependent variable	Omnibus Tests of Model Coefficients					Variance explained by model		Correct classifications by model
	χ^2	df	Missing N	N	p	Cox & Snell R Square	Nagelkerke R Square	
Caffeine used with alcohol	19.27	6	68	118	0.004	15.1%	22.6%	78.0%
Independent variable	B	S.E.	Wald	df	p	Odds Ratio	95% C.I. for Odds Ratio	
							Lower	Upper
Conditions (least conducive)								
Second least	0.76	0.60	1.64	1	.200	2.15	0.67	6.92
Second most	1.80	0.74	5.95	1	.015	6.03	1.42	25.57
Most conducive	1.72	0.67	6.58	1	.010	5.57	1.50	20.68
Gender (female)	0.23	0.48	0.23	1	.629	1.26	0.49	3.26
Location (main settlement)	0.76	0.62	1.49	1	.221	2.14	0.63	7.24
Survey modality (online)	1.04	0.62	2.81	1	.094	2.84	0.84	9.62
Constant	-0.93	0.67	1.94	1	.163	0.40		

¹ Reference group in parentheses.

Respondents in the two second highest quartiles, who experienced the most AOD-conducive conditions, were between 5.57 and 6.03 times more likely to have used caffeine with alcohol compared to respondents in the quartile that experienced the least AOD-conducive conditions, controlling for all other factors.

Cannabis

The full model containing four predictors was statistically significant, and experience of AOD-conducive conditions and gender uniquely and significantly predicted reports of cannabis use at *Leavers* (see Table 45).

Table 45

Cannabis use at Leavers modelled using: AOD-conductive conditions, gender, location and survey modality (logistic regression with post-Leavers respondents)¹

Dependent variable	Omnibus Tests of Model Coefficients					Variance explained by model		Correct classifications by model
	χ^2	df	Missing N	N	p	Cox & Snell R Square	Nagelkerke R Square	
Cannabis use	24.89	6	132	273	0.0005	8.7%	18.0%	89.7%
Independent variable	B	S.E.	Wald	df	p	Odds Ratio	95% C.I. for Odds Ratio	
							Lower	Upper
Conductive conditions (most conducive)								
Least conducive	-1.98	0.68	8.49	1	.004	0.14	0.04	0.52
Second least	-0.67	0.50	1.81	1	.179	0.51	0.19	1.36
Second most	-1.82	0.68	7.14	1	.008	0.16	0.04	0.62
Gender (female)	1.10	0.45	5.97	1	.015	3.00	1.24	7.23
Location (main settlement)	0.50	0.44	1.27	1	.259	1.65	0.69	3.94
Source (online)	-0.66	0.57	1.33	1	.248	0.52	0.17	1.59
Constant	-1.44	0.61	5.58	1	.018	0.24		

¹ Reference group in parentheses.

Respondents who experienced the most AOD-conductive conditions were 7.26 times more likely to have used cannabis compared to those that experienced the least AOD-conductive conditions, and 6.15 times as likely as those who experienced the second most conducive conditions, controlling for all other factors.

Male respondents were 3.00 times more likely than females to report using cannabis, controlling for all other factors.

Ecstasy

The full model containing four predictors was statistically significant and more AOD-conductive conditions and residing in the Geordie Bay area uniquely and significantly predicted report of ecstasy use at *Leavers* (see Table 46).

Table 46

Ecstasy use at Leavers modelled using: AOD-conductive conditions, gender, location and survey modality (logistic regression with post-Leavers respondents)¹

Dependent variable	Omnibus Tests of Model Coefficients					Variance explained by model		Correct classifications by model
	χ^2	df	Missing N	N	p	Cox & Snell R Square	Nagelkerke R Square	
Ecstasy use	30.58	6	132	273	0.0005	10.6%	23.1%	90.8%

Independent variable	B	S.E.	Wald	df	p	Odds Ratio	95% C.I. for Odds Ratio	
							Lower	Upper
Conductive conditions (most conducive)								
Least conducive	-19.75	4428.00	0.00	1	.996	2.64E-09 ^a	0.00	.
Second least	-0.95	0.54	3.14	1	.076	0.39	0.14	1.11
Second most	-1.10	0.56	3.87	1	.049	0.33	0.11	1.00
Gender (female)	0.62	0.46	1.82	1	.178	1.87	0.75	4.62
Location (main settlement)	1.07	0.45	5.59	1	.018	2.92	1.20	7.10
Source (online)	-0.18	0.70	0.06	1	.800	0.84	0.21	3.33
Constant	-1.86	0.70	7.01	1	.008	0.16		

¹ Reference group in parentheses.

^a Note: this odds ratio is not interpretable as there were no ecstasy-using respondents who experienced the lowest quartile of AOD conducive conditions, i.e., there were empty cells in the variable cross tabulation.

The following were more likely to have used ecstasy, controlling for all other factors:

- Respondents who experienced the most AOD-conductive conditions were 3.00 times more likely than those who experienced the second most conducive conditions;
- Residents of the Geordie Bay region were 2.92 times as likely compared to those of the main residential area.

Illicit drug use

The full model containing four predictors was statistically significant and all four variables: experience of AOD-conductive conditions, gender, location, and survey modality made unique and significant contributions to the model (see Table 47).

Table 47

Illicit drug use modelled using: AOD-conductive conditions, gender, location and survey modality (logistic regression with post-Leavers respondents)¹

Dependent variable	Omnibus Tests of Model Coefficients					Variance explained by model		Correct classifications by model
	χ^2	df	Missing N	N	p	Cox & Snell R Square	Nagelkerke R Square	
Illicit drug use	43.92	6	118	287	0.0005	14.2%	24.2%	83.3%

Independent variable	B	S.E.	Wald	df	p	Odds Ratio	95% C.I. for Odds Ratio	
							Lower	Upper
Conditions (least conducive)								
Second least	1.72	0.69	6.17	1	.013	5.59	1.44	21.74
Second most	1.50	0.70	4.52	1	.034	4.47	1.12	17.77
Most conducive	2.75	0.67	16.97	1	.000	15.59	4.22	57.61
Gender (female)	1.13	0.37	9.30	1	.002	3.10	1.50	6.43
Location (main settlement)	0.75	0.37	4.09	1	.043	2.12	1.02	4.38
Survey modality (online)	-1.04	0.48	4.61	1	.032	0.35	0.14	0.91
Constant	-3.30	0.71	21.77	1	.000	0.04		

¹ Reference group in parentheses.

The following were more likely to have used an illicit drug, controlling for all other factors:

- Respondents in the three highest quartiles, who experienced the most AOD-conducive conditions, were 4.47-15.59 times more likely compared to those that experienced the least AOD-conducive conditions;
- Male respondents were 3.10 times more likely than females;
- Those residing in the Geordie Bay region were 2.12 times as likely as those in the main settlement area;
- The 35 who used the online post-*Leavers* survey were 2.83 times more likely than the 252 who used the paper post-*Leavers* survey.

Summary of H5 testing

Hypothesis 5 was supported as greater respondent experience of AOD-conducive conditions at *Leavers* predicted greater use of alcohol, and an increased likelihood of use of amphetamine, caffeine with alcohol, cannabis, ecstasy, or any illicit drug at *Leavers*.

5.1.6 Hypothesis 6: Comparing peer AOD use and personal AOD use

H6. There will be significant positive associations between estimations of close peer, the average leavers' and respondents' AOD use at *Leavers*.

In the following section, estimations of peer/average leavers AOD use are compared to: (1) intentions for alcohol use at *Leavers*, (2) actual alcohol use at *Leavers*, (3) intentions for other drug use, and (4) reports of other drug use at *Leavers*.

Pre-Leavers intentions for personal alcohol use and estimations of immediate peer and average student alcohol use

In the pre-*Leavers* survey respondents were asked to specify the number of standard drinks they intended to consume at the celebrations. They were also asked to estimate the quantity of alcohol they expected their same-sex peer (someone from their immediate friendship group) and the average same-sex student at the celebrations would consume. Personal intentions, estimations of peer use and estimations of average student use were all strongly, positively correlated (Spearman's $\rho \geq .78$; see Table 48).

Table 48
Pre-Leavers intentions of personal alcohol use, and estimations of immediate peer and average student alcohol use

Descriptives					
	Mean	95% CIs	SD	Missing N	N
Females					
Personal ^a	9.79	[8.86, 10.73]	7.50	46	249
Peer	10.62	[9.60, 11.64]	8.47	28	267
Average leaver	10.40	[9.48, 11.32]	7.66	27	268
Male					
Personal ^a	14.86	[13.37, 16.36]	10.69	39	198
Peer	13.61	[12.43, 14.79]	8.67	27	210
Average leaver	12.63	[11.54, 13.73]	8.09	25	212

^a Excluding respondents who did not intend to consume alcohol at Leavers.

Spearman's rho correlations

		Same-sex peer	Same-sex average leaver
Personal alcohol use intention ¹	Correlation Coefficient	.879	.777
	Sig. (2-tailed)	0.0005	0.0005
	Missing N	55	60
	N	449	444
	Same-sex peer	Correlation Coefficient	
Sig. (2-tailed)			0.0005
Missing N			66
N			475

¹ This variable excluded the 37 respondents who did not intend to use alcohol at Leavers.

A series of paired sample t-tests were run to further investigate the relationship between personal alcohol use intent and expectations of peers' and average students' alcohol consumption at *Leavers* (see Table 49).

Table 49

Comparing personal intent and estimations of peer and average student alcohol use

Pair		Paired Samples Statistics			Paired Differences				Paired samples t-test				
		Mean	N	SD	Mean	SD	95% CI		t	df	p	eta ¹	
Female	1	Personal	9.58	246	6.91	-1.66	4.91	-2.28	-1.04	-5.30	245	0.000	0.10
		Peer	11.24	246	8.43								
	2	Personal	9.66	245	7.38	-1.21	4.93	-1.83	-0.59	-3.84	244	0.000	0.06
		Average leaver	10.87	245	7.66								
	3	Peer	10.37	263	8.06	0.07	5.51	-0.60	0.74	0.20	262	0.841	< .001
		Average leaver	10.31	263	7.06								
Male	1	Personal	14.47	194	9.89	-0.02	6.12	-0.89	0.84	-0.05	193	0.957	< .001
		Peer	14.49	194	8.38								
	2	Personal	14.72	192	10.46	1.45	7.58	0.37	2.53	2.65	191	0.009	0.04
		Average leaver	13.27	192	7.96								
	3	Peer	13.60	205	8.70	1.34	5.95	0.52	2.16	3.22	204	0.001	0.05
		Average leaver	12.26	205	7.10								

¹ Eta values: .01=small effect, .06=moderate effect, .14=large effect.

Females who intended to drink, intended to consume 1.66 standard drinks less than their female peers and 1.21 standard drinks less than the average female student. They expected same-gender peers and the average student to consume similar quantities.

Males who intended to drink estimated their male peers would consume a similar quantity of alcohol. They estimated that the average male leaver would consume significantly less than them (1.45 standard drinks) as well as their peers (1.34 standard drinks).

Post-Leavers reports of personal alcohol use and estimations of immediate peer and average student alcohol use

In the post-*Leavers* survey, respondents were asked to specify the number of standard drinks they consumed each day at the celebrations. A daily consumption figure was calculated by averaging alcohol use over days 1-3. They were also asked to estimate the quantity of alcohol same-gender peers from their immediate friendship group and the average same-gender student consumed at the celebrations. Personal alcohol use, estimations of peer use and estimations of average student use were all strongly, positively correlated (Spearman's rho \geq .70; see Table 50).

Table 50
Post-Leavers estimations of personal alcohol use, immediate peer and average student alcohol use

Descriptives					
	Mean	95% CIs	SD	Missing N	N
Females					
Personal ^a	11.44	[10.24, 12.64]	8.02	26	174
Peer	11.74	[10.49, 12.99]	8.32	27	173
Average leaver	12.00	[10.95, 13.06]	7.10	23	177
Males					
Personal ^a	17.05	[15.57, 18.53]	9.83	28	172
Peer	15.67	[14.26, 17.08]	9.15	35	165
Average leaver	14.76	[13.48, 16.04]	8.31	35	165

^a Including drinkers only

Spearman's rho correlations			
		Same-sex peer alcohol use estimate	Same-sex average leaver alcohol use estimate
Personal average alcohol use ¹	Correlation Coefficient	.754	.700
	p	.000	.000
	Missing N	73	71
	N	302	304
Same-sex peer alcohol use estimate	Correlation Coefficient		.787
	p		.000
	Missing N		71
	N		332

¹ This variable excluded the 30 respondents who did not use alcohol during Leavers.

The majority (55%) of respondents estimated the average leaver of the same gender used more alcohol than them during the celebrations (41% estimated the average leaver used less than them and 4% estimated no discrepancy; N=331, 74 missing). Analysing the data by gender revealed females were more likely to conform to the above response pattern. The majority (64%) of females estimated the average female leaver used more alcohol than her at *Leavers* (30% estimated less use and 6% estimated there was no discrepancy, n=171, 29 missing). In contrast, the majority (52%) of male leavers estimated the average male leaver used less alcohol than him at *Leavers* (46% estimated greater use by the average leaver and 2% estimated there was no discrepancy, n=159, 41 missing).

A series of paired-sample tests were run to further investigate the relationship between reports of personal and estimations of peer and average

student alcohol consumption (see Table 51).

Table 51

Comparing personal alcohol use and estimations of immediate peer and average student alcohol use at Leavers (post-Leavers)

Pair		Paired Samples Statistics			Paired Differences				Paired samples t-test				
		Mean	N	SD	Mean	SD	95% CI		t	df	p	eta ¹	
							Lower	Upper					
Female	1	Personal	11.23	152	7.63	-1.08	5.99	-2.04	-0.13	-2.23	151	0.03	0.03
		Peer	12.31		8.38								
	2	Personal	11.20	156	7.65	-1.02	6.46	-2.05	0.00	-1.98	155	0.05	0.02
		Average leaver	12.22		7.09								
	3	Peer	11.74	173	8.32	-0.30	4.34	-0.95	0.35	-0.91	172	0.36	0.00
		Average leaver	12.04		7.11								
Male	1	Personal	16.68	149	9.73	0.52	7.78	-0.74	1.78	0.82	148	0.41	0.00
		Peer	16.16		8.74								
	2	Personal	16.79	147	9.92	1.72	7.98	0.42	3.02	2.61	146	0.01	0.04
		Average leaver	15.07		7.94								
	3	Peer	15.52	157	9.24	1.36	7.46	0.18	2.54	2.29	156	0.02	0.03
		Average leaver	14.16		6.99								

¹ Eta values: .01=small effect, .06=moderate effect, .14=large effect.

Female drinkers estimated they consumed 1.08 standard drinks less than their peers and 1.02 standard drinks less than the average student. Estimations of peer and average student use did not significantly differ.

Male drinkers estimated their peers would consume a similar quantity of alcohol to them at *Leavers*. They estimated that the average leaver consumed significantly less than them (1.72 standard drinks) as well as their peers (1.36 standard drinks).

Hypothesis 5 presented a multiple regression model predicting alcohol use at *Leavers* using peer alcohol use estimates.

Pre-Leavers estimations of average student other drug use and personal intent for other drug use at Leavers

In the pre-*Leavers* survey, respondents were asked how strongly they agreed they intended to use amphetamine, caffeine, cannabis, ecstasy and other drugs at *Leavers*. They were also asked how strongly they agreed the same-gender average student would use those same drugs at *Leavers*. Personal intentions for use of drugs other than alcohol were significantly and positively correlated with expectations for the average students' use of those drugs. That is, stronger personal intent to use drugs

other than alcohol correlated with stronger agreement that the average student at *Leavers* would be using that drug. Also, a series of Wilcoxon signed rank tests revealed that respondents were more likely to agree that the average student would be using amphetamine, caffeine, cannabis, ecstasy and other drugs at *Leavers* compared to their own intentions for use (see Table 52).

Table 52

Comparing personal intent and expectations of others' use of drugs

Spearman's rho correlations between personal intent for use of drugs other than alcohol and expectations of the average students' use of that drug

Drug	Correlation Coefficient	p	Missing N	N
Amphetamine	0.35	0.0005	39	502
Caffeine	0.45	0.0005	37	504
Cannabis	0.39	0.0005	41	500
Ecstasy	0.33	0.0005	38	503
Other drugs ¹	0.24	0.0005	148	393

¹ Drugs other than alcohol, amphetamine, caffeine, cannabis or ecstasy

Pre-*Leavers* personal intentions and expectations of the same-sex average student use of other drugs at *Leavers*

		Descriptives					Wilcoxon signed rank test				
		Strongly agree	Agree	Undecided	Disagree	Strongly disagree	Total count	z	N	p	r ^a
Amphetamine	Intent	5%	3%	8%	12%	73%	515	-15.63	502	0.0005	-0.49
	Peer	10%	23%	30%	21%	16%	506				
Caffeine	Intent	29%	32%	14%	4%	20%	521	-11.56	504	0.0005	-0.36
	Peer	55%	28%	9%	3%	5%	506				
Cannabis	Intent	7%	10%	12%	12%	59%	517	-16.53	500	0.0005	-0.52
	Peer	20%	41%	23%	8%	8%	505				
Ecstasy	Intent	6%	2%	9%	10%	73%	515	-16.48	503	0.0005	-0.52
	Peer	15%	32%	27%	14%	12%	509				
Other drugs	Intent	6%	2%	6%	10%	75%	459	-11.68	393	0.0005	-0.42
	Peer	8%	12%	43%	12%	25%	405				

Note. 'Intent' denotes personal intentions to use drug and 'Peer' denotes expectations for the same-gender peer to use the drug at *Leavers*.

^a Effect size: .1 = small, .3 = medium, .5 = large.

Post-*Leavers* estimations of average student other drug use and personal other drug use

In the post-*Leavers* survey, respondents were asked how strongly they agreed the same-gender average student used amphetamine, caffeine, cannabis, ecstasy and other drugs at *Leavers*. They also reported whether they used the same list of drugs. The differences between peer estimations and personal reports are described below. Statistical testing was not undertaken as the peer and personal reports were estimated using different scales of measurement.

Although 41% agreed or strongly agreed ('agreed') the average student used amphetamine (N = 343, 62 missing responses), only 11% actually used amphetamine on any one day (N = 346, 59 missing).

While 88% agreed the average student used caffeine (N = 347, 58 missing), only 53% actually used caffeine (N = 350, 55 missing).

Despite 59% agreeing the average student used cannabis (N = 347, 58 missing), only 15% used cannabis on any one day (N = 346, 59 missing).

Though 55% agreed the average student used ecstasy at *Leavers* (N = 348, 57 missing), only 12% used ecstasy on any one day (N = 347, 58 missing).

Whilst 25% agreed the average student used drugs other than alcohol, amphetamine, caffeine, cannabis or ecstasy ('other drugs') at *Leavers* (N = 173, 232 missing), only 5% used other drugs on any one day at *Leavers* (N = 325, 80 missing).

Estimations of peer use as a predictor of other drug use

Logistic regression was performed to assess the impact of agreement that the same-gender average student used drugs other than alcohol at *Leavers*, on the likelihood that respondents would report using amphetamine, caffeine, cannabis and ecstasy on any one day at *Leavers*. Each drug was examined separately in a model which contained four independent variables: (1) respondents' agreement that the average student of the same gender used the drug respective to the dependent variable, controlling for (2) gender, (3) accommodation location and (4) survey administration modality.

Original responses about the average students' drug use were recorded on a five-point Likert scale (strongly agree-strongly disagree). For ease of analysis 'strongly agree' and 'agree' were merged into a single category, the responses 'strongly disagree' and 'disagree' were merged, and the 'undecided' category remained unaltered.

Amphetamine use

The full model containing four predictors was significant and two of the independent variables, agreement on average students' use and gender, made a unique statistically significant contribution to the model (see Table 53).

Table 53

Amphetamine use modelled using: agreement the average leaver was using amphetamine, controlling for gender, location and modality (logistic regression with post-Leavers respondents)¹

Dependent variable	Omnibus Tests of Model Coefficients					Variance explained by model		Correct classifications by model
	χ^2	df	Missing N	N	p	Cox & Snell R Square	Nagelkerke R Square	
Amphetamine use	54.7	5	84	321	0.0005	15.7%	31.1%	88.8%
Independent variable	B	S.E.	Wald	df	p	Odds Ratio	95% C.I. for Odds Ratio	
							Lower	Upper
Average leavers' use (disagree)								
Undecided	-17.43	4749	0.00	1	.997	0.00 ^a	0.00	.
Agree	2.50	0.63	16.02	1	.000	12.21	3.59	41.58
Gender (female)	0.95	0.42	5.17	1	.023	2.60	1.14	5.91
Location (main settlement)	0.43	0.40	1.19	1	.276	1.54	0.71	3.34
Modality (online)	-0.08	0.70	0.01	1	.913	0.93	0.24	3.63
Constant	-4.28	0.85	25.27	1	.000	0.01		

¹ Reference group in parentheses.

^a Note: this odds ratio is not interpretable as there were no amphetamine-using respondents who were undecided that the average leaver used amphetamine, i.e., there were empty cells in the variable cross tabulation.

The following were more likely to have used amphetamine, controlling for all other factors:

- Respondents who agreed the average student used amphetamine were 12.21 times more likely compared to those who disagreed that the average leaver used amphetamine;
- Males were 2.60 times more likely to report using amphetamine compared to females.

Caffeine use

The full model containing four predictors was significant and one of the independent variables, agreement on average students' use, made a unique statistically significant contribution to the model (see Table 54).

Table 54

Caffeine use at Leavers modelled using: agreement the average leaver was using caffeine, gender, location and modality (logistic regression with post-Leavers respondents)¹

Dependent variable	Omnibus Tests of Model Coefficients					Variance explained by model		Correct classifications by model
	χ^2	df	Missing N	N	p	Cox & Snell R Square	Nagelkerke R Square	
Caffeine use	18.48	5	80	325	0.002	5.5%	7.4%	60.0%
Independent variable	B	S.E.	Wald	df	p	Odds Ratio	95% C.I. for Odds Ratio	
							Lower	Upper
Average leavers' use (disagree)								
Undecided	-1.10	0.89	1.51	1	.219	0.33	0.06	1.92
Agree	1.02	0.48	4.55	1	.033	2.78	1.09	7.13
Gender (female)	0.17	0.23	0.52	1	.472	1.18	0.75	1.86
Location (main settlement)	0.28	0.26	1.20	1	.273	1.32	0.80	2.19
Modality (online)	0.10	0.35	0.08	1	.774	1.11	0.55	2.22
Constant	-0.95	0.57	2.73	1	.098	0.39		

¹ Reference group in parentheses.

Respondents who agreed the average student used caffeine were 2.70 times more likely to have used caffeine compared to those who disagreed that the average leaver used caffeine, controlling for all other variables.

Cannabis use

The full model containing four predictors was significant and two of the independent variables, agreement on average students' use and gender, made a unique statistically significant contribution to the model (see Table 55).

Table 55

Cannabis use at Leavers modelled using: agreement the average leaver was using cannabis, gender, location and modality (logistic regression with post-Leavers respondents)¹

Dependent variable	Omnibus Tests of Model Coefficients					Variance explained by model		Correct classifications by model
	X ²	df	Missing N	N	p	Cox & Snell R Square	Nagelkerke R Square	
Cannabis use	42.57	5	84	321	0.0005	12.4%	22.4%	86.0%
Independent variable	B	S.E.	Wald	df	p	Odds Ratio	95% C.I. for Odds Ratio	
							Lower	Upper
Average leavers' use (disagree)								
Undecided	-0.73	1.24	0.35	1	.556	0.48	0.04	5.49
Agree	2.23	0.75	8.92	1	.003	9.30	2.15	40.16
Gender (female)	1.07	0.37	8.56	1	.003	2.92	1.42	6.00
Location (main settlement)	0.14	0.37	0.14	1	.703	1.15	0.56	2.37
Modality (online)	-0.46	0.52	0.76	1	.382	0.63	0.23	1.76
Constant	-3.74	0.86	19.04	1	.000	0.02		

¹ Reference group in parentheses.

The following were more likely to have used cannabis, controlling for all other factors:

- Respondents who agreed the average student used cannabis were 9.30 times more likely compared to those who disagreed that the average leaver used cannabis;
- Males were 2.92 times more likely to report using cannabis compared to females.

Ecstasy use

The full model containing four predictors was significant and two of the independent variables, agreement on average students' use and location, made a unique statistically significant contribution to the model (see Table 56).

Table 56

Ecstasy use modelled using: agreement the average leaver was using ecstasy, gender, location and modality (logistic regression with post-Leavers respondents)¹

Dependent variable	Omnibus Tests of Model Coefficients					Variance explained by model		Correct classifications by model
	χ^2	df	Missing N	N	p	Cox & Snell R Square	Nagelkerke R Square	
Ecstasy use	48.93	5	80	325	0.0005	14.0%	26.0%	87.1%
Independent variable	B	S.E.	Wald	df	p	Odds Ratio	95% C.I. for Odds Ratio	
							Lower	Upper
Average leavers' use (disagree)								
Undecided	-17.44	4895.17	0.00	1	.997	0.00 ^a	0.00	.
Agree	2.34	0.74	9.90	1	.002	10.34	2.41	44.31
Gender (female)	0.63	0.38	2.82	1	.093	1.88	0.90	3.93
Location (main settlement)	0.76	0.36	4.41	1	.036	2.14	1.05	4.35
Modality (online)	-0.06	0.60	0.01	1	.926	0.95	0.29	3.06
Constant	-4.20	0.89	22.39	1	.000	0.01		

¹ Reference group in parentheses.

^a Note: this odds ratio is not interpretable as there were three ecstasy-using respondents who were undecided that the average leaver used ecstasy; i.e., there were small cells in the variable cross tabulation.

The following were more likely to have used ecstasy, controlling for all other factors:

- Respondents who agreed the average student used ecstasy were 10.34 times more likely compared to those who disagreed that the average leaver used ecstasy;
- Geordie Bay residents were 2.14 times as likely compared to those in the main settlement area.

For a comparison of estimates of peer alcohol/other drug use between the pre- and post-*Leavers* surveys, see post hoc test 6.

Summary of H6 testing

Hypothesis 6 was supported as reports of AOD use across three reference groups

(respondents, their peers and the 'average leaver') were significantly positively associated.

Measures of alcohol use were highly positively correlated across the three reference groups. Further examination revealed females intended to, and appeared to have consumed less alcohol compared to same-gender peers and the average student at *Leavers*. Male respondents intended to and appeared to have consumed a similar quantity of alcohol compared to male peers. The average male leaver, pre- and post-*Leavers*, was estimated to consume less than the male respondents and his peers.

Prior to *Leavers*, greater intention to use drugs other than alcohol was correlated with greater expectations that the average student would use the drug in question. Respondents were more likely to expect the average student would be using amphetamine, caffeine, cannabis, ecstasy and other drugs at *Leavers* compared to their personal intentions to use these drugs.

Controlling for gender, accommodation location and survey modality, reported use of amphetamine, caffeine, cannabis and ecstasy at *Leavers* were predicted by agreement that the average leaver used the respective drug at the celebrations.

5.1.7 Hypothesis 7: The impact of parental attitudes on AOD use and consequences

H7. There will be significant positive associations between student perceptions of parental attitudes/behaviours and AOD intentions/AOD use/the experience of AOD-related negative consequences at *Leavers*.

The results of this hypothesis are grouped by three parent related attitudes/behaviours: parental approval, a harm minimisation discussion (how to keep safe while intoxicated), and a general AOD parental discussion in the last 3 months.

Most parent-related statements were investigated in relation to intended and

actual AOD use, using Kruskal-Wallis tests. Tests which yielded significant results were followed up using Mann-Whitney U tests. The parent-related statements were presented in the pre-*Leavers* survey with a six-point Likert scale response option. The response categories used for analysis included 'agree' (combined from the original categories of 'strongly agree' and 'agree'), 'disagree' ('strongly disagree' and 'disagree'), and 'neutral'. For most tests, the 'don't know' option represented a small proportion (<5%) of responses and were omitted to keep the Bonferroni corrected alpha used for the Mann-Whitney U tests at a manageable level of .017 (.05/3 group comparisons). Note that these assessments of parental approval and discussion reflect respondent perceptions and were not parentally corroborated.

Parental approval

Parental approval of alcohol use

Participants were asked how strongly they agreed that their parents would approve of them drinking more than 4 standard drinks in a single sitting at *Leavers*. There was a significant difference in intended and actual alcohol use across levels of agreement (Table 57).

There were significant differences in intended alcohol use across all levels of agreement that parents would approve of the consumption of more than 4 standard drinks in a single sitting at *Leavers*. That is, those who perceived their parents would approve of their risky drinking intended to drink significantly more than those who were neutral, and those who disagreed their parents would approve (with the difference between neutral and disapproval reports also significant).

Paired respondents who agreed their parents would approve of their risky alcohol use reported consuming more alcohol at *Leavers* than those who disagreed their parents would approve. Also, those who were neutral reported greater use than those who perceived parental disapproval.

Table 57

Parental approval of risky alcohol use and intended and reported alcohol use

Intended alcohol use across levels of parental approval of risky drinking							
Descriptives			Mann-Whitney U test				
Parental approval of > 4 standard drinks	Intended alcohol use ^a	N		U	z	p	r
Agree (approve)	14.00	139	Agree vs. neutral	3829	-4.21	0.0005	0.28
Neutral	9.80	83	Agree vs. disagree	4321	-7.49	0.0005	0.46
Disagree (disapprove)	7.33	131	Neutral vs. disagree	38001	-3.72	0.0005	0.25

Alcohol use at Leavers across levels of parental approval of risky drinking							
Descriptives (paired sample)			Mann-Whitney U test				
Parental approval of > 4 standard drinks	Alcohol use at Leavers ^b	N		U	z	p	r
Agree (approve)	13.73	27	Agree vs. neutral	312	-1.48	0.14	
Neutral	9.62	30	Agree vs. disagree	382	-3.04	0.002	0.35
Disagree (disapprove)	6.83	49	Neutral vs. disagree	517	-2.21	0.03	0.25

^a Levels of intended use significantly different across levels of agreement (Kruskal-Wallis test; $X^2 = 61.93$, $df=2$, $n = 353$, 188 missing, $p = .0005$).

^b Levels of reported use significantly different across levels of agreement (Kruskal-Wallis test; $X^2 = 11.38$, $df = 2$, $n = 106$, 14 missing, $p = .003$).

Parental approval of drugs other than alcohol

In the pre-*Leavers* survey, participants were asked how strongly they agreed that their parents would approve of them using drugs other than alcohol at *Leavers*.

There was a significant association between perceptions of parental approval of other drug use and intentions to use an illicit drug at *Leavers* (chi square test for independence; 3 cells had an expected count less than 5; Fisher's Exact test value=46.42, $n=350$, $p= .0005$). The majority (58%) of respondents who agreed their parents approved of their use of drugs other than alcohol also agreed they intended to use an illicit drug at *Leavers*. In comparison, 13% of respondents with parents who would not approve intended to use an illicit drug at *Leavers* (see Table 58).

Table 58

Crosstabulation of parental approval of other drugs use and intentions to use an illicit drug (all pre-Leavers respondents)

		I intend to use an illicit drug at Leavers ¹			Total
		Disagree	Undecided	Agree	
My parents would approve of me using drugs other than alcohol at Leavers	Disagree	212 71%	47 16%	39 13%	298 100%
	Neutral	11 39%	1 4%	16 57%	28 100%
	Agree	7 29%	3 13%	14 58%	24 100%
Total		230 66%	51 15%	69 20%	350 100%

¹ Amphetamines, cannabis or ecstasy.

Using a paired sample, no significant associations between perception of parental other drug approval and illicit drug at *Leavers* were found ($X^2 = 2.17$, $df = 3$, $N = 118$, $p = .54$). Note, there was limited variability in the cross tabulation between variables as the majority of paired respondents reported their parents disapproved of other drug use (82%) and did not use illicit drugs at *Leavers* (87%). Due to the smaller sample size and limited variability in illicit drug use within this paired group, parental approval of other drug use was also tested in relation to intended alcohol use (with approval and intended use assessed in the same survey, and the alcohol use variable having greater variation).

There was a significant difference in intended alcohol use between levels of agreement that parents would approve of the use of drugs other than alcohol at *Leavers* (Table 59). Respondents who perceived their parents would approve of them using other drugs intended to drink significantly more than those who disagreed their parents would approve. Those who were neutral about their parents' approval also intended to drink significantly more than those who disagreed their parents would approve of their other drug use at *Leavers*.

Table 59

Intended alcohol use across levels of parental approval of other drug use

Descriptives			Intended alcohol across levels of approval				
Parental approval of other drugs	Intended alcohol use ^a	N		Mann-Whitney U test			
				U	z	p	r
Agree (approve)	16.42	22	Agree vs. neutral			>.05	
Neutral	14.85	25	Agree vs. disagree	1705	-3.48	0.0005	0.20
Disagree (disapprove)	9.28	279	Neutral vs. disagree	2460	-2.45	0.01	0.14

^a Levels of intended alcohol use significantly different across levels of agreement (Kruskal-Wallis test; $X^2 = 16.82$, $df=2$, $n = 326$, 215 missing, $p = .0005$).

Parental approval and experience of AOD-related negative consequences at Leavers

A series of logistic regressions predicting experience of AOD-related negative consequences at *Leavers* were run using firstly, levels of parental approval of consumption of greater than 4 standard drinks, and secondly using levels of parental approval of use of drugs other than alcohol. All models controlled for gender, location and pre- and post-*Leavers* survey modalities. Parental approval was not a significant unique predictor for experience of negative consequences in any of the significant models. Note that since parental approval and negative consequences were assessed in two different surveys, the paired sample size was relatively small.

Similar comparisons were run using a chi square test for independence and for all but two negative consequences, there were no significant associations between perception of parental approval and negative consequences. The two significant associations were between parental approval of other drug use and (i) stealing and (ii) vandalism. However, the majority of the cells for these consequences had expected counts less than 5 and further analysis could not proceed using Fisher's exact test with categories that had more than two levels.

Safety strategy discussion

Respondents were asked how strongly they agreed that they had discussed with their parents the ways in which they could keep safe whilst affected by alcohol and/or other drugs (in any situation, including *Leavers*). This item was asked in both the pre- and post-*Leavers* surveys. Intended alcohol use was tested with responses to the pre-*Leavers* item and actual AOD use with responses to the post-*Leavers* item.

Levels of agreement that a safety strategy discussion had occurred with parents were not significantly associated with the quantity of intended alcohol use, but was significantly associated with eventual *Leavers* use. Namely, those who were neutral they had a safety strategy discussion with their parents drank significantly more than those who agreed they had the safety discussion.

Also, safety strategy discussions were significantly associated with illicit drug use at *Leavers*. It appeared that generally, respondents who reported having a parental conversation were less likely to report using an illicit drug at *Leavers*. See table 60. Of note is that details about the parental discussion such as the content of the talks and whether respondents perceived them influential were not assessed.

Table 60

Safety discussion and intended alcohol use, reported alcohol use and reported illicit drug use

Intended alcohol use across reports of parental safety strategy discussion (all pre-*Leavers* respondents)

Descriptives		
Parental safety strategy discussion	Intended alcohol use ^a	N
Agree	10.43	214
Neutral	11.00	64
Disagree	10.53	80

Alcohol use at *Leavers* across reports of parental safety strategy discussion (all post-*Leavers* respondents)

Descriptives			Mann-Whitney U test			
Parental safety strategy discussion	Alcohol use at <i>Leavers</i> ^b	N	U	z	p	r ^c
Agree	12.21	207	6366	-2.61	0.009	0.16
Neutral	14.62	77	4083	-1.08	0.28	
Disagree	12.45	44	1503	-1.03	0.31	

Illicit drug use at Leavers across reports of parental safety strategy discussion (all post-Leavers respondents)

Descriptives		
Safety strategy discussion with parents	Illicit drug use at Leavers ^d	
	No	Yes
Agree	64%	53%
Neutral	21%	36%
Disagree	15%	11%
	278	64

^a Levels of intended use were not significantly different across levels of agreement (Kruskal-Wallis test; $X^2 = .86$, $df=2$, $n=358$, 183 missing, $p = .65$).

^b Levels of reported use significantly different across levels of agreement (Kruskal-Wallis test; $X^2 = 7.16$, $df=2$, $n=328$, 77 missing, $p = .03$).

^c Effect size=.1=small, .3=medium, .5=large.

^d Illicit drug use rates significantly different across levels of agreement (chi square test for independence; $X^2 = 6.23$, $df = 2$, $N = 342$, $p=.04$).

General discussion (in the last three months)

General alcohol discussion

Pre-*Leavers* survey participants were asked how strongly they agreed that they had a discussion with their parents about alcohol in the past three months. These discussions were termed 'general' discussions as the nature of the discussion was not specified within the item.

Strength of agreement that a general discussion had occurred was not significantly associated with differing levels of intended nor actual alcohol use ((i) intended alcohol use: 'agree' = 10.79 standard drinks, $n = 285$; 'neutral' = 9.28, $n = 38$; 'disagree' = 10.11, $n = 43$; $X^2 = 2.22$, $df=2$, $n=366$, 175 missing, $p = .33$; (ii) reported alcohol use at *Leavers* 'agree' = 10 standard drinks, $n = 98$; 'neutral' = 5.69, $n = 11$; 'disagree' = 6.57, $n = 7$; $X^2 = 3.99$, $df = 2$, $n = 116$, 4 missing, $p = .14$).

General other drug discussion

Pre-*Leavers* participants were asked how strongly they agreed that they had a discussion with their parents about drugs other than alcohol in the past three months. Levels of agreement were compared to alcohol as well as illicit drug related variables.

Having a general other drug discussion with parents was significantly associated with intended alcohol use, with those who agreed they had a discussion intending to drink significantly more than those who disagreed they had the

discussion. However, using a smaller paired sample, no association was found between the discussions and reported alcohol use at the celebrations. See table 61.

Table 61

General other drug discussions and intended alcohol use and reported alcohol use

Intended alcohol use across reports of parental other drug general discussion (all pre-Leavers respondents)

Descriptives			Mann-Whitney U test				
Parental other drug general discussion	Intended alcohol use ^a	N		U	z	p	r ^b
Agree	11.91	165	Agree vs. neutral	3007	-0.39	0.69	
Neutral	10.00	38	Agree vs. disagree	10687	-2.63	0.008	0.15
Disagree	8.98	156	Neutral vs. disagree	2481	-1.56	0.12	

Alcohol use at Leavers across reports of parental other drug general discussion (paired respondents)

Descriptives		
Parental other drug general discussion	Alcohol use at Leavers ^c	N
Agree	9.94	52
Neutral	3.97	9
Disagree	9.19	51

^a Levels of intended use were significantly different across levels of agreement (Kruskal-Wallis test; $X^2 = 7.58$, $df=2$, $n = 359$, 182 missing, $p = .02$).

^b Effect size=.1=small, .3=medium, .5=large.

^c Levels of reported use were not significantly different across levels of agreement (Kruskal-Wallis test; $X^2 = 5.78$, $df = 2$, $n = 112$, 8 missing, $p = .06$).

The finding that parental other drug discussion was associated with higher levels of intended alcohol consumption appeared to relate to parental approval (see Table 62). A greater proportion of respondents that discussed drugs other than alcohol with their parents agreed their parents would approve of them using other drugs, compared to those that did not have a discussion (11% vs. 2%). Similarly, a greater proportion that discussed other drugs with their parents agreed their parents would approve of them drinking more than 4 standard drinks at *Leavers*, compared to those that did not have a discussion (45% vs. 27%).

There was a significant association between agreements that a general other drug discussion had occurred and intentions to use an illicit drug use at *Leavers* (chi square test for independence; $X^2 = 17.99$, $df = 4$, $N = 383$ pre-*Leavers* respondents, $p = .001$). Of the respondents that did not intend to use an illicit drug, a similar proportion agreed and disagreed they had a general discussion with their parents

(44% and 49% respectively). However, of those that intended to use an illicit drug, 54% agreed they had a discussion with their parents, compared to 27% who disagreed.

Using a paired sample, there was no significant difference in whether illicit drugs were used at *Leavers* across levels of agreement that respondents had discussed drugs other than alcohol in the past three months with their parents ($X^2 = 1.83$, $df = 2$, $n = 115$, 5 missing, $p = .40$).

Table 62

Cross tabulation of 'parental discussion about drugs other than alcohol' with parental approval of (i) other drug use and (ii) use of more than 4 standard drinks in a single sitting at Leavers (all pre-Leavers respondents), and (iii) intentions to use an illicit drug

		Parental approval for using drugs other than alcohol at Leavers				Total
		Agree	Neutral	Disagree	Don't know	
Had a discussion with parents about drugs other than alcohol in the last three months	Agree	20	16	109	34	179
	Neutral	2	9	30	2	43
	Disagree	3	4	150	9	166
	Dont know	0	0	13	4	17
Total		25	29	302	49	405

Note: The categories of 'strongly agree' and 'agree' have been merged, as have been the categories of 'strongly disagree' and 'disagree'.

		Parental approval for drinking more than 4 standard drinks in a single sitting at Leavers				Total
		Agree	Neutral	Disagree	Don't know	
Had a discussion with parents about drugs other than alcohol in the last three months	Agree	78	38	51	7	174
	Neutral	17	12	12	2	43
	Disagree	45	38	74	9	166
	Dont know	6	3	7	3	19
Total		146	91	144	21	402

		I intend on using an illicit drug ¹ at Leavers			Total
		Disagree	Undecided	Agree	
In the last three months I have had a discussion with my parents about drugs other than alcohol	Agree	112 44%	25 45%	38 54%	175 46%
	Neutral	19 7%	10 18%	14 20%	43 11%
	Disagree	125 49%	21 38%	19 27%	165 43%
Total		256	56	71	383

¹ Amphetamines, cannabis or ecstasy.

Summary of H7 testing

The hypothesis that there will be a significant positive association between student perceptions of parental attitudes/behaviours and AOD intentions/use and the experience of AOD-related negative consequences at *Leavers* was partially supported.

The following were associated with higher levels of intended alcohol use:

- Greater agreement that parents would approve of the consumption of > 4 standard drinks at *Leavers* (agree>neutral>disagree)
- Greater agreement that parents would approve of other drug use at *Leavers* (agree & neutral > disagree)
- Agreement they had discussed drugs other than alcohol with their parents in the last three months (agree>disagree).

The following were associated with higher reported alcohol use:

- Reported lower agreement they had a harm minimisation discussion with their parents (neutral>agree)

The following were associated with intended illicit drug use:

- Differing levels of perception of parental approval of other drug use at *Leavers* (agree parental approval: 58% intend to use; neutral: 57% intended to use; disagree: 13% intended to use)
- Agreement that a general other drug discussion had occurred

The following were associated with reported illicit drug use:

- Lower agreement they had a harm minimisation discussion with their parents

5.1.8 Hypothesis 8: Impact of harm reduction strategies on AOD use and AOD-related outcomes

H8. Knowledge, prior discussion of, and use of harm minimisation strategies will be negatively associated with intentions for AOD use, actual AOD use and AOD-

related negative consequences.

The impact of harm reduction strategies is discussed in two parts. Firstly, peer based safety discussions are compared to intended alcohol use, and to actual alcohol use at *Leavers*. Secondly, associations between harm reduction strategy use (measured using the Protective Behavioural Strategies scale) and alcohol use are presented. Lastly, a series of logistic regression models predicting AOD related negative consequences using variables including harm reduction strategy use are presented.

Peer discussion about keeping safe and intended and actual alcohol use

In the pre-*Leavers* survey, participants were asked how strongly they agreed they had discussed with their friends the ways in which they could keep safe while affected by alcohol and/or other drugs in any situation, including *Leavers*. The original response categories 'strongly agree' and 'agree' were merged into a single category, as were respectively 'strongly disagree' and 'disagree'. The 'don't know' category was omitted from analyses (<5% response).

There was no significant difference in intended alcohol use between respondents who agreed (10.39 drinks, n = 230), were neutral (10.58 drinks, n = 63) or disagreed (11.24 drinks n = 66) that they had discussed with their friends the ways in which they could keep safe while affected by AOD (Kruskal-Wallis test $X^2 = .69$, $df=2$, $n = 359$, 182 missing, $p = .71$). Similarly, there was no significant difference in eventual alcohol use at *Leavers* across strengths of agreement ('agree' = 9 standard drinks, n = 74; 'neutral' = 10.50, n = 20; 'disagree' = 9.39, n = 18; Kruskal-Wallis test $X^2 = .36$, $df = 2$, paired n = 112, 8 missing, $p = .84$).

Protective Behavioural Strategies (PBS) scores and AOD use

The relationship between use of harm minimisation strategies, as assessed using Protective Behavioural Strategies (PBS) scores, and alcohol use at *Leavers* was investigated using a Pearson product-moment correlation coefficient. The PBS scale is specific to strategies targeting alcohol use and higher scores indicate less frequent use of strategies.

Preliminary analyses were performed to ensure no violation of the assumptions of normality, linearity and homoscedasticity. There was a strong, positive correlation indicating higher levels of alcohol use was associated with less frequent use of harm minimisation strategies ($r=.51$, $n =238$, 167 missing, $p = .0005$;)

Negative consequences at Leavers

Logistic regression was performed to assess the impact of six factors on the likelihood of reported experience of 15 negative consequences (and two summary variables) at *Leavers*.

The six independent variables contained in each model were: (1) average quantity of alcohol used on a single day at *Leavers* (in quartiles), (2) use of drugs other than alcohol, (3) usage frequency of harm reduction strategies (in quartiles), (4) gender, (5) accommodation location, and (6) survey administration modality.

Table 63 depicts a summary of the logistic regression analyses. Of the 17 outcomes that were assessed (two of which were summary dependent variables), 14 models were significant. Interestingly, the most frequently significant unique predictor of outcomes was the use of drugs other than alcohol – a significant factor in 9 of the 14 significant models. Logistic regression results for each negative consequence are presented in full in appendix F.

Table 63

Summary of the negative consequences logistic regression models

Consequence	Prevalance	Significant unique predictors					Survey modality
		Alcohol	Other drugs	PBSS	Gender	Location	
Hangover	67.4%	•	-	•	-	-	•
Emotional outburst	45.3%	-	•	-	•	-	-
Vomiting	37.9%	-	-	•	-	-	-
Heated argument	35.7%	•	•	-	-	-	-
Accident/injury	40.7%	-	•	-	•	-	-
Physically aggressive	19.0%	-	•	-	•	-	-
Blackout	57.9%	•	-	•	-	-	-
Inability to pay for things	12.3%	-	•	-	-	-	-
Unprotected sex	13.6%	-	-	•	-	-	-
Sexual situation were not happy about at the time ^a	15.4%	-	-	-	-	-	-
Regretted sexual encounter	21.3%	-	-	-	-	-	•
Stole private/public property	12.4%	-	•	-	-	-	-
Act of vandalism	9.7%	-	•	-	-	•	-
Removed from RI/accommodation ^a	3.3%	-	-	-	-	-	-
Arrested for intoxicated behaviour ^a	5.0%	-	-	-	-	-	-
Sexual risk/problem	32.2%	-	•	-	•	-	-
Legal problem	18.3%	-	•	-	-	-	-

Note: The '•' symbol denotes a significant unique predictor and the '-' symbol denotes the independent variable did not make a significant unique contribution to the model.

^a The logistic regression models were not statistically significant for these three consequences.

Hangover

The full model predicting hangover was statistically significant. Three of the independent variables: alcohol use, use of harm minimisation strategies, and survey modality made a unique statistically significant contribution to the model. The following were more likely to have reported hangover (controlling for all other factors):

- Those who drank (i) 6.33-11.33 standard drinks were 2.67 times more likely, (ii) 11.67-18.33 standard drinks were 3.18 times more likely and (iii) more than 18.67 standard drinks were 5.55 times more likely, compared to those who drank 6 or fewer drinks;
- Those who engaged in harm minimisation strategies with the lowest frequency were 3.50 times more likely than those who reported the most frequent use;
- Those who completed the survey online were 3.07 times more likely than those who used the paper survey form.

Emotional outburst

The full model predicting emotional outbursts was statistically significant and two of the independent variables: illicit drug use and gender made a unique statistically significant contribution to the model. The following were more likely to have reported an emotional outburst (controlling for all other factors):

- Those who used an illicit drug were 3.98 times more likely than those who did not use any drugs other than alcohol (i.e. no caffeine or illicit drugs);
- Females were 3.40 times more likely.

Vomiting

The full model predicting vomiting was statistically significant and one independent variable: use of harm reduction strategies, made a unique statistically significant contribution to the model. Respondents who engaged in harm minimisation strategies with the second greatest frequency were 2.61 times more likely to report vomiting than those who reported the most frequent use of harm minimisation strategies (controlling for all other factors).

Heated argument

The full model predicting a heated argument was statistically significant. Two of the independent variables: alcohol use and illicit drug use, made a unique statistically significant contribution to the model. The following were more likely to have reported a heated argument (controlling for all other factors):

- Respondents who consumed between 11.67-18.33 standard drinks on an average *Leavers* day were 4.01 times as likely as those who consumed six or fewer standard drinks.
- Those who used illicit drugs were 5.52 times more likely than those who did not use any drugs other than alcohol.

Accident/injury

The full model predicting accident/injury was statistically significant and two variables: other drug use and gender, made a unique statistically significant contribution. The following were more likely to report an accident/injury controlling

for all other factors:

- Respondents who used caffeine (but no illicit drugs) were 2.46 times more likely than those who did not use any drugs other than alcohol (i.e. no caffeine or illicit drugs);
- Females were 2.58 times more likely.

Physically aggressive towards someone

The full model predicting physical aggression toward someone was statistically significant. Two of the independent variables, illicit drug use and gender made a unique statistically significant contribution to the model. The following were more likely to report being physically aggressive (controlling for all other factors):

- Respondents who used an illicit drug were 4.04 times more likely than those who did not use drugs other than alcohol;
- Females were 3.18 times more likely.

Blackouts

The full model predicting blackouts was statistically significant. Two of the independent variables, alcohol and harm reduction strategy use, made a unique statistically significant contribution to the model. The following were more likely to report a blackout (controlling for all other factors):

- Respondents who drank (i) 6.33-11.33 standard drinks were 2.66 times more likely, (ii) 11.67-18.33 drinks were 9.34 times more likely, and (iii) 18.67 standard drinks or more were 6.22 times more likely than those who drank six or fewer drinks;
- Those who reported engaging in use of harm minimisation strategies with the lowest frequency were 3.38 times more likely than those who reported the most frequent use.

Inability to pay for things

The full model predicting an inability to pay for things as a result of spending too much on AOD was statistically significant. One of the independent variables, illicit drug use, made a unique statistically significant contribution to the model.

Respondents who used an illicit drug were 4.49 times more likely to report an inability to pay than those who did not use any drugs other than alcohol (all other factors in the model being equal).

Unprotected sex

The full model predicting unprotected sex was statistically significant. One of the independent variables, use of harm minimisation strategies, made a unique statistically significant contribution to the model. Respondents who reported engaging in use of harm minimisation strategies with the lowest frequency were 10.92 times more likely to report unprotected sex than those who reported the most frequent use of harm minimisation strategies (controlling for all other factors).

Sexual situation respondent wasn't happy about at the time

The full model was not statistically significant, suggesting the model was not able to distinguish between respondents who reported and did not report ending up in a sexual situation they weren't happy about at the time. It was not clear why the model was not significant. Of the 230 respondents included in the model, 32 (16%) reported sex they weren't happy about at the time – a rate similar to that reported amongst the 299 post-*Leavers* respondents who completed the item (15%). However, the logistic regression model only correctly predicted one of the reports. Especially since alcohol was primarily attributed to this outcome, for the respondent to be unhappy with the situation *at the time* (i.e. likely while intoxicated), suggests that influences beyond which were included in this model (for example, contextual factors) were relevant in the occurrence/report of this negative outcome.

Sexual encounter later regretted

The full model identifying predictors of a sexual encounter later regretted was statistically significant. One of the independent variables, survey modality made a unique statistically significant contribution to the model. Respondents using the online form were 2.68 times more likely to report regretted sex than those using the paper form (controlling for all other factors).

Stealing

The full model containing all predictors was statistically significant and the only

significant predictor for reporting stealing was the use of illicit drugs. Respondents who used an illicit drug were 10.08 times more likely to report stealing compared to those who did not use any drugs other than alcohol (all other factors being equal).

Vandalism

The full model was statistically significant and two variables significantly and uniquely predicted reports of vandalism: illicit drug use and location. The following were more likely to report vandalism controlling for all other factors:

- Respondents who used illicit drugs were 7.75 times more likely than those who did not use any drugs other than alcohol (i.e. no caffeine or illicit drugs);
- Geordie Bay residents were 4.03 times more likely than those in the main settlement area.

Removed/banned from Rottnest Island/accommodation

The model predicting removal or banning from Rottnest Island or RI accommodation was not significant. Note, this outcome was rarely reported (3%) and only one participant included in the analysis was removed from their accommodation. It is likely this low prevalence led to the calculation of extreme odds ratios and possibly contributed to the model's lack of significance.

Arrested for intoxicated behaviour

The model predicting arrest for intoxicated behaviour was not significant. Note: this outcome was rare (5%) and only 8 respondents in the analysis reported being arrested.

Sexual problems/risks (unprotected sex, sex unhappy about at the time or regretted sex)

The full model was statistically significant and two variables significantly and uniquely predicted reports of sexual problems/risks: illicit drug use and gender. The following were more likely to report a sexual problem or risk (controlling for all other factors):

- Respondents who used an illicit drug were 2.95 times more likely compared to those who did not use any drugs other than alcohol;

- Females were 2.04 times more likely.

Legal problems (stealing, vandalism, removal/banning or arrest)

The full model was statistically significant and one variable, illicit drug use, significantly and uniquely predicted reports of a legal problem. Respondents who used an illicit drug were 9.71 times more likely to report a legal problem compared to those who did not use any drugs other than alcohol (all other factors being equal).

Summary of H8 testing

The hypothesis that knowledge, prior discussion of, and use of harm minimisation strategies will be negatively associated with intentions for AOD use, actual AOD use and AOD-related negative consequences was partially supported.

Use of harm minimisation strategies was assessed using Protective Behavioural Strategies (PBS) scores. Higher levels of alcohol use were correlated with PBS scores indicative of less frequent use of harm minimisation strategies.

Controlling for alcohol use, other drug use, gender, location and survey modality, less frequent use of harm minimisation strategies uniquely predicted the experience of four surveyed negative consequences: hangovers, vomiting, blackouts and unprotected sex.

5.1.9 Hypothesis 9: The acceptability of signs of AOD-related behaviour across contexts

H9. Students will rate AOD-related behaviour as more acceptable at *Leavers* compared to a non-*Leavers* celebratory event.

More respondents (47%) agreed or strongly agreed it was acceptable to vomit after drinking at *Leavers* than after drinking at a regular social event (32%). A Wilcoxon signed rank test confirmed that respondents were significantly more likely to agree that it was acceptable to vomit after drinking at *Leavers* than at a regular social event ($z = 9.30$, $p = .0005$, $r = .32$ [medium effect size]). The direction of significance remained the same when this analysis was repeated separately for females ($z = -7.26$, $p = .0005$, $r = .34$ [medium effect]) and males ($z = -5.85$, $p = .0005$, $r = .31$ [medium effect]).

More respondents (40%) agreed or strongly agreed that it was acceptable to have casual sex after drinking at *Leavers* than after drinking at a regular social event (38%). A Wilcoxon signed rank test confirmed that respondents were significantly more likely to agree that it was acceptable to have casual sex after drinking at *Leavers* than at a regular social event ($z = -3.89$, $p = .0005$, $r = .13$ [small effect size]). The direction of significance remained the same when this analysis was repeated for females ($z = -3.22$, $p = .001$, $r = .15$ [small effect]) and males ($z = -2.18$, $p = .03$, $r = .11$ [small effect]).

H9 summary

The hypothesis that students will rate the acceptability of AOD-related behaviour differently depending on context was supported. Both males and females rated it as more acceptable to vomit after drinking and to have casual sex after drinking at *Leavers* than at a regular social event.

5.2 Post-hoc Tests

5.2.1 Post-hoc test 1: AOD use predicted using: intent, prior experience and AOD conducive conditions at Leavers

The Theory of Interpersonal Behaviour (1977) purports that behavioural intent, situational factors and prior experience all influence the performance of a behaviour. The impact of these factors on alcohol use and illicit drug use at *Leavers* was assessed while controlling for gender, accommodation location and survey administration modalities. Standard multiple regression was used to model the continuous variable of alcohol use and logistic regression was used to model the binary outcome of illicit drug use (used/did not use).

Alcohol use

Standard multiple regression was used to assess the ability of seven variables to predict levels of alcohol use at *Leavers*. The dependent variable of eventual alcohol use only included drinkers as a normal distribution was required for this type of analysis. The data was normalised using a square root transformation, and no transformation was able to normalise the data set which included abstainers. The seven independent variables were (1) quantity of alcohol intended to be consumed at *Leavers*, (2) past drinking experience, (3) experience of conditions at *Leavers* which were conducive to AOD use, (4) gender, (5) location of accommodation at *Leavers*, (6) pre-*Leavers* survey administration modality and (7) post-*Leavers* survey administration modality.

Intended quantity of alcohol consumption and past drinking experience were assessed prior to *Leavers*. Past drinking experience was assessed by asking the respondent to specify the number of times in the last 12 months where they drank more than 4 standard drinks in a single session. Responses were divided into quartiles of equal sample sizes (0-2 times in the past 12 months, 3-8 times, 9-20 times and 21 + times). Paired respondents were used in the regression analysis (n=87).

The model was statistically significant and approximately 61% of the

variance in reports of alcohol use at *Leavers* was accounted for by the seven variables (Adjusted R Square; $F(7, 79) = 20.23, p = .0005$; see Table 64). Five independent variables made a significant unique contribution to the model with greater alcohol use associated with: intending to consume more alcohol prior to *Leavers*, consuming >4 standard drinks more frequently prior to *Leavers*, being male, completing the pre-*Leavers* survey online, and completing the post-*Leavers* survey on paper.

Table 64

Alcohol use at Leavers modelled using: intended alcohol use, drinking habits, AOD-conducive conditions at Leavers, gender, accommodation location and survey modality (linear regression with paired drinking respondents)¹

Model Summary								
R	R Square	Adjusted R Square	SE of the Estimate	Change Statistics				Sig. F Change
				R Square Change	F Change	df1	df2	
.801	.642	0.610	0.79	0.64	20.23	7	79	.000
ANOVA								
	Sum of Squares	df	Mean Square	F	Sig.			
Regression	89.41	7	12.77	20.23	0.0005			
Residual	49.89	79	0.63					
Total	139.30	86						
Coefficients								
	Unstandardized Coefficients		Standardized Coefficients		t	p	95% C.I. for B	
	B	SE	Beta				Lower Bound	Upper Bound
Alcohol use intention	0.06	0.01	0.45		5.14	0.0005	0.04	0.08
Drinking experience ^a (0-2)	0.45	0.10	0.39		4.43	0.0005	0.25	0.66
Conditions at Leavers (least conducive to AOD use)	-0.01	0.09	-0.01		-0.08	.933	-0.18	0.17
Gender (female)	0.41	0.18	0.16		2.25	.027	0.05	0.77
Accommodation area (main settlement)	-0.08	0.21	-0.03		-0.41	.683	-0.50	0.33
Pre-Leavers survey modality (online)	-0.63	0.21	-0.25		-2.97	.004	-1.05	-0.21
Post-Leavers survey modality (online)	1.03	0.32	0.28		3.20	.002	0.39	1.67
(Constant)	0.33	0.68			0.48	.634	-1.03	1.69

¹ Reference group of categorical variables in parentheses.

^aNumber of times more than 4 standard drinks had been consumed in a single session in the last 12 months.

Alcohol use intention uniquely explained 12% of the variance in respondent alcohol use at *Leavers*. For every standard drink a respondent intended to consume,

they were predicted to consume more alcohol at *Leavers*. For example, a respondent who intended to consume 10 standard drinks on a typical *Leavers* day was predicted to consume 0.42 standard drinks more than a respondent who intended to consume 11 standard drinks a day (controlling for all other factors).

Frequency of risky drinking sessions uniquely explained 9% of the variance in respondent alcohol use at *Leavers*. Greater predicted alcohol use was associated with more frequent risky alcohol consumption prior to *Leavers*. For example, respondents who consumed more than four standard drinks in a single session between 9-20 times in the 12 months prior to completing the pre-*Leavers* survey were predicted to consume 3.29 standard drinks more a day at *Leavers* compared to respondents who engaged in these sessions 3-8 times (controlling for all other factors).

Gender uniquely explained 2% of the variance in respondent alcohol use. Males were predicted to consume 2.95 standard drinks more than females (controlling for all other factors).

Pre-*Leavers* survey modality uniquely explained 4% of the variance in respondent alcohol use. Respondents who completed the pre-*Leavers* survey online were predicted to consume 4.44 standard drinks more than respondents who completed the pre-*Leavers* survey on paper (controlling for all other factors).

Post-*Leavers* survey modality uniquely explained 5% of the variance in respondent alcohol use. Respondents who completed the post-*Leavers* survey on paper were predicted to consume 7.17 standard drinks more than respondents who completed the post-*Leavers* survey online (controlling for all other factors).

Illicit drug use

Logistic regression was performed to assess the impact of seven factors on the likelihood that respondents would report using an illicit drug *Leavers*. Respondents were coded as having used an illicit drug if they used amphetamine and/or cannabis and/or ecstasy on any one day at *Leavers*.

The independent variables included in the model were: (1) intent to use illicit drugs prior to *Leavers*, (2) whether the respondent used illicit drugs at the last event

they attended, (3) experience of AOD-conducive conditions at *Leavers*, (4) gender, (5) survey modality of the pre-*Leavers* survey, (6) survey modality of the post-*Leavers* survey, and (7) residential area.

The model was statistically significant and two variables were significant unique predictors for illicit drug use at *Leavers*: experience of AOD-conducive conditions at *Leavers* and the use of illicit drugs at the last pre-*Leavers* event attended (see Table 65).

Table 65
Illicit drug at Leavers modelled using: intent, prior use, AOD-conducive conditions at Leavers, survey administration modality, gender and residential area (logistic regression with paired respondents)¹

Omnibus Tests of Model Coefficients					Variance explained by model		Correct classifications by model	
χ^2	df	Missing N	N	p	Cox & Snell R Square	Nagelkerke R Square		
26.89	10	17	103	0.003	23.0%	43.2%	87.4%	
Independent variable	B	S.E.	Wald	df	p	Odds Ratio	95% C.I. for Odds Ratio	
							Lower	Upper
Intent to use illicit drugs (disagree)								
Undecided	0.82	0.91	0.82	1	.364	2.28	0.38	13.51
Agree	1.39	1.05	1.73	1	.188	4.00	0.51	31.52
Last event use (did not use illicit drug/s)	2.65	1.32	4.02	1	.045	14.18	1.06	189.41
Conditions at Leavers ² (least conducive to AOD use)								
Second least conducive	3.70	1.84	4.04	1	.044	40.58	1.10	1502.42
Second most conducive	2.93	1.94	2.27	1	.132	18.74	0.42	846.00
Most conducive	4.02	1.97	4.16	1	.041	55.93	1.17	2668.81
Gender (female)	1.41	0.87	2.63	1	.105	4.08	0.75	22.31
Residential area (main settlement)	0.37	0.80	0.22	1	.640	1.45	0.31	6.89
Pre- <i>Leavers</i> survey modality (online)	- 0.15	1.00	0.02	1	.882	0.86	0.12	6.12
Post- <i>Leavers</i> survey modality (online)	- 1.30	1.03	1.59	1	.208	0.27	0.04	2.06

¹ Reference groups in parentheses.

² Recoded into a categorical variable for greater statistical power.

'Conditions at *Leavers* conducive to AOD use' were circumstances that were considered to either encourage or condone AOD use (e.g. 'It seemed like everyone around me was using drugs other than alcohol'). Responses to ten AOD-conducive conditions were combined then divided into quartiles for analysis. Compared to respondents who experienced conditions that were the least conducive to AOD use,

respondents who experienced (i) the most AOD-conducive conditions were 55.93 times more likely, and (ii) the second least AOD-conducive conditions were 40.58 times more likely, to use an illicit drug at *Leavers* (controlling for all other factors). That is, greater exposure to AOD-conducive conditions appeared to predict increased likelihood of reporting illicit drug use at *Leavers*.

Respondents, who had used at least one illicit drug at the last social event they attended prior to *Leavers*, were 14.18 times more likely than respondents who did not use an illicit drug at their last social event, to have used an illicit drug at *Leavers* (controlling for all other factors).

5.2.2 Post-hoc test 2: Differences between alcohol estimation methods

Respondents estimated their alcohol use at *Leavers* using two methods – the standard drink method and the detailed table/beverage specific response method. The estimations for all drinking respondents using the two methods are presented in table 66.

Averaged over the three days of *Leavers*, drinking respondents were estimated to have consumed 14.20 standard drinks (sd = 9.36, n = 348, 57 missing) using the standard drink response and to have consumed 15.80 standard drinks (sd = 9.49, n = 242, 163 missing) using the detailed response method. Note that a greater number of respondents estimated their alcohol consumption using the standard drink response method compared to the beverage specific approach. For this reason of sample size, scores garnered through the standard drink response method were used as the main measure of alcohol consumption in hypothesis testing.

Table 66

Alcohol consumption at Leavers as estimated using: the standard drink response method and the detailed table/beverage specific method

		Female			Male			Both genders		
		Mean	Standard Deviation	Valid N	Mean	Standard Deviation	Valid N	Mean	Standard Deviation	Valid N
Day 1	SD	10.68	8.13	168	15.75	10.28	165	13.17	9.56	335
	DT	12.87	8.83	110	17.13	9.93	107	14.96	9.56	219
Day 2	SD	11.20	7.96	168	17.90	10.87	167	14.52	10.06	337
	DT	13.88	8.85	91	18.91	10.55	99	16.49	10.05	191
Day 3	SD	11.69	9.35	167	17.05	11.10	164	14.31	10.57	333
	DT	13.87	10.25	96	19.54	10.90	98	16.79	10.93	195
Average use (day 1-3)	SD	11.44	8.02	174	17.05	9.83	172	14.20	9.36	348
	DT	13.24	8.93	122	18.44	9.42	118	15.80	9.49	242

Note. "SD" = Standard drink response method; "DT" = Detailed table/beverage specific response method

To compare the estimation methods, a series of Wilcoxon signed rank tests and paired sample t-tests were run with paired drinking respondents (those who had completed both the standard drink and detailed table estimations).

The tests revealed that alcohol estimates were significantly higher if respondents used the detailed response table to estimate alcohol use on day 1 ($z = -7.84$, $p = .0005$, $r = .39$ [medium effect]), day 2 ($z = -6.50$, $p = .0005$, $r = .34$ [medium effect]) and day 3 ($z = -6.26$, $p = .0005$, $r = .32$ [medium effect]).

To compare the estimation methods on an average day at *Leavers* (the mean score from days 1-3), a series of paired samples t-tests were run using square root transformed variables. On an average *Leavers* day, drinking respondents reported they consumed significantly more alcohol by using the detailed response table versus using the standard drink response reporting method ($t(234) = -8.98$, $p = .0005$). The mean difference in estimation methods was 2.81 standard drinks (95% CI [2.08, 3.54], $\eta^2 = .32$ [large effect]).

More specifically, on an average *Leavers* day, female drinkers reported they consumed significantly more alcohol using the detailed response table ($t(118) = -6.12$, $p = .0005$), with the mean difference in estimation methods being 2.55 standard drinks (95% CI [1.52, 3.56], $\eta^2 = .24$ [large effect]).

On an average *Leavers* day, male drinkers reported they consumed significantly more alcohol when using the detailed response table ($t(114) = -6.53$, $p = .0005$), with the mean difference in estimation methods being 3.10 standard drinks (95% CI [2.03, 4.17], $\eta^2 = .27$ [large effect]).

There was no significant gender difference in the differences produced by the two estimation methods of alcohol use on an average *Leavers* day (Mann Whitney U = 6155, z= -1.33, p = .18).

Summary of post-hoc test 2

For days 1, 2, 3 and the average day at *Leavers*, alcohol estimates were significantly higher if the detailed response table was used versus if consumption was reported using the standard drink method.

5.2.3 Post-hoc test 3: Use of other drugs and quantity of alcohol consumed

Respondents who used drugs other than alcohol (caffeine, amphetamine, cannabis or ecstasy), caffeine, illicit drugs, and caffeine with alcohol, drank significantly more alcohol on an average *Leavers* day compared to those who did not use these drugs during the celebrations (see table 67).

Table 67
Use of other drugs and mean *Leavers* alcohol use

	Use of other drug(s)	Alcohol use descriptives				Independent samples t-test ¹			
		Mean	95% CI	sd	n	t	df	p	eta squared ²
Drugs other than alcohol	Did not	11.89	[10.39, 13.39]	8.92	138	-4.33	320	0.0005	0.06
	Used	15.91	[14.54, 17.29]	9.43	183				
Illicit drug ⁴	Did not	12.25	[11.22, 13.28]	8.28	251	-7.41	320	0.0005	0.15
	Used	21.13	[18.75, 23.51]	9.99	70				
Caffeine	Did not	12.37	[10.90, 13.83]	8.70	138	-3.52	304	0.001	0.04
	Used	15.83	[14.36, 17.31]	9.67	167				
Caffeine with alcohol ⁵	Did not	9.01	[6.81, 11.21]	5.89	30	-5.02	129	0.0005	0.16
	Used	17.70	[15.73, 19.61]	9.84	101				

¹ T-tests run on a square root transformed variable (mean alcohol use at *Leavers* in standard drinks).

² Effect size: .01=small, .06=moderate, .14=large.

³ 'Drugs other than alcohol' includes caffeine, amphetamine, cannabis or ecstasy.

⁴ An 'illicit drug' includes amphetamine, cannabis or ecstasy.

⁵ E.g. Vokda-RedBull. Subset of caffeine users.

Summary of post-hoc test 3

Respondents who used drugs other than alcohol during *Leavers* consumed significantly more alcohol on an average day compared to those who did not use other drugs.

5.2.4 Post-hoc test 4: Caffeine used with alcohol and negative AOD consequences at Leavers

Logistic regression was performed to assess the impact of using caffeine with alcohol on the likelihood that respondents would report experiencing negative consequences. The 17 negative consequences tested here were previously listed in hypothesis 8. Five independent variables were included in the model: (1) use of caffeine with alcohol (assessed amongst the 186 caffeine users), controlling for (2) average quantity of alcohol use over days 1-3, (3) gender, (4) location of accommodation and (5) survey modality.

The use of caffeine with alcohol was a significant unique predictor for the experience of hangovers, emotional outbursts, heated arguments, and accidents/injuries. For these four negative consequences, the results of the logistic regression models are summarised below, with the full results presented in Appendix F.

Hangover

The full model was statistically significant and the use of caffeine with alcohol, quantity of alcohol use and modality were significant unique predictors for reporting a hangover. The following were more likely to have reported a hangover (controlling for all other factors):

- Respondents who used caffeine with alcohol were 5.15 times more likely compared to those who used caffeine, but not with alcohol;
- Compared to respondents who drank six or fewer standard drinks a day, those who drank (i) 6.33-11.33 drinks were 4.52 times as likely, (ii) 11.67-18.33 drinks were 6.41 times as likely, and (iii) 18.67-45 drinks were 6.77 times as likely;
- Respondents using the online survey were 5.15 times as likely as those using the paper survey.

Emotional outbursts

The full model was statistically significant and the use of caffeine with alcohol was a significant predictor for reporting an emotional outburst. Respondents who used caffeine with alcohol were 4.40 times more likely to report having an emotional outburst compared to those who used caffeine, but not with alcohol, controlling for all other factors.

Heated argument

The full model containing all predictors was statistically significant and use of caffeine with alcohol and gender were significant predictors for reporting a heated argument. The following were more likely to have reported a heated argument (controlling for all other factors):

- Respondents who used caffeine with alcohol were 4.17 times more likely compared to those who used caffeine, but not with alcohol;
- Females were 4.05 times more likely.

Accident/injury

The full model containing all predictors was statistically significant and the use of caffeine with alcohol was a significant predictor for reporting an accident/injury. Respondents who used caffeine with alcohol were 3.25 times more likely to report having an accident/injury compared to those who used caffeine, but not with alcohol, controlling for all other factors in the model.

Summary of post-hoc test 4

Respondents who used caffeine with alcohol (compared to respondents who used caffeine, but not in conjunction with alcohol), were more likely to experience hangovers, emotional outbursts, heated arguments, and accidents/injuries to themselves at *Leavers*, controlling for their alcohol use, gender, accommodation location and survey response modality.

5.2.5 Post-hoc test 5: Estimations of peer use: pre and post Leavers

Estimations of peer alcohol use

In both the pre- and post-*Leavers* survey, respondents were asked what they expected or estimated their same-sex immediate peers and average leaver would or did drink at *Leavers*. Wilcoxon signed rank tests with paired respondents revealed that estimations of alcohol use amongst same-gender immediate peers and the average student were higher after the celebrations than before the celebrations (see Table 68).

Table 68
Alcohol use estimations for peers and the average leaver prior to and after the celebrations

Alcohol use estimates (all respondents)									
	Survey	Mean	SD	95% CIs	Min.	Max.	Missing N	N	
Female	Immediate peer	Pre-Leavers	10.62	8.47	[9.60, 11.64]	0	50	28	267
		Post-Leavers	11.74	8.32	[10.49, 12.99]	0	50	27	173
	Average leaver	Pre-Leavers	10.40	7.66	[9.48, 11.32]	0	60	27	268
		Post-Leavers	12.00	7.10	[10.95, 13.06]	0	50	23	177
Male	Immediate peer	Pre-Leavers	13.61	8.67	[12.43, 14.79]	0	50	27	210
		Post-Leavers	15.67	9.15	[14.26, 17.08]	0	60	35	165
	Average leaver	Pre-Leavers	12.63	8.09	[11.54, 13.73]	1	60	25	212
		Post-Leavers	14.76	8.31	[13.48, 16.04]	0	60	35	165
Alcohol use estimates (paired respondents)									
	Survey	Descriptives		Wilcoxon Signed Rank Test					
		Mean	95% CIs	z	Missing N	N	p	r ¹	
Female	Immediate peer	Pre	8.61	[7.06, 10.16]	-2.22	7	67	0.03	0.27
		Post	9.48	[7.93, 11.03]					
	Average leaver	Pre	8.69	[7.58, 9.80]	-3.52	6	68	0.0005	0.42
		Post	10.25	[8.96, 11.54]					
Male	Immediate peer	Pre	10.36	[7.97, 12.76]	-2.99	7	39	0.003	0.48
		Post	13.72	[10.33, 17.10]					
	Average leaver	Pre	10.24	[8.40, 12.07]	-2.97	8	38	.003	0.48
		Post	13.07	[11.06, 15.07]					

¹Effect size: .1=small, .3=medium, .5=large.

Estimations of peer use of drugs other than alcohol

In both the pre- and post-*Leavers* survey, respondents were asked to what extent they agreed that the same-gender average student would or did use various drugs other than alcohol at *Leavers* (see Table 69). A series of Wilcoxon signed rank tests

(run by gender) revealed no significant differences in agreement ratings about the average students' use of drugs other than alcohol from before and after the celebrations.

Table 69

Agreement that the same-sex average student would or did use drugs other than alcohol at Leavers

		Female					
	survey time	Strongly agree	Agree	Undecided	Disagree	Strongly disagree	N
Amphetamines	pre	9%	28%	32%	17%	15%	276
	post	9%	30%	25%	24%	12%	171
Caffeine	pre	58%	29%	8%	1%	4%	278
	post	65%	23%	6%	2%	3%	172
Cannabis	pre	17%	47%	23%	4%	9%	277
	post	22%	33%	25%	11%	9%	172
Ecstasy	pre	14%	36%	30%	8%	13%	280
	post	18%	30%	26%	13%	12%	171
Other drugs	pre	6%	16%	42%	11%	26%	219
	post	4%	12%	51%	15%	19%	81

		Male					
	survey time	Strongly agree	Agree	Undecided	Disagree	Strongly disagree	N
Amphetamines	pre	11%	17%	28%	27%	17%	223
	post	16%	29%	18%	21%	16%	170
Caffeine	pre	52%	27%	10%	5%	6%	221
	post	64%	24%	5%	2%	5%	173
Cannabis	pre	23%	35%	22%	12%	8%	221
	post	22%	40%	20%	9%	9%	173
Ecstasy	pre	17%	28%	23%	22%	11%	222
	post	25%	36%	15%	11%	13%	175
Other drugs	pre	10%	7%	44%	14%	25%	179
	post	15%	18%	34%	9%	24%	91

Summary of post-hoc test 5

For both males and females, expectations of the quantity of alcohol the same-gender immediate peer and average leaver would consume at *Leavers*, were lower than what respondents estimated these same groups drank, after the celebrations.

There were no significant differences before and after the celebrations in agreement the average student at *Leavers* would or did use amphetamine, caffeine, cannabis, ecstasy or other drugs.

5.2.6 Post-hoc test 6: Drinking hours and pace

Drinking hours

Unsurprisingly, there was a strong, positive correlation between the average number of drinking hours and quantity of alcohol consumed at *Leavers* (Spearman's rho = .63, n = 347, 58 missing, p<.001). Paired respondents had a significantly greater number of drinking hours, 2.56 hours more, on an average *Leavers* day than at the last social event (see Table 70).

Table 70

Drinking hours at the last event and Leavers

	Descriptives (all respondents)				Wilcoxon Signed Rank Test				
	Mean	95% CI	Missing N	N	z	Missing N	N	p	r ¹
Last event	5.37	[4.75, 5.99]	36	364	-5.10	45	75	0.0005	0.42
Leavers	7.42	[6.88, 7.95]	19	356					
	Descriptives (paired respondents)			Wilcoxon Signed Rank Test					
	Mean	Mean difference	95% CI for difference	z	Missing N	N	p	r ¹	
Last event	4.47	2.56	[1.70, 3.41]	-5.10	45	75	0.0005	0.42	
Leavers	7.02								

¹Effect size: .1=small, .3=medium, .5=large.

Drinking pace

A drinking pace score was calculated by dividing the total number of drinks consumed by the total time spent drinking. A higher drinking pace score indicates a faster drinking rate as the score indicates the mean number of standard drinks consumed in one hour.

On average, there was a smaller than 10% difference in the drinking pace between the contexts of the last event and *Leavers* (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 (see Table 71). Similarly, when matched participants were removed from the dataset, there were no significant differences between the unmatched participants' drinking paces between the two contexts (independent samples t-test: t(375)=.71, p=.48; n= 232 from last event and 158 from *Leavers*).

Table 71
Drinking Pace at the last event and Leavers

		Unpaired and paired respondents							
		Descriptives					Gender difference		
		Mean	SD	95% CIs	Missing N	N	Mean	95% CIs	
Female	Last event	2.67	2.53	[2.28, 3.05]	52	169			
	Leavers	2.60	1.73	[2.28, 2.91]	65	120			
Male	Last event	3.19	2.39	[2.77, 3.61]	47	127			
	Leavers	2.82	1.42	[2.56, 3.08]	67	117			
All respondents	Last event ¹	2.91	2.49	[2.62, 3.19]	100	300	-0.53	[-1.10, 0.05]	
	Leavers ²	2.70	1.58	[2.50, 2.90]	134	238	-0.22	[-0.63, 0.18]	
		Paired respondents					Wilcoxon Signed Rank Test		
		Descriptives					z	N	p
		Mean	SD	95% CIs	Missing N	N			
Female	Last event	2.39	2.11	[1.69, 3.10]	37	37	-0.90	37	0.37
	Leavers	2.40	1.53	[1.90, 2.91]					
Male	Last event	2.79	1.46	[2.07, 3.52]	28	18	-0.50	18	0.62
	Leavers	2.60	1.55	[1.83, 3.37]					
All respondents	Last event	2.52	1.91	[2.00, 3.01]	65	55	-0.27	55	0.79
	Leavers	2.47	1.53	[2.06, 2.88]					

Note: Estimates of alcohol use in both contexts were derived using the detailed table method.

¹ Males had a significantly faster drinking pace at the last event (independent sample t-test on a transformed variable: $t(294) = -2.33$, $p = .02$, $\eta^2 = .02$ [small effect]).

² Males had a significantly faster drinking pace at Leavers (Mann-Whitney $U = 5816$, $z = -2.28$, $p = .02$, $r = .15$ [small effect]).

Summary of post-hoc test 6

Males had a significantly higher drinking pace (number of standard drinks consumed per hour) compared to females at both the last pre-*Leavers* social event they attended and at *Leavers*.

Although drinking hours and alcohol quantities (see hypothesis 2) were greater at *Leavers* compared to at the last social event, no significant differences in drinking pace were detected across contexts.

5.2.7 Post-hoc test 7: Predictors of intent to use alcohol

Reasons for attending Leavers

Pre-*Leavers* survey respondents were asked what their (single) most important reason was for wanting to attend the celebrations. The average quantity of alcohol

intended to be consumed was calculated for each response option (see Table 72).

A Kruskal-Wallis test with the three most popular reasons (which accounted for 90% of the responses), revealed that each reason was associated with significantly different levels of intended alcohol use (calculated with those who intended to use alcohol; $X^2=69.44$, $df = 2$, $p = .0005$). Three follow-up Mann-Whitney U tests revealed that respondents attending to 'party/get drunk' intended to consume significantly more than those who were attending: (i) to 'celebrate/have fun' ($U=6244$, $z = -7.67$, $p = .0005$, $r = .42$ [medium-large effect size]); and (ii) to 'be with friends' ($U=1083$, $z = -6.21$, $p = .0005$, $r = .49$ [large effect size]). There was no significant difference in intended alcohol use amongst those who wanted to 'be with friends' or to 'celebrate/have fun' ($U=4681$, $z = -1.58$, $p=.12$).

Table 72

Reasons for attending Leavers and alcohol use intention

Reason for attending	Mean intended alcohol use ^a	95% CI for mean	Median	SD	Min	Max	Valid N	Missing N ^b
Celebrate/have fun	10.32	[9.21, 11.43]	9.00	8.42	1	57	223	40
Party/get drunk	17.44	[15.56, 19.33]	15.00	10.16	5	60	114	14
Be with friends	8.33	[6.55, 10.11]	7.00	6.18	1	30	49	11
Relax	7.05	[4.78, 9.32]	7.00	4.27	1	15	16	10
Do things I didnt get to do during year 12	9.45	[4.23, 14.68]	8.00	7.78	2	30	11	2
Other	20.00	[13.14, 26.86]	20.00	9.59	5	35	10	2
Holiday	7.80	[-2.19, 17.79]	5.00	8.04	3	22	5	1
Meet new people	6.67	[-.50, 13.84]	5.00	2.89	5	10	3	2

^a Calculated with respondents who intended to use alcohol at Leavers.

^b Resepondents that did not provide a quantity specific intention for alcohol use.

Attitudes, norms and expectations

The relationship between predictors of intent such as personal attitudes, social norms and expectations was investigated in relation to the quantity of alcohol intended to be consumed at *Leavers*.

The relationship between the statements and intent were investigated using a series of Kruskal-Wallis tests. Of the 15 statements assessing expectations of *Leavers*, 14 yielded significant Kruskal-Wallis tests and were followed up using Mann-Whitney U tests. Original response options 'strongly agree' and 'agree' were merged, as were 'strongly disagree' and 'disagree', to keep the Bonferroni corrected

alpha (for the Mann-Whitney U tests) at a level of .017.

The same analyses were run twice. Firstly, only respondents who intended to use alcohol at *Leavers* were included in the analyses (see Table 73). Secondly, all responses, including respondents who intended to abstain from alcohol at *Leavers*, were included in the analyses (see Appendix F). There was only one difference in analysis results using these two samples. When comparing respondents who agreed and disagreed with the statement 'I will feel pressured to use drugs other than the above substances at *Leavers*', there was a significant difference when the analysis was run using all respondents, but no significant difference in the 'intended drinkers' only analysis.

Fourteen of the 15 AOD-conducive beliefs yielded at least one significant difference in intended alcohol use across agreement levels. There was no significant difference in intended alcohol use between levels of agreement to the statement 'I will feel pressured to drink alcohol at *Leavers*'.

Respondents who agreed they held AOD-conducive beliefs or expected to experience AOD-conducive conditions, intended to consume more alcohol than those who disagreed they would experience AOD-conducive conditions at *Leavers*. Accordingly, those who agreed they would experience conditions that would *not* be conducive to AOD use at *Leavers* intended to consume significantly less than those who disagreed to such statements.

Table 73
Expectations of conditions at Leavers and alcohol use intention

	Mean alcohol use intention (excluding intended abstainers)			Mann-Whitney test statistics											
	Agree	Undecided	Disagree	Agree vs. Undecided				Agree vs. Disagree				Undecided vs. Disagree			
				U	z	p	r ¹	U	z	p	r ¹	U	z	p	r ¹
I'm interested in "letting loose" at Leavers and doing something I usually wouldn't do at home	13.76	7.73	8.65	6752	-6.25	0.005*	-0.32	5291	-4.53	0.0005*	-0.24	2450	-0.24	0.82	-0.02
It is acceptable/OK for someone of my age and gender to get drunk at Leavers	13.00	6.68	4.88	3459	-5.51	0.0005*	-0.27	1535	-5.37	0.0005*	-0.27	382	-1.37	0.17	-0.17
My friends and I have an understanding that we <u>will</u> get drunk at Leavers	13.13	8.78	4.37	3264	-4.38	0.0005*	-0.22	1842	-8.13	0.0005*	-0.41	497	-2.43	0.015*	-0.28
My friends and I have an understanding that we will <u>not</u> get drunk at Leavers	6.45	7.41	12.82	545	-1.06	0.29	-0.12	2261	-5	0.005*	-0.26	4128	-5.05	0.0005*	-0.25
My friends and I have an understanding that we <u>will</u> experiment with drugs other than alcohol at Leavers	21.43	13.50	8.81	1933	-4.87	0.0005*	-0.37	2824	-8.72	0.0005*	-0.48	8185	-5.35	0.0005*	-0.28
My friends and I have an understanding that we will <u>not</u> experiment with drugs other than alcohol at Leavers	8.66	12.35	18.28	7998	-4.9	0.0005*	-0.27	4669	-7.99	0.0005*	-0.45	3681	-3.96	0.0005*	-0.27
I would get drunk if it seemed like everyone was drinking at Leavers	14.30	10.18	9.12	5494	-4.69	0.0005*	-0.27	7831	-6.49	0.0005*	-0.35	4397	-1.09	0.28	-0.08
I will feel pressured to drink alcohol at Leavers ²	11.26	10.59	12.39												
I will feel pressured to use cannabis at Leavers	16.62	12.51	11.35	522	-2.05	0.04	-0.24	4772	-3.54	0.0005*	-0.18	5769	-0.6	0.55	-0.03
I will feel pressured to use amphetamines at Leavers	18.65	12.03	11.42	229	-2.58	0.01*	-0.34	2270	-3.49	0.0005*	-0.18	5767	-1.05	0.29	-0.05
I will feel pressured to use ecstasy at Leavers	18.71	12.66	11.40	300	-2.28	0.02	-0.29	2662	-3.79	0.005*	-0.19	5404	-1.58	0.11	-0.08
I will feel pressured to use drugs other than the above substances at Leavers	16.43	12.24	11.41	297	-2.32	0.02	-0.29	2493	-3.43	0.001*	-0.18	5895	-1.31	0.19	-0.07
You need to consume alcohol to "fully experience" Leavers	14.61	11.47	9.20	5847	-3.19	0.001*	-0.20	8862	-6.1	0.0005*	-0.33	6052	-1.84	0.07	-0.12
You need to consume drugs other than alcohol to "fully experience" Leavers	20.90	16.22	10.21	625	-2.04	0.04	-0.22	2291	-6.21	0.0005*	-0.32	5064	-4.11	0.0005*	-0.21
Using alcohol and other drugs at Leavers will help me act in a way that is amusing and memorable to my friends	14.84	11.53	9.87	4323	-2.53	0.011*	-0.17	9062	-5.42	0.0005*	-0.29	7362	-2.19	0.03	-0.13

* p < .017 for the Mann-Whitney U tests. ¹ r: .1 = small effect, .3 = medium effect, .5 = large effect.

² Mann-Whitney tests were not run for this statement as the Kruskal Wallis test was not significant.

Summary of post-hoc test 7

Respondents attending *Leavers* to 'party/get drunk' intended to consume more alcohol than those attending to 'celebrate/have fun' or to 'be with friends'.

Respondents with AOD-conducive beliefs/expectations intended to consume more alcohol at *Leavers*. Similarly, those who agreed they would experience conditions that would *not* be conducive to AOD use at *Leavers* intended to consume significantly less alcohol.

5.2.8 Post-hoc test 8: Accommodation style and location

Accommodation type

During *Leavers*, respondents resided in units, boats, the Rottnest Lodge and other accommodations. A one-way ANOVA test run with a transformed variable did not reveal any significant differences in alcohol use by accommodation type ($F(3,343) = 0.61, p = .61$).

Accommodation location (main settlement versus Geordie Bay)

Respondents resided in two main areas on Rottnest Island during the celebrations. The majority of respondents (72%) resided in the main settlement area and 27% of the respondents resided in the Geordie Bay area. Respondents from the two areas were contrasted in terms of their AOD use, experience of AOD-conducive conditions, their peer AOD use estimations, whether they were offered drugs other than alcohol at *Leavers* and their scores on a measure of harm reduction strategy usage.

Personal AOD use at Leavers

Alcohol

Main settlement residents consumed a mean of 12.80 standard drinks ($sd = 8.83, 95\% CI [11.68, 13.93], n = 239, 19$ missing) on an average day, significantly less compared to Geordie Bay residents who drank a mean of 17.41 standard drinks ($sd = 9.85, 95\% CI [15.50, 19.33], n = 104, 5$ missing; independent t-test run with a transformed dependent variable: $t(342) = -4.41, p = .0005$; eta squared = .05 [small - moderate effect]; mean difference = 4.61 standard drinks, 95% CI [2.50, 6.73]).

Drugs other than alcohol

A series of chi-square tests for independence indicated that there was a significant association between the Geordie Bay region and the use of amphetamine, caffeine with alcohol, and ecstasy on any one celebration day (see Table 74).

Odds ratios were calculated using univariate logistic regression for

significant chi-square test results. Controlling for gender and survey administration modality, Geordie Bay residents were (i) 2.13 times more likely to have used amphetamine, (ii) 3.50 times more likely to have used caffeine with alcohol, and (iii) 2.54 times more likely to have used ecstasy.

Table 74
Other drug use across accommodation locations

	Accommodation location						Chi-square test for independence with Yates Continuity Correction			
	Main settlement			Geordie bay			X ²	df	p	phi ¹
	% used	Valid N	Missing N	% used	Valid N	Missing N				
Amphetamines	8%	244	43	17%	95	15	4.51	1	0.03	0.13
Caffeine	51%	246	41	61%	97	13	2.42	1	0.12	
Caffeine with alcohol ²	69%	100	25	89%	47	12	6.11	1	0.001	0.22
Cannabis	14%	245	42	16%	94	16	0.05	1	0.83	
Ecstasy	9%	245	42	21%	96	14	7.91	1	0.05	0.16
Other drugs	6%	232	55	3%	87	23	0.25	1	0.62	
Illicit drug/s ³	18%	264	23	27%	100	10	3.24	1	0.07	

¹ Phi coefficient: .10=small, .30=medium, .50=large effect size.

² Subset of caffeine users.

³ Use of amphetamines, cannabis or ecstasy.

Location of accommodation and experience of AOD-conducive conditions at Leavers

Geordie Bay residents were more likely to agree that at *Leavers* they (i) encouraged someone else to use alcohol ($U = 7787$, $Z = -2.40$, $p = .02$, $r = .14$ [small effect]), (ii) had plenty of opportunities for using drugs other than alcohol ($U = 8097$, $Z = -2.05$, $p = .04$, $r = .12$ [small effect]), (iii) encouraged someone else to use drugs other than alcohol ($U = 7960$, $Z = -2.21$, $p = .03$, $r = .13$ [small effect]) and, (iv) were more likely to disagree they were worried embarrassing or sensitive multimedia taken of them at *Leavers* could end up on the Internet ($U = 7619$, $Z = -2.46$, $p = .01$, $r = .14$ [small effect]).

Location of accommodation and peer AOD use estimations

Compared to Geordie Bay residents, those from the main settlement reported significantly lower alcohol use estimates for their immediate peers (Mann-Whitney $U = 6458$, $Z = -6.07$, $p = .0005$, $r = .33$ [medium effect]); as well as the average student

at *Leavers* (Mann-Whitney $U = 7861$, $z = -4.67$, $p = .0005$, $r = .25$ [small - medium effect]). Similarly, Geordie Bay residents were more likely to agree that the same-gender average leaver used amphetamine, caffeine and ecstasy at *Leavers*. See Table 75.

Table 75
Estimations of peer and average leaver AOD use across accommodation locations (all post-Leavers respondents)

(a) Alcohol use

	Accommodation location								Mean difference	
	Main settlement				Geordie bay				Mean	95% CI
	Mean	SD	Missing	N	Mean	SD	Missing	N		
Peer alcohol use	12.02	7.91	45	242	18.17	9.91	17	93	6.15	[4.11, 8.19]
Average leavers' alcohol use	12.32	7.56	42	245	16.12	7.8	15	95	3.79	[1.98, 5.61]

(b) Other drug use

	Mann-Whitney U test statistics comparing agreement that the same-gender average leaver used other drugs (by location)				
	U	z	N	p	r^1
Amphetamine	9537	-2.38	338	0.02	0.13
Caffeine	10285	-2.18	342	0.03	0.12
Cannabis	10472	-1.69	342	0.09	
Ecstasy	9447	-2.93	343	0.003	0.16
Other drugs ²	2448	-0.12	171	0.9	

¹ Effect size: .1=small, .3=medium, .5=large.

² Drugs other than alcohol, caffeine, amphetamine, cannabis or ecstasy.

Location of accommodation and offers of other drugs

Respondents were asked whether or not anyone offered them drugs other than alcohol at *Leavers*. A chi-square test for independence indicated there was no significant association between accommodation location and whether a respondent was offered drugs other than alcohol ($X^2 = 5.57$, $df = 2$, $p = 0.06$, $\phi = .13$ [small effect]).

However, after removing respondents who were not sure if they were offered other drugs (<5% of responses), 44% of main settlement residents and 59% of Geordie Bay residents reported they were offered. Geordie Bay residents were significantly more likely to be offered (X^2 with Yates Continuity Correction = 4.94, $df = 1$, $p = 0.03$, $\phi = -.13$ [small effect]).

Summary of post-hoc test 8

Compared to Geordie Bay residents, those accommodated in the main settlement region:

- Drank 4.61 fewer standard drinks per *Leavers* day
- Were less likely to have used amphetamine, caffeine with alcohol and ecstasy during *Leavers*
- Were less likely to agree that at *Leavers* (i) they encouraged someone else to use alcohol, (ii) had plenty of opportunities for using drugs other than alcohol, (iii) encouraged someone else to use drugs other than alcohol and (iv) were more likely to agree they were worried embarrassing or sensitive multimedia taken of them at *Leavers* could end up on the Internet
- Had lower alcohol use estimates for their immediate peers as well as the average student at *Leavers*.
- Were less likely to agree that the same-gender average leaver used amphetamine, caffeine and ecstasy
- After removing respondents who were not sure if they were offered drugs other than alcohol during *Leavers*, main settlement residents were less likely to have been offered other drugs

5.2.9 Post-hoc test 9: Survey administration type

AOD intent (pre-Leavers survey)

In the pre-*Leavers* survey, 53% of the surveys were completed via an online form.

Respondents' intent to use alcohol and drugs other than alcohol were compared by survey administration modality.

There were no significant differences between modalities in alcohol quantity intentions (Mann-Whitney $U = 23995$, $z = -1.23$, $n = 456$, $p = .22$). However, it appeared that paper survey users were more likely to disagree they intended to use amphetamine, caffeine, cannabis, ecstasy and other drugs at *Leavers* compared to those who used the online form (see Table 76).

Table 76
**Intention to use drugs other than alcohol at Leavers by survey administration method
 (all pre-Leavers survey respondents)**

		Descriptives					
	Modality	Strongly agree	Agree	Undecided	Disagree	Strongly disagree	Total
Amphetamine	Online	4%	3%	12%	13%	68%	268
	Paper	5%	2%	4%	11%	78%	247
Caffeine	Online	31%	37%	14%	6%	13%	270
	Paper	28%	27%	15%	3%	27%	251
Cannabis	Online	9%	13%	16%	13%	49%	268
	Paper	5%	6%	8%	11%	69%	249
Ecstasy	Online	7%	4%	13%	12%	65%	266
	Paper	6%	1%	4%	8%	81%	249
Other drugs	Online	6%	2%	8%	14%	70%	258
	Paper	7%	1%	4%	6%	82%	201
Mann-Whitney U Test Statistics (difference in modality)							
	U	Z	Missing N	N	p	r ¹	
Amphetamine	29630	-2.62	26	515	.009	-0.12	
Caffeine	29403	-2.71	20	521	.007	-0.12	
Cannabis	25965	-4.90	24	517	.000	-0.22	
Ecstasy	27929	-3.92	26	515	.000	-0.17	
Other drugs	23175	-2.57	82	459	.010	-0.12	

¹ Effect size: .1=small, .3=medium, .5=large.

AOD use (post-Leavers survey)

In the post-*Leavers* survey, 14% of the surveys were completed via an online form. There were no significant differences between modalities of administration in the quantity of alcohol respondents consumed at *Leavers* (Mann-Whitney $U = 5632$, $z = -1.88$, $n = 348$, 24 missing, $p = .06$). Also, it appeared there were no significant modality differences in the use of drugs other than alcohol at *Leavers* (see Table 77). Where appropriate, survey modality has been controlled for in multiple linear and logistic regression analyses in the results chapter.

Table 77
Other drug use by survey administration method

Drug	Modality	Descriptives				Total Count	Chi-Square test for independence (comparing modalities)				
		Drug used at Leavers		Count	%		Value	df	p		
		No	Yes								
Count	%	Count	%	Count							
Amphetamine ¹	Online	36	92%	3	8%	39	Continuity Correction	0.19	1	0.67	
	Paper	271	89%	35	11%	306	Fisher's Exact			0.60	
							Missing N N Phi	60 345 .038			0.48
Caffeine	Online	18	46%	21	54%	39	Continuity Correction	.000	1	1.00	
	Paper	145	47%	165	53%	310	Missing N N Phi	56 349 -.004			0.94
Caffeine used with alcohol ¹	Online	8	44%	10	56%	18	Continuity Correction	3.11	1	0.08	
	Paper	29	22%	102	78%	131	Fisher's Exact			0.08	
							Missing N N Phi	37 149 .168			0.04
Cannabis	Online	32	84%	6	16%	38	Continuity Correction	.000	1	1.00	
	Paper	261	85%	46	15%	307	Missing N N Phi	60 345 -.007			0.90
Ecstasy ¹	Online	35	90%	4	10%	39	Continuity Correction	.032	1	0.86	
	Paper	268	87%	39	13%	307	Fisher's Exact			0.80	
							Missing N N Phi	59 346 .023			0.66
Other (than the above) drugs ¹	Online	37	100%	0	0%	37	Continuity Correction	1.14	1	0.28	
	Paper	271	94%	16	6%	287	Fisher's Exact			0.23	
							Missing N N Phi	81 324 .082			0.14

Note. The continuity correction value and significance value are used for 2 x 2 tables.

¹ The tests for these drugs have one cell (25%) that have an expected count less than 5, so the Fisher's Exact Test p value was used to determine the significance for these tests.

Summary of post-hoc test 9

There were no significant differences between respondents who used the online survey compared to the paper survey in intended alcohol use and actual alcohol use at *Leavers*.

Respondents using the online survey were more likely to agree they intended to use amphetamine, caffeine, cannabis, ecstasy and other drugs at *Leavers*. However, after the celebrations, there was no significant difference in the use of drugs other than alcohol by survey administration method.

5.3 Summary of risk factors for increased AOD use

A variety of risk factors for increased alcohol and other drug use at *Leavers* were identified throughout the data descriptions chapter, hypothesis and post-hoc testing. Some risk factors have been examined simultaneously within a linear or logistic model (e.g. in post-hoc test 1). Below is a list of risk factors that while not included in the same statistical model, were identified as some way associated with greater AOD use at *Leavers*. For further information, the hypothesis (H) or post-hoc test number is included after the identified risk factor.

Risk factors for alcohol and other drug use at *Leavers*:

- Being male (see data descriptions chapters and linear/logistic regression models)
- Having a pre-*Leavers* history of higher levels of alcohol use, and use of amphetamine, caffeine, and an illicit drug (H3)
- Having greater intent to use alcohol and illicit drugs at *Leavers* (H4)
- Experiencing conditions at *Leavers* that were more conducive to AOD use (H5)
- Having normative standards of heavy use, such as higher estimations of peer alcohol use and other drug use (H6)
- Being neutral (as opposed to agreeing) about having discussed harm minimisation strategies with parents (H7)
- Having parents who approve of drinking more than four standard drinks in a single sitting at *Leavers* (H7)
- Having discussions about drugs other than alcohol with parents (H8)
- Less frequent use of harm reduction strategies (H8)
- Going to Rottnest Island for *Leavers* (compared to being at a regular social

event) (H1 and H2)

- Higher alcohol use quantities correlated with the use of drugs other than alcohol (caffeine, amphetamine, cannabis or ecstasy), illicit drugs, and using caffeine in conjunction with alcohol (Post-hoc 3)
- Reporting a greater number of drinking hours (Post-hoc 6)
- Residing in the Geordie Bay region during the celebrations (Post-hoc 8)

Chapter 6: Discussion

In the literature review, it was identified that school leavers' celebrations is an event with a reputation for heavy AOD use and there was a lack of quantity specific documentation on this behaviour. To further the documentation of AOD use and associated consequences, Triandis' theory of interpersonal behaviour (TIB) guided the investigation into the predictors of the AOD use.

The hypotheses aimed to explain the population level effects of the *Leavers* environment as well as individual variation in AOD use. This individual variation was summarized through the three main influences on behaviour identified by the TIB: intent, habit and AOD-conducive conditions.

This final chapter is divided into three parts. Firstly, summaries and interpretations of hypothesis testing are discussed in relation to other studies. These findings are then integrated within the underpinning theoretical framework. Secondly, the strengths and limitations of this study are determined. Lastly, the implications and recommendations resulting from this research are considered.

6.1 Documenting AOD use prevalence and quantities

One of the main aims of this study was to document levels of AOD use at Rottnest Island *Leavers*. As this aim related to monitoring and did not have a specific hypothesis associated with it, a summary of the prevalence and quantity estimates are presented here and discussed in relation to the existing literature.

6.1.1 Alcohol

Proportion of alcohol use

The clear majority (93%) of respondents used alcohol at *Leavers*. This high proportion is comparable to the rates of alcohol use found in other *Leavers/Schoolies* studies. In 2009, 90% of celebrating young people had used alcohol in the last seven days of Gold Coast's (GC) *Schoolies* (DRUG ARM Australasia, 2011; Grove, 2010). Similarly, in 1996, 90% of Queensland schoolies used alcohol in the past 24 hours (Zinkiewicz, et al., 1999). More locally, in 2007, only 3% of Rottnest Island (RI) leavers considered themselves a non-drinker at the celebrations (Summerfield, 2007a).

Proportion of risky alcohol use

The majority of leavers - 92% of males and 81% of females, reported they consumed more than 4 standard drinks on an average day at the celebrations. That is, most leavers drank above the current NHMRC guidelines for low risk alcohol use in adults. In comparison, Josiam et al. (1998) reported that 91% of males and 78% of females had at least one 'binge' drinking episode in the previous day at Spring Break. They defined a 'binge' as the consumption of five/four or more 'drinks' by males/females in the previous day (9am-6pm) or previous night (6pm-2am).

More extreme levels of risky drinking were identified than in the 2007 RI Drug Arm survey. In 2007, a third of RI leavers stated that they consumed '11 or more drinks in a row' during their time at the celebrations (Summerfield)⁵. In

⁵ N=209, 21% ≥18 years of age. Although it is not clear what sampling technique was used, it is assumed that clients who presented to their sobering up facilities were not targeted as the survey sample size was greater than the client number (42) for the same year (Summerfield, 2007b).

comparison, more than half (56%) of this study's drinking leavers reported consuming 11 standard drinks or more on an average *Leavers* day. This study's higher proportion of more extreme levels of alcohol use can likely be attributed primarily to differences in survey methodology. For example, the Drug Arm survey provided four response category options for the quantity consumed on any one occasion – the highest quantity category being '11 or more drinks in a row'. Potentially, respondents may have been deterred from endorsing the most extreme category, especially in light of the survey administrator's current and historical association with the promotion of a drug-free lifestyle (Drug Arm, 1986; Drug Arm WA, 2011). In comparison, this study's open-ended response option would theoretically reduce anchoring effects.

Additionally, the 2007 RI and the Spring Break respondents were asked about the number of 'alcoholic drinks' and 'drinks' they consumed and not the number of 'standard drinks'. Respondent definitions of the term 'alcoholic drink' are likely to vary, especially in the absence of a visual guide (Devos-Comby & Lange, 2008).

Quantities of alcohol use

Using the standard drink response method and averaging alcohol use across the three 2009 RI *Leavers* days, males were estimated to have consumed 17.05 standard drinks per day, and females 11.44 standard drinks per day. Quantity specific estimations of youth alcohol use at distinct celebrations are relatively uncommon, but some data are available in relation to Spring Break.

In the most recent study which published quantity specific estimates of alcohol use during Spring Break, 3,720 US college students were surveyed. Amongst the 16-28% of respondents who vacationed with friends during Spring Break, an average of 30.3 'drinks' across 4.1 drinking days was consumed (Grekin, et al., 2007). A 'drink' in this study was defined using a series of examples of beverage types and volumes that equated to approximately 14 grams of alcohol per drink (National Institute on Alcohol Abuse and Alcoholism (NIAAA), 2011). That is, the students consumed an average of 424 grams of alcohol, or 42.42 Australian standard drinks,

over 4.1 days. Spring Break refers to a vacation period which is popularly synonymous with holidays to beachfront 'party' destinations with peers. However, trips undertaken during the period can also include lower-risk destinations such as the homes of the student's parents; and other studies have found that going on a trip in itself during Spring Break isn't necessarily a risk factor for experience of alcohol related consequences (Lee, Lewis, & Neighbors, 2009). Grekin et al. did not collect information on the destination and intentions of these vacations with peers – so these trips could have included volunteer-work, locations with sedate reputations, or destinations associated with the 'party' lifestyle.

As the specific destination and intentions for a holiday have consequences for AOD-related behaviour, a study conducted in a popular Spring Break destination (Panama City Beach, Florida) by Smeaton, Josiam and Dietrich (1998) is discussed below. Smeaton et al.'s data were collected under conditions similar to the current study in that the young people were on a pleasure holiday with their friends and at a self selected destination with a 'party' reputation. Of the 783 celebrating students, males were estimated to have consumed a mean of 18 drinks and females a mean of 10 drinks 'yesterday' at the celebrations (Smeaton, et al., 1998)⁶.

The average alcohol use per *Leavers* day did not appear to be substantially different to Panama City Beach Spring Break estimations (17.05 vs. 18 for males, and 11.44 vs. 10 for females). They do, however, suggest some convergence in drinking rates between the genders (Graham, et al., 2011). Despite the difference in mean ages between the samples – 17 for the leavers and 20 for Spring Breakers, the similar consumption quantities can perhaps be explained in terms of general alcohol use patterns between the countries and the different legal drinking/purchase ages. Firstly, both Australian adults and adolescents report consuming more alcohol than their American equivalents (McMorris, et al., 2011; Teesson, et al., 2006; Toumbourou, et al., 2005). This suggests that although quantities of alcohol consumption tend to increase throughout adolescence, it is possible a younger Australian cohort may be consuming similar levels to an older American group.

⁶ Josiam et al. used the same field data as Smeaton et al., so the prevalence of risky drinking was high in both studies (Josiam, et al., 1998; Smeaton, et al., 1998).

Secondly, the legal purchase age in the USA is higher at 21, compared to Australia's purchase age of 18 (Teesson, et al., 2006). The legal purchase age is associated with a downward effect on the drinking frequency of adolescents under the legal age (Hingson, 2009), meaning it is possible a cohort of young people a single year below their countries' respective drinking age are somewhat comparable.

Of note is that in Smeaton et al.'s study, the maximum number of drinks able to be reported on the questionnaire was 'more than 12' for each of the two assessed sessions (the previous day [9am-6pm] and night [6pm-2pm]). That is, respondents could report consuming a maximum of 24 drinks in 17 hours. This maximum of 24 is quite close to the average male's consumption of 18 drinks 'yesterday'. It is possible that if the criteria of maximum number of drinks and drinking hours were the same as this study's (50 standard drinks over 24 hours), Smeaton et al.'s averages could have been even higher. Furthermore, although the definition of 'drinks' was left undefined by Smeaton et al., if the students used official US definitions⁷ to aid their consumption estimates, their 'drinks' would likely reflect a greater volume of alcohol than an Australian standard drink. That is all to say, although the high leavers averages might appear implausible, they are consistent with other estimates made within the body of youth-centred holiday literature.

6.1.2 Drugs other than alcohol

During the 2009 RI celebrations, 53.1% of leavers used caffeine, 15.0% cannabis, 12.4% ecstasy, 11.0% amphetamine and 4.9% other drugs. One fifth (20.5%) used at least one illicit drug (amphetamine, cannabis or ecstasy). Statistics on drug use from the same location (RI) are available for the 2007 celebrations, and from same fieldwork year (2009) from Gold Coast *Schoolies*.

2007 Rottnest Island statistics

In the RI 2007 *Leavers* survey, 3% of attendees reported using amphetamine, 4% cannabis, and 5% ecstasy (Summerfield, 2007a). Twenty-six to 45% of respondents

⁷ The US definition of a 'standard drink' is a beverage which contains 12 (Kaskutas & Graves, 2000; Miller, Heather, & Hall, 1991) to 14 grams of pure alcohol (International Centre for Alcohol Policies (ICAP), 1998; National Institute on Alcohol Abuse and Alcoholism (NIAAA), 2011)). In comparison, the Australian standard drink is defined as containing 10g of alcohol (National Health and Medical Research Council (NHMRC), 2009).

reported caffeine use (a range of estimates presented due to ambiguity in reporting). These proportions are lower than those obtained from 2009 (53%) and it is possible the response rate to the other drug section of the 2007 survey (45%; n=74) contributed underreporting of other drug use. In comparison, for the discussed drugs, the 2009 response rates were all above 85%. Also, it is unknown whether Drug Arm's historical roots within the temperance movement, current promotion of a drug-free lifestyle, and involvement in *Leavers* providing an AOD recovery service had any reactivity effect on the responses to the survey (Drug Arm, 1986; Drug Arm WA, 2011).

2009 Gold Coast Schoolies

For the past 11 years, the Queensland branch of Drug Arm have been running an AOD and risky behaviour focused survey at Gold Coast (GC) *Schoolies*. As the latest official publication using the dataset occurred in 2005, the statistics presented here from the 2009 celebrations were obtained from a presentation made during a *Leavers* related symposium in 2011. This set of statistics are the most drug specific and reliable available on school leavers' celebrations, especially with regard to more recent data.

There appear to be some discrepancies between earlier (Grove, 2010) and more recently obtained (DRUG ARM Australasia, 2011) versions of the 2009 GC *Schoolies* dataset. The more recent version is described here as the presented statistics cover a more complete range of drugs and the prevalence rates are substantially more similar to the published findings from the 2003 findings from the GC (Salom, et al., 2005)⁸ and this current study's findings. Also, the more current version differentiates between 'schoolies' and 'non-schoolies' – the 'schoolies' sample being more comparable to this study's sample comprised entirely of 'genuine' leavers.

In the last 7 days of 2009 GC *Schoolies*, 21.2% of genuine schoolies reported they had used cannabis, 3.1% had used amphetamine, 4.5% cocaine, 9.0% ecstasy

⁸ The more recent 2009 statistics and 2003 GC rates are similar especially in terms of amphetamine, cocaine and LSD use. For example, the earlier version of the 2009 GC statistics presented a LSD prevalence rate of approximately 9%. This is substantially higher than percentages presented from the more recent GC version of 2009 statistics (<4%) and the published 2003 GC dataset (2%).

and 3.3% LSD (DRUG ARM Australasia, 2011). In comparing the three drugs that were common to both the GC and RI surveys, while there are clear differences in prevalence rates the findings were 'ball park' similar between the regions. Cannabis was reportedly used by 21% of GC schoolies and 15% of WA leavers; 9% of schoolies used ecstasy compared to 12% of WA leavers; and amphetamine were used by 3.1% of the GC sample and 11% of the WA sample. Statistical testing was not undertaken to determine whether differences between regions were statistically significant. However, possible explanations for differences are described below in terms of survey design and broader trends within the respective jurisdictions. Note that each set of results are cross-sectional, subject to fluctuations within the geographical area, and may or may not be representative of wider trends within the region.

The rates of cannabis use appeared to be slightly higher on the GC than WA (21% vs. 15%). Of note is that during non-celebration times, 7% of both QLD and WA 16-17 year old students used cannabis in the week prior to the survey (DAO WA, 2007b; Queensland Health, 2007)⁹. It is possible that the higher rates of cannabis use in QLD are in part attributable to a larger influx of non-local 'party' seeking young people (later discussed).

The rates of ecstasy use at school leavers' celebrations (9% at the GC and 12% on RI) are roughly comparable. Again, usual rates of ecstasy use appeared to be similar between local QLD and WA 16-17 year old students (use in last week: 2% in QLD, 1.1% in WA; lifetime use 6% in QLD and 7% in WA). However, as these usual rates of use relate to surveys conducted in 2005, the supply/use situations may have changed in one of, or both regions. There does not appear to be an obvious reason as to why there was a slightly higher rate of ecstasy use amongst the RI respondents.

⁹ At the time of writing, the most recent (2008) ASSAD results were not available for Queensland, so rates of drug use in the year of 2005 was compared between WA and QLD. As mentioned in the literature review, Australian jurisdictions are not generally compared to one another in ASSAD results so whether the small observed differences are statistically significant (and indicative of wider state based trends) is unknown. Of note is that Schoolies is held in the GC region, which may be significantly different in usual rates of use compared to a QLD wide sample. Also, despite the use of ASSAD data, a significant portion of GC schoolies do not originate from Queensland, and so would not have been represented in the QLD ASSAD.

However, as the RI is a small, confined location, and illicit drug use appeared to some degree opportunistic, the peak may have reflected a unique supply situation. That is, a number of social groups may have had greater access to ecstasy on RI and as the total population was modest, the prevalence of ecstasy use may have been increased by the one-off swell in availability amongst these users.

Lastly, the most apparent difference in drug use between the regions was in amphetamine use. The prevalence in WA (11%) appeared to be substantially higher compared to at the GC (3%). However, this jarring discrepancy is likely explained though the inclusion of dexamphetamine and other prescribed stimulants in the category of amphetamine. About two thirds of amphetamine use among WA 17 year olds is through the form of dexamphetamine (DAO WA, 2010b), with past studies finding rates of prescription and illicit use higher in WA than elsewhere within Australia (Buckmaster, 2004; Green & Moore, 2009). As detailed in the literature review, this overrepresentation of stimulant prescription in WA appeared to remain the case in 2009 at the time of data collection. Thus, the discrepancy between the states' amphetamine use were likely due to the greater use of prescribed stimulants such as dexamphetamine at the WA celebrations. As the clear majority of the *Leavers* respondents originated from WA, this amphetamine use likely characterised not only their school leavers' celebrations, but also their 'usual' drug using patterns.

Several issues are relevant in comparing 2009 RI and 2009 GC statistics. Firstly, and most simply, the reference period for other drug use was longer in the GC study – 7 days versus the 3 at *Leavers*. A longer celebration period possibly presents an opportunity for the use of greater quantities and varieties of AOD.

Secondly, the supply situation for illicit drugs is possibly more restricted on RI compared to the GC. The majority of the leavers arrive on RI via ferry. It was publicised and observed by the research team that in 2009, drug sniffer dogs were present at the ferry terminal and bag searches would be conducted for alcohol/other drugs. In comparison, the GC's supply routes are more open and it is assumed the city possesses a well-established drug supply network as the area would have a demand for drugs during non-*Schoolies* times.

Lastly, it is possible that GC as a destination in general has a reputation as a place to go 'to party'. The GC serves as the 'national host' to *Schoolies* with thousands of celebrating students arriving from around Queensland, New South Wales and Victoria (L. Montague, general manager of QLD Schoolies, personal communication, May 9, 2011). It is possible that young people motivated to travel significant interstate distances, to the premier Schoolies celebration, hosted by a city known for "undiluted pleasure" (L. Montague), are motivated at least in part, by the city's 'party reputation' and opportunity to indulge in heavy AOD use. Smith and Rosenthal found that residents of NSW and VIC were more likely to expect to get drunk most-all days or nights and stoned most-all days or nights at *Schoolies*, compared to QLD residents. Similarly, being a VIC resident was associated with a significantly higher likelihood of reporting being drunk most-all days or nights, and being stoned most-all days or nights at *Schoolies* compared to QLD residents (Smith & Rosenthal, 1997). In US Spring Break travel literature, those motivated to travel due a destination's 'party reputation' consumed significantly more alcohol than those with other motivations (Josiam, et al., 1998). In this study's post-hoc test 7, a similar result was found with respondents attending *Leavers* to 'party/get drunk' intended to consume significantly more alcohol¹⁰. Thus, it remains possible that young people motivated to travel long distances to the largest *Schoolies* celebration include those with a strong motivation to 'party' and engage in riskier behaviour. For many young people, the term 'party' is synonymous with episodic drinking (Benton, et al., 2008).

Self-section of Leavers attendees

In addition to comparing prevalence rates across regions, importantly, there is substantial evidence of self-selection occurring amongst those who attend all school leavers' celebrations. In 2009, there were 21,561 WA students enrolled in year 12, and 19,080 successfully graduated (Wood, 2010). In comparison, less than 10,000

¹⁰ Responses to the item 'what is the most important reason you want to attend *Leavers*' from the pre-*Leavers* survey, may be influenced by a school talk given by various support agencies. In the Office of Crime Prevention presentation guide used by speakers, it is stated "the main reasons why young people celebrate *Leavers* is to relax, socialise and celebrate" (DAO WA, 2005). Although these reasons are in line with what has previously been found at the celebrations (Bogaards, et al., 2000; Smith & Rosenthal, 1997), recall of school presentation content may be influencing the participant's responses to the aforementioned item.

students usually attend *Leavers* celebrations across WA (Murphy, et al., 2006); L. Clack, personal communication, May 9, 2011). That is, only about half of all year 12 graduates opt to attend *Leavers*, with a subsection of these students attending a 'hot spot'.

It is likely that students attending *Leavers* represent a sub-population different to the larger graduating sample. It has been previously documented that students who use alcohol more frequently are more likely to attend *Leavers/Schoolies* or Spring Break than their non-drinking counterparts. Gillespie, Davey and Steadston reported that of the students not intending to attend Queensland *Schoolies*, 54% were non-drinkers and 29% were drinkers (Gillespie, et al., 1990). In 2006, Smith found that Perth students who drank more frequently were more likely to intend to attend *Leavers* (Smith, 2006). Similarly, research focused on Spring Break celebrations found that heavy drinking American college students were more likely to go on a vacation with friends during Spring Break than their lighter drinking counterparts (Grekin, et al., 2007; Lee, et al., 2006). Typically heavier drinking young people may seek out opportunities for more drinking at events such as *Leavers* which have a reputation for heavy drinking (Lee, et al., 2009). Self selection also appears to occur at the parental level. Of the Perth respondents that did not intend to go away for *Leavers*, 19% cited parental influences as a reason for not attending (Smith, 2006). Similarly, in an older study, 15% of QLD parents did not allow their child to attend *Schoolies* (Gillespie, et al., 1991).

Survey methodology

Two survey methodology related findings are of note to the previously described prevalence and quantity estimates: alcohol quantity estimation and survey modality.

Firstly, the alcohol quantities presented above, though substantial, are likely underestimations. The estimations were made using the standard drink response method, which as demonstrated in *post hoc* test 2 and consistent with the existing literature (Stockwell, et al., 2004), generate lower approximations than the beverage specific response (which provide more accurate data at the cost of lower response

rates).

Secondly, the surveys were presented in two modalities: using a paper and online form. In post-hoc test 9, modality did not appear to have an effect on reports of alcohol use intent or use at *Leavers*. However, respondents using the paper pre-*Leavers* survey were more likely to disagree that they intended to use amphetamine, caffeine, cannabis, ecstasy and other drugs at the celebrations. This result is in line with existing literature which suggests more sensitive information (such as illicit drug use) is potentially more likely to be divulged when using an online survey compared to a paper survey equivalent (Eaton, et al., 2010 ; Turner, et al., 1998; Vereecken & Maes, 2006). No modality effect was detected in reports of eventual other drug use at *Leavers*. However, due to the smaller sample size of the online respondents (14%), the lack of significance could be due to lack of statistical power.

6.2 Interpretation of hypothesis testing

6.2.1 H1 & H2: AOD use at Leavers and non-Leavers social events

Large-scale Australian youth surveys, such as the Australian School Student Alcohol and Drug Survey (ASSAD), commonly assess AOD use over the 'last week' as a proxy for 'usual' rates. However, this last week period does not necessarily include a 'party' or social event which is a context associated with heavier AOD use (King, et al., 2005a). Furthermore, the existing literature suggests that those who attend school leavers' celebrations are more likely to be heavier drinkers than graduating students who do not attend such events (self-selection). While ASSAD rates are referred to below, differences between the rates and those from *Leavers* were not statistically tested. Any resulting differences could be attributed to fluctuations over data collection years, differences in sampling methodology, the self-selection of this study's sample and/or the 'party' context. Instead, *Leavers* use was compared to behaviour at the last event attended with friends for greater control over the aforementioned variables. Thus, both *Leavers* and last event contexts were social and peer-based, and assessed a similar subset of young people that had self-selected as intending to/attended the end of year celebrations.

Hypothesis 1 and 2 proposed that the proportion of respondents that would use AOD, and the quantity of AOD they would use, would be greater between the contexts of *Leavers*, and a non-*Leavers* peer-based celebratory event. These hypotheses were supported with respect to alcohol use. A greater proportion of respondents drank at *Leavers*, and they drank approximately five standard drinks more on an average day at the celebrations compared to at the last event. Only one drug other than alcohol, ecstasy, was used by a greater proportion of respondents on days 1 and 3 of *Leavers* (~8%) compared to at the last event (4%). There was one significant other drug quantity finding, with greater quantities of caffeine used during *Leavers*.

This section demonstrates that the celebrating students' AOD behaviour at *Leavers* was different to their usual social event patterns. Their greater use was

associated with the 'holiday effect' and population-wide factors such as the greater number of hours available for AOD use at *Leavers*.

Alcohol use between contexts

As anticipated, a greater proportion of young people reported alcohol use during *Leavers* (~88%/day), compared to at the last social event attended (78%), and the ASSAD's 'usual' rates of alcohol use (33%) by 17 year olds in the last week (DAO WA, 2010a).

This greater use at *Leavers* compared to the last event is consistent with situational disinhibition/holiday effect (Lee, et al., 2006; Smith & Klein, 2010; Sonmez, et al., 2006). Holiday-associated increases in both the proportion of drinkers, and the quantity of alcohol consumed per 'session' were detected (Del Boca, 2004; Greenbaum, et al., 2005; Neighbors, et al., 2006; Patrick, Morgan, Maggs, & Lefkowitz, 2011). The increase in the proportion of drinkers at *Leavers* potentially reflected the greater expectation for AOD use at the celebrations (further discussed as a part of the interpretation of hypothesis 5 and 9). Even self-described 'non-drinkers' reported having consumed alcohol at school leavers celebrations (Summerfield, 2007a; Zinkiewicz, et al., 1999).

In post hoc test 6, it was determined that drinking hours were strongly correlated with quantity of alcohol consumed, and that the mean number of hours alcohol was consumed over was significantly higher at *Leavers* than at the last event. As the drinking rates (standard drinks per hour) appeared similar across contexts it is possible that the longer hours available at *Leavers* to some extent accounted for the population-wide increases in alcohol quantity. The drinking hour survey data was supported through observation of imbibing that spanned most of the day. This study's field workers observed that drinking generally began in the mid afternoon around 3pm and focus group respondents reported commencing drinking even earlier, in the morning. Similarly, in their participant observation of the 2001 Margaret River celebrations, Midford and others found that most drinking began in the afternoon with a minority of leavers leaving their drinking until the evening (2002).

This 'drinking hours' explanation that greater quantity of alcohol used per day at *Leavers* is in part due to the greater number of drinking hours has face validity. There are studies showing that greater drinking hours are associated with greater alcohol consumption (Chikritzhs & Stockwell, 2002). Currently, WA *Leavers* support services cite the reduction of drinking hours as a reason for the provision of daytime activities at the celebrations (2008, 2009 and 2011 *Leavers* planning conferences, personal communication).

Drugs other than alcohol between contexts

The differences between last week, 'social event' and *Leavers* use of drugs other than alcohol were less pronounced when compared to alcohol use (see Table 78).

Table 78
Use of AOD in any one week, the last event and at Leavers

	ASSAD ^a	Last social event	Leavers (an average day)	Leavers (any one day)
Alcohol	33.3%	78.1%	91.8%	92.5%
Amphetamine	4.7%	5.7%	5.9%	11.0%
Cannabis	6.3%	9.8%	8.7%	15.0%
Ecstasy	3.6%	3.6%	7.7%	12.4%
An illicit drug ^b	9.9%	13.0%	14.0%	20.5%

Note. Percentages reflect both unpaired and paired respondents.

^a Use by WA 17 year olds in the past week in 2008 (DAO WA, 2010).

^b An illegal drug as defined by the ASSAD includes: cannabis, ecstasy, cocaine, amphetamine, opiates and hallucinogens. In the *Leavers* surveys, an illicit drug includes: amphetamine, cannabis, and ecstasy.

Interestingly, the use of most other drugs at the last event and *Leavers* appeared only slightly higher than rates from any 'usual' week (as assessed by the ASSAD). When comparing use of drugs other than alcohol at the last event and on each *Leavers* day, only one drug yielded a significant difference. Amongst paired respondents, ecstasy use was significantly higher in day 1 and day 3 of *Leavers* compared to the last event. The reported prevalence of ecstasy¹¹ use at *Leavers* was roughly twice that of the last social event. Also, though the proportions of caffeine users in both contexts appeared similar, the quantity of caffeine used appeared to be higher at *Leavers*. It is possible that the greater quantities at caffeine used was related to its anti- soporific effects. Namely, at longer-duration events such as *Leavers*, caffeine could be used to sustain more waking hours for activities such as socialising

¹¹ It is acknowledged that what respondents refer to as 'ecstasy' may or may not contain MDMA, as tablet constituents fluctuate by season and region (Parrott, 2004; Pillreports.com, 2011).

and drinking.

In this section, the greater prevalence of ecstasy use at *Leavers* is discussed. Of note is that, an increase in the specific use of ecstasy at a holiday destination has been previously documented. An examination of the wider field of 'holiday' research reveals that respondents who travelled to Ibiza (mostly for a 1-2 week period) were less likely to have used most drugs (except alcohol, tobacco and ecstasy) during their trip than over the previous 6 months at home in the UK (acknowledging that travel to a foreign country might militate against certain forms of drug use due to fear of consequences, not knowing where to purchase etc.). That is, the likelihood of use of ecstasy was similar in a 6 month period at home as it was in a 1-2 week period on holidays. Also, although a similar proportion of holidaymakers used ecstasy at Ibiza, the frequency of use increased dramatically with the proportion of ecstasy users that used five or more times a week increasing 15 fold whilst at Ibiza (Bellis, et al., 2000).

Although the reasons for this higher ecstasy use were not specifically examined in this study, in the following section, a number of speculations are made. Firstly, it is possible that ecstasy's effects of increased 'cheer and chatter' and remaining awake for longer, aid what is regularly cited as the main positive aspect of *Leavers*: to socialise with peers (Hansen, Maycock, & Lower, 2001; Midford, et al., 2004; Walton, 2001). Secondly, the anti-soporific effects of ecstasy may have had greater utility at *Leavers* than at the last event (which was of shorter duration). Furthermore, with 78% of the 238 'registered leavers' (leavers representative) for each RIA unit, originating from single-gender high schools, ecstasy may have also facilitated an opportunity to socialise with other young people of the preferred gender (Marcia Czerniak, personal communication, February 15, 2011).

Compared to the use of cannabis (the most commonly used illicit drug), ecstasy may have been easier to conceal and to use without detection from authorities. In a NSW based review of drug detection dogs, cannabis was the most frequently found drug by authorities. However, it is unknown whether this detection rate was due to cannabis being easier to detect (e.g. due to its strong odour or larger volume) or simply because it's the most frequently used illicit drug in

Australia (Dunn & Degenhardt, 2009; NSW Ombudsman, 2006). That is to say, ecstasy may have been bought to use at *Leavers* for pragmatic reasons associated with ease of concealment.

Also, anecdotally, *Leavers* can be a place for initiation, for example, with a group of female focus group respondents describing the way they planned to use ecstasy for their first time at *Leavers*. Their ecstasy use was described as something agreed upon between peers prior to the celebrations as a 'one-off' experience with the celebrations as a chosen context for use "cos [because] it was leavers". The mixture of different social groups on the island may have also increased an individual's exposure to groups where other drug use is more/less acceptable. Of minor note is that ecstasy use was greater on day 1 and 3 compared to the last event, but not 2. This pattern may have been related to day 1 and 3 being respectively the first and last days of a celebration period where expectations for risky use may have been higher. In addition to these suggestions, the greater ecstasy use may have been due to some unknown specific feature of the sampling frame or other unknown reasons.

The absence, however, of larger magnitude changes in other drug use (other than caffeine quantity and ecstasy) between the last event and *Leavers* contexts are mostly unsurprising due to the lower frequency of use of illicit drugs, especially in this age group (AIHW, 2008; DAO WA, 2010a). These typical rates of substantially greater alcohol use compared to illicit drug use are reflected in the distinction between the expectations for use of alcohol compared to drugs other than alcohol at *Leavers*. While 23% of the pre-*Leavers* respondents expected to feel pressured to use alcohol at *Leavers*, only 7% expected to feel pressured to use drugs other than alcohol.

Of note is that these comparisons in AOD use between contexts may be affected by a demand characteristic or a recency effect. Firstly, participants may have been motivated to report they drank more at *Leavers* compared to last event, to fulfil the expectation of heavy drinking at *Leavers*. However, as these behaviours were assessed in different surveys, this effect is likely minimised. Secondly, as reports on the last event occurred less quickly after the event compared to after

Leavers, the last event use may have been underestimated. Any recency effect was likely of minimal impact however, as the majority of the pre-*Leavers* respondents attended their last event one week or less ago prior to survey completion.

Literature documenting illicit drug use at 'usual' rates and during holiday periods using a matched sample is limited (with heavy alcohol use usually serving as the main focus). This study appears to be the first that has collected information using a paired sample to compare rates of illicit drug use at *Leavers/Schoolies/Spring Break* and during non-celebration times.

6.2.2 H3: AOD use experience and AOD use at *Leavers*

Hypothesis 1 and 2 testing established that the *Leavers* context was associated with population-level increases in alcohol and ecstasy use, and the quantity of alcohol and caffeine used. Hypothesis 3 proposed that on an individual level, variation in AOD use at the last event would predict variation in AOD use at *Leavers*.

The hypothesis that AOD use at *Leavers* would be significantly positively associated with pre-*Leavers* AOD use at celebratory events was supported with four out of six assessed drugs. Significant associations were found with levels of alcohol use, the use of amphetamine, caffeine and illicit drugs; but not with caffeine used with alcohol and cannabis. Testing controlled for gender, accommodation location and survey administration modality. The lack of significant findings with caffeine used with alcohol and cannabis may be due to lack of statistical power. A smaller sample size was obtained as the tests required paired samples and variation in the dependant variable (use of the drug) was limited as drugs other than alcohol were used in lower frequencies.

The significant associations are evidence that prior use (quantity or use *per se*) are generally good predictors for future behaviour (Smith & Rosenthal, 1997). Similarly, Lee, Lewis and Neighbours found a significant positive correlation ($r=.53$ amongst females and $.64$ for males) between typical alcohol use (the number of drinks consumed per typical week) and the total number of drinks consumed during Spring Break (Lee, et al., 2009). Evidence for the 'spillover' of individual

AOD-use habits into *Leavers* behaviour were found in this hypothesis (3) as well as post-hoc test 1. Interestingly, in post-hoc test 1, habit is the only factor from the three main elements of the TIB which uniquely and significantly contributes to both the model predicting alcohol use at *Leavers* and the model predicting illicit drug use at *Leavers*.

6.2.3 H4: The impact of intent to use AOD on actual AOD use.

The hypothesis that intentions for AOD use at *Leavers* will be significantly positively associated with eventual use was supported in analyses of alcohol, caffeine, cannabis, ecstasy, an illicit drug; but not amphetamine use.

A high positive correlation ($\rho=.81$) was calculated between the quantity of alcohol paired respondents intended to consume and what they ended up consuming on an average day at *Leavers*. In comparison, in a meta-analysis of 48 studies, the mean correlation between intent and behaviour was .47 (Armitage & Conner, 2001).

These alcohol findings are in line with the TIB which posits that intent is the primary predictor of behaviour. Further supporting this proposition is the inclusion of intent in post-hoc test 1. Namely, intent was the variable that accounted for the greatest proportion of variance in the TIB model predicating levels of alcohol use.

Expression of intent to use significantly and uniquely predicted the use of caffeine, cannabis, ecstasy and the summary variable of 'any illicit drug' at *Leavers*, controlling for gender, location and survey modality. The lack of a significant result with amphetamine was possibly affected by the fact that there was insufficient variation in its use. Namely, all the respondents who agreed they intended to use amphetamine ended up using the drug.

Interestingly, although intent is a significant predictor for illicit drug use in this hypothesis test (4), it was not a significant factor in the TIB model predicting illicit drug use in post-hoc test 1. In the post-hoc test, only habit and conducive conditions significantly predicted illicit drug use at *Leavers*. Of note is that it appeared that 'intent' was associated with prior behaviour, with those who had

previously used illicit drugs, also more likely to agree they intended to use an illicit drug in the future (Spearman's $\rho = .43$, $n = 457$, $p = .0005$). So, when habit and intent were combined in the same model, due to the considerable correlation between the variables, the greater predictive utility of habit may have accounted for all the variance otherwise accounted for by intent.

So compared to alcohol use, illicit drug use at *Leavers* was likely more opportunistic in nature. Consistent with the notion that illicit drug use was more opportunistic as opposed to premeditated or intentional, are the findings related to the time at which AOD used at *Leavers* were obtained. More than a third (38%) of leavers obtained their alcohol prior to the celebrations but less than a fifth (19%) obtained their drugs other than alcohol before arriving on RI. Midford and colleagues (2004) found that many respondents in 2001 reported they obtained their drugs while on RI and that used was not planned in advance. In this study's focus groups, participants conceded they were reluctant to bring illicit drugs to RI as they were apprehensive about being searched by police for other drugs upon arrival on the Island. Searching for illicit drugs is publicised activity at various events, for example by the use of drug detection dogs. A male respondent explained: "... because everyone is all paranoid about Rottnest. That's the main thing. Like, that's why a lot of people don't bring large bits of alcohol. Like they think there's going to be cops with sniffer [drug detection] dogs and stuff ..." The respondent elaborated that "It's all the news reports ..." that made him worried about the searches. A female described her experience with police searches: "... the police before we got on the ferry, put their hands in all out suitcases and checked for stuff". In 2009, this study's researchers directly observed the use of at least four drug detection dogs in the vicinity of the RI ferry terminal.

An alternate explanation is that intent to use illicit drugs was not expressed in the pre-*Leavers* survey due to associated stigma, or to prevent admission of intent toward an illegal activity. However, since a substantial portion of the post-*Leavers* survey respondents did end up reporting the use of illicit drugs, it is likely confidentiality was of limited concern.

These varied findings in terms of whether intent significantly predicted

behaviour have also been found in other studies. For example, Sonmez et al. did not find a significant effect of intentions to 'binge' drink on heavier consumption at Spring Break (instead, situational expectations and pacts to get drunk, were significant predictors; 2006). Smith and Rosenthal found that expectations to get drunk and stoned at *Schoolies* were largely, though not completely, fulfilled. However, whether these other studies' expectations had predictive utility on an individual level is unknown as their logistic regressions predicting being drunk/stoned most-all nights, did not include expectations (Smith & Rosenthal, 1997).

6.2.4 H5: AOD-conducive conditions

The hypothesis that AOD use during *Leavers* will be significantly positively associated with exposure to conditions at *Leavers* that were conducive to/ facilitate AOD use was supported in six of the seven drugs that were assessed.

AOD-conducive conditions were conceptualised at two levels: population and individual. Population level AOD-conducive conditions had an effect on all leavers, for example, through the well established reputation for heavier alcohol use (discussed as a part of hypothesis 9), and having more time over which to use AOD. Individuals also experience different levels of AOD-conducive conditions producing individual level effects.

The models of hypothesis 5 controlled for gender, location and survey modality in assessing the influence of AOD-conducive conditions at *Leavers* on drug use. Greater experience of AOD-conducive conditions predicted greater alcohol quantities, and increased likelihood of use of amphetamine, caffeine with alcohol, cannabis, ecstasy and the use of any illicit drug at *Leavers*. Levels of exposure to AOD-conducive conditions did not significantly predict caffeine use. However, when combined with the other TIB factors (habit and intent), in post-hoc test 1, the contribution of AOD-conducive conditions was significant in modelling illicit drug use, but not for the quantity of alcohol use.

AOD-conducive conditions may have predicted illicit drug use, but not quantity of alcohol use for several reasons. Firstly, the significant impact of AOD-

conducive conditions in accounting for the use of all illicit drugs in H5 and in the TIB model in post-hoc test 1 may have reflected the opportunistic/context dependent nature of illicit drug use (previously described as a part of hypothesis 4). Also, there appeared to be differences in the perceived opportunities to use alcohol versus other drugs at *Leavers*. The clear majority (92%) agreed they had plenty of opportunities for using alcohol; in comparison, there was greater variation in other drug availability with only a quarter (27%) agreeing they had plenty of opportunities to use drugs other than alcohol. Furthermore, there was a clear distinction in perceived availability between those who did or did not use an illicit drug. A fifth (20%) of leavers that did not use an illicit drug agreed they had plenty of opportunities for using other drugs, whereas 61% of those who used an illicit drug agreed they had plenty of opportunities. As the availability and use of alcohol was almost universal, it is possible that the conditions conducive to alcohol use approached saturation point (and were of little predictive utility due to lack of variance). In comparison, the greater variance in other drug related responses may have explained why AOD-conducive conditions scores had utility in predicting illicit drug use.

Of note is that the results of post-hoc test 1 suggest the AOD-conducive context of *Leavers* had a greater influence than habit in accounting for illicit drug use. Respondents who experienced the most AOD-conducive conditions were 56 times more likely to use an illicit drug (compared to being in the least conducive condition); however, respondents were only 14 times more likely to report illicit drug use if they used an illicit drug at the last event (compared to those who had not used at the last event).

There are a limited number of situation-specific studies that have used the TIB to explain AOD use. In the most comparable study, Sonmez et al. found that situational expectations such as 'everyone will be drinking' were significant predictors of heavy drinking at Spring Break. They also found that 16% of respondents reported they used illicit drugs because everyone around them was using (Sonmez, et al., 2006). Similarly using the TIB, but in relation to another dependent variable, other research found that conditions at *Schoolies* which

facilitated casual sex had a stronger effect than habit on predicting whether casual sex was reported (Maticka-Tyndale et al., 2003). So, in the celebration context, the surrounding conditions do appear to have an effect on risky behaviour beyond that which is suggested by intent and habit.

In addition to the AOD-conducive conditions assessed by the scale and included in the TIB based statistical models, there were also other aspects of *Leavers* that served as facilitating factors. The population of leavers as a whole had a greater number of drinking hours available compared to other contexts. Also, the location of Geordie Bay appeared to be a more permissive environment for AOD use. In the following section, the Geordie Bay location as a riskier context is discussed.

Greater AOD use in Geordie Bay

There appeared to be a consistent trend in greater AOD use in the Geordie Bay region compared to the main settlement area. In post hoc test 8, Geordie Bay residents were found to drink greater quantities of alcohol, and be more likely to use amphetamine, caffeine with alcohol and ecstasy compared to main settlement residents. There are at least two possible factors that might contribute to these observations. Anecdotally, Geordie Bay has a reputation for heavier AOD use. This reputation would potentially have an impact on self selection of residents and/or by attracting people from all over the Island for parties during the celebration period. However, as the accommodation was randomly allocated, it is more likely that the riskier use in Geordie Bay related to comparatively less monitoring in the area. Informal observation and interview with RIA managers suggest lower support service presence, limited monitoring of the jetties (especially during night) and fewer diversionary activities held in the area. These results may further support current initiatives such as support service presence which are designed to alleviate riskier patterns of use.

Interestingly, being accommodated at Geordie Bay was associated with a greater likelihood of reporting amphetamine, ecstasy and the use of any illicit drug *while* controlling for other AOD-conducive conditions, gender and survey modality (H5). However, when combined with other factors in post-hoc test 1,

accommodation area did not significantly predict alcohol quantity or illicit drug use. It is possible that the influence of Geordie Bay extended beyond what was captured in the AOD-conducive conditions summary scale. It is possible these effects were only detected using the larger sample sizes of hypothesis 5 ($n > 270$), but not when a smaller sample was used in post-hoc test 1 (< 104). Alternately, the effects of location may have in some way been accounted for by the other factors in the TIB model.

6.2.5 H6: Peer AOD use

Hypothesis 6 was supported as intentions towards, and reports of AOD use at *Leavers* were significantly positively associated across the three reference groups of respondents, their peers and the 'average leaver'.

Alcohol

Consistent with other literature, the correlations between personal alcohol use and peer use were higher, compared to correlations between respondents and their more distant reference group, the typical same-gender leaver (Korcuska & Thombs, 2003). Differences in group estimations are usually greater as social distance increases (Yanovitzky, Stewart, & Lederman, 2006), and these discrepancies are referred to as the social distancing effect (Agostinelli, et al., 2003). The most common research pattern reported is that personal use is estimated as lower than peer use which is less than that of the typical student (Beck & Treiman, 1996; Berkowitz, 2004; Korcuska & Thombs, 2003). In this study, the relationship between personal and peer/'average leaver' alcohol use estimates differed by gender. The 'archetypical' relationship was largely demonstrated with female leavers. Females intended to, and appeared to have consumed less alcohol compared to female peers and the average female student. However, peers and the typical female were not estimated to have consumed a significantly different quantity of alcohol. In contrast, the male-specific findings were inconsistent with the bulk of social norms publications. Male respondents intended to and appeared to have consumed a similar quantity of alcohol compared to male peers. The average male leaver, pre- and post-*Leavers*, was estimated to consume less than the male respondents and his peers. This seemingly inconsistent male pattern is discussed below, after data from both

genders is considered.

While most females (64%) expected the average female leaver consumed more alcohol than them, male respondents estimated they consumed more than the average male leaver. Of note however, is that there was an almost even split between the number of males who estimated their use was more (52%) or less (46%) than the average male leaver. Although finding greater proportions of underestimation (as opposed to overestimation) of peer use is uncommon within the social norms literature, similar results were found by Wechsler and Kuo. They found that 47% of college students underestimated the 'binge' drinking rate at their college, 29% overestimated it, and 13% were accurate in their estimations (Wechsler & Kuo, 2000).

While there is a 'typical' pattern in peer norm research (personal <peer <typical student use), differences in methods of calculation, and whether survey items or analyses are gender nonspecific can change the direction/magnitude of discrepancies between reference groups. Considering a substantial portion of (especially older) social norms literature (e.g. Beck & Treiman, 1996; Hughes, Julian, Richman, & Mason, 2008) describes social distancing in gender neutral terms, with this study's data from both genders merged, the population-wide finding was consistent with existing literature. Upon combining data, 55% of the total sample estimated the average leaver of the same gender used more alcohol than them at *Leavers* (4% estimated the same use and 41% estimated less). Also of note is that studies operationalise the difference between the 'typical' student and the actual norm in different ways. This study used a paired samples t-test similar to Lewis and Neighbours (2004). The paired t-test aimed to explore how each individual compared themselves to a self-defined 'average leaver'. However, many researchers classify whether estimates of 'typical' use were accurate compared to the 'actual' rate of use, an average calculated by the researchers (Kypri & Langley, 2003; Wechsler & Kuo, 2000). Analysed in a similar fashion, 40% of females and 30% of males overestimated what the average same-gender leaver actually drank (with female leavers actually drinking a mean of 11.44 and males 17.05 standard drinks).

There were gender differences in peer estimations. In this section, several

explanations are posited for the gender differences observed in the social distancing effect in alcohol estimations. The female results, which were largely consistent with the broader literature, are considered in relation to a self-serving bias. Next, the observation that male respondents estimated they and their peers would, and actually did, consume greater quantities of alcohol compared to the average male leaver is explored. As the crux of social norms theory rests on the notion that individuals are influenced by their social environment (Moreira, et al., 2009), it is argued here that males and females are exposed to dissimilar social forces which affect their portrayals of others' behaviour relative to their own.

Some researchers have argued that the gender differences observed between patterns of peer estimation discrepancies (the social distancing effect) can be explained by a motivational account. This motivational explanation contends that personal accounts of behaviour are contrasted to others' behaviour in a self-serving manner to maintain a favourable view of self (Agostinelli, et al., 2003; Melson, et al., 2011). This account is proposed as an alternative to the misperception through cognitive bias/availability explanations commonly described by social norms intervention programs (Melson, et al., 2011; Moreira, et al., 2009). Consistent with the motivational account, it is argued here that females appear to be more likely to portray their drinking behaviour as more moderate compared to others than males; and males more likely to match their peers drinking and be subjected to pro-alcohol social influences than females.

Firstly, for a variety of reasons, it appears that the tendency to report personal behaviour as more conservative appears to be stronger in women than men. That is, females may be more likely to overestimate peer use compared to males. Agostinelli, Grube and Morgan (2003) found greater social distancing amongst females in their study with 2,554 grade 10-12 adolescents (mean age=17) from the US and Ireland. They found that relative to boys, girls reported less frequent drinking for themselves, their best friend and other good friends. However, this trend reversed with more distal social reference groups, with girls reporting significantly more frequent drinking amongst same-aged students at their own school and at other schools compared to boys. That is, although there was an

upward trend in reports of drinking frequency relative to social distance in both genders, greater discrepancies between proximal and distal reference groups were reported amongst females. Although respondent rationale for cited differences between reference groups was not collected, Agostinelli et al.'s suggested that their results of greater social distancing amongst groups who generally experienced greater disapproval of drinking (US adolescents¹² and females) was consistent with the theory that social distancing was in part at least, motivated self-serving as opposed to genuine misperception of wider norms.

Similar to the results on drinking frequency, greater social distancing in females has been observed in US adolescents, college students and staff in a variety of drinking-related behaviours such as: drinking frequency, reports of drunkenness, and drink-driving (Agostinelli & Miller, 1994). More locally, similar effects of smaller proportions of males overestimating the incidence of heavy drinking in peers compared to females were reported amongst 1,564 New Zealand university students (Kypri & Langley, 2003). This self-serving distancing is replicated in not only riskier behaviour but in the use of protective strategies while drinking. Amongst over 7,000 US undergraduates, participants underestimated how frequently other students used protective strategies while drinking. This underestimation of peer use in relation to personal use, was particularly evident amongst women; which the authors suggested may be related to the expectations that women should neither engage in riskier drinking nor suffer alcohol-related negative consequences (Benton, et al., 2008). Lastly, consistent with notion that distancing serves a ego-defensive function, females have been reported to be more likely to be disapproving of drinking behaviours and have their drinking disapproved of by others (Agostinelli, et al., 2003). While it appears that both genders (though especially females) tend to represent their peers as more permissive in their drinking behaviour, in the following section, it is argued that the social norms compelling social distancing may differ for special events.

¹² Agostinelli et al. also considered the role of culture in social distancing. They found that US adolescents (who experienced greater disapproval of their drinking compared to their Irish counterparts) generally reported greater social distancing. This cultural effect was interpreted in a similar fashion to the gender effects.

Generally, young males report more social pressure to drink than their female counterparts. They may also more closely match their drinking to peers' drinking when within a social context of heavier drinking (O'Grady, et al., 2011; Suls & Green, 2003). O'Grady et al. collected longitudinal data from 523 US college students over 30 consecutive days each year, for 4 years. If the students reported they were with other people who were drinking the previous night, they reported the average number of alcoholic drinks the other people had during the night, and the number they consumed. Unsurprisingly, there was a positive correlation between respondents' alcohol use and those of others' (the norms) at the reported social event – with greater personal consumption reported when the norms were higher. However, this relationship was stronger among male participants. The authors suggested that this may be consistent with the notions that males may feel greater pressure to be comfortable with alcohol and anticipate greater negative consequences if they do not drink or voice their concerns about drinking, compared to females. Other studies also suggest that male heavy drinking and lack of engagement in protective behaviours may be partially motivated to avoid appearing weak or non-masculine around peers (Delva, et al., 2004)

Furthermore, survey methodology itself may have (further) activated a self-serving bias to maintain a gender-specific preferred image. Melson, Davies and Martinus (2011) found that asking respondents about peer and personal alcohol use within the same survey tended to exaggerate reports on peer behaviour compared to when peer behaviour was estimated without personal estimations. It is possible that the co-presentation of the two reference groups motivated the respondent to present themselves in a more favourable manner vis a vis their peers.

The above findings considered together and generalised to the *Leavers* context suggest that when peer norms for alcohol use are high, males may be more likely than females to match or be influenced those norms (Melson, et al., 2011). The expectations and bravado - boasting that they and their peers were 'better' than average at drinking associated with male drinking - may be higher when related to a context with a reputation for heavy drinking. Additionally, the expectations associated with drinking at *Leavers* are perhaps more salient to males as they are

subjected to a higher baseline social pressure to drink (Suls & Green, 2003). Males may experience a greater compulsion than females to fulfil the expectation and reputation for heavy drinking at *Leavers*. In the pre-*Leavers* survey, males were more likely to respond in the direction of agreement that 'you need to consume alcohol to 'fully experience' *Leavers*'. Similarly, Crawford and Novak (2006) found that beliefs about alcohol as integral to the college experience had a substantially larger effect on alcohol consumption levels among males than among females". Although there are likely many salient examples of heavy drinking males *and* females, and there is evidence of convergence in drinking patterns between the genders (Graham, et al., 2011), the behaviour of individuals are likely still affected by gender specific expectations.

In summary, the motivational account of social discrepancies provides (albeit only at face value in relation to this study's results), a reasonable account for the pattern of differences across reference groups, that considers the varying social influences on both males and females. It is possible that the finding that the average female leaver was portrayed as a heavier drinker compared to the female respondent, and the average male was drinking less than the male respondent, was due to expectations specific to each gender and the amplified norms of *Leavers*. In general, females appeared to maintain an image of their more conservative use compared to peers, with the context of *Leavers* appearing to have little effect on this representation. However, males may have been more affected by the special occasion context to fulfil expectations for heavy drinking at *Leavers*. They more strongly agreed that alcohol would maximise their *Leavers* experience, and may have been partially motivated by a desire to carry out the event's reputation. Using the *Leavers* reputation as a behavioural prescription, the young men may have enhanced their image of bravado through the 'competitive boast' that they were able to drink more than the average male at the event.

Drugs other than alcohol

Respondents were consistently more likely to expect the average student would be using amphetamine, caffeine, cannabis, ecstasy and other drugs at *Leavers* compared to their personal intentions to use these drugs. Also, greater intention and reported

use of all surveyed other drugs was correlated with greater expectations that the average student would/did use other drugs. These results are in line with previous social norms findings (cognitive bias and/or motivational bias) described above in relation to alcohol (Berkowitz, 2004).

Peer understandings/'pacts'

Peer understandings appeared to have substantial utility in differentiating between levels of intended alcohol use. Of the list of expectations that were used to predict alcohol use intent, the greatest effect size between levels of agreement was with the items assessing peer understandings (post-hoc test 7). For example, when asked whether they had an understanding with their friends that they will experiment with drugs other than alcohol at *Leavers*, those who agreed intended to consume 21 standard drinks on a typical day, compared to those who disagreed, who intended to consume 9 standard drinks. Other studies have similarly found that understandings between respondents and their friends to get drunk at Spring Break predicted a greater likelihood of heavy drinking and alcohol-related consequences at the celebrations (Patrick, et al., 2011; Sonmez, et al., 2006).

6.2.6 H7: Parent related attitudes and behaviours

Both hypotheses 7 and 8 related to the influence of 'protective factors' on intentions toward AOD use, actual AOD use at *Leavers*, and negative consequences associated with AOD use. Hypothesis 7 was related to parental attitudes and behaviours toward AOD use, and hypothesis 8 concerned peer-based safety strategy discussions and safety strategy use at *Leavers*.

Hypothesis 7 was partially supported. The three main parent-related attitudes/behaviours assessed in hypothesis 7 were: parental approval, having a harm minimisation discussion with a parent and having a general discussion with parents about AOD. Of these factors, levels of parental approval appeared to most reliably predict levels of intended and actual alcohol use. Harm minimisation discussions also had significant associations with alcohol and illicit drug use at *Leavers*. There was only one significant association between having a general AOD

discussion with parents and alcohol use intentions. The three parent-related attitudes/behaviours are discussed individually in greater detail below.

Parental approval

Expressions of parental approval over riskier alcohol use had a significant influence on respondents' intentions towards and actual alcohol use. Greater agreement that parents would approve of consumption of more than 4 standard drinks in a single sitting at *Leavers* was associated with higher intended alcohol use and higher actual alcohol use.

The results for parental approval of other drug use at *Leavers* were less straightforward, but were similar to the approval of alcohol use findings. Consistent with published literature, there were near universal perceptions of parental disapproval of use of drugs other than alcohol (Chabrol, et al., 2008). Only 6% of pre-*Leavers* respondents agreed or strongly agreed their parents would approve of them using drugs other than alcohol at *Leavers*. This lack of variability has implications for the ability of perceived approval to discriminate between types of behaviour. Nevertheless, different levels of agreement of parental approval of other drug use were associated with differing intentions to use an illicit drug at *Leavers*. Although exactly where the differences lay were not able to be discerned directly from statistical testing, it appeared that a greater proportion of respondents that agreed their parents would approve of them using drugs other than alcohol intended to use an illicit drug, compared to those that disagreed their parents would approve. Perceived parental approval for other drug use was not significantly associated with actual illicit drug use at *Leavers* (possibly due to a smaller sample size and lack of response variability). The greater risk associated with parental approval of other drug use extended to alcohol use intentions with reports of greater approval associated with intentions to consume a greater quantity of alcohol on a typical *Leavers* day

Parental approval did not appear to uniquely predict experience of negative consequences at *Leavers* (controlling for gender, location and each survey modality). Although parental approval predicted AOD use, and AOD use predicted negative

consequences (see hypothesis 8 testing), it is possible that parental approval was too distal a factor to significantly mediate the experience of negative consequences. Furthermore, the relatively modest paired sample size likely contributed to the inability to link parental approval levels to the experience of negative consequences.

On the whole, these results suggest that parental approval of riskier levels of alcohol use and the use of drugs other than alcohol were associated with intentions to, and sometimes the reported use of, larger quantities of alcohol and the use of other drugs. These findings are consistent with existing literature which link parental disapproval of adolescent drinking with reduced levels of later alcohol use (Ryan, et al., 2010).

Parental discussions

Harm minimisation discussions appear to be protective with respondents who agreed they had discussed the ways in which to keep safe while intoxicated with their parents drinking significantly less at *Leavers* compared to those who were neutral they had such a discussion. Interestingly, there was no significant difference between respondents who agreed and disagreed they engaged in a harm minimisation discussion with their parents. It appeared instead, that ambivalence was a risk factor. It appeared that those who did not use an illicit drug were slightly more likely to have had a safety conversation with their parents than those who did use an illicit drug at *Leavers* (64% versus 53%).

Pre-Leavers participants were asked how strongly they agreed that they had a discussion with their parents about alcohol/other drugs in the past three months. There was no significant difference in levels of intended and actual alcohol use across levels of agreement. This finding is consistent with other literature that suggests that AOD specific discussions between parents and children have less consistent protective effects compared to expressed parental approval (Ryan, et al., 2010).

Conversely, tests on having a general discussion about drugs other than alcohol yielded significant and interesting results. There was a significant association between agreements that a general other drug discussion had occurred

and intentions to use an illicit drug use at *Leavers*; but no significant results in eventual illicit drug use at *Leavers*. It appeared that those who intended to use an illicit drug were more likely to have a discussion about other drugs with their parents. To further clarify the nature of these differences, alcohol use intentions and parental approval were compared to whether other drug discussions had occurred. Agreement that a parental drug discussion had occurred was associated with higher levels of intended alcohol consumption. These results linking parental drug discussions and intentions to use an illicit drug and higher levels of alcohol appear to be related to parental attitudes. Respondents who agreed they had a conversation about other drugs with their parents appeared to be more likely to agree their parents approved of riskier levels of alcohol use and other drug use. For example, 80% of those who agreed their parents would approve of them using drugs other than alcohol at *Leavers*, also agreed they had a discussion with their parents about other drugs. As the topic of the other drug discussions was not assessed, the conversations may have included parents expressing more permissive attitudes toward other drug use. In addition to the unknown subject matter, the reason why the discussion occurred is unclear. For example, the talks may have been brought up spontaneously by the parent as a harm minimisation strategy (which would predict a protective effect), or have been prompted by the parent discovering the child had been covertly using illicit drugs (with the discussion serving as a sign of the underlying risk factor of previous illicit use). However, when these results were considered in conjunction with ratings of parental approval, it appeared that irrespective of why the discussion occurred, it was likely that more permissive parental attitudes toward AOD use were expressed in these talks. As this measure was not designed to detect variation within these parental discussions future research would need to examine this in more detail.

As a general note on the above three parent-related factors (approval and discussion), some of these findings do not have a clear direction of causation and may be interpreted as a protective factor or as a justification of behaviour. So for example, harm minimisation awareness might have a protective effect on alcohol use, or alternatively, respondents who drank less might explain or 'justify' their low

use through their parents' involvement. However, many of the variables were not assessed concurrently (in the same survey), so for example the impact of perceptions of approval is more likely to have a unidirectional effect on behaviour compared to other research designs.

Parental alcohol supply

Related to the parental protective factors of hypothesis 7 is the issue of parental alcohol supply. Restricting alcohol supply is a parental behaviour that has been previously identified as capable of significantly reducing adolescent alcohol use (Ryan, et al., 2010).

A quarter (25%) of respondents obtained alcohol they used at *Leavers* from their parents. This proportion is comparable to the 33% of the 142 Queensland parents who intended to supply their children with alcohol at *Schoolies* 2008 and lower compared to settings where adult supervision is likely (Kypri, et al., 2007; Vogler, 2008). This similar statistic between young people and parents (despite geographical, methodological and time differences) illustrates some consistency. Previously, large discrepancies have been reported in what adolescents and parents reported with regards to parental alcohol supply for consumption within an unsupervised setting (Kypri, et al., 2005).

Previous studies examining parental alcohol supply have rarely linked the alcohol source to the circumstances surrounding the eventual consumption of the provided alcohol. That is, it is often unknown whether the parentally supplied alcohol contributed to a drinking session where alcohol was consumed at riskier levels and/or contributed to intoxication (Kypri, et al., 2007; Ward & Snow, 2010). In this study, parent-supply of alcohol was able to be linked with the quantity of alcohol eventually consumed during the celebrations. The results suggest that reports of parental supply are associated with reports of riskier consumption levels at *Leavers*. Of those who had alcohol supplied by their parents, 89% consumed alcohol at risky level (> four standard drinks) on an average *Leavers* day. Also, 45% of those who cited parental alcohol supply spent \geq \$100 on alcohol and other drugs during *Leavers*; and the majority (65%) those who were supplied by parents also

listed other sources of alcohol. That is, the provision of alcohol by parents appeared to be associated with an already generous alcohol supply situation and contributed, in part at least, to riskier levels of alcohol use.

In addition to obtaining alcohol from their parents, RI leavers have also traditionally been supplied AOD through private charter boats. This study's field researchers observed, in 2008 and 2009, leavers regularly transporting cartons of beer and carrying boxes of spirits from an anchored larger boat, via a dinghy, to the shore of the Island. That is, private boats were not only a site for accommodation and entertainment, but also a means for Island accommodated leavers to supplement their AOD supplies. This mode of alcohol transport appears to have continued for many years, with documentation since 1999 (Young, et al., 2001). Anecdotally, from this study's field work (speaking with leavers and support workers), due to the legislative restrictions on boarding private vessels and the practical difficulties associated with official monitoring of activities occurring on boats, private boats were also a haven for riskier alcohol use and illicit use. These private boat related activities are mentioned here to continue the documentation of the practice and to flag it as a potential area for further investigation and potential intervention.

6.2.7 H8: Peer-based safety discussions and use of harm reduction strategies

H8. Knowledge, prior discussion of, and use of harm minimisation strategies will be negatively associated with intentions for AOD use, actual AOD use and AOD-related negative consequences.

In this section, peer-based talks about how to keep safe and the frequency of harm reduction strategy use at *Leavers* is related to alcohol use and experience of negative consequences. Also, the topics of cited safety strategies and the experience of negative consequences are considered. Hypothesis 8 was partially supported in that peer-based discussions were not associated with different levels of intended or actual alcohol use; however, the frequency of use of harm reduction strategies did uniquely predict the experience of four negative consequences.

Peer-based safety discussions

Encouragingly, it appeared that many leavers were taking an active role in harm reduction with 61% agreeing or strongly agreeing they had discussed with their friends how to keep safe while affected by AOD. However, there was no significant difference in intended or actual alcohol use between respondents who agreed, were neutral or disagreed they had a safety strategy discussion with their friends. This finding is interesting when contrasted to the parent-based safety discussions.

Although similar proportions of respondents agreed they had a safety discussion with their friends (61%) and parents (57%), only the parent-based safety discussion had a significant protective effect on intended alcohol use quantity.

Harm reduction strategy use (PBSS)

Use of harm minimisation strategies was assessed using Protective Behavioural Strategies (PBS) scores (Martens, et al., 2005). Higher levels of alcohol use were strongly correlated with PBS scores indicative of less frequent use of harm minimisation strategies. Using logistic regression models and controlling for alcohol use, other drug use, gender, location and survey modality, less frequent use of harm minimisation strategies uniquely predicted the experience of four surveyed negative consequences: hangovers, vomiting, blackouts and unprotected sex.

These findings are consistent with other studies which found protective strategy use correlated with quantity of alcohol used, and were associated with negative consequences, even after controlling for alcohol use (Benton, et al., 2008; Benton, et al., 2004; Martens, et al., 2004). However, compared to previous research, the effect of PBS appeared less robust with four out of the 12 assessed negative consequences uniquely predicted by levels of harm reduction strategy use. A study by Martens et al. assessed the utility of the PBS in predicting negative consequence reports while controlling for gender and alcohol. They found that after accounting for alcohol use and gender, PBS scores were related to the experience of five of the six analysed negative alcohol related consequences: (i) physically injuring someone, (ii) being involved in a fight, (iii) doing something later regretted, (iv) forgetting where they were or what they did (blackout), and (v) unprotected sex. PBS score did not uniquely predict the respondent physically injuring themselves (Martens, et al.,

2004). However, there were a number of differences between Martens' study and this study that may account for the more apparent PBS effect. The most important difference was that this study's logistic regression models contained 6 independent variables whereas Martens' used 3. That is, the additional variables may have explained a part of the variance that would otherwise be captured by PBS scores. For example, the variable assessing other drug use was significant in 7 of the 12 assessed consequences and was not included as a covariate by Martens et al. Also, Marten et al.'s assessment time period was longer with PBS use and experience of negative consequences assessed over a 12 month period. The substantially shorter assessment period of 3 days in this study may have reduced the reliability of the PBS scores.

Of note in interpreting these results however, is that it is difficult to disentangle the protective effects of a safety strategy discussion *per se* with other factors which may also affect the likelihood of experiencing negative consequences. For example, having a more cautious personality would potentially increase the probability of having a safety discussion as well as reducing the likelihood of engaging in risk taking behaviours and experiencing negative consequences. In summary, although more frequent use of harm reduction strategies was not significantly protective of *all* assessed negative consequences experienced during *Leavers*, strategy utilisation did have a desired result on some of the most commonly experienced outcomes, two of which were reported by the majority of leavers.

Negative consequence experience and cited safety strategies

In this section, self-reports of negative consequences at *Leavers* are contrasted to available prevalence rates that are most comparable to the current context – those from the Gold Coast Schoolies in 2009. Also, information on the patient presentation rate at RI Nursing Post is compared to those from Schoolies in South Australia.

In 2009, Drug Arm's Gold Coast Schoolies survey assessed 18 AOD-related risk behaviours amongst approximately 1,400 schoolies that graduated from year 12 that year (a population comparable to the 'genuine' leavers sample from this study) (DRUG ARM Australasia, 2011). There were five negative consequences which were

assessed in both the *Schoolies* survey and the post-*Leavers* survey: hangover, vomiting due to alcohol use, vomiting due to (other) drug use, being hurt or injured and having unprotected sex. WA leavers reported higher prevalence rates for three consequences (hangover, vomiting due to alcohol use and being injured) and schoolies reported higher percentages of vomiting due to drug taking and having unprotected sex.

It appeared that WA leavers reported higher rates of hangover than Gold Coast schoolies (67.4% vs. 40.6%), and vomiting due to drinking (34.3% vs. 27.3%). This may have been influenced by the slightly higher rates of reported alcohol use at *Leavers* (93.2% vs. 90.6%). Of note here is that while it may appear to be a minor harm, hangover is used in various studies as a proxy for doses of alcohol that are sufficiently high to produce withdrawal effects and possibly reduce the white matter integrity in the brain (McQueeney, et al., 2009).

The substantially higher rates of vomiting due to drug taking in the Gold Coast celebrations (6.8% vs. 1.6%) are possibly due to at least two factors. Firstly and most simply, there was a major methodological difference between the two surveys. The item 'vomiting due to drug use' was assessed as a separate to the 'vomiting as a result of alcohol' item in the GC survey. In comparison the RI leavers could only choose that they vomited due to alcohol or drugs. The use of two individual items allowed respondents to endorse more than one outcome, thus increasing the reporting for each. Also, the rates of illicit drug use in the GC were higher than at the RI. For example, cannabis was reported amongst 21.2% of the GC sample and 15.0% of the RI respondents. Combined with alcohol (which was used by >90% of both samples), greater use of cannabis in the GC may have lead to more vomiting due to the side-effect of nausea and vomiting resulting from the simultaneous use of the two drugs (Sulkowski & Vachon, 1977).

More leavers (40.7%) reported having an accident/injuring themselves compared to the 29.0% of schoolies who reported being hurt or injured. It is possible the difference in phrasing affected these prevalence rates, with some leavers perhaps reporting an accident that did not necessarily result in what they considered an injury. Lastly, a slightly higher percentage of schoolies (18.0%)

reported having unprotected sex compared to the 13.6% of leavers.

In addition to self-reports of a variety of negative consequences, more serious outcomes are often referred to professional medical services. In 2009, the patient presentation rate at RI Nursing Post during *Leavers* was approximately 32/1,000 per day (Charlton, 2010a). In comparison, the presentation rate at Victor Harbour Schoolies in 2009 was 20.8/1,000 per day (Hutton, et al., 2010). The higher RI rates can be explained through the larger area serviced by the medical staff. Namely, the RI Nursing Post serviced the entire island including entertainment areas, accommodation and commercial whereas the service in Victor Harbour only serviced the entertainment zone. Potentially, any additional medical requirements of the Victor Harbour leavers could have been met elsewhere but not published.

In an open-ended item of the pre-*Leavers* survey, respondents described the ways in which they would keep themselves and their friends safe while affected by AOD at *Leavers*. Overall, the cited strategies appeared similar to earlier *Leavers* findings where 'sticking together' was the most often cited harm reduction strategy and with drinking in moderation the second most popular response (Midford, et al., 2004; Smith, 2006). The 'sober sally' strategy, sticking together, avoiding higher risk areas and eating food/drinking water have also been cited to be used by 18-25 year olds in Perth. Moore noted that these strategies were similar to those disseminated via drug education programs and suggested that the campaigns had "at least some role in shaping the cultures of use among young adults" (Moore, 2010, p. 485).

It is possible that a *Leavers*-specific safety strategy was enacted, prior to the celebrations, through destination choice. A proportion (7%) of pre-*Leavers* respondents stated the most important reason they chose RI as a destination was that the Island had a reputation for safety and no private cars were permitted. This greater safety on RI (especially due to the inability to drive as an island guest) was also identified in previous research and by members of this study's pilot groups (Bogaards, et al., 2000).

To summarise the findings of hypothesis 8, although the rates of AOD use and reported negative outcomes at the celebrations are somewhat unsettling, many leavers appear to be actively engaging in harm reduction strategies, and

importantly, many of these strategies appear to be protective. Also, as the rates of negative outcomes associated with AOD use and presentation rates to medical staff are approximately in line with equivalent statistics from other Australian jurisdictions, this lends further support for the reliability of this study's findings.

6.2.8 H9: The acceptability of signs of AOD-related behaviour across contexts

The hypothesis that students will rate AOD-related behaviour as more acceptable at *Leavers* compared to a non-*Leavers* celebratory event was supported. A third (33%) of respondents agreed there is some behaviour which is more acceptable at *Leavers* compared to regular social events. Both males and females rated it as more acceptable to 'throw-up' after drinking and to have casual sex after drinking at *Leavers* than at a regular social event. Also, males rated it as more acceptable to vomit after drinking at *Leavers* and to have casual sex after drinking in both contexts compared to females. These findings are consistent with the results of hypothesis 1 and 2 which found greater alcohol use at *Leavers* and the general finding that males consumed more alcohol than females.

The greater acceptability of signs of alcohol intoxication is likely linked to the reputation of *Leavers*. The clear majority (92%) agreed *Leavers* has a reputation for heavy alcohol use, and this reputation likely has an interactive effect with the acceptability and expectation of AOD use, and the experience of AOD-conducive conditions at the celebrations. It is possible the high levels of alcohol use presented in this thesis are at least in part, a result of the strong and consistent intentions, expectations and reputation for alcohol use surrounding *Leavers*, familiar to both prospective celebrating students as well as the wider society (MacAndrew & Edgerton, 1969). Indeed, *Leavers*-specific expectations and beliefs around alcohol use had significant effects on intent to use alcohol (post-hoc 7).

It is possible a proportion of young people use alcohol at *Leavers*, in part, to 'live up to' the alcohol-focused reputation of the event. More than a third (37%) of respondents agreed with the belief 'you need to consume alcohol to 'fully experience' *Leavers*'. This belief is similar to the view that alcohol use is integral to

the college experience, which has previously been identified as a risk factor for heavy drinking (Crawford & Novak, 2006)¹³. Interestingly, of students who perceived heavy alcohol use as integral to college life, the effect of the beliefs had a substantially larger effect on male alcohol consumption compared to females. That is, there was a much greater difference in male drinking scores depending on level of belief, whereas there was considerably less variation in female drinking scores in relation to level of belief (Crawford & Novak, 2006). Similarly, males were more likely to endorse various *Leavers*-specific beliefs such as 'you need to consume alcohol/other drugs to fully experience *Leavers*' and 'using alcohol and other drugs at *Leavers* will help me act in a way that is amusing and memorable to my friends'. So along with considering signs of intoxication more acceptable, males may also have a greater impetus to use alcohol to 'maximize' their *Leavers* experience.

These findings are consistent with the Theory of Interpersonal Behaviour's predictions the intensity and duration of acts are greater when (i) the act is consistent with norms, roles and values, and (ii) when the perceived consequence of the act is small (Triandis, 1980). That is, AOD-related behaviours were perhaps more intense at *Leavers* as these behaviours are consistent with what is expected. Secondly, the perceived social consequences of the heavy AOD-behaviour may have been perceived as smaller, as *Leavers* is perceived by many as a liminal period where social norms are temporarily suspended/more permissive and various AOD-related behaviours are more acceptable (Winchester, et al., 1999).

Despite the perceptions of some young people (as mentioned by Smith & Rosenthal, 1997), the alcohol-focused reputation of *Leavers* is not necessarily inevitable. Instead, the acceptance that the reputation may be malleable, is likely a more encouraging position from which to implement changes aimed to reduce alcohol-related harms. Indeed, young people's beliefs about how integral alcohol is

¹³ Crawford and Novak found that individuals who perceived heavy alcohol use to be an integral part of being a student tended to drink more (Crawford & Novak, 2006). However, this relationship only held amongst respondents who had friends who drank heavily; suggesting these beliefs were only activated when a suitable social network was available. Although not noted by the authors, as having heavy drinking friends was correlated with the 'alcohol is integral' belief, it is possible these two concepts have been conflated by students. That is, as friendships are typically a very important part of college life, and spending time with friends will often be within the context of alcohol, it is possible students are in some part describing friendship (via. alcohol use) as an integral part of college life.

to a celebration have changed elsewhere. Johannessen and colleagues (2001) documented the implementation of policies restricting where and how alcohol was served during college homecoming celebrations. Prior to policy introduction, 44% of students thought alcohol was important or a very important part of homecoming, with only 12% endorsing this notion afterward.

Lastly, the mass media portrayal of the celebrations is relevant to the reputation *Leavers* has for AOD use. Responses to the pre-*Leavers* survey question asking for a description of the reputation *Leavers* has with regard to AOD use revealed that many young people were aware of the media's role in shaping the reputation of the celebrations. A male respondent remarked that "In the media, *Leavers* is regarded as a week of sex, drugs and alcohol, which, strangely enough, are the three main reasons people buy newspapers". Also, there was explicit acknowledgement that AOD use at *Leavers* is multi-faceted – that there are enjoyable outcomes that accompany the well publicised negative outcomes: "Rotto [*sic*] has a bad reputation because the media only show the negative aspects The media blow it out of proportion and make it look seedy".

To conclude, the relationship leavers have with the wider reputation of the celebrations and associated expectations is unlikely to be entirely naïve and unidirectional. It is possible that leavers not only 'play up' to the riotous, alcohol-focused image of the celebrations, but use it to facilitate and justify their eventual behaviour.

6.2.9 Summary

Though the average Australian is probably familiar with the media images and anecdotes of ubiquitous and intense alcohol use at school leavers' celebrations, the extent to which this behaviour is actually reported remains compelling. The findings here support the conclusions on previous *Leavers* and *Schoolies* studies, that higher than usual levels of AOD use, which co-occur with substantial experience of negative consequences, are observed at the celebrations. The contributors to these consumption patterns can be summarised over three levels.

Firstly, as described in the interpretation of hypothesis 1 and 2, it is likely

that self selection is occurring. It is probable that heavier drinkers are more likely to attend any *Leavers* celebration, and to attend *Leavers* at a hotspot (as opposed to locations with more relaxed reputations).

Secondly, the *Leavers* context had population wide effects. The cultural/subjective setting of the celebrations was encapsulated by the notion of liminality – as a period for festive indulgence with diminished repercussions on personal reputation. There were almost saturation level intentions and opportunities to use alcohol at the celebrations. Personal intentions were closely associated with expectations for peer AOD use and suggested normative standards of heavy use. These expectations of more permissive ‘than usual’ use and greater acceptability of intoxication-related behaviours likely interacted with the reported reputation of *Leavers* as a context conducive to heavy AOD use. A greater proportion of respondents drank at *Leavers*, and drank a higher quantity, compared to at usual social events. At *Leavers*, females reported drinking 11 and males reported consuming 17 standard drinks on an average event day. However, it is possible that leavers were merely continuing their ‘usual’ behaviour (last event drinking pace), under the more unusual circumstances *Leavers* presented such as greater availability in drinking time.

Nevertheless, the potential for negative AOD-related consequences at *Leavers* was still increased due to at least two reasons: a larger proportion of drinkers, as well as a greater quantity of alcohol consumed per session. Also, one fifth of leavers reported using an illicit drug (amphetamine, cannabis or ecstasy), and the majority reported using caffeine on any one day of the celebrations. Compared to the last event, ecstasy use was revealed as more prevalent (4% vs. ~8%) and caffeine used in greater quantities.

Thirdly, AOD use and related outcomes varied as a function of individual level factors. The theoretical underpinnings of Triandis’ Theory of Interpersonal Behaviour (TIB) appeared to explain a high proportion of the variance in leavers’ AOD use. Sixty-one per cent of the variance in reported alcohol use quantity and 23-43% of illicit drug use was explained by models based on the TIB. All three of the main components of the TIB (intent, habit and AOD-conducive conditions)

individually predicted AOD use. However, not all three components were simultaneously significant when combined in either the alcohol or illicit drug model. Intent and prior experience were significant (but not AOD-conducive conditions) in predicting levels of alcohol use. Previous behaviour and conducive conditions were significant (but not intent) in predicting the use of an illicit drug. Also, compared to the alcohol supply situation, leavers were more likely to report obtaining their other drugs during the celebrations (as opposed to bringing it on to the Island). Together, these findings suggest that alcohol use at the celebrations was largely pre-planned, whereas illicit drug use was more opportunistic in nature.

There were also a range of individual-level variables which were found to contribute to one, or potentially more, of the immediate predictors of behaviour (intent, habit and context). For example, having attitudes, norms and expectations consistent with *Leavers* being an AOD-conducive context were associated with greater intended alcohol use. Perceptions of parental approval and reports of parental alcohol supply also had impacts on alcohol use. The perception of parental approval of both risky levels of alcohol and other drug use was significantly associated with greater intended alcohol use. Also, of the quarter of leavers who had alcohol supplied to them by their parents, 89% consumed alcohol at risky levels on an average *Leavers* day. These results suggest that permissive parental attitudes and behaviours may further contribute to an already permissive drinking environment and generous alcohol supply situation.

In addition to documenting and accounting for AOD use, some of the use was found to contribute to negative consequences. The majority of leavers reported hangovers and blackouts, however, more serious outcomes such as being in a sexual situation later regretted (21%) were also common. The odds of reporting some of these consequences were lowered by factors such as alcohol quantity, engagement with other drugs and frequency of safety strategy use. These influences are potentially under volitional control. That is, the individual has the ability to reduce the probability of experiencing harm by changing their own behaviour.

6.3 Study strengths and limitations

Although there have been a number of studies investigating the *Schoolies/Leavers* phenomenon in Australia, and other similar international youth events such as Spring Break, this study is unique in the depth of documentation of AOD use and its attempts to explain it. This is the first Australian published report to produce quantity specific alcohol estimates for school leavers' celebration research in Australia. However, there are considerations to be made in interpreting the results of this thesis and this section describes both the strengths as well as the limitations of this study.

School leavers' celebrations have a well established reputation for heavy alcohol use. However, no other published study has made quantity-specific estimates of alcohol consumption at the celebrations. As well as providing quality data to compare with repute, as alcohol is almost universally used at *Leavers*, documented variation in use patterns are required in order to use covariates to predict riskier levels of use.

Importantly, the use of a matched sample allowed for the identification of a range of factors which contributed to eventual behaviour. This recognition of predictor variables such as intent, habit, parental influences and peer understandings, has potential for intervention efforts initiated prior to the celebrations and/or to target higher risk young people. This study was also unique in using a pre/post methodology to capture AOD use at the last social event attended with friends. This last event was used as a baseline for AOD use as larger scale surveys typically document 'usual' rates of AOD use which may or may not capture a party context (when youth AOD use is more likely). This last event was a context which resembled *Leavers* in a number of ways including having friends present and being a social event. It was posited that characteristics which are common to most peer-based social events were captured in both the last event and *Leavers*, and differences between the contexts are more likely to be specific to *Leavers*. Another strong point of the two phase survey process was the ability to discern the temporal order (i.e. direction of causality) of key variables such as intent

and actual use.

The current project was also the first Australian *Schoolies/Leavers* study to document the number of hours over which alcohol was consumed. The collection of quantity-specific alcohol estimates and drinking hour information enabled the calculation of drinking rates. These drinking rates were compared between the *Leavers* context and the last social event and pointed toward the role of prior behaviour (i.e. an established drinking pace) in influencing celebration behaviour. The calculation of these drinking paces enabled one of this study's key findings: that drinking pace appeared similar between contexts.

This study appeared to be the first Australian investigation to apply the TIB to explain AOD use at a celebratory event. The TIB appeared to be an appropriate model for the data as it explained a remarkable amount of variance in alcohol use quantities and the use of illicit drugs at the celebrations. Furthermore, the relative impact of factors identified as relevant to the explanation of holiday-related risky behaviour were able to be assessed as each factor was simultaneously included within a multifactor model. The utility of the TIB to predict behaviour has implications for building future models on behavioural change.

The study was also able to provide estimation of the proportion of leavers supplied alcohol by their parents. Unlike most studies on alcohol supply, the supply source was associated with the riskiness of the drinking session in which the alcohol was consumed.

The capture rates of the two surveys were approximately 37% of the RI *Leavers* population for the pre-*Leavers* survey and 28% for the post-*Leavers* survey. Although this study's findings cannot be conclusively stated as a representative of the RI celebrations (discussed later as a limitation), this substantial capture rate remains a strength. The refusal rates for the hardcopy survey distribution were relatively low, estimated by the survey administrators to be approximately 10% - reducing potential selection bias. Around half of the respondents completed the surveys in full with the other half partially completing the surveys¹⁴. So together

¹⁴ Information on the completion rates for the online surveys was collected using the survey software. Of the website visitors who were eligible to complete the pre-*Leavers* survey (n=408), 53% completed

with the use of a matched sample, the high capture rate reduced various potential biases relating to sample representativeness and separating individual and contextual effects.

Lastly, the data are embedded within a network of secondary data gained from agencies supporting *Leavers* and through informal observation of the celebrations. Through this triangulation, the data were found to be generally consistent with the existing information and can be used to extend the detail of AOD prevalence rates and to help explain and predict the prevalence rates (Guba & Lincoln, 1981; Mathison, 1988).

The study was a natural experiment which was largely based on self report. Although self report measures are considered a generally valid measure for adolescent drug use (Lintonen, et al., 2004; Oetting & Beauvais, 1990; Winters, Stinchfield, Henly, & Schwartz, 1990), this section discusses some potential limitations.

Firstly, reports of past behaviour may be incomplete or inaccurate due to recall effects. However, though data collection was retrospective, it occurred with little delay. The majority (87%) of the post-*Leavers* surveys were completed on the last day of the celebrations (i.e. less than 24hrs after the end of the time period in question). Almost all (96%) of the post-*Leavers* surveys were completed within 3 days of the last day of *Leavers* and the remaining 18 surveys were completed by the 17th of December 2009 (20 days after the last day of the event). The short elapsed time between performance and report likely minimised recall effects (Brener, Billy, & Grady, 2003).

Secondly, individual self-reports were not corroborated through other sources such as parents, sales data or BAC readings. Thus constructs such as 'parental approval' reflect perception of approval which may or may not be shared by the referred to parent. While self-report methods tend to significantly underestimate actual alcohol consumption, the use of the beverage specific response

the survey in full (including the survey-linking code) and the remaining respondents partially completed the survey. Of the 72 visitors eligible to complete the post-*Leavers*, 51% completed the post-*Leavers* survey in full and 49% partially completed the surveys.

method provided the most accurate self-report type data. Importantly, self-report data for an event such as *Leavers* is likely the most appropriate alcohol consumption estimation method for at least two reasons. Although considered the 'gold standard' for alcohol quantity estimation (Stockwell, et al., 2008), official sales data would be difficult to track for an event where most alcohol is purchased from a variety of liquor outlets on the mainland (with only a small proportion of alcohol locally sourced during the celebration time frame). Also, external validation of a large sample's behaviour would require considerable research resources.

Thirdly, it is possible that assessing AOD intentions and expectations prior to the celebrations influenced subsequent behaviour; for example, by making implicit plans more explicit and salient (Brister, Wetherill, & Fromme, 2010).

Deliberate misreporting is an issue for all self-administered surveys with both underreporting and overreporting having potential to skew results (Oetting & Beauvais, 1990). However, the deliberate misreporting of youth AOD data is usually described as being low in other studies with similar populations (e.g. Victoria White, Australian ASSAD coordinator, July 7, 2008 personal communication). The researchers endeavoured to minimise misreporting by assuring participants of confidentiality and anonymity. This privacy/anonymity likely increased disclosure while potentially reducing motivations to exaggerate. Also of note is that most self-report data cannot be independently verified in a cost-effective, feasible and ethical approach (Brener, et al., 2003).

This study used an opportunistic/convenience sample. Recruitment for the paper-based surveys was focused on respondents who used the ferry to arrive and leave the island. Although 8% of the post-*Leavers* survey participants reported they resided on a boat, approximately 20% of wristband sales were made to boat accommodated leavers. Attempts were made to include non-RIA accommodated leavers with the online survey and by approaching people on other parts of the island on foot once the ferry-based surveys were distributed. Also, short of hiring a boat to visit individual boats, this was not an easily overcome problem.

It is difficult to determine the comparability of this study's findings to Australian students in general; those who choose to attend Australian school

leavers' celebrations, and those attending in different years. As previously discussed, it is highly likely that *Leavers* attendance is not random, and the self-selected population may have differed in comparison to young people who chose not to attend *Leavers*. However as discussed in section 6.1 and 6.2, the relationships between the variables and the general prevalence levels are similar with those found in other studies of peer-based youth celebrations.

Secondly, the degree to which these findings can be generalised to other celebration sites within the same state and across Australia is uncertain due to some of the more unique demographic features of this population. Of particular note is the very high (~90%) representation of private school students at RI *Leavers*. Traditionally, there is a short list of WA private schools which attend the celebrations. Rottnest Island Authority records confirm that the clear majority of *Leavers* registrations are made by guests who attended private schools (that is, this research sample was similar to the official guest list). From one viewpoint, this relatively specific set of feeder schools may restrict the generalisability to other Australian sites. From another view, assuming similar kinds of young people attend these schools and stable drug trends, the findings will likely be a reasonable guide as to what could be occurring in future years at RI.

While it was aimed that at least 140 pre- and post-*Leavers* survey responses would be paired, 120 respondents were eventually matched. Follow-up was difficult as unlike similar large youth event studies using matched samples (e.g. Apostolopoulos, et al., 2002), the respondents did not have contact with the same educational institution before and after the celebrations. Fortunately, it appeared for most of the hypotheses requiring a paired sample, the effect sizes were sufficiently large to detect anticipated effects. While it appeared that the paired respondents were somewhat more conservative in their AOD use (as is common in cohort studies; see (Smith & Foxcroft, 2009)), the direction of the effects were similar between the paired sample and larger survey samples. If heavier users of AOD were a part of the attrite sample, this may underestimate effects through loss of power and reduce the generalisability of effects. Of note is that the two surveys' data remain compelling even when analysed cross-sectionally.

While potentially confounding factors, such as mode of survey administration, have been controlled for in the statistical analyses, other factors, unmeasured or unknown to the investigators may have influenced the outcomes of the study.

6.4 Implications and recommendations

The present study offers evidence of AOD use at *Leavers*, and describes various antecedents and consequences of this use. The findings suggest that while AOD-related behaviour at *Leavers* is amplified, it is to a certain extent, predictable prior to the celebrations and are reflective of past patterns of behaviour.

As the popularity of leavers' celebrations show no obvious sign of decline, in recognition of existing and potential harms, prevention and mitigation strategies are increasingly important. These findings have substantial potential to inform interventions aiming to promote the health and well being of adolescents. Neighbours and colleagues (2007) have argued that event-specific prevention strategies are useful as programmes which attempt to reduce overall/usual drinking may not be applicable during culturally specific events, when even those who usually do not drink, report heavier drinking.

It is evident that there are a variety of factors which predict higher risk behaviours. For example, young people who have a history of heavy alcohol use or illicit drug use are more likely to continue similar patterns of behaviour. Though it is likely earlier AOD-related intervention will have impact on behaviour at *Leavers*, in this set of recommendations, the focus is narrowed to strategies that are specific to the event and timeframe of the months prior to *Leavers*. Such harm reduction and prevention strategies which focus on expectations of the celebrations and the event context include the following:

Focus on alcohol as the Leavers 'drug of choice'

Given the near universal risky use of alcohol, harm reduction efforts will be of greatest relevance to the largest proportion of young people if strategies continue to focus on alcohol. The experience of a range of alcohol related harm, especially in relation to intoxication, supports this argument. During the celebrations, most (93%) leavers used alcohol, and used it at a risky level (87% of drinkers). In comparison, only 20% used an illicit drug (amphetamines and/or cannabis and/or ecstasy) on any one day. A greater proportion of negative consequences were primarily attributed

to alcohol as opposed to other drugs, likely due to the greater prevalence of alcohol use. Furthermore, nearly all who used illicit drugs at *Leavers* also used alcohol. Other literature suggests that alcohol intoxication can be an independent predictor for illicit drug use and risky sexual activity amongst tourists (Cabada, Mozo, Pantenburg, & Gotuzzo, 2011). It is likely that the prevalence and/or severity of some of the harms associated with illicit drug use will be reduced if any alcohol being used concurrently is consumed in a less risky manner. Also, information cards currently distributed could include a list of signs of alcohol poisoning and what to do if an overdose is observed.

Continuing use of diversionary activities and support services

Leavers is a unique environment with a high number of drinking hours and consecutive days over which young people can consume AOD over. As drinking hours were highly correlated with alcohol quantity, the continuing use of diversionary activities such as the entertainment zone is supported to reduce, delay, or at least punctuate periods of continuous drinking. Examples of non-AOD focused activities can be provided in pre-event publications to prompt leavers to bring sports equipment, game consoles etc. to the celebrations.

The clear majority (79%) of leavers agreed they knew who to call if their friends got into trouble with alcohol and drugs. This potentially suggests that the leavers have a good understanding of the presence of, and the messages promoted by support agencies. While it is unclear whether the leavers were referring to support services, parents or other people in terms of who they would be calling for help, the fact they report having some sort of plan is encouraging. As private accommodation is the most common location leavers reported being intoxicated in, continuing the promotion of 'knowing who to call/not being afraid to call for help' will be useful as happenings within private lodgings are difficult to monitor. Also, greater monitoring of activities in the Geordie Bay region, for example through support service representation, may help to reduce the risks associated with the area.

Lastly, as socialising is the most liked aspect of *Leavers*, it is suggested that themes around socialising could be used to deliver health messages. For example,

describing how heavy intoxication can have a negative effect of friendships with the majority (81%) of heated arguments being attributed to AOD use.

Expansion of harm reduction strategies

Encouragingly, not only were the alcohol-related safety strategies popular, they appeared to have a protective effect. Controlling for alcohol quantity, other drug use, location, survey modality and gender, use of harm reduction strategies were associated with lowered odds of experiencing some of the most common harms (hangover, vomiting, blackout and unprotected sex).

The surveyed list of alcohol focused safety strategies could be expanded to cover the use of other drugs. The harms associated with combining alcohol with caffeine suggests the 'don't mix drugs' message would be particularly relevant. Consistent with existing literature, controlling for alcohol use, the use of caffeine with alcohol increased the odds of experiencing four common negative consequences (hangovers, emotional outbursts, heated argument, and accidents/injuries to self). Of course this may be that those who drink more may be more inclined to take caffeine, as opposed to a direct outcome of mixing the drugs. Similarly, the use of illicit drugs was also associated with higher quantities of alcohol use.

Of note is that by year 2014 due to changes in the compulsory education period, an estimated 30-40% of leavers will be 18+ years old (Clack, Lisa, personal communication, May 09, 2011). Alcohol restrictions based on underage alcohol purchasing laws will be more difficult to enforce, whereas health messages remain relevant to all younger people.

Focus on parental influence

Parents continue to have substantial influence on their children's alcohol use despite not being physically present at the celebrations. On the one hand, parents who supply alcohol to leavers are likely contributing to an already generous supply situation. On the other hand, perceptions of parental disapproval appear to be protective. This suggests that it will be important to include parents in the planning of *Leavers* both in terms of availability as well as conveyed attitudes and

expectations.

A quarter (25%) of the respondents obtained some of the alcohol they used from their parents and the majority (89%) of these leavers consumed alcohol at a risky level on an average celebration day. Parents were more likely to be cited as a source if the respondent was less than 18 years of age. There appears to be scope for a clear message about secondary supply.

Parental expression of disapproval of riskier levels of alcohol use was associated with lower levels of intended and actual alcohol use. As the existing literature suggests that parents commonly speak to their children about AOD use prior to events such as *Leavers*, it is suggested that the discussions include unambiguous statements about the disapproval of AOD consumption at riskier levels.

Lastly, parental influence can be extended from the planning phase into the celebration period. During the event, parents can be encouraged to telephone their children at least once a day. It is possible such reminders of home may reduce perceived lack of accountability. For example, the knowledge that they need to speak to a parent (and try to 'act sober', similar to when coming home from a party) later in the night may serve as deterrent toward behaviour which results in extreme intoxication.

Dissemination of commonly experienced harms

Some consequences are probably not as rare as prospective leavers may believe. The harms described by official agencies could mention outcomes that were commonly experienced by this study's respondents. For example, a fifth (21%) cited they were in a sexual encounter at *Leavers* they later regretted. In comparison, in another study, regretted sexual activity was identified in an open ended question about 'general risks for people at *Leavers*' by only 6% of respondents (Smith, 2006). Even considering differences between the structure of the questions (see (Lavikainen & Lintonen, 2009)), it is possible leavers are underestimating the prevalence of certain negative consequences. Interestingly, there was no statistically significant difference in the prevalence of all three surveyed sexual outcomes by gender – that is, some

consequences which may be construed as a single gender's 'problem' in reality, are equally likely to affect both surveyed genders. Secondly, while some experiences, such as hangovers, were by definition AOD-related, a substantial proportion of other risky behaviours were also attributed to AOD use. For example, 93% of sexual situations the respondent wasn't happy about at the time, 86% of sexual encounters later regretted and 71% of unprotected sex, was ascribed to AOD use.

In one of the few evaluated Spring Break interventions, Cronin surveyed students intending to attend Spring Break on their drinking intentions, negative outcomes they thought might experience as a result of drinking and presented them with prevalence estimates for common outcomes. This intervention group reported lower negative outcome incidence post Spring Break compared to a control group who were not surveyed prior to the celebrations (Cronin, 1996). Although Cronin states that the prediction of alcohol related problems was the entire intervention, the statement of intent, being shown prevalence estimates, and even reactivity could have also had an effect on the eventual negative consequences. In view of Cronin's results, increasing awareness of negative experiences appears to be important to inform as well as for its possible intervention effects. So leavers could be encouraged to be aware of and discuss potential negative consequences, contingency plans and to make protective pacts with their friends.

Using peer norms to identify 'higher risk' individuals and for universal intervention

It may be of interest to identify 'higher risk' individuals for targeted intervention prior to *Leavers*. Tools that assist in risk assessment might focus on expressed intentions, or estimations of peer AOD use. Personal intentions, reports of personal behaviour, and expectations/estimations of the same-gender peer use were all highly correlated. Due to this high correlation, peer behaviour may serve as a more sensitive way of asking about intended or past actions. Also, past behaviour reliably predicted both the quantity of alcohol and whether illicit drugs were used. So measures of past behaviour could also be capitalised upon to identify higher risk individuals in prevention/ intervention programs. Of note however, is that although it is possible to target high risk individuals, within a high risk environment such as

Leavers where the majority of the population are likely to be drinking at risky levels, a universal intervention would probably resemble a targeted intervention. That is, if resources do not permit screening by potential risk, the current universal approach to harm minimisation would be expected to remain beneficial.

The high correlation between intent and reported levels of alcohol use suggest that interventions will be of relevance in a relatively distal period prior the celebrations. As the majority (61%) of leavers drank more than they intended to at the celebrations, leavers could be encouraged to try to adhere to their original plan. In comparison, the seemingly more opportunistic use of illicit drugs suggests that current intervention efforts have a) been fairly efficacious in reducing intent to use illicit drugs and that b) further focus on opportunistic use may continue to have impact much closer to the time of the event, or during the event.

It's important to note here that self-selection is likely occurring. Approximately 20,000 young people graduate from year 12 in WA, 10,000 attend a *Leavers* celebration and 1,500 attend the hotspot of RI. There is evidence that people with a history of riskier AOD use self-select to attend events such as *Leavers* with a reputation for risky behaviour. The leavers surveyed here likely have an AOD use background that is riskier than the average year 12 student.

That is, *Leavers* attendees likely self-select and do not represent the 'typical' young person. Though risky drinking is commonplace at the celebrations, to present the behaviour as 'typical' may reinforce misperceptions young people may already hold that their peers are drinking more than them. Dissemination of quantity-specific information without the concepts of self-selection and the greater drinking hours available may have unintended consequences of reinforcing and normalising the idea that the 'typical' young person drinks very risky quantities of alcohol.

Conversely, peer influence can also be protective. As peer understandings that they will/will not get drunk/use other drugs etc. at *Leavers* correlated with intentions for AOD use, it could be encouraged that the young people create understandings about more protective behaviours prior to attending the celebrations.

Further research - augmenting existing monitoring efforts and conducting follow-up studies

Further research could be conducted in two main areas – augmenting existing monitoring efforts and conducting follow-up studies. Firstly, should the annual interagency post-*Leavers* survey continue to be administered, some methods used in this thesis could be incorporated into the survey. Namely, the standard drink response method accompanied by a visual guide could be used to provide quantity-specific alcohol estimations that are potentially more precise and reliable than the bracketing currently used. Also, the use of a dichotomous response for use of drugs other than alcohol could be used without quantity specific information to maximise response rates and to reduce survey burden. Secondly, further research may explore the longer-term impact of risky behaviour at *Leavers* on future behaviour patterns or long-term harm. For example, if heavy AOD use was associated with an enjoyable holiday, this may encourage continual or heavier AOD use in other contexts (Bellis, Hughes, Calafat, Juan, & Schnitzer, 2009). This increase in regular AOD use during adolescence may also contribute to AOD dependence in adulthood (Bonomo, et al., 2004).

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Appendix

This appendix has six sections (A-F):

APPENDIX.....	367
APPENDIX A – SURVEY PILOTING	369
<i>Questions used to guide focus group discussion</i>	369
<i>Pilot group information and consent form</i>	370
<i>Statistics on the reliability of the piloted questionnaires</i>	372
APPENDIX B - NHMRC CHART (ORIGINAL)	380
APPENDIX C – NDSHS BEVERAGE SPECIFIC TABLE (ORIGINAL).....	381
APPENDIX D – PRE-LEAVERS SURVEY	382
<i>Pre-Leavers survey information sheet</i>	382
<i>Pre-Leavers survey instrument</i>	383
<i>Pre-Leavers survey item development</i>	396
APPENDIX E – POST-LEAVERS SURVEY	401
<i>Post-Leavers survey information sheet</i>	401
<i>Post-Leavers survey instrument</i>	403
APPENDIX F – ADDITIONAL STATISTICS FROM HYPOTHESIS/POST-HOC TESTING	418
<i>Hypothesis 8 – Identifying predictors of negative consequences</i>	418
<i>Post-hoc test 4: Caffeine used with alcohol and negative AOD consequences at Leavers</i>	439
<i>Post-hoc test 7: Attitudes, norms and expectations, and intent to use alcohol</i>	443

Appendix A – Survey piloting

Questions used to guide focus group discussion

Did you find anything difficult to understand?

- When I asked about the “last social event you attended with your friends”, what kinds of events were you guys thinking of?
- Did anyone have any trouble filling out the big detailed tables where you described which drinks you consumed?
- Did you talk about whether or not you would drink/use drugs/ create ‘pacts’/promises to do/no do these things prior to Leavers?
- Where did you guys get the alcohol and other drugs you used during *Leavers*? (Prompt examples: boats, purchase on island etc.)
- What happened on the last day of leavers? Any more drinking? Did you go home for more parties?
- What would be some attractive incentives for the survey prize pool? What would be some attractive immediate incentives (smaller items to be given out with every survey) for the paper surveys?
- How willing would you guys be to do this survey a) online b) on last day of leavers
- Pre-Leavers survey Q12 – how did you guess how much your friends would be drinking at leavers? (Prompt example: compare their usual usage to your own usage?)
- Have you come across the concept of a ‘standard drink’ before you saw it in the survey?
- Where there any things that you saw or felt at Leavers that you thought affected your alcohol and drug use? (Prompt example: were there certain things that your friends or other leavers were doing that made you want, or not want to use alcohol and drugs?)
- Did you feel the survey left anything out?

Pilot group information and consent form

Alcohol and other drug use at Leavers celebrations in WA Information and consent form for “test-retest” participants



Purpose of the research

You have been asked to participate in a study that will explore alcohol and other drug use at school leavers' celebrations ("*Leavers*"). The aim of this project is to make celebrations like *Leavers* safer for young people in the future.

Your role as a participant

By participating you will help the research team check that their survey questions are easy to interpret. There will be two research sessions held about one week apart. Each session will run for about 30 minutes. You will be reimbursed \$15 per session for your time and travel costs.

Project outcomes

This research project will be one of a number of sources of information about alcohol and other drug use by young people in Australia. The information from this project can be used on behalf of young people. Also, the results can be used to help make decisions on a range of issues including treatment and law enforcement. We try to respect the interests of young people when we collect our data and report our findings. Overall, we believe that services and policies that concern young people are improved when informed by research such as this which draws on the knowledge of young people themselves.

Confidentiality

Any information that you give will be anonymous. The signature and name you provide on this form will not be linked with the information you give in the research session. The raw data you provide to us (such as completed surveys) will be kept for five years in a secure place. After this period, all raw data will be destroyed. This is a requirement of Curtin University of Technology. You do not have to agree to participate in this research session. You do not have to answer any questions you don't want to. You may stop and leave at any time you wish. No action will be taken if you do not wish to continue.

Additional information

This study is a part of a PhD project funded by the WA Office for Youth. You can discuss any questions you have about the study with Tina Lam on (08) 9266 3170, Professor Steven Allsop on (08) 9266 1606, or Associate Professor Tanya Chikritzhs on (08) 9266 1609. All these people are from the National Drug Research Institute, Curtin University of Technology.

This study has been approved by the Curtin University Human Research Ethics Committee (HREC). This committee is made up of members of the public, academics, lawyers, doctors and pastoral carers. Its main role is to protect participants. This project has been given the approval number of HR 135/2008. If needed, you can confirm this project's approval by writing to the Curtin University HREC. Their mailing address is: HREC, c/- Office for Research and Development, Curtin University of Technology, GPO Box U1987,

Perth, 6845. You can also telephone the committee on (08) 9266 2784, or email them at hrec@curtin.edu.au.

By signing this consent form, you agree that:

- You are 16 years of age or older
- You have read and understand what this project is about
- Any questions you have had, have been answered to your satisfaction
- You agree to participate in this research session
- You agree that the information you provide will be used in the research project

Signature: _____

Name: _____

Date: _____

Statistics on the reliability of the piloted questionnaires

The piloting procedure's test-retest data assisted in the psychometric assessment of the reliability of the surveys. Continuous variables were analysed using paired samples t-tests and Pearson product-moment correlation coefficients. Ordinal variables such as Likert scale items were analysed using Spearman's rho. Nominal variables were analysed using Cohen's kappa statistic, a measure of inter-rater agreement that takes into account the agreement that occurs by chance. The overall reliability of the surveys was considered adequate. The overall reliability of the post-*Leavers* survey was higher than that of the pre-*Leavers* survey; possibly explained as the pre-*Leavers* survey required participants to think about their pre-event intentions in relation to an incident that had already occurred.

The items which had lower reliability scores in the pre-*Leavers* survey included the conditions the respondents experienced at the last social event they attended prior to *Leavers*, intentions regarding not getting drunk or experimenting with drugs other than alcohol at *Leavers*, and intentions regarding the use of 'other' drugs (a miscellaneous drug category) at *Leavers*. The lower reliability of reports of the last pre-*Leavers* social event's contextual conditions can likely be explained by recall effects. The event would have been held more than seven months prior to the completion of the survey and would likely have less salience than the conditions at *Leavers*. The 'other' drug category likely produced inconsistent data as there was not a specific drug as the target concept.

The items which had lower reliability scores in the post-*Leavers* survey included descriptions of alcohol use on the day before *Leavers*, use of 'other drugs' and the conditions at *Leavers*. The items describing the day prior to *Leavers* were not used in the final survey. Of the 13 item scale describing the conditions at *Leavers* that may have been conducive to AOD use, two items had Spearman's rho correlations of .43. However, using the final dataset (not pilot data) the Cronbach's alpha for the scale including these items was adequate. More specific reliability statistics obtained through the piloting process are presented alongside the descriptions of the various scales used in this study. A full listing of the pilot reliability statistics are found below.

1. Piloted pre-Leavers survey instrument reliability statistics

VARIABLE	Correlation	N	Paired samples t-test	Cohen's Kappa (κ)
Q10 alc intention (yes/no/not sure)		19		all 19 said 'yes'
Q11 alc intention (sd qty)	.820**	19	t(18)=-.80, p>.05	
Q12 friend alc expectation	.808**	19	t(18)=-.76, p>.05	
Q13 ave leaver alc expectation	.573*	19	t(18)=-.29, p>.05	
Q14a Intend to get drunk at L	.604**	20		
Q14b Intend to get high at L	.708**	18		
Q14c Intend amph use	.831**	20		
Q14d Intend caff use	.645**	20		
Q14e Intend cannabis use	.779**	20		
Q14f Intend ecstasy use	.860**	20		
Q14g intend other drug use	0.385	10		
Q14h expect ave L amph	.788**	20		
Q14i expect ave L caff	.655**	20		
Q14j expect ave L cannabis	.664**	20		
Q14k expect ave L ecstasy	.759**	20		
Q14l expect ave L other drugs	0.549	8		
Q15a let loose	.676**	20		
Q15b_ok_drunk	.574**	20		
Q15c_pact_drunk	.451*	20	pilot items	
Q15d_not_drunk	0.391	20	15c- 15f were	
Q15e_will_drug	.726**	20	changed prior	
Q15f_not_drugs	0.091	20	to use in the	
Q15g_everyone_drunk	.742**	20	final survey	
Q15h_pressure_alcohol	.470*	20		
Q15i_pressure_cannabis	.514*	20		
Q15j_pressure_amphetamines	.542*	20		
Q15k_pressure_ecstasy	.601**	20		
Q15l_pressure_other	.493*	20		
Q15m_fully_experience	.715**	19		
Q15n_fully_experience_drugs	.786**	20		
Q15o_memorable	.649**	20		
Q16 what was the last event?		19		0.902
Q17 Use alc @ last event?		17		1

* p < 0.5, ** p < 0.01

Note: Correlations (Pearsons for Q11-13 & 18; Spearmans rho for all other items) and paired samples t-tests were used for continuous variables and Cohen's Kappa (κ) for nominal variables.

VARIABLE	Correlation	n	Paired t-test	Cohen's κ
Q18 alc use @ last event (deatiled)	.565*	17	t(16)=1.93, p>.05	
Q19 alc source (last event)				
Q19 source of alc (bought)				
Q19 source of alc (parents)		17		0.721
Q19 source of alc (sibling)		17		1
Q19 source of alc (home)				can't compute - variable is a constant
Q19 source of alc (friends)		17		0.469
Q19 source of alc (buy for me)		17		0.443
Q19 source of alc (other)		17		can't compute - variable is a constant?
Q20a amphetamines at last event		20		all 20 said 'no'
Q20b caffeine at last event		20		0.571
Q20c cannabis (last event)		20		1
Q20d ecstasy (last event)		20		0.643
Q20 other drug (last event)		10		all 10 said 'no'
Q21 drug source (friends)		16		0.217
Q21 drug source (dealer)		18		1
Q21 drug source (workmate, acquaintances, street dealer)		18		can't compute
Q21 drug source (shop)		16		0.308
Q21 drug source (other)		17		1
Q21 drug source (N/A)		18		0.416
Q25 how frequent >4 sd		20		could not be computed - require symmetry
Q26 - when last time you had >4?		20		0.833
Q34 let-loose @ last event	0.373	16		
Q34b_opportunity to drink	0.378	16		
Q34c_everyone	0.164	16		
Q34d_pressure	0.338	16		
Q34e_drunk	0.439	16		
Q34f_encouraged	.521*	16		
Q34g_opportunity to use drugs	.638**	16		
Q34h_everyone	.754**	16		
Q34i_pressure	.595*	16		
Q34j_encouraged	.746**	16		
Q34k_streetdrinking	0.453	16		
Q34l_disorderly	0.262	16		
Q34m_drugpossession	.571*	16		
Average of conducive conditions	0.34385714			

* p< 0.5, ** p< 0.01

Note: Correlations (Pearsons for Q11-13 & 18; Spearman's rho for all other items) and paired samples t-tests were used for continuous variables and Cohen's Kappa (κ) for nominal variables.

VARIABLE	Correlation	n	Paired t-test	Cohen's κ
Q36a heavy AOD use reputation	.562**	20		
Q36b vomit after Leavers	0.396	20		
Q36c vomit after non L event	.756**	20		
Q36d sex after Leavers	.825**	20		
Q36e sex after non-L event	.883**	20		
Q37 - some behav more acceptable?		20		0.765
Q39a discuss alc with parents	.845**	20		
Q39b discuss drugs with parents	.512*	20		
Q39c parents approve >5 drinks	.708**	20		
Q39d parents approve drugs	.544*	20		
Q39e discuss parents safety	.817**	20		
Q39f discuss peers safety	.804**	20		
Q40 mother's first name		20		1 could not compute - require symmetry
Q40 father's first name		20		
Q40 older brothers				
Q40 older sisters				
Q40 first/second alphabet half		20		0.894
Q40 birth month		20		1
Q40 odd/even year		20		could not compute - constants
Q40 middle initial		20		1

* $p < 0.5$, ** $p < 0.01$

Note: Correlations (Pearsons for Q11-13 & 18; Spearman's rho for all other items) and paired samples t-tests were used for continuous variables and Cohen's Kappa (κ) for nominal variables.

2. Piloted post-Leavers survey instrument reliability statistics

VARIABLE	Correlation	n	Paired samples t-test	Cohen's Kappa (κ)
Mean alc consumption over 3 official L days (sd method)	.925**	20	t(19)=-.161,p>.05	
Mean alc consumption over 3 official L days (detailed response method)	.888**	20	t(19)=1.68,p>.05	
Q11a sd day before L	0.188	19	t(18)=-2.02,p>.05	
Q11b sd day 1	.946**	20	t(19)=-.97,p>.05	
Q11c sd day 2	.785**	20	t(19)=.25,p>.05	
Q11c sd day 3	.712**	20	t(19)=.31,p>.05	
Q11d sd last day	.882**	19	t(19)=1.46,p>.05	
Q11a drink hrs day before L	0.429	19	t(18)=-1.79,p>.05	
Q11b drink hrs day 1	.507*	20	t(19)=.85,p>.05	
Q11c drink hrs day 2	.714**	20	t(19)=1.46,p>.05	
Q11c drink hrs day 3	.555*	19	t(18)=-.90,p>.05	
Q11d drink hrs last day	.827**	20	t(17)=1.31,p>.20	
Q11a feel drunk day before L				0.406
Q11b feel drunk day 1				0.273
Q11c feel drunk day 2				0.066
Q11c feel drunk day 3				0.503
Q11d feel drunk last day				0.638
Q12 detailed resp alc day 1	.826**	20	t(19)=.75,p>.05	
Q12 detailed resp alc day 2	.790**	20	t(19)=1.44,p>.05	
Q12 detailed resp alc day 3	.906**	19	t(18)=1.54,p>.05	
Q13 source of alc (bought)		20		1
Q13 source of alc (parents)		20		0.886
Q13 source of alc (sibling)		20		0.608
Q13 source of alc (home)		20		1
Q13 source of alc (friends)		20		0.783
Q13 source of alc (buy for me)		20		0.56
Q13 source of alc (other)		20		all 20 said 'no'
Q14 when obtain alc?		20		can't compute - need symmetry
Q15 sd same sex friend	.897**	20	t(19)=-1.21,p>.05	
Q16 sd ave same sex leaver	.819**	20	t(19)=-.23,p>.05	
Q17 parent discussion	.713**	20		
Q18 ave same sex leaver used:				
a amph	.752**	20		
b caffeine	.813**	20		
c cannabis	.718**	20		
d ecstasy	.814**	19		
e other	.898**	7		

* p < 0.5, ** p < 0.01

Note: Correlations (Pearsons for all above items except Q17-18 which used Spearmans rho) and paired samples t-tests were used for continuous variables and Cohen's Kappa (κ) for nominal variables.

VARIABLE	n	Paired t-test	Cohen's κ
Q19 offered drugs?	20		can't compute - need symmetry
Q20 amphetamines (day 1)	19		0.826
Q20 caffeine (day 1)	20		0.7
Q20 cannabis (day 1)	19		1
Q20 ecstasy (day 1)	20		0.688
Q20 other (day 1)	9		can't compute - constants
Q20 amphetamines (day 2)	0		can't compute - rt data is a constant (all 'no')
Q20 caffeine (day 2)	19		0.537
Q20 cannabis (day 2)	0		can't compute - rt data is a constant (all 'no')
Q20 ecstasy (day 2)	19		0.855
Q20 other (day 2)	9		call 'no'
Q20 amphetamines (day 3)	19		1
Q20 caffeine (day 3)	19		0.883
Q20 cannabis (day 3)	19		0.642
Q20 ecstasy (day 3)	20		1
Q20 other (day 3)	9		all 'no'
Q20 amphetamines qty (day 1)	3	t(2) = .756, p> .05	
Q20 caffeine qty (day 1)	7	t(6) = 2.83, p< .05	test mean is 2.2, rt mean is 1.7
Q20 cannabis qty (day 1)	2	t(1) = 1, p> .05	
Q20 ecstasy qty (day 1)	2	can't compute - std error of difference is 0	
Q20 amphetamines qty (day 2)	0		n/a
Q20 caffeine qty (day 2)	4	t(3) = .40, p> .05	
Q20 cannabis qty (day 2)	0		n/a
Q20 ecstasy qty (day 2)	4	t(3) = -1.00, p> .39	
Q20 amphetamines qty (day 3)	2	t(1) = -1.00, p> .05	
Q20 caffeine qty (day 3)	5	t(4) = .00, p>1	
Q20 cannabis qty (day 3)	1	sum of caseweights is less than or equal to 1	
Q20 ecstasy qty (day 3)	3	can't compute - std error of difference is 0; eyeball: consistent responses	
Q21a_drug_source_friends_2	11		0.621
Q21b_dealer_2	11		0.389
Q21c_workmates_2	11		can't compute - constants
Q21d_acquaintances_2	11		can't compute - constants
Q21e_streetdealer_2	11		can't compute - constants - all 11 said 'no'
Q21f_shop_2	11		0.621
Q21g_other_2	11		1
Q22_when_obtain_drug_2	11		0.703
Q23_intox_location_2	13		can't compute

VARIABLE	Correlation	n	Cohen's κ
Q25a_Hangover_2		20	can't compute
Q25b_Emotional_outbursts_2		20	can't compute
Q25c_Vomiting_2		20	0.78
Q25d_Argument_2		20	0.792
Q25e_Accident_2		20	can't compute
Q25f_Aggression_2		20	can't compute
Q25g_Blackout_2		20	0.51
Q25h_\$_2		20	0.643
Q25i_Unprotected_sex_2		20	1
Q25j_Sex_unhappy_2		20	can't compute
Q25k_Sex_regretted_2		20	0.773
Q25l_Stole_2		20	1
Q25m_Vandalism_2		20	can't compute
Q25n_Removed_from_island_2		20	can't compute- all 20 said 'no'
Q25o_Arrested_2		20	can't compute- all 20 said 'no'
Q26 harm minimisation strategies			
ai never alone whilst intoxicated	.694**	20	
a ii knew who to call if trouble	.648**	20	
Q26b Protective Behavioural Strategies Scale (PBSS) items			
bi not exceed set drink number	.592**	20	
bii alternate with non alcoholic	.666**	20	
biii friend to say stop	.535*	20	
biv leave time	.501*	20	
bv stop drink time	.621**	20	
bvi drank water	.683**	20	
bvii extra ice	.596**	20	
bviii avoid drinking games	.447*	20	
bvix drank shots	.516*	20	
bx avoid mixing	.548*	20	
bxi drank slowly	.769**	20	
bxii avoid keeoup	.455*	20	
bxiii home with friend	.579*	20	
bxiv know drink location	.691**	20	
Conditions conducive to AOD use at Leavers			
Q27 let-loose @ leavers	0.431	20	
Q27_opportunity to drink	.528*	20	
Q27_everyone	.528*	20	
Q27_pressure	.701**	20	
Q27_drunk	.703**	20	
Q27f_encouraged	.873**	20	
Q27g_opportunity to use drugs	.830**	20	
Q27h_everyone	.904**	20	
Q27i_pressure	.720**	20	
Q27j_encouraged	0.432	19	
Q27k_streetdrinking	.771**	20	
Q27l_disorderly	.694**	20	
Q27m_drugpossession	.642**	20	

* $p < 0.5$, ** $p < 0.01$

Note: Correlations (Spearman's rho for Q26-27) and Cohen's Kappa (κ) for nominal variables.

Appendix B - NHMRC chart (original)



Chart from: National Health and Medical Research Council (NHMRC). (2009, 29 October). The Australian standard drink. http://www.nhmrc.gov.au/your_health/healthy/alcohol/index.htm#do

Appendix C – NDSHS Beverage specific table (original)

E18. How many bottles, glasses, cans or nips of alcohol did you drink <u>yesterday</u>?							
Please write in the number for <u>each</u> type of drink below:							
BEER	Beer Cans (375-440 mL)	Small Beer Bottles (330-375 mL)	Large Beer Bottles (Approx. 750 mL)	Small Beer Glass (210 mL)	Medium Beer Glass (285 mL)*	Large Beer Glass (425 mL)	Other size (write in): <input style="width: 80px; height: 20px;" type="text"/> 1
Home-brewed beer	<input style="width: 30px; height: 20px;" type="text"/>	<input style="width: 30px; height: 20px;" type="text"/>	<input style="width: 30px; height: 20px;" type="text"/>	<input style="width: 30px; height: 20px;" type="text"/>	<input style="width: 30px; height: 20px;" type="text"/>	<input style="width: 30px; height: 20px;" type="text"/>	<input style="width: 30px; height: 20px;" type="text"/>
Regular strength beer (greater than 4% Alc/Vol)	<input style="width: 30px; height: 20px;" type="text"/>	<input style="width: 30px; height: 20px;" type="text"/>	<input style="width: 30px; height: 20px;" type="text"/>	<input style="width: 30px; height: 20px;" type="text"/>	<input style="width: 30px; height: 20px;" type="text"/>	<input style="width: 30px; height: 20px;" type="text"/>	<input style="width: 30px; height: 20px;" type="text"/>
Mid strength beer (3% to 3.9% Alc/Vol)	<input style="width: 30px; height: 20px;" type="text"/>	<input style="width: 30px; height: 20px;" type="text"/>	<input style="width: 30px; height: 20px;" type="text"/>	<input style="width: 30px; height: 20px;" type="text"/>	<input style="width: 30px; height: 20px;" type="text"/>	<input style="width: 30px; height: 20px;" type="text"/>	<input style="width: 30px; height: 20px;" type="text"/>
Low alcohol beer (1% to 2.9% Alc/Vol)	<input style="width: 30px; height: 20px;" type="text"/>	<input style="width: 30px; height: 20px;" type="text"/>	<input style="width: 30px; height: 20px;" type="text"/>	<input style="width: 30px; height: 20px;" type="text"/>	<input style="width: 30px; height: 20px;" type="text"/>	<input style="width: 30px; height: 20px;" type="text"/>	<input style="width: 30px; height: 20px;" type="text"/>
*NSW, WA, ACT = Middy; VIC, QLD, TAS = Pot; NT = Handle; SA = Schooner.							
WINE		Small Wine Bottles (375 mL)	Large Wine Bottles (750 mL)	Small Wine Glass (120 mL)	Medium Wine Glass (180 mL)	Large Wine Glass (220 mL)	Other size (write in): <input style="width: 80px; height: 20px;" type="text"/> 2
Home-made wine		<input style="width: 30px; height: 20px;" type="text"/>	<input style="width: 30px; height: 20px;" type="text"/>	<input style="width: 30px; height: 20px;" type="text"/>	<input style="width: 30px; height: 20px;" type="text"/>	<input style="width: 30px; height: 20px;" type="text"/>	<input style="width: 30px; height: 20px;" type="text"/>
Cask wine				<input style="width: 30px; height: 20px;" type="text"/>	<input style="width: 30px; height: 20px;" type="text"/>	<input style="width: 30px; height: 20px;" type="text"/>	<input style="width: 30px; height: 20px;" type="text"/>
Bottled wine		<input style="width: 30px; height: 20px;" type="text"/>	<input style="width: 30px; height: 20px;" type="text"/>	<input style="width: 30px; height: 20px;" type="text"/>	<input style="width: 30px; height: 20px;" type="text"/>	<input style="width: 30px; height: 20px;" type="text"/>	<input style="width: 30px; height: 20px;" type="text"/>
PRE-MIXED SPIRITS		Pre-mixed Spirit Cans (375-440 mL)	Pre-mixed Spirit Bottles (Approx. 300 mL)	Large pre-mixed Spirit Bottles (Approx. 650 mL)			Other size (write in): <input style="width: 80px; height: 20px;" type="text"/> 3
Pre-mixed spirits in cans (e.g. UDL, Jim Beam & Cola)		<input style="width: 30px; height: 20px;" type="text"/>					<input style="width: 30px; height: 20px;" type="text"/>
Pre-mixed spirits in bottles (e.g. Lemon Ruski, Stoli, Bacardi Breezer)			<input style="width: 30px; height: 20px;" type="text"/>	<input style="width: 30px; height: 20px;" type="text"/>			<input style="width: 30px; height: 20px;" type="text"/>
STRAIGHT SPIRITS (NOT PRE-MIXED)	Mini Spirit Bottles (50 mL)	Small Spirit Bottles (Approx. 350 mL)	Large Spirit Bottles (700 mL)	Single measure or one nip (30 mL)	Double measure or two nips (60 mL)	Triple measure or three nips (90 mL)	Other size (write in): <input style="width: 80px; height: 20px;" type="text"/> 4
Bottled spirits and liqueurs (e.g. gin, vodka, rum, Kahlua)	<input style="width: 30px; height: 20px;" type="text"/>	<input style="width: 30px; height: 20px;" type="text"/>	<input style="width: 30px; height: 20px;" type="text"/>	<input style="width: 30px; height: 20px;" type="text"/>	<input style="width: 30px; height: 20px;" type="text"/>	<input style="width: 30px; height: 20px;" type="text"/>	<input style="width: 30px; height: 20px;" type="text"/>
FORTIFIED WINE		Small Bottles (375 mL)	Large Bottles (750 mL)	Small Glass (60 mL)	Medium Glass (120 mL)	Large Glass (180 mL)	Other size (write in): <input style="width: 80px; height: 20px;" type="text"/> 5
Port, vermouth, sherry, etc.		<input style="width: 30px; height: 20px;" type="text"/>	<input style="width: 30px; height: 20px;" type="text"/>	<input style="width: 30px; height: 20px;" type="text"/>	<input style="width: 30px; height: 20px;" type="text"/>	<input style="width: 30px; height: 20px;" type="text"/>	<input style="width: 30px; height: 20px;" type="text"/>
OTHER	Cans (375 mL)	Small Bottles (375 mL)	Large Bottles (750 mL)	Small Glass (60 mL)	Medium Glass (120 mL)	Large Glass (180 mL)	Other size (write in): <input style="width: 80px; height: 20px;" type="text"/> 6
Other (please write in):	<input style="width: 80px; height: 20px;" type="text"/> 7	<input style="width: 30px; height: 20px;" type="text"/>	<input style="width: 30px; height: 20px;" type="text"/>	<input style="width: 30px; height: 20px;" type="text"/>	<input style="width: 30px; height: 20px;" type="text"/>	<input style="width: 30px; height: 20px;" type="text"/>	<input style="width: 30px; height: 20px;" type="text"/>



Table from: Australian Institute of Health and Welfare. (2008). 2007 National Drug Strategy Household Survey: detailed results. Canberra: Australian Institute of Health and Welfare

Appendix D – Pre-Leavers survey

Pre-Leavers survey information sheet

Information about the Rottnest Leavers surveys

Thanks for thinking about completing this survey!

This survey:

- Should take about **10 minutes** to complete
- Is completely **anonymous** - so no one will know what you answer
- Is your chance to make *Leavers* better and safer for future leavers
- Is **voluntary** - so you don't have to do the survey or can stop even if you have started the survey
- Is a part of a **university based PhD project**
- Has been approved by the *Curtin University Human Research Ethics Committee* (approval number: HR 135/2008; you can contact the committee on (08) 9266 2784)

To do this survey:

- You have to be **16 years or older**
- You have to have finished **year 12 in 2009**
- It is important to be **honest** – we are interested in what you really think!

As a bonus - if you fill in your email address after finishing the survey, you will be to be entered into a prize draw (one of 50 \$20 **JB Hi-Fi vouchers**). Your email address will not be linked with your survey responses.

If you're interested in finding out more, or if you want to tell us about your *Leavers* experience visit www.ndri.curtin.edu.au/rotnnestleavers, email at rotnnestleavers@gmail.com or call on (08) 9266 1600.

We hope you have a fabulous time on Rotto - and hopefully you'll consider doing the post-*Leavers* survey which will be available as of the last day of *Leavers*. Look out for the research team at *Rottnest Leavers* – we'll be wearing white Curtin polo tops!

YOU CAN RETURN YOUR COMPLETED SURVEY TO A CURTIN STAFF MEMBER

THIS INFORMATION SHEET IS YOURS TO KEEP

Pre-Leavers survey instrument

Rottnest Leavers 2009

Pre-Leavers Survey

Do you intend to go to the *Leavers* celebrations this year?

- Yes
 No

Where do you intend on celebrating *Leavers*?

- Rottnest Island
 Rottnest Island and other locations
 Dunsborough
 South West region of WA (not including Dunsborough)
 Other: _____

In what year will you finish year 12?

- 2009
 2008 or earlier
 2010 or later

What is the ONE most important reason you want to attend *Leavers*?

- Be with friends Celebrate/have fun Holiday
 Relax Party/get drunk Meet new people
 Do things I didn't get to do during year 12
 Other: _____

What is the ONE most important reason you are choosing to celebrate *Leavers* at Rottnest Island?

- Friends going there Has a reputation as a popular place to go for *Leavers*
 Good party reputation Good recreation (entertainment zone/beaches etc.)
 Price was right Has a reputation for safety
 No cars on Island Rottnest is a small area/has short walking distances
 Other: _____

What is your home postcode? _____

What month were you born in?

- | | | | |
|----------|-------|-----------|----------|
| January | April | July | October |
| February | May | August | November |
| March | June | September | December |

What year were you born in?

- 1990 or earlier 1991 1992 1993 1994 or later

What is your gender?

- Male Female

What type of school did you attend in year 12?

- State Private

Section 1

Do you intend to use alcohol at Leavers?

- Yes No Not sure

Please refer to the picture below to help you answer the following questions. The picture shows an estimation of how many standard drinks are contained in each type of alcoholic drink.

SPIRITS & PRE-MIXED SPIRITS				BEER								
												
22 700 ml Bottle of Spirits 40% alc/vol	1.1 275 ml Full Strength Pre-mixed Spirits (e.g. Bacardi Breezer, Vodka Cruiser) 5% alc/vol	1.2 330 ml Full Strength Pre-mixed Spirits (e.g. Smirnoff Ice, Lemon Ruski, UDL) 5% alc/vol	1.8 330 ml High Strength Pre-mixed Spirits (e.g. Cruiser/Ruski/ Smirnoff "Black") 7% alc/vol	1.4 375 ml Full Strength Beer 4.8% alc/vol	1 375 ml Mid Strength Beer 3.5% alc/vol	0.8 375 ml Low Strength Beer 2.7% alc/vol	1.1 285 ml (middy) Full Strength Beer 4.8% alc/vol	2.2 570 ml (pint) Mid Strength Beer (e.g. Carlton Mid, XXXX Gold) 3.5% alc/vol	0.8 285 ml (middy) Low Strength Beer (e.g. Hahn Premium "Light") 2.7% alc/vol	1.6 570 ml (pint)	0.6 285 ml (middy)	1.2 570 ml (pint)
												
1 30 ml Shot 40% alc/vol	1.5 375 ml Full Strength Pre-mixed Spirits (e.g. Jim Beam & Cola) 5% alc/vol	1.7 440 ml Full Strength Pre-mixed Spirits (e.g. Woodstock Bourbon & Cola) 5% alc/vol	2.1 375 ml High Strength Pre-mixed Spirits (e.g. Jim Beam "Black" & Cola) 7% alc/vol									
WINE (inc. champagne)							CIDER					
												
8 750 ml Bottle of Wine 13% alc/vol	7.5 750 ml Bottle of Champagne 12.5% alc/vol	41 4 litres Cask of Wine 13% alc/vol	21 2 litres Cask of Wine 13% alc/vol	1 100 ml Standard Serve of Wine 13% alc/vol	1.5 150 ml Restaurant Serve of Wine 13% alc/vol	1.5 150 ml Restaurant Serve of Champagne 12.5% alc/vol	1.4 335 ml Bottle of Cider (e.g. Strongbow) 5% alc/vol					

How much alcohol do you intend to consume on a typical day at Leavers?

___ standard drinks

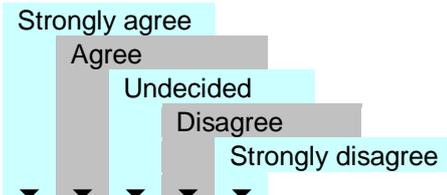
How much alcohol do you expect someone in your immediate friendship group who is the same gender as you (male/female) will be drinking on a typical Leavers day?

___ standard drinks

How much alcohol do you expect the average student who is the same gender as you will be drinking on a typical Leavers day?

___ standard drinks

Please rate how strongly you agree with the following statements:



I intend to get drunk at <i>Leavers</i>	<input type="checkbox"/>				
I intend to get stoned/high at <i>Leavers</i>	<input type="checkbox"/>				

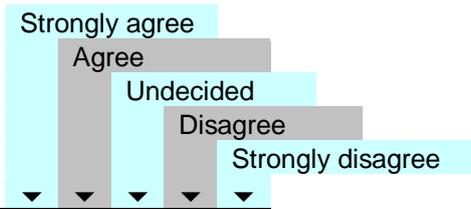
I intend on using these drugs at *Leavers*:

Amphetamines (e.g. dexamphetamines ["dexies"], speed, ice, uppers)	<input type="checkbox"/>				
Caffeine (e.g. Red Bull, V, No Doze)	<input type="checkbox"/>				
Cannabis/marijuana (weed, grass, hash, pot, a bong, a joint)	<input type="checkbox"/>				
Ecstasy (E, MDMA, eccie, bickies)	<input type="checkbox"/>				
Other drug(s) (specify): _____	<input type="checkbox"/>				

I expect the average student who is the same gender as me will be using these drugs at *Leavers*:

Amphetamines (e.g. dexamphetamines ["dexies"], speed, ice, uppers)	<input type="checkbox"/>				
Caffeine (e.g. Red Bull, V, No Doze)	<input type="checkbox"/>				
Cannabis/marijuana (weed, grass, hash, pot, a bong, a joint)	<input type="checkbox"/>				
Ecstasy (E, MDMA, eccie, bickies)	<input type="checkbox"/>				
Other drug(s) (specify): _____	<input type="checkbox"/>				

Please rate how strongly you agree with the following statements:



I am interested in 'letting loose' at <i>Leavers</i> and doing something I usually wouldn't do at home	<input type="checkbox"/>				
It is acceptable/OK for someone of my age and gender to get drunk at <i>Leavers</i>	<input type="checkbox"/>				
My friends and I have an understanding that we <u>will</u> get drunk at <i>Leavers</i>	<input type="checkbox"/>				
My friends and I have an understanding that we <u>will not</u> get drunk at <i>Leavers</i>	<input type="checkbox"/>				
My friends and I have an understanding that we <u>will</u> experiment with drugs other than alcohol at <i>Leavers</i>	<input type="checkbox"/>				
My friends and I have an understanding that we <u>will not</u> experiment with drugs other than alcohol at <i>Leavers</i>	<input type="checkbox"/>				
I would get drunk if it seemed like everyone was drinking at <i>Leavers</i>	<input type="checkbox"/>				
I will feel pressured to drink alcohol at <i>Leavers</i>	<input type="checkbox"/>				
I will feel pressured to use cannabis at <i>Leavers</i>	<input type="checkbox"/>				
I will feel pressured to use amphetamines at <i>Leavers</i>	<input type="checkbox"/>				
I will feel pressured to use ecstasy at <i>Leavers</i>	<input type="checkbox"/>				
I will feel pressured to use drugs other than the above substances at <i>Leavers</i>	<input type="checkbox"/>				
You need to consume alcohol to "fully experience" <i>Leavers</i>	<input type="checkbox"/>				
You need to consume drugs other than alcohol to "fully experience" <i>Leavers</i>	<input type="checkbox"/>				
Using alcohol and other drugs at <i>Leavers</i> will help me act in a way that is amusing and memorable to my friends	<input type="checkbox"/>				

Section 2

The following series of questions in section 2 are about the *last social event you attended with your friends*. This event cannot include any *Leavers* celebrations you may have previously attended.

Where was the last social event you attended with your friends, held? (Choose ONE location)

- | | |
|--|--|
| <input type="checkbox"/> At my home | <input type="checkbox"/> At someone else's home |
| <input type="checkbox"/> A dance party (at a dance venue, club, rave) | <input type="checkbox"/> A hotel, pub, bar, tavern or RSL club |
| <input type="checkbox"/> A sports club (e.g, Leagues, surfing, football) | <input type="checkbox"/> At the beach |
| <input type="checkbox"/> In a park | <input type="checkbox"/> Music festival |
| <input type="checkbox"/> School ball | |
| <input type="checkbox"/> Other (please specify: _____) | |

How long ago was this event held?

- ___ month(s) ago
___ week(s) ago

Did you use any alcohol at the event?

- Yes
 No > *If you did not use any alcohol at the event, please skip questions 19-21. Question 22 begins on page 6.*

How many bottles, glasses, cans or shots of alcohol did you drink at the event?

Please write in the number for each type of drink you consumed below. Leave blank the categories that don't apply to you.

* If you consumed less than an entire bottle/cask of wine/spirits you can describe the proportion you consumed in decimals. E.g. if you equally shared a bottle of spirits between four people, write '0.25' (i.e. a quarter of the bottle).

PRE-MIXED SPIRITS								Other size (write in):
		Pre-mixed Spirit Bottle (~300 ml)	Pre-mixed Spirit Can (375 ml)		Large Pre-mixed Spirit Can (440 ml)			<input type="text"/>
Full strength pre-mixed spirits (e.g. Breezers, Cruisers, UDL, Jim Beam & Cola; 5% alc/vol)		<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
High strength pre-mixed spirits (e.g. "Black" varieties; 7% or greater alc/vol)		<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
STRAIGHT SPIRITS (NOT PRE-MIXED)								Other size (write in):
	Mini Spirit Bottle (50 ml)	Small Spirit Bottle (~350 ml)	Large Spirit Bottle (700 ml)	Single Shot (30 ml)	Double Shot (60 ml)	Triple Shot (90 ml)		<input type="text"/>
Bottled spirits and liqueurs (e.g. vodka, rum, gin, Baileys)		<input type="text"/> *	<input type="text"/> *	<input type="text"/> *	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
BEER								Other size (write in):
	Beer Can (375-440 ml)	Small Beer Bottle (330-375 ml)	Large Beer Bottle (~750 ml)	Medium Beer Glass (middy; 285 ml)	Large Beer Glass (schooner; 425 ml)	Extra large Beer Glass (pint; 570 ml)		<input type="text"/>
Regular strength beer (greater than 4% alc/vol)		<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
Mid strength beer (3% to 3.9% alc/vol)		<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
Low alcohol beer (1% to 2.9% alc/vol)		<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
WINE (Includes sparkling wine e.g. champagne)								Other size (write in):
	Wine Bottle (750 ml)	Small Wine Glass (120 ml)	Medium Wine Glass (180 ml)	Large Wine Glass (220 ml)	Medium Wine Cask (2 litres)	Large Wine Cask (4 litres)		<input type="text"/>
Bottled/cask wine		<input type="text"/> *	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/> *	<input type="text"/> *	<input type="text"/>
OTHER								Other size (write in):
Other (please write in):		Can (375 ml)	Small Bottle (375 ml)	Large Bottle (750 ml)	Small Glass (150 ml)	Medium Glass (250 ml)	Large Glass (375 ml)	<input type="text"/>
<input type="text"/>		<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
OTHER								Other size (write in):
Other (please write in):		Can (375 ml)	Small Bottle (375 ml)	Large Bottle (750 ml)	Small Glass (150 ml)	Medium Glass (250 ml)	Large Glass (375 ml)	<input type="text"/>
<input type="text"/>		<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>

I don't know/remember what I drank

- | | |
|---|--|
| <input type="checkbox"/> Friends | <input type="checkbox"/> A dealer I know |
| <input type="checkbox"/> Workmates | <input type="checkbox"/> Acquaintances |
| <input type="checkbox"/> Unknown/street dealers | <input type="checkbox"/> I bought it from a shop |
| <input type="checkbox"/> Other: _____ | <input type="checkbox"/> N/A – I did not get any drugs |

Did you consume more than 4 standard drinks at this event?

- Yes > go to question 34 (page 10)
- No, but I have had more than 4 standard drinks at a social event other than the one I just described > please continue onto question 27
- No, I have never had more than 4 standard drinks at a social event > go to question 35 (page 11)

Section 3

The following series of questions in section 3 are about the *last social event you attended with your friends where you consumed more than 4 standard drinks of alcohol in a single session.*

This event cannot include any *Leavers* celebrations you may have previously attended.

Where was the last social event you attended with your friends where you consumed more than 4 standard drinks, held? (Choose ONE location)

- | | |
|--|--|
| <input type="checkbox"/> At my home | <input type="checkbox"/> At someone else's home |
| <input type="checkbox"/> A dance party (at a dance venue, club, rave) | <input type="checkbox"/> A hotel, pub, bar, tavern or RSL club |
| <input type="checkbox"/> A sports club (e.g, Leagues, surfing, football) | <input type="checkbox"/> At the beach |
| <input type="checkbox"/> In a park | <input type="checkbox"/> Music festival |
| <input type="checkbox"/> School ball | |
| <input type="checkbox"/> Other (please specify: _____) | |

How long ago was this event held?

- ___ month(s) ago
- ___ week(s) ago

How many bottles, glasses, cans or shots of alcohol did you drink at the event where you consumed more than 4 standard drinks of alcohol?

Please write in the number for each type of drink you consumed below. Leave blank the categories that don't apply to you.

* If you consumed less than an entire bottle/cask of wine/spirits you can describe the proportion you consumed in decimals. E.g. if you equally shared a bottle of spirits between four people, write '0.25' (i.e. a quarter of the bottle).

PRE-MIXED SPIRITS							
	Pre-mixed Spirit Bottle (~300 ml)	Pre-mixed Spirit Can (375 ml)	Large Pre-mixed Spirit Can (440 ml)	Other size (write in):			
Full strength pre-mixed spirits (e.g. Breezers, Cruisers, UDL, Jim Beam & Cola; 5% alc/vol)	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>			
High strength pre-mixed spirits (e.g. "Black" varieties; 7% or greater alc/vol)	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>			
STRAIGHT SPIRITS (NOT PRE-MIXED)							
	Mini Spirit Bottle (50 ml)	Small Spirit Bottle (~ 350 ml)	Large Spirit Bottle (700 ml)	Single Shot (30 ml)	Double Shot (60 ml)	Triple Shot (90 ml)	Other size (write in):
Bottled spirits and liqueurs (e.g. vodka, rum, gin, Baileys)	<input type="text"/> *	<input type="text"/> *	<input type="text"/> *	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
BEER							
	Beer Can (375-440 ml)	Small Beer Bottle (330-375 ml)	Large Beer Bottle (~ 750 ml)	Medium Beer Glass (middy; 285 ml)	Large Beer Glass (schooner; 425 ml)	Extra large Beer Glass (plnt; 570 ml)	Other size (write in):
Regular strength beer (greater than 4% alc/vol)	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
Mid strength beer (3% to 3.9% alc/vol)	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
Low alcohol beer (1% to 2.9% alc/vol)	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
WINE							
(Includes sparkling wine e.g. champagne)	Wine Bottle (750 ml)	Small Wine Glass (120 ml)	Medium Wine Glass (180 ml)	Large Wine Glass (220 ml)	Medium Wine Cask (2 litres)	Large Wine Cask (4 litres)	Other size (write in):
Bottled/cask wine	<input type="text"/> *	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/> *	<input type="text"/> *	<input type="text"/>
OTHER							
Other (please write in):	Can (375 ml)	Small Bottle (375 ml)	Large Bottle (750 ml)	Small Glass (150 ml)	Medium Glass (250 ml)	Large Glass (375 ml)	Other size (write in):
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
OTHER							
Other (please write in):	Can (375 ml)	Small Bottle (375 ml)	Large Bottle (750 ml)	Small Glass (150 ml)	Medium Glass (250 ml)	Large Glass (375 ml)	Other size (write in):
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>

I don't know/remember what I drank
Over how many hours did the drinking occur?

Where did you get the alcoholic drinks you consumed at the event from? (Select all that apply)

- I bought it
- My parents gave it to me
- My brother or sister gave it to me
- I took it from home without my parent(s) permission
- Friends gave it to me
- I got someone to buy it for me
- Other: _____

Did you use any of these drugs at the event?

Amphetamines (e.g. dexamphetamines ["dexies"], speed, ice, uppers)

- No
- Yes → How much did you use? (Please write a number)
___ tablets/pills
___ lines
___ smokes
___ shots/injections
___ doses through another way of using (please specify: _____)

Caffeine (e.g. Red Bull, V, No Doze)

- No
- Yes → How much did you use?
___ cans/bottles
___ tablets
___ doses through another way of using (please specify: _____)

If you used caffeine, did you use it with alcohol?

- Yes
- No

Cannabis/marijuana (weed, grass, hash, pot, a bong, a joint)

- No
- Yes → How much did you use?
___ cones
___ joints
___ doses in another way of using (please specify: _____)

Ecstasy (E, MDMA, Eccie, bickies)

- No
- Yes → How much did you use?
___ tablets/pills
___ lines
___ smokes
___ shots/injections
___ doses in another way of using (please specify: _____)

Other drug(s) (please specify: _____)

- No
- Yes → How much did you use?
___ tablets/pills
___ lines
___ smokes
___ shots/injections
___ doses in another way of using (please specify: _____)

I don't know/remember what I used

From whom did you get the drugs (other than alcohol) you consumed at this event?

(Select all that apply)

- Friends
- A dealer I know

- Workmates
- Unknown/street dealers
- Other: _____
- Acquaintances
- I bought it from a shop
- N/A – I did not get any drugs

The following table contains statements about the last social event you attended with your friends where you consumed more than 4 standard drinks in a single session. Please rate how strongly you agree with the following statements:

At the event ...	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
I was in a 'let-loose' mood where I could do things I normally wouldn't do	<input type="checkbox"/>				
I had plenty of opportunities for drinking alcohol	<input type="checkbox"/>				
It seemed like everyone around me was using alcohol	<input type="checkbox"/>				
I felt pressured to drink alcohol	<input type="checkbox"/>				
I got drunk because it seemed like everyone was doing it	<input type="checkbox"/>				
I encouraged someone else to use alcohol	<input type="checkbox"/>				
I had plenty of opportunities for using drugs other than alcohol	<input type="checkbox"/>				
It seemed like everyone around me was using drugs other than alcohol	<input type="checkbox"/>				
I felt pressured to use drugs other than alcohol	<input type="checkbox"/>				
I encouraged someone else to use drugs other than alcohol	<input type="checkbox"/>				
If I were street drinking there was a good chance I would get into trouble with the law	<input type="checkbox"/>				
If I were being drunk and disorderly there was a good chance I would get into trouble with the law	<input type="checkbox"/>				
If I were in possession of drugs there was a good chance I would get into trouble with the law	<input type="checkbox"/>				
I was worried that embarrassing/sensitive photos or videos taken of me at the event could end up on the Internet	<input type="checkbox"/>				

Section 5

The following questions will create an important code. This code will allow us to link your responses from this survey to your responses in the post-*Leavers* survey, whilst keeping your identity anonymous.

Please select the letter below that represents the *FIRST LETTER* of your *MOTHER'S FIRST NAME*.

Please use her given name, not her nickname. "Mother" means the person you call your mother (she could be your natural or adoptive mother).

A B C D E F G H I J K L M N O P Q R S T U V W X Y Z

Please select the letter below that represents the *FIRST LETTER* of your *FATHER'S FIRST NAME*.

Please use his given name, not his nickname. "Father" means the person you call your father (he could be your natural or adoptive father).

A B C D E F G H I J K L M N O P Q R S T U V W X Y Z

How many *OLDER BROTHERS* do you have? ___

How many *OLDER SISTERS* do you have? ___

Does *YOUR FIRST* name begin with a letter in the:

- FIRST half of the alphabet (i.e., A through M)?
- SECOND half of the alphabet (i.e., N through Z)?

Please select the letter below that represents *YOUR MIDDLE* initial. (If you have no middle initial, select the letter N).

A B C D E F G H I J K L M N O P Q R S T U V W X Y Z

You have finished the survey.

Enter the draw for one of 50 \$20 JB Hi-Fi vouchers by writing your email address below:

**PLEASE DETATCH THIS PAGE FROM THE REST OF THE SURVEY TO
KEEP YOUR RESPONSE ANONYMOUS**

Thank you for participating in our survey!

Please remember to complete the follow-up post-Leavers survey
(available from the last day of Leavers, Friday 27th of November)

Pre-Leavers survey item development

Question 15: items assessing attitudes, norms and expectations related to AOD-conducive conditions at Leavers.

'Letting loose' and the acceptability of getting drunk

The item 'I'm interested in 'letting loose' and doing something I usually wouldn't do at home' assessed expectation that *Leavers* may be a more permissive context that condoned behaviour which was normally unacceptable. It was based on items such as "I will be in a 'break-loose,' 'have fun' mood" used to assess expectations of situational conditions at other celebratory events {Maticka-Tyndale, 1999 #250; Maticka-Tyndale, 2003 #167; Milhausen, 2006 #179; Sonmez, 2006 #168}. Item reliability for the item 'I will be in a break-loose, have fun mood' was assessed as adequate (Pearson's $r > .75$) by Sonmez et al.

The second statement 'It is acceptable/OK for someone of my age and gender to get drunk at *Leavers*' intended to assess the subjective role belief/social norm of how acceptable it would be to get drunk at the celebrations.

Understandings between friends and peer influence

The next four items from question 15 described understandings between friends. These understandings included whether the respondent and their friends would, or would not get drunk and whether they would or would not experiment with drugs other than alcohol at *Leavers*. These social norm items were based on items used by Maticka Tyndale et al. and re-phrased as a result of survey piloting {Maticka-Tyndale, 2003 #167}. The original terms 'agreement' and 'pact' were replaced with the phrase 'an understanding'. For example, the item 'my friends and I made an agreement (some call them 'pacts') that we will get drunk at *Leavers*' was rephrased as 'my friends and I have an understanding that we will get drunk at *Leavers*'. Phrasing was changed as pilot group participants interpreted the words 'agreement' or 'pact' to denote explicit discussion about (not) getting drunk/experimenting with other drugs. They did, however, expect to get drunk, without necessarily expressing it verbally (i.e. the expectation was implicit in nature). Thus the word 'understanding' was substituted in order to assess an understanding between friends, whether it is explicit or implicit. The new phrasing was used in the short trial online survey and respondents did not express any difficulty about understanding the question. Retrospectively, after the study's data had been collected, an article on Spring Break was the first to

document a significant association between having ‘understandings’ (i.e. the same term as used here) with friends about getting drunk and self-reports of being drunk {Patrick, 2011 #824}.

The seventh item was ‘I would get drunk if it seemed like everyone was drinking’. This social norm item was used by Sonmez et al. to assess expectations of peer influence on personal behaviour {Sonmez, 2006 #168}.

Feeling pressured

The next five items assessed expectations of whether respondents would feel pressured to use various drugs at *Leavers*. The drugs assessed were alcohol, cannabis, amphetamines, ecstasy and drugs other than the previously listed drugs. These items were adapted from items such as ‘I will be pressured to get drunk’ {Sonmez, 2006 #168} and ‘I will be pressured to have sex’ {Apostolopoulos, 2002 #255}. Also, the statement ‘I was pressured to drink alcohol’ was rephrased as ‘I felt pressured to drink alcohol’ as pilot group participants described the term ‘was’ was interpreted as overt peer pressure which was not commonly experienced.

Functions of alcohol/other drugs

Personal attitudes/evaluative beliefs about the functions and possible outcomes of AOD at *Leavers* were explored through the last three items in question 15. The two items ‘you need to consume alcohol to ‘fully experience’ *Leavers*’ and ‘you need to consume drugs other than alcohol to ‘fully experience’ *Leavers*’, explored the previous anecdotal findings that the culture of *Leavers* involves high prevalence heavy drinking, where young people indicate ‘... high levels of excessive drinking during the schoolies period is inevitable ...’ {Smith, 1997 #39 :180}.

The item ‘using alcohol and other drugs at *Leavers* will help me act in a way that is amusing and memorable to my friends’ explores the notion that intoxication can open up new ‘performative possibilities’ {Duff, 2008 #55: 386}, and help to achieve ‘memorable happenings’ at celebrations. Novel ‘performative possibilities’ are personally enjoyable, may enhance an individual’s reputation, and may simultaneously be considered a positive addition to the ‘crowd vibe’ {Duff, 2008 #55; Smith, 1995 #231}. Similarly, it has been noted that there is often an implicit peer pressure to achieve ‘memorable happenings’ at celebratory events and these

happenings subsequently facilitate peer acceptance {Bogaards, 2000 #215: 9}. These performances may be important in a one-off event such as *Leavers* as they may contribute to the memorability of the event and help to further distinguish the experience from 'everyday' experience {Northcote, 2006 #323}. It is important to understand the functions AOD use is perceived to have by young people in order to position AOD use within the *Leavers* experience. That is, how AOD use aids the achievement of a 'successful' *Leavers* period. Also, learning the functions AOD use is perceived to have at *Leavers* may enable some insight into the motivations for AOD-related behaviour.

Question 16: AOD use at the last social event attended

Location of last social event

To provide greater contextual detail about the last social event attended, question 16 of the survey asked about the location of the event {White, 2004 #166}. The list of locations was compiled based on question 28 ('where did you drink your last alcoholic drink?') from the Australian School Student Alcohol and Drug (ASSAD) survey questionnaire used in 2005 and 2008 {DAO WA, 2010 #634}.

Location options common to this study and the ASSAD survey included: 'at my home', 'at a hotel, pub, bar, tavern or RSL club', and 'at a sports club (e.g. leagues, surfing, football)' and a 'other' option with space for a description of the other location.

Options that were similar/had minor rephrasing between the surveys included 'at the beach', 'in a park' ('at a beach, park or recreation area' in the ASSAD survey) and 'a dance party (at a dance venue, club, rave)' ('at a dance venue/dance party', 'at a nightclub' in the ASSAD survey). Post-piloting, the ASSAD location option of 'my friend's home' was changed to 'someone else's home'. The option of 'my friend's home' was perceived by the pilot participants as overly restrictive. The phrase did not accurately describe the types of house parties they attended as many parties were hosted by people they did not know well enough to call friends.

Six ASSAD items were omitted from this survey's list. Firstly, the option 'at a party' was omitted from the survey it was deemed more a reference to a type of event as opposed to a location. It did not appear to be mutually exclusive with other options in the ASSAD list. For example, a respondent could have consumed their last alcoholic drink at a birthday party, which was held at their home, at the beach etc. Five response options from the ASSAD were omitted from this study's survey as they were anticipated to be infrequently endorsed. 'At a restaurant' was selected by 4% of 2005's 17 year old respondents and zero 17 year old respondents in 2008's ASSAD. The locations 'at a sporting event', 'in a car' were both included in the 'other' location category in the presentation of the results of the 2005 and 2008 surveys, assumedly as they were not popular choices. The two options of 'on school grounds during school hours' and 'on school grounds after hours' together made up 0.5% of the last drinking location with 17 year olds in 2005 and was included in the 'other' category in the results report for the 2008 ASSAD survey {DAO WA, 2007 #115;DAO WA, 2010 #634}.

Two location options not used in the ASSAD survey, 'school ball' and 'music festival', were used in this study's survey. The school ball was chosen as it is a social event important to year 12 students, anecdotally associated with alcohol use. Music festivals are events frequented by young people and are associated with AOD use {Earl, 2004 #342; Erickson, 1996 #66}.

Question 34: Conditions experienced at the last social event attended

These conditions considered to influence alcohol and other drug use were assessed in relation to the event where the respondent last consumed more than 4 alcoholic drinks in question 34. Some items from question 34 also appear in question 15 of the pre-*Leavers* survey in reference to respondents' expectations of the conditions at *Leavers*. Discussion of these repeated items are found in the description of question 15.

The first item, 'I was in a let-loose' mood where I could do things I normally wouldn't do' appeared in question 15 of the pre-*Leavers* survey. The second, third and fourth items of question 34, 'I had plenty of opportunities for drinking', 'It seemed like everyone around me was using alcohol' and 'I got drunk because it seemed like everyone was doing it' were taken from a survey on alcohol use and sexual practices at Spring Break {Sonmez, 2006 #168}. Sonmez et al's items had adequate test-retest reliabilities with Pearson's $r > .75$. The item 'I encouraged someone else to use alcohol' was adapted from similar items focused on casual sex such as 'you pressured someone else sexually'. Though pilot tested with university students, reliability information was not published for this item {Maticka-Tyndale, 2003 #167}.

The seventh to 10th items were similar to the second to sixth items. Instead of referring to alcohol use, the items referred to drugs other than alcohol.

The 11-13th items of question 34 were conditions that were anticipated to have a disincentive/deterrent effect on alcohol and other drug use and were developed by the candidate and their supervisors. In accordance with this study's conceptual framework, it was anticipated the experience of these disincentive conditions would correlate with inhibited AOD use on the surveyed occasion.

The last item of the scale examined the potential embarrassment that may arise from the posting of identifying multimedia from *Leavers* on the Internet. This item intended to explore whether respondents were concerned about the Internet, in its ability to amplify/digitally distribute the consequences of AOD use.

Appendix E – Post-Leavers survey

Post-Leavers survey information sheet

Information about the Rottnest Leavers surveys

Thanks for thinking about completing this survey!

This survey:

- Should take about **10 minutes** to complete
- Is completely **anonymous** - so no one will know what you answer
- Is your chance to make *Leavers* better and safer for future leavers
- Is **voluntary** - so you don't have to do the survey or can stop even if you have started the survey
- Is a part of a **university based PhD project**
- Has been approved by the *Curtin University Human Research Ethics Committee* (approval number: HR 135/2008; you can contact the committee on (08) 9266 2784)

To do this survey:

- You have to be **16 years or older**
- You have to have finished **year 12 in 2009**
- It is important to be **honest** – we are interested in what you really think!

As a bonus - if you fill in your email address after finishing the survey, you will be to be entered into a prize draw (one of 50 \$20 **JB Hi-Fi vouchers**). Your email address will not be linked with your survey responses.

If you're interested in finding out more, or if you want to tell us about your *Leavers* experience visit www.ndri.curtin.edu.au/rotnestleavers, email at rotnestleavers@gmail.com or call on (08) 9266 1600.

We hope you had a fabulous time on Rotto!

YOU CAN RETURN YOUR COMPLETED SURVEY TO A CURTIN STAFF MEMBER

THIS INFORMATION SHEET IS YOURS TO KEEP

Post-Leavers survey instrument

Rottnest Leavers 2009

Post-Leavers Survey

1. Did you attend any *Leavers* celebrations in 2009?

Yes No

2. Where did you celebrate *Leavers*?

Rottnest Island Dunsborough South West region of WA (not including Dunsborough)
 Other: _____

3. In what year did you finish year 12?

2009
 2008 or earlier > *this survey is only for people who finished year 12 in 2009*
 I haven't completed year 12 yet > *this survey is only for people who finished year 12 in 2009*

4. What style of accommodation did you use during *Leavers*?

Rottnest Island holiday unit Boat
 Other: _____

5. Which area of Rottnest Island did you stay on during *Leavers*?

Main settlement (Thompson Bay & Bathurst) Geordie (Geordie/Fay's/Longreach Bay)
 Other: _____

6. What is your home postcode? _____

7. Please circle your month and year of birth.

January	April	July	October
February	May	August	November
March	June	September	December

1990 or earlier 1991 1992 1993 1994 or later

8. What is your gender?

Female Male

9. What type of school did you attend in year 12?

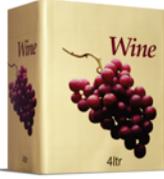
State Private

10. Did you consume any alcohol at *Leavers*?

Yes
 No > *If you did not consume any alcohol at Leavers, please skip questions 11-16. Question 17 begins on page 7.*

11. Please indicate the number of standard drinks you drank each day during the official *Leavers* period (the celebrations began on Tuesday 24th and finished on Friday 27th November 2009).

Please refer to the picture below to help you answer the following questions. The picture shows an estimation of how many standard drinks are contained in each type of alcoholic drink.

SPIRITS & PRE-MIXED SPIRITS				BEER								
												
22 700 ml Bottle of Spirits 40% alc/vol	1.1 275 ml Full Strength Pre-mixed Spirits (e.g. Bacardi Breezer, Vodka Cruiser) 5% alc/vol	1.2 330 ml Full Strength Pre-mixed Spirits (e.g. Smirnoff Ice, Lemon Ruski, UDL) 5% alc/vol	1.8 330 ml High Strength Pre-mixed Spirits (e.g. Cruiser/Ruski/ Smirnoff "Black") 7% alc/vol	1.4 375 ml Full Strength Beer 4.8% alc/vol	1 375 ml Mid Strength Beer 3.5% alc/vol	0.8 375 ml Low Strength Beer 2.7% alc/vol						
1 30 ml Shot 40% alc/vol	1.5 375 ml Full Strength Pre-mixed Spirits (e.g. Jim Beam & Cola) 5% alc/vol	1.7 440 ml Full Strength Pre-mixed Spirits (e.g. Woodstock Bourbon & Cola) 5% alc/vol	2.1 375 ml High Strength Pre-mixed Spirits (e.g. Jim Beam "Black" & Cola) 7% alc/vol	1.1 285 ml (middy) Full Strength Beer 4.8% alc/vol	2.2 570 ml (pint) Mid Strength Beer (e.g. Carlton Mid, XXXX Gold) 3.5% alc/vol	0.8 285 ml (middy) Low Strength Beer (e.g. Hahn Premium "Light") 2.7% alc/vol	1.6 570ml (pint)	0.6 285 ml (middy)	1.2 570 ml (pint)			
WINE (inc. champagne)								CIDER				
												
8 750 ml Bottle of Wine 13% alc/vol	7.5 750 ml Bottle of Champagne 12.5% alc/vol	41 4 litres Cask of Wine 13% alc/vol	21 2 litres Cask of Wine 13% alc/vol	1 100 ml Standard Serve of Wine 13% alc/vol	1.5 150 ml Restaurant Serve of Wine 13% alc/vol	1.5 150 ml Restaurant Serve of Champagne 12.5% alc/vol	1.4 335 ml Bottle of Cider (e.g. Strongbow) 5% alc/vol					

- a) How much alcohol did you drink on **Tuesday 24th November 2009 (DAY ONE of Leavers, when people arrived on the Island)?**
_____ standard drinks

Over how many hours did the drinking occur?
___ hours

How drunk did you feel on this day, on a scale where 1 ='not at all' and 10 ='extremely'?

(Not at all) 1 2 3 4 5 6 7 8 9 10 (Extremely)

- b) **How much alcohol did you drink on Wednesday 25th November 2009 (DAY TWO of *Leavers*)?**

_____ standard drinks

Over how many hours did the drinking occur?

___ hours

How drunk did you feel on this day, on a scale where 1 ='not at all' and 10 ='extremely'?

(Not at all) 1 2 3 4 5 6 7 8 9 10 (Extremely)

- c) **How much alcohol did you drink on Thursday 26th November 2009 (DAY THREE of *Leavers*, the day before everyone vacated the Island)?**

_____ standard drinks

Over how many hours did the drinking occur?

___ hours

How drunk did you feel on this day, on a scale where 1 ='not at all' and 10 ='extremely'?

(Not at all) 1 2 3 4 5 6 7 8 9 10 (Extremely)

12. How many bottles, glasses, cans or shots of alcohol did you drink on Tuesday 24th November 2009 (DAY ONE of Leavers)?

Please write in the number for each type of drink you consumed below. Leave blank the categories that don't apply to you.

* If you consumed less than an entire bottle/cask of wine/spirits you can write the proportion you consumed in decimals. E.g. if you equally shared a bottle of spirits between four people, write '0.25' (i.e. a quarter of the bottle).

PRE-MIXED SPIRITS				Pre-mixed Spirit Bottle (~300 ml)	Pre-mixed Spirit Can (375 ml)	Large Pre-mixed Spirit Can (440 ml)	Other size (write in): <input type="text"/>			
Full strength pre-mixed spirits (e.g. Breezers, Cruisers, UDL, Jim Beam & Cola; 5% alc/vol)				<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>			
High strength pre-mixed spirits (e.g. "Black" varieties; 7% or greater alc/vol)				<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>			
STRAIGHT SPIRITS (NOT PRE-MIXED)				Mini Spirit Bottle (50 ml)	Small Spirit Bottle (~ 350 ml)	Large Spirit Bottle (700 ml)	Single Shot (30 ml)	Double Shot (60 ml)	Triple Shot (90 ml)	Other size (write in): <input type="text"/>
Bottled spirits and liqueurs (e.g. vodka, rum, gin, Baileys)				<input type="text"/> *	<input type="text"/> *	<input type="text"/> *	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
BEER				Beer Can (375-440 ml)	Small Beer Bottle (330-375 ml)	Large Beer Bottle (~ 750 ml)	Medium Beer Glass (middy; 285 ml)	Large Beer Glass (schooner; 425 ml)	Extra large Beer Glass (pint; 570 ml)	Other size (write in): <input type="text"/>
Regular strength beer (greater than 4% alc/vol)				<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
Mid strength beer (3% to 3.9% alc/vol)				<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
Low alcohol beer (1% to 2.9% alc/vol)				<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
WINE (Includes sparkling wine e.g. champagne)				Wine Bottle (750 ml)	Small Wine Glass (120 ml)	Medium Wine Glass (180 ml)	Large Wine Glass (220 ml)	Medium Wine Cask (2 litres)	Large Wine Cask (4 litres)	Other size (write in): <input type="text"/>
Bottled/cask wine				<input type="text"/> *	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/> *	<input type="text"/> *	<input type="text"/>
OTHER				Can (375 ml)	Small Bottle (375 ml)	Large Bottle (750 ml)	Small Glass (150 ml)	Medium Glass (250 ml)	Large Glass (375 ml)	Other size (write in): <input type="text"/>
Other (please write in): <input type="text"/>				<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
OTHER				Can (375 ml)	Small Bottle (375 ml)	Large Bottle (750 ml)	Small Glass (150 ml)	Medium Glass (250 ml)	Large Glass (375 ml)	Other size (write in): <input type="text"/>
Other (please write in): <input type="text"/>				<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>

I haven't completed the table above as I don't know/don't remember what I drank

13. How many bottles, glasses, cans or shots of alcohol did you drink on Wednesday 25th November 2009 (DAY TWO of Leavers)?

Please write in the number for each type of drink you consumed below. Leave blank the categories that don't apply to you.

* If you consumed less than an entire bottle/cask of wine/spirits you can write the proportion you consumed in decimals. E.g. if you equally shared a bottle of spirits between four people, write '0.25' (i.e. a quarter of the bottle).

PRE-MIXED SPIRITS		Pre-mixed Spirit Bottle (~300 ml)	Pre-mixed Spirit Can (375 ml)	Large Pre-mixed Spirit Can (440 ml)	Other size (write in):			
Full strength pre-mixed spirits (e.g. Breezers, Cruisers, UDL, Jim Beam & Cola; 5% alc/vol)		<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>			
High strength pre-mixed spirits (e.g. "Black" varieties; 7% or greater alc/vol)		<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>			
STRAIGHT SPIRITS (NOT PRE-MIXED)		Mini Spirit Bottle (50 ml)	Small Spirit Bottle (~350 ml)	Large Spirit Bottle (700 ml)	Single Shot (30 ml)	Double Shot (60 ml)	Triple Shot (90 ml)	Other size (write in):
Bottled spirits and liqueurs (e.g. vodka, rum, gin, Baileys)		<input type="text"/> *	<input type="text"/> *	<input type="text"/> *	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
BEER		Beer Can (375-440 ml)	Small Beer Bottle (330-375 ml)	Large Beer Bottle (~750 ml)	Medium Beer Glass (middy; 285 ml)	Large Beer Glass (schooner; 425 ml)	Extra large Beer Glass (pint; 570 ml)	Other size (write in):
Regular strength beer (greater than 4% alc/vol)		<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
Mid strength beer (3% to 3.9% alc/vol)		<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
Low alcohol beer (1% to 2.9% alc/vol)		<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
WINE (Includes sparkling wine e.g. champagne)		Wine Bottle (750 ml)	Small Wine Glass (120 ml)	Medium Wine Glass (180 ml)	Large Wine Glass (220 ml)	Medium Wine Cask (2 litres)	Large Wine Cask (4 litres)	Other size (write in):
Bottled/cask wine		<input type="text"/> *	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/> *	<input type="text"/> *	<input type="text"/>
OTHER		Can (375 ml)	Small Bottle (375 ml)	Large Bottle (750 ml)	Small Glass (150 ml)	Medium Glass (250 ml)	Large Glass (375 ml)	Other size (write in):
Other (please write in):		<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
OTHER		Can (375 ml)	Small Bottle (375 ml)	Large Bottle (750 ml)	Small Glass (150 ml)	Medium Glass (250 ml)	Large Glass (375 ml)	Other size (write in):
Other (please write in):		<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>

I haven't completed the table above as I don't know/don't remember what I drank

14. How many bottles, glasses, cans or shots of alcohol did you drink on **Thursday 26th November 2009 (DAY THREE of Leavers)?**

Please write in the number for each type of drink you consumed below. Leave blank the categories that don't apply to you.

* If you consumed less than an entire bottle/cask of wine/spirits you can write the proportion you consumed in decimals. E.g. if you equally shared a bottle of spirits between four people, write '0.25' (i.e. a quarter of the bottle).

PRE-MIXED SPIRITS								Other size (write in): <input type="text"/>
		Pre-mixed Spirit Bottle (~300 ml)	Pre-mixed Spirit Can (375 ml)	Large Pre-mixed Spirit Can (440 ml)				
Full strength pre-mixed spirits (e.g. Breezers, Cruisers, UDL, Jim Beam & Cola; 5% alc/vol)		<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
High strength pre-mixed spirits (e.g. "Black" varieties; 7% or greater alc/vol)		<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
STRAIGHT SPIRITS (NOT PRE-MIXED)								Other size (write in): <input type="text"/>
	Mini Spirit Bottle (50 ml)	Small Spirit Bottle (~350 ml)	Large Spirit Bottle (700 ml)	Single Shot (30 ml)	Double Shot (60 ml)	Triple Shot (90 ml)		
Bottled spirits and liqueurs (e.g. vodka, rum, gin, Baileys)		<input type="text"/> *	<input type="text"/> *	<input type="text"/> *	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
BEER								Other size (write in): <input type="text"/>
	Beer Can (375-440 ml)	Small Beer Bottle (330-375 ml)	Large Beer Bottle (~750 ml)	Medium Beer Glass (middy; 285 ml)	Large Beer Glass (schooner; 425 ml)	Extra large Beer Glass (plnt; 570 ml)		
Regular strength beer (greater than 4% alc/vol)		<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
Mid strength beer (3% to 3.9% alc/vol)		<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
Low alcohol beer (1% to 2.9% alc/vol)		<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
WINE (Includes sparkling wine e.g. champagne)								Other size (write in): <input type="text"/>
	Wine Bottle (750 ml)	Small Wine Glass (120 ml)	Medium Wine Glass (180 ml)	Large Wine Glass (220 ml)	Medium Wine Cask (2 litres)	Large Wine Cask (4 litres)		
Bottled/cask wine		<input type="text"/> *	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/> *	<input type="text"/> *	<input type="text"/>
OTHER								Other size (write in): <input type="text"/>
	Can (375 ml)	Small Bottle (375 ml)	Large Bottle (750 ml)	Small Glass (150 ml)	Medium Glass (250 ml)	Large Glass (375 ml)		
Other (please write in): <input type="text"/>		<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
OTHER								Other size (write in): <input type="text"/>
	Can (375 ml)	Small Bottle (375 ml)	Large Bottle (750 ml)	Small Glass (150 ml)	Medium Glass (250 ml)	Large Glass (375 ml)		
Other (please write in): <input type="text"/>		<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>

I haven't completed the table above as I don't know/don't remember what I drank

15. Where did you get the alcoholic drinks you consumed at *Leavers* from? (Select all that apply)

- I bought it
- My parents gave it to me
- My brother or sister gave it to me
- I took it from home without my parent(s) permission
- Friends gave it to me
- I got someone to buy it for me
- Other: _____

16. When did you purchase or obtain the alcohol you used during *Leavers*?

- Before I arrived on Rottneest Island for *Leavers*
- During *Leavers*
- Both before arriving on Rottneest Island and during *Leavers*

17. How many alcoholic drinks do you think the people in your immediate friendship group who are the same gender as you (male/female) drank on a typical *Leavers* day?

___ standard drinks (please refer to picture on page 2 for an estimation of how many standard drinks are contained in each type of alcoholic drink)

18. How many alcoholic drinks do you think the average student who is the same gender as you drank on a typical *Leavers* day?

___ standard drinks

19. How strongly would you agree that you have discussed with your parents the ways in which you can keep safe whilst affected by alcohol and/or other drugs (in any situation, including *Leavers*)?

- Strongly agree
- Agree
- Neutral
- Disagree
- Strongly disagree
- Don't know

20. Please rate how strongly you agree that the average student who is the same gender as you used these drugs at *Leavers*:

	Strongly agree	Agree	Undecided	Disagree	Strongly disagree
Amphetamines (e.g. dexamphetamines ["dexies"], speed, ice, uppers)	<input type="checkbox"/>				
Caffeine (e.g. Red Bull, V, No Doze)	<input type="checkbox"/>				
Cannabis/marijuana (weed, grass, hash, pot, a bong, a joint)	<input type="checkbox"/>				
Ecstasy (E, MDMA, Eccie, bickies)	<input type="checkbox"/>				
Other drug(s) (specify): _____	<input type="checkbox"/>				

21. Did anyone offer you drugs other than alcohol during *Leavers*?

- Yes
- No
- Not sure

22. Did you use any of the following drugs on Tuesday 24th November 2009 (DAY ONE of Leavers)?

<p>Day 1: Amphetamines (e.g. dexamphetamines ["dexies"], speed, ice, uppers) <input type="checkbox"/> No <input type="checkbox"/> Yes → How much did you use? (Please write a number) ___ tablets/pills ___ lines ___ smokes ___ shots/injections ___ doses through another way of using (please specify: _____)</p>
<p>Day 1: Caffeine (e.g. Red Bull, V, No Doze) <input type="checkbox"/> No <input type="checkbox"/> Yes → How much did you use? ___ cans/bottles ___ tablets ___ doses through another way of using (please specify: _____)</p> <p>If you used caffeine, did you use it with alcohol? <input type="checkbox"/> Yes <input type="checkbox"/> No</p>
<p>Day 1: Cannabis/marijuana (weed, grass, hash, pot, a bong, a joint) <input type="checkbox"/> No <input type="checkbox"/> Yes → How much did you use? ___ cones ___ joints ___ doses in another way of using (please specify: _____)</p>
<p>Day 1: Ecstasy (E, MDMA, Eccie, bickies) <input type="checkbox"/> No <input type="checkbox"/> Yes → How much did you use? ___ tablets/pills ___ lines ___ smokes ___ shots/injections ___ doses in another way of using (please specify: _____)</p>
<p>Day 1: Other drug(s) (please specify: _____) <input type="checkbox"/> No <input type="checkbox"/> Yes → How much did you use? ___ tablets/pills ___ lines ___ smokes ___ shots/injections ___ doses in another way of using (please specify: _____)</p>

I haven't completed the table above as I don't know/don't remember what I used

23. Did you use any of the following drugs on Wednesday 25th November 2009 (DAY TWO of Leavers)?

<p>Day 2: Amphetamines (e.g. dexamphetamines ["dexies"], speed, ice, uppers) <input type="checkbox"/> No <input type="checkbox"/> Yes → How much did you use? (Please write a number) ___ tablets/pills ___ lines ___ smokes ___ shots/injections ___ doses through another way of using (please specify: _____)</p>
<p>Day 2: Caffeine (e.g. Red Bull, V, No Doze) <input type="checkbox"/> No <input type="checkbox"/> Yes → How much did you use? ___ cans/bottles ___ tablets ___ doses through another way of using (please specify: _____)</p> <p>If you used caffeine, did you use it with alcohol? <input type="checkbox"/> Yes <input type="checkbox"/> No</p>
<p>Day 2: Cannabis/marijuana (weed, grass, hash, pot, a bong, a joint) <input type="checkbox"/> No <input type="checkbox"/> Yes → How much did you use? ___ cones ___ joints ___ doses in another way of using (please specify: _____)</p>
<p>Day 2: Ecstasy (E, MDMA, Eccie, bickies) <input type="checkbox"/> No <input type="checkbox"/> Yes → How much did you use? ___ tablets/pills ___ lines ___ smokes ___ shots/injections ___ doses in another way of using (please specify: _____)</p>
<p>Day 2: Other drug(s) (please specify: _____) <input type="checkbox"/> No <input type="checkbox"/> Yes → How much did you use? ___ tablets/pills ___ lines ___ smokes ___ shots/injections ___ doses in another way of using (please specify: _____)</p>

I haven't completed the table above as I don't know/don't remember what I used

24. Did you use any of the following drugs on Thursday 26th November 2009 (DAY THREE of Leavers)?

<p>Day 3: Amphetamines (e.g. dexamphetamines ["dexies"], speed, ice, uppers) <input type="checkbox"/> No <input type="checkbox"/> Yes → How much did you use? (Please write a number) ___ tablets/pills ___ lines ___ smokes ___ shots/injections ___ doses through another way of using (please specify: _____)</p>
<p>Day 3: Caffeine (e.g. Red Bull, V, No Doze) <input type="checkbox"/> No <input type="checkbox"/> Yes → How much did you use? ___ cans/bottles ___ tablets ___ doses through another way of using (please specify: _____)</p> <p>If you used caffeine, did you use it with alcohol? <input type="checkbox"/> Yes <input type="checkbox"/> No</p>
<p>Day 3: Cannabis/marijuana (weed, grass, hash, pot, a bong, a joint) <input type="checkbox"/> No <input type="checkbox"/> Yes → How much did you use? ___ cones ___ joints ___ doses in another way of using (please specify: _____)</p>
<p>Day 3: Ecstasy (E, MDMA, Eccie, bickies) <input type="checkbox"/> No <input type="checkbox"/> Yes → How much did you use? ___ tablets/pills ___ lines ___ smokes ___ shots/injections ___ doses in another way of using (please specify: _____)</p>
<p>Day 3: Other drug(s) (please specify: _____) <input type="checkbox"/> No <input type="checkbox"/> Yes → How much did you use? ___ tablets/pills ___ lines ___ smokes ___ shots/injections ___ doses in another way of using (please specify: _____)</p>

I haven't completed the table above as I don't know/don't remember what I used

25. From whom did you get the drugs (other than alcohol) you consumed at *Leavers*?

(Select all that apply)

- | | |
|---|--|
| <input type="checkbox"/> Friends | <input type="checkbox"/> A dealer I know |
| <input type="checkbox"/> Workmates | <input type="checkbox"/> Acquaintances |
| <input type="checkbox"/> Unknown/street dealers | <input type="checkbox"/> I bought it from a shop |
| <input type="checkbox"/> Other: _____ | <input type="checkbox"/> N/A – I didn't get any drugs other than alcohol at <i>Leavers</i> |

26. When did you purchase or obtain the drugs other than alcohol you used during *Leavers*?

- Before I arrived on Rottneest Island for *Leavers*
 During *Leavers*
 Both before arriving on Rottneest Island and during *Leavers*
 N/A – I didn't get any drugs other than alcohol at *Leavers*

27. Where did you spend time intoxicated (with any drug) during *Leavers*? (Select all that apply)

- | | |
|--|--|
| <input type="checkbox"/> Own accommodation | <input type="checkbox"/> Another person's accommodation |
| <input type="checkbox"/> A boat | <input type="checkbox"/> Entertainment Zone (the "e-zone") |
| <input type="checkbox"/> Other: _____ | <input type="checkbox"/> N/A - I was never intoxicated at <i>Leavers</i> |

28. How much did you spend on alcohol and other drugs over the entire *Leavers* period?

- | | |
|--------------------------------------|--|
| <input type="checkbox"/> \$0- \$49 | <input type="checkbox"/> \$50-\$99 |
| <input type="checkbox"/> \$100-\$149 | <input type="checkbox"/> more than \$150 |

If you did not use any alcohol or drugs other than alcohol whilst at Leavers, please skip questions 29 and 30.

29. Did you experience any of the following situations at Leavers?

If so, what was the **ONE MAIN REASON** that caused the situation?

E.g. if you had a heated argument with someone and your alcohol consumption was a major contributor to the argument (for example, you might not have argued with them if you had not been drinking), select "yes, due to alcohol".

	Yes, due to Alcohol	Yes, due to Drugs other than alcohol	Yes, due to Reasons other than alcohol or other drug use	No
A hangover	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Emotional outbursts	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Vomiting	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
A heated argument	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
You had an accident/injured yourself	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
You were physically aggressive towards someone	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Periods of time that you could not remember (blackouts)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Inability to pay for things as a result of spending too much money on alcohol/other drugs	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
You had unprotected sex	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
You ended up in a sexual situation you weren't happy about <u>at the time</u>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
A sexual encounter you <u>later</u> regretted	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
You stole private or public property (e.g. a street sign, shopping trolley)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
You committed an act of vandalism (e.g. damaged a fence)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
You were removed or banned from Rottneest Island/your accommodation	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Arrested for intoxicated behaviour	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

30. Please indicate the degree to which you engaged in the following behaviours at Leavers:

	Always	Usually	Sometimes	Occasionally	Rarely	Never
I made sure I/my friends were never alone whilst intoxicated with alcohol and/or other drugs	<input type="checkbox"/>					
I knew who to call for help if my friends got into difficulty with alcohol and/or other drugs	<input type="checkbox"/>					

When using alcohol, you ... (skip if you did not use any alcohol at Leavers):

Determined not to exceed a set number of drinks	<input type="checkbox"/>					
Alternated alcoholic and non-alcoholic drinks	<input type="checkbox"/>					
Had a friend let you know when you'd had enough	<input type="checkbox"/>					
Left the party at a predetermined time	<input type="checkbox"/>					
Stopped drinking at a predetermined time	<input type="checkbox"/>					
Drank water while drinking alcohol	<input type="checkbox"/>					
Put extra ice in your drink	<input type="checkbox"/>					
Avoided drinking games	<input type="checkbox"/>					
Drank shots of spirits	<input type="checkbox"/>					
Avoided mixing different types of alcohol	<input type="checkbox"/>					
Drank slowly, rather than gulping or chugging	<input type="checkbox"/>					
Avoided trying to "keep up" or out-drink others	<input type="checkbox"/>					
Made sure you went home with a friend	<input type="checkbox"/>					
Knew where your drink was at all times	<input type="checkbox"/>					

31. Please rate how strongly you agree with the following statements:

At Leavers ...	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
I was in a 'let-loose' mood where I could do things I normally wouldn't do	<input type="checkbox"/>				
I had plenty of opportunities for drinking	<input type="checkbox"/>				
It seemed like everyone around me was using alcohol	<input type="checkbox"/>				
I felt pressured to drink alcohol	<input type="checkbox"/>				
I got drunk because it seemed like everyone was doing it	<input type="checkbox"/>				
I encouraged someone else to use alcohol	<input type="checkbox"/>				
I had plenty of opportunities for using drugs	<input type="checkbox"/>				
It seemed like everyone around me was using drugs	<input type="checkbox"/>				
I felt pressured to use drugs	<input type="checkbox"/>				
I encouraged someone else to use drugs	<input type="checkbox"/>				
If I were street drinking there was a good chance I would get into trouble with the law	<input type="checkbox"/>				
If I were being drunk and disorderly there was a good chance I would get into trouble with the law	<input type="checkbox"/>				

If I were in possession of drugs there was a good chance I would get into trouble with the law	<input type="checkbox"/>				
I was worried that embarrassing/sensitive photos or videos taken of me at <i>Leavers</i> could end up on the Internet	<input type="checkbox"/>				

32. Overall, how satisfied were you with your experience of *Leavers* on Rottnest Island?

- Very satisfied Satisfied Neither satisfied nor dissatisfied
 Dissatisfied Very dissatisfied

33. The following questions will allow us to link your responses from this survey to any other surveys you do with us, whilst keeping your identity anonymous.

- a) Please **CIRCLE** the letter below that represents the **FIRST LETTER** of your **MOTHER'S FIRST NAME**. Please use her given name, not her nickname. "Mother" means the person you call your mother (she could be your natural or adoptive mother).

A B C D E F G H I J K L M N O P Q R S T U V W X Y Z

- b) Please **CIRCLE** the letter below that represents the **FIRST LETTER** of your **FATHER'S FIRST NAME**. Please use his given name, not his nickname. "Father" means the person you call your father (he could be your natural or adoptive father).

A B C D E F G H I J K L M N O P Q R S T U V W X Y Z

- c) How many **OLDER BROTHERS** do you have? __

- d) How many **OLDER SISTERS** do you have? __

- e) Does **YOUR FIRST** name begin with a letter in the:

- FIRST half of the alphabet (i.e., A through M)?
 SECOND half of the alphabet (i.e., N through Z)?

- f) Please **CIRCLE** the letter below that represents **YOUR MIDDLE** initial. (If you have no middle initial, circle the letter N.)

A B C D E F G H I J K L M N O P Q R S T U V W X Y Z

You have finished the survey.

Enter the draw for one of 50 \$20 JB Hi-Fi vouchers by writing your email address below:

**PLEASE DETATCH THIS PAGE FROM THE REST OF THE SURVEY TO
KEEP YOUR RESPONSE ANONYMOUS**

Thank you for participating in our study!

Appendix F – Additional statistics from hypothesis/post-hoc testing

Hypothesis 8 – Identifying predictors of negative consequences

Negative consequences at *Leavers* were modelled with: alcohol use, other drug use, safety strategy use, gender, location and survey modality (logistic regression with all post-*Leavers* respondents). The negative consequences assessed through logistic regression and coding details for the independent variables are listed in table 1.

Table 1

Predicting experience of negative consequence using six variables: list of dependent and independent variables

Dependent variables: Negative consequences experienced		
1	A hangover	
2	Emotional outbursts	
3	Vomiting	
4	A heated argument	
5	Had an accident/injury	
6	Were physically aggressive towards someone	
7	Blackouts	
8	Inability to pay for things as a result of spending too much money on AOD	
9	Had unprotected sex	
10	Ended up in a sexual situation you were not happy about at the time	
11	A sexual encounter you later regretted	
12	Stole private or public property	
13	Committed an act of vandalism	
14	Were removed or banned from Rottneest Island/your accommodation	
15	Arrested for intoxicated behaviour	
16	Experienced a sexual problem or risk (any of problems 9, 10 or 11)	
17	Experienced a legal problem (any of problems 12, 13, 14 or 15)	
Independent variable	Category value	Parameter coding
(1) Alcohol use ¹	0-6.00 standard drinks	Reference group
	6.33-11.33	1
	11.67-18.33	2
	18.67-45.00	3
(2) Other drug use ²	No other drugs used	Reference group
	Caffeine used (no illicit)	1
	Illicits used (\pm caffeine)	2
(3) PBSS (Protective Behaviour Strategy Score) ³	Scores 14-46 (safest)	Reference group
	Scores 47-56	1
	Scores 57-65	2
	Scores 66-84 (least safe)	3
	Abstained from alcohol ⁴	4
(4) Gender	Female	Reference group
	Male	1
(5) Accommodation location ⁵	Main settlement area	Reference group
	Geordie Bay region	1
(6) Survey modality ⁶	Online	Reference group
	Paper	1

¹ Respondents were equally split into quartiles using the average number of standard drinks they consumed on a single day at Leavers.

² Respondents were divided into three categories: the reference group did not use any drugs other than alcohol, the second group used caffeine but no illicit drugs, and the last group used at least one illicit drug (amphetamines, cannabis or ecstasy) at Leavers.

³ Respondents were equally split into quartiles using their PBSS. Lower PBSSs indicate more frequent use of alcohol-related harm minimisation strategies. Only respondents who used alcohol at Leavers had a PBSS.

⁴ This group was generated only to ensure abstainers were included in the overall analyses and associated statistics are not for interpretation. Five abstainers were included in each analysis, leading to extreme odds ratios due to empty or near empty cells in the variable crosstabulations.

⁵ 72% of respondents resided in the main settlement area and 28% in the Geordie Bay region.

⁶ 14% of post-Leavers survey respondents used an online form and 86% used a paper form.

Hangover

The full model predicting hangover was statistically significant and three of the independent variables: alcohol quantity, harm reduction strategy use and survey modality made a unique statistically significant contribution to the model (see Table 2).

Table 2

Hangover predicted using six variables (logistic regression with all post-Leavers respondents)¹

DV (negative consequence)	Omnibus Tests of Model Coefficients					Variance explained by model		Correct classifications by model
	X ²	df	Missing N	N	p	Cox & Snell R Square	Nagelkerke R Square	
Hangover	59.11	12	171	234	0.0005	22.3%	30.7%	74.8%
Independent variable	B	S.E.	Wald	df	p	Odds Ratio	95% C.I. for Odds Ratio	
							Lower	Upper
Alcohol (0-6.00 sd)								
6.33-11.33 sd	0.98	0.43	5.15	1	.023	2.67	1.14	6.22
11.67-18.33 sd	1.16	0.48	5.70	1	.017	3.18	1.23	8.22
18.67-45.00 sd	1.71	0.59	8.56	1	.003	5.55	1.76	17.48
Other drug use (none)								
Caffeine used	0.12	0.34	0.12	1	.728	1.12	0.58	2.18
Illicit drug/s used	0.76	0.62	1.49	1	.223	2.14	0.63	7.29
PBSS (14-46; safest)								
47-56	0.01	0.41	0.00	1	.981	1.01	0.45	2.26
57-65	0.49	0.46	1.12	1	.289	1.63	0.66	4.05
66-84	1.25	0.54	5.35	1	.021	3.50	1.21	10.11
Abstainer ^a	-21.09	17244	0.00	1	.999	0.00	0.00	.
Gender (female)	-0.05	0.33	0.02	1	.875	0.95	0.50	1.81
Location (main settlement)	0.45	0.38	1.41	1	.235	1.56	0.75	3.26
Modality (online)	-1.12	0.52	4.60	1	.032	0.33	0.12	0.91
Constant	0.14	0.59	0.06	1	.814	1.15		

¹ Reference group in parentheses.

^a Statistics not for interpretation. As only 5 abstainers were included in the analysis, extreme odds ratios were calculated due to empty or near empty cells in the variable crosstabulations.

Respondents who drank (i) 6.33-11.33 standard drinks were 2.67 times more likely, and (ii) respondents who drank 11.67-18.33 standard drinks were 3.18 times more likely and (iii) respondents who drank more than 18.67 standard drinks were 5.55 times more likely to report a hangover compared to respondents who drank 6 or fewer drinks, controlling for all other factors in the model.

Respondents who engaged in harm minimisation strategies with the lowest frequency were 3.50 times more likely to report a hangover than respondents who reported the most frequent use of harm minimisation strategies, controlling for all other factors in the model.

Respondents who completed the survey on paper were .33 times less likely to report having a hangover, all other factors in the model being equal. That is, respondents who completed the survey online were 3.07 times more likely to report a hangover than respondents who used the paper survey form, controlling for all other factors in the model.

Emotional outbursts

The full model predicting emotional outbursts was statistically significant and two of the independent variables: illicit drug use and gender made a unique statistically significant contribution to the model (see Table 3).

Table 3

Emotional outburst predicted using six variables (logistic regression with all post-Leavers respondents)¹

DV (negative consequence)	Omnibus Tests of Model Coefficients					Variance explained by model		Correct classifications by model
	χ^2	df	Missing N	N	p	Cox & Snell R Square	Nagelkerke R Square	
Emotional outburst	30.46	12	173	232	0.002	12.3%	16.5%	64.2%
Independent variable	B	S.E.	Wald	df	p	Odds Ratio	95% C.I. for Odds Ratio	
							Lower	Upper
Alcohol (0-6.00 sd)								
6.33-11.33 sd	0.48	0.44	1.18	1	.277	1.61	0.68	3.83
11.67-18.33 sd	0.24	0.48	0.24	1	.621	1.27	0.49	3.27
18.67-45.00 sd	0.23	0.54	0.17	1	.676	1.25	0.44	3.61
Other drug use (none)								
Caffeine used	0.42	0.32	1.70	1	.192	1.52	0.81	2.85
Illicit drug/s used	1.38	0.46	9.02	1	.003	3.98	1.62	9.80
PBSS (14-46; safest)								
47-56	0.54	0.41	1.74	1	.187	1.72	0.77	3.87
57-65	0.40	0.45	0.78	1	.378	1.49	0.61	3.60
66-84	0.77	0.47	2.73	1	.099	2.16	0.87	5.38
Abstainer ^a	0.52	1.05	0.25	1	.619	1.68	0.22	13.05
Gender (female)	-1.22	0.31	15.39	1	.000	0.29	0.16	0.54
Location (main settlement)	-0.21	0.33	0.39	1	.534	0.81	0.43	1.56
Modality (online)	0.33	0.43	0.58	1	.446	1.39	0.60	3.23
Constant	-1.02	0.54	3.57	1	.059	0.36		

¹ Reference group in parentheses.

^a Statistics not for interpretation. As only 5 abstainers were included in the analysis, odds ratios were calculated using near empty cells in the variable crosstabulations.

Respondents who used illicit drugs were 3.98 times more likely to report an emotional outburst than respondents who did not use any drugs other than alcohol (i.e. no caffeine or illicit drugs), controlling for all other factors in the model.

Males were .29 times less likely to report having an emotional outburst, all other factors in the model being equal. That is, female respondents were 3.40 times more likely to report an emotional outburst (all other factors being equal).

Vomiting

The full model predicting vomiting was statistically significant and one independent variable: use of harm reduction strategies, made a unique statistically significant contribution to the model (see Table 4).

Table 4

Vomiting predicted using six variables (logistic regression with all post-Leavers respondents)¹

DV (negative consequence)	Omnibus Tests of Model Coefficients					Variance explained by model		Correct classifications by model
	X ²	df	Missing N	N	p	Cox & Snell R Square	Nagelkerke R Square	
Vomiting	22.96	12	172	233	0.03	9.4%	12.8%	65.7%

Independent variable	B	S.E.	Wald	df	p	Odds Ratio	95% C.I. for Odds Ratio	
							Lower	Upper
Alcohol (0-6.00 sd)								
6.33-11.33 sd	0.34	0.46	0.53	1	.466	1.40	0.57	3.45
11.67-18.33 sd	0.87	0.49	3.18	1	.074	2.39	0.92	6.22
18.67-45.00 sd	0.36	0.55	0.42	1	.517	1.43	0.48	4.23
Other drug use (none)								
Caffeine used	-0.51	0.33	2.46	1	.117	0.60	0.32	1.14
Illicit drug/s used	0.12	0.45	0.07	1	.797	1.12	0.47	2.70
PBSS (14-46; safest)								
47-56	0.96	0.43	5.05	1	.025	2.61	1.13	6.03
57-65	0.82	0.46	3.18	1	.075	2.28	0.92	5.64
66-84	0.80	0.48	2.85	1	.092	2.23	0.88	5.69
Abstainer ^a	-19.19	17883.00	0.00	1	.999	0.00	0.00	.
Gender (female)	-0.45	0.30	2.24	1	.135	0.64	0.35	1.15
Location (main settlement)	0.38	0.32	1.37	1	.243	1.46	0.78	2.74
Modality (online)	0.07	0.42	0.03	1	.870	1.07	0.47	2.46
Constant	-1.42	0.55	6.63	1	.010	0.24		

¹ Reference group in parentheses.

^a Statistics not for interpretation. As only 5 abstainers were included in the analysis, extreme odds ratios were calculated due to empty or near empty cells in the variable crosstabulations.

Respondents who engaged in harm minimisation strategies with the second greatest frequency were 2.61 times more likely to report vomiting than respondents who reported the most frequent use of harm minimisation strategies, controlling for all other factors in the model.

Heated argument

The full model predicting heated arguments was statistically significant. Two of the independent variables: alcohol use and illicit drug use, made a unique statistically significant contribution to the model (see Table 5).

Table 5

Heated argument predicted using six variables (logistic regression with all post-Leavers respondents)¹

DV (negative consequence)	Omnibus Tests of Model Coefficients					Variance explained by model		Correct classifications by model
	χ^2	df	Missing N	N	p	Cox & Snell R Square	Nagelkerke R Square	
Heated argument	35.51	12	176	229	0.0005	14.4%	20.0%	72.1%
Independent variable	B	S.E.	Wald	df	p	Odds Ratio	95% C.I. for Odds Ratio	
							Lower	Upper
Alcohol (0-6.00 sd)								
6.33-11.33 sd	0.60	0.52	1.31	1	.252	1.82	0.65	5.07
11.67-18.33 sd	1.39	0.55	6.32	1	.012	4.01	1.36	11.82
18.67-45.00 sd	0.19	0.63	0.09	1	.767	1.21	0.35	4.14
Other drug use (none)								
Caffeine used	0.83	0.35	5.63	1	.018	2.29	1.15	4.55
Illicit drug/s used	1.71	0.49	11.93	1	.001	5.52	2.09	14.56
PBSS (14-46; safest)								
47-56	0.18	0.46	0.15	1	.694	1.20	0.49	2.95
57-65	0.28	0.48	0.34	1	.560	1.33	0.51	3.42
66-84	0.94	0.50	3.51	1	.061	2.56	0.96	6.82
Abstainer ^a	0.10	1.24	0.01	1	.937	1.10	0.10	12.63
Gender (female)	-0.52	0.33	2.48	1	.116	0.59	0.31	1.14
Location (main settlement)	-0.17	0.36	0.23	1	.632	0.84	0.42	1.69
Modality (online)	0.70	0.50	1.95	1	.162	2.00	0.76	5.31
Constant	-2.61	0.67	15.05	1	.000	0.07		

¹ Reference group in parentheses.

^a Statistics not for interpretation. As only 5 abstainers were included in the analysis, odds ratios were calculated using near empty cells in the variable crosstabulations.

Respondents who consumed between 11.67-18.33 standard drinks on an average *Leavers* day were 4.01 times as likely to experience a heated argument as respondents who consumed six or fewer standard drinks, controlling for all other factors in the model.

Respondents who used illicit drugs were 5.52 times more likely to report a heated argument than respondents who did not use any drugs other than alcohol,

all other factors in the model equal.

Accident/injured self

The full model predicting an accident or injury was statistically significant. Two of the independent variables: caffeine use, and gender, made a unique statistically significant contribution to the model (see Table 6).

Table 6

Accident/injury predicted using six variables (logistic regression with all post-Leavers respondents)¹

DV (negative consequence)	Omnibus Tests of Model Coefficients					Variance explained by model		Correct classifications by model
	X ²	df	Missing N	N	p	Cox & Snell R Square	Nagelkerke R Square	
Accident/injury	31.24	12	176	229	0.002	12.8%	17.4%	68.1%
Independent variable	B	S.E.	Wald	df	p	Odds Ratio	95% C.I. for Odds Ratio	
							Lower	Upper
Alcohol (0-6.00 sd)								
6.33-11.33 sd	0.64	0.47	1.87	1	.171	1.90	0.76	4.76
11.67-18.33 sd	0.64	0.52	1.52	1	.217	1.89	0.69	5.21
18.67-45.00 sd	0.60	0.57	1.14	1	.287	1.83	0.60	5.54
Other drug use (none)								
Caffeine used	0.90	0.33	7.38	1	.007	2.46	1.29	4.72
Illicit drug/s used	0.59	0.47	1.58	1	.208	1.81	0.72	4.56
PBSS (14-46; safest)								
47-56	-0.52	0.44	1.39	1	.238	0.60	0.25	1.41
57-65	0.28	0.45	0.40	1	.529	1.32	0.55	3.18
66-84	0.11	0.47	0.05	1	.820	1.11	0.44	2.80
Abstainer ^a	-0.40	1.24	0.11	1	.746	0.67	0.06	7.55
Gender (female)	-0.95	0.32	8.73	1	.003	0.39	0.21	0.73
Location (main settlement)	0.60	0.33	3.30	1	.069	1.82	0.95	3.49
Modality (online)	0.54	0.46	1.33	1	.249	1.71	0.69	4.25
Constant	-1.68	0.58	8.31	1	.004	0.19		

¹ Reference group in parentheses.

^a Statistics not for interpretation. As only 5 abstainers were included in the analysis, odds ratios were calculated using near empty cells in the variable crosstabulations.

Respondents who used caffeine (but no illicit drugs) were 2.46 times more likely to report an accident/injury compared to respondents who did not use any drugs other than alcohol (i.e. no caffeine or illicit drugs), all other factors in the model equal.

Females were 2.58 times more likely to report an accident/injury than male

respondents, controlling for all other factors in the model.

Physically aggressive towards someone

The full model predicting physical aggression was statistically significant. Two of the independent variables, illicit drug use and gender made a unique statistically significant contribution to the model (see Table 7).

Table 7

Physical aggression predicted using six variables (logistic regression with all post-Leavers respondents)¹

DV (negative consequence)	Omnibus Tests of Model Coefficients					Variance explained by model		Correct classifications by model
	X ²	df	Missing N	N	p	Cox & Snell R Square	Nagelkerke R Square	
Physically aggressive	28.36	12	178	227	0.005	11.7%	20.6%	85.9%

Independent variable	B	S.E.	Wald	df	p	Odds Ratio	95% C.I. for Odds Ratio	
							Lower	Upper
Alcohol (0-6.00 sd)								
6.33-11.33 sd	2.09	1.09	3.68	1	.055	8.05	0.96	67.78
11.67-18.33 sd	2.11	1.12	3.53	1	.060	8.25	0.91	74.44
18.67-45.00 sd	1.78	1.18	2.27	1	.132	5.94	0.58	60.26
Other drug use (none)								
Caffeine used	0.41	0.47	0.77	1	.381	1.51	0.60	3.80
Illicit drug/s used	1.40	0.59	5.62	1	.018	4.04	1.27	12.81
PBSS (14-46; safest)								
47-56	0.30	0.65	0.21	1	.643	1.35	0.38	4.88
57-65	0.06	0.68	0.01	1	.930	1.06	0.28	4.01
66-84	1.04	0.65	2.58	1	.108	2.83	0.79	10.05
Abstainer ^a	-16.97	17640	0.00	1	.999	0.00	0.00	.
Gender (female)	-1.16	0.46	6.21	1	.013	0.31	0.13	0.78
Location (main settlement)	0.12	0.45	0.08	1	.783	1.13	0.47	2.73
Modality (online)	1.03	0.73	1.99	1	.159	2.80	0.67	11.72
Constant	-4.85	1.26	14.76	1	.000	0.01		

¹ Reference group in parentheses.

^a Statistics not for interpretation. As only 5 abstainers were included in the analysis, extreme odds ratios were calculated due to empty or near empty cells in the variable crosstabulations.

Respondents who used illicit drugs were 4.04 times more likely to report being physically aggressive than respondents who did not use drugs other than alcohol, controlling for all other factors in the model.

Females were 3.18 times more likely to report being physically aggressive than male respondents, controlling for all other factors in the model.

Blackouts

The full model predicting blackouts was statistically significant. Two of the independent variables, alcohol and harm reduction strategy use, made a unique statistically significant contribution to the model (see Table 8).

Table 8

Blackouts predicted using six variables (logistic regression with all post-Leavers respondents)¹

DV (negative consequence)	Omnibus Tests of Model Coefficients					Variance explained by model		Correct classifications by model
	X ²	df	Missing N	N	p	Cox & Snell R Square	Nagelkerke R Square	
Blackouts	75.13	12	173	232	0.0005	27.7%	37.0%	74.0%

Independent variable	B	S.E.	Wald	df	p	Odds Ratio	95% C.I. for Odds Ratio	
							Lower	Upper
Alcohol (0-6.00 sd)								
6.33-11.33 sd	0.98	0.47	4.27	1	.039	2.66	1.05	6.73
11.67-18.33 sd	2.23	0.53	17.63	1	.000	9.34	3.29	26.51
18.67-45.00 sd	1.83	0.58	9.81	1	.002	6.22	1.98	19.55
Other drug use (none)								
Caffeine used	0.10	0.34	0.08	1	.778	1.10	0.56	2.15
Illicit drug/s used	1.09	0.59	3.40	1	.065	2.96	0.93	9.42
PBSS (14-46; safest)								
47-56	-0.19	0.43	0.19	1	.665	0.83	0.36	1.93
57-65	0.59	0.46	1.62	1	.203	1.80	0.73	4.44
66-84	1.22	0.52	5.46	1	.020	3.38	1.22	9.40
Abstainer ^a	-19.94	17754	0.00	1	.999	0.00	0.00	.
Gender (female)	-0.26	0.34	0.61	1	.435	0.77	0.40	1.49
Location (main settlement)	0.24	0.36	0.42	1	.516	1.27	0.62	2.58
Modality (online)	-0.05	0.47	0.01	1	.912	0.95	0.37	2.40
Constant	-1.42	0.59	5.73	1	.017	0.24		

¹ Reference group in parentheses.

^a Statistics not for interpretation. As only 5 abstainers were included in the analysis, extreme odds ratios were calculated due to empty or near empty cells in the variable crosstabulations.

Respondents who drank (i) 6.33-11.33 standard drinks were 2.66 times more likely, (ii) respondents who drank 11.67-18.33 drinks were 9.34 times more likely, and (iii) respondents who drank 18.67 standard drinks or more were 6.22 times more likely than respondents who drank six or fewer drinks to report experiencing a blackout, controlling for all other factors in the model.

Respondents who reported engaging in use of harm minimisation strategies

with the lowest frequency were 3.38 times more likely to report a blackout than respondents who reported the most frequent use of harm minimisation strategies, controlling for all other factors in the model.

Inability to pay for things

The full model predicting an inability to pay for things as a result of spending too much on AOD was statistically significant. One of the independent variables, illicit drug use, made a unique statistically significant contribution to the model (see Table 9).

Table 9

Inability to pay for things predicted using six variables (logistic regression with all post-Leavers respondents)¹

DV (negative consequence)	Omnibus Tests of Model Coefficients					Variance explained by model		Correct classifications by model
	X ²	df	Missing N	N	p	Cox & Snell R Square	Nagelkerke R Square	
Inability to pay	26.99	12	173	232	0.008	11.0%	24.7%	91.4%

Independent variable	B	S.E.	Wald	df	p	Odds Ratio	95% C.I. for Odds Ratio	
							Lower	Upper
Alcohol (18.67-45.00 sd)								
0-6.00 sd ^a	-18.36	5763	0.00	1	.997	0.00	0.00	.
6.33-11.33 sd	-0.38	0.76	0.25	1	.616	0.68	0.15	3.03
11.67-18.33 sd	-0.31	0.65	0.23	1	.631	0.73	0.21	2.61
Other drug use (none)								
Caffeine used	0.34	0.66	0.26	1	.608	1.40	0.39	5.10
Illicit drug/s used	1.50	0.69	4.78	1	.029	4.49	1.17	17.27
PBSS (14-46; safest)								
47-56	0.54	1.21	0.20	1	.653	1.72	0.16	18.42
57-65	1.32	1.14	1.36	1	.244	3.76	0.40	34.91
66-84	1.56	1.14	1.88	1	.170	4.74	0.51	43.87
Abstainer ^a	0.31	18625	0.00	1	1.000	1.37	0.00	.
Gender (female)	-0.13	0.54	0.06	1	.810	0.88	0.30	2.54
Location (main settlement)	-0.45	0.57	0.64	1	.425	0.63	0.21	1.94
Modality (online)	1.23	1.11	1.23	1	.268	3.42	0.39	30.15
Constant	-4.44	1.58	7.90	1	.005	0.01		

¹ Reference group in parentheses.

^a Statistics not for interpretation. Extreme odds ratios were calculated due to empty or near empty cells in the variable crosstabulations.

Respondents who used illicit drugs were 4.49 times more likely to report an inability to pay than respondents who did not use any drugs other than alcohol, all

other factors in the model being equal.

Unprotected sex

The full model predicting unprotected sex was statistically significant. One of the independent variables, use of harm minimisation strategies, made a unique statistically significant contribution to the model (see Table 10).

Table 10

Unprotected sex predicted using six variables (logistic regression with all post-Leavers respondents)¹

DV (negative consequence)	Omnibus Tests of Model Coefficients					Variance explained by model		Correct classifications by model
	X ²	df	Missing N	N	p	Cox & Snell R Square	Nagelkerke R Square	
Unprotected sex	30.69	12	175	230	0.002	12.5%	26.1%	89.6%
Independent variable	B	S.E.	Wald	df	p	Odds Ratio	95% C.I. for Odds Ratio	
							Lower	Upper
Alcohol (0-6.00 sd)								
6.33-11.33 sd	0.24	1.21	0.04	1	.840	1.28	0.12	13.75
11.67-18.33 sd	0.58	1.19	0.24	1	.624	1.79	0.17	18.47
18.67-45.00 sd	1.52	1.21	1.57	1	.210	4.56	0.42	48.94
Other drug use (none)								
Caffeine used	-0.10	0.61	0.03	1	.872	0.91	0.27	3.00
Illicit drug/s used	0.88	0.63	1.93	1	.165	2.40	0.70	8.28
PBSS (14-46; safest)								
47-56	1.37	1.17	1.36	1	.243	3.94	0.39	39.25
57-65	1.42	1.18	1.44	1	.231	4.14	0.41	42.10
66-84	2.39	1.15	4.32	1	.038	10.92	1.14	104.23
Abstainer ^a	-16.49	17662	0.00	1	.999	0.00	0.00	.
Gender (female)	-0.77	0.53	2.11	1	.146	0.46	0.17	1.31
Location (main settlement)	0.42	0.52	0.67	1	.412	1.53	0.56	4.19
Modality (online)	-0.36	0.73	0.25	1	.617	0.70	0.17	2.89
Constant	-4.24	1.41	9.09	1	.003	0.01		

¹ Reference group in parentheses.

^a Statistics not for interpretation. As only 5 abstainers were included in the analysis, extreme odds ratios were calculated due to empty or near empty cells in the variable crosstabulations.

Respondents who reported engaging in use of harm minimisation strategies with the lowest frequency were 10.92 times more likely to report unprotected sex than respondents who reported the most frequent use of harm minimisation strategies, controlling for all other factors in the model.

Sexual situation respondent wasn't happy about at the time

The full model was not statistically significant, suggesting the model was not able to distinguish between respondents who reported and did not report ending up in a sexual situation they weren't happy about at the time (see Table 11). It was not clear why the model was not significant. Of the 230 respondents included in the model, 32 (16%) reported sex they weren't happy about at the time – a rate similar to that reported amongst the 299 post-*Leavers* respondents who completed the item (15%). However, the logistic regression model only correctly predicted one of the reports. Especially since alcohol was primarily attributed to this outcome, for the respondent to be unhappy with the situation *at the time* (i.e. likely while intoxicated), suggests that influences beyond which were included in this model (for example, contextual factors) were relevant in the occurrence/report of this negative outcome.

Table 11

Sex respondent wasn't happy about at the time predicted using six variables (logistic regression with all post-Leavers respondents)¹

DV (negative consequence)	Omnibus Tests of Model Coefficients					Variance explained by model		Correct classifications by model
	χ^2	df	Missing N	N	p	Cox & Snell R Square	Nagelkerke R Square	
Sex respondent was unhappy about at the time	17.74	12	175	230	0.12	7.4%	13.4%	86.5%

Independent variable	B	S.E.	Wald	df	p	Odds Ratio	95% C.I. for Odds Ratio	
							Lower	Upper
Alcohol (0-6.00 sd)								
6.33-11.33 sd	-0.68	0.77	0.79	1	.375	0.51	0.11	2.29
11.67-18.33 sd	0.83	0.69	1.46	1	.227	2.30	0.60	8.84
18.67-45.00 sd	-0.07	0.82	0.01	1	.932	0.93	0.19	4.63
Other drug use (none)								
Caffeine used	0.47	0.47	1.00	1	.318	1.61	0.63	4.06
Illicit drug/s used	0.99	0.60	2.74	1	.098	2.70	0.83	8.73
PBSS (14-46; safest)								
47-56	0.50	0.68	0.54	1	.464	1.65	0.43	6.25
57-65	0.87	0.72	1.47	1	.226	2.38	0.59	9.67
66-84	0.92	0.71	1.67	1	.196	2.52	0.62	10.24
Abstainer ^a	2.01	1.16	2.98	1	.085	7.43	0.76	72.61
Gender (female)	-0.37	0.43	0.75	1	.385	0.69	0.30	1.59
Location (main settlement)	-0.36	0.48	0.54	1	.462	0.70	0.27	1.81
Modality (online)	0.24	0.59	0.16	1	.687	1.27	0.40	4.05
Constant	-2.91	0.84	11.92	1	.001	0.05		

¹ Reference group in parentheses.

^a Statistics not for interpretation. As only 5 abstainers were included in the analysis, odds ratios were calculated using empty or near empty cells in the variable crosstabulations.

Sexual encounter later regretted

The full model identifying predictors of a sexual encounter later regretted was statistically significant. One of the independent variables, survey modality made a unique statistically significant contribution to the model (see Table 12).

Table 12

Sex later regretted predicted using six variables (logistic regression with all post-Leavers respondents)¹

DV (negative consequence)	Omnibus Tests of Model Coefficients					Variance explained by model		Correct classifications by model
	X ²	df	Missing N	N	p	Cox & Snell R Square	Nagelkerke R Square	
Sex later regretted	28.01	12	174	231	0.006	11.4%	19.0%	85.3%
Independent variable	B	S.E.	Wald	df	p	Odds Ratio	95% C.I. for Odds Ratio	
							Lower	Upper
Alcohol (0-6.00 sd)								
6.33-11.33 sd	0.15	0.75	0.04	1	.840	1.16	0.27	5.09
11.67-18.33 sd	1.31	0.73	3.21	1	.073	3.69	0.88	15.43
18.67-45.00 sd	0.90	0.81	1.22	1	.269	2.46	0.50	12.11
Other drug use (none)								
Caffeine used	0.65	0.44	2.17	1	.141	1.91	0.81	4.53
Illicit drug/s used	0.98	0.54	3.31	1	.069	2.67	0.93	7.67
PBSS (14-46; safest)								
47-56	0.45	0.64	0.49	1	.485	1.57	0.44	5.51
57-65	0.98	0.65	2.27	1	.132	2.66	0.75	9.50
66-84	1.00	0.67	2.22	1	.136	2.71	0.73	10.04
Abstainer ^a	-18.88	17441	0.00	1	.999	0.00	0.00	.
Gender (female)	-0.58	0.40	2.11	1	.146	0.56	0.25	1.23
Location (main settlement)	-0.18	0.42	0.19	1	.661	0.83	0.36	1.90
Modality (online)	-0.99	0.49	4.01	1	.045	0.37	0.14	0.98
Constant	-2.24	0.80	7.75	1	.005	0.11		

¹ Reference group in parentheses.

^a Statistics not for interpretation. As only 5 abstainers were included in the analysis, extreme odds ratios were calculated due to empty or near empty cells in the variable crosstabulations.

Respondents completing the post-*Leavers* survey using the online form were 2.68 times more likely to report regretted sex than respondents using the paper form, controlling for all other factors in the model.

Stealing

The full model containing all predictors was statistically significant and the only significant predictor for reporting stealing attributed to AOD use was the use of illicit drugs (see Table 13).

Table 13

Stealing predicted using six variables (logistic regression with all post-Leavers respondents)¹

DV (negative consequence)	Omnibus Tests of Model Coefficients					Variance explained by model		Correct classifications by model
	χ^2	df	Missing N	N	p	Cox & Snell R Square	Nagelkerke R Square	
Stealing	26.62	12	174	231	0.009	10.9%	24.4%	90.9%
Independent variable	B	S.E.	Wald	df	p	Odds Ratio	95% C.I. for Odds Ratio	
							Lower	Upper
Alcohol (0-6.00 sd)								
6.33-11.33 sd	0.85	1.15	0.55	1	.460	2.35	0.24	22.56
11.67-18.33 sd	0.35	1.22	0.08	1	.772	1.42	0.13	15.59
18.67-45.00 sd	0.65	1.30	0.25	1	.620	1.91	0.15	24.42
Other drug use (none)								
Caffeine used	0.47	0.71	0.45	1	.503	1.60	0.40	6.40
Illicit drug/s used	2.31	0.72	10.24	1	.001	10.08	2.45	41.47
PBSS (14-46; safest)								
47-56	0.73	0.89	0.67	1	.413	2.07	0.36	11.77
57-65	0.16	0.99	0.02	1	.876	1.17	0.17	8.20
66-84	1.34	0.93	2.08	1	.149	3.81	0.62	23.42
Abstainer ^a	-18.27	16730	0.00	1	.999	0.00	0.00	.
Gender (female)	-0.27	0.58	0.21	1	.649	0.77	0.24	2.40
Location (main settlement)	-0.03	0.57	0.00	1	.963	0.97	0.32	2.98
Modality (online)	-0.86	0.67	1.65	1	.198	0.42	0.11	1.57
Constant	-3.59	1.23	8.52	1	.004	0.03		

¹ Reference group in parentheses.

^a Statistics not for interpretation. As only 5 abstainers were included in the analysis, extreme odds ratios were calculated due to empty or near empty cells in the variable crosstabulations.

Respondents who used illicit drugs were 10.08 times more likely to report stealing compared to respondents who did not use any drugs other than alcohol, all other factors in the model being equal.

Vandalism

The full model was statistically significant and two variables significantly and uniquely predicted reports of vandalism: illicit drug use and location (see Table 14).

Table 14

Vandalism predicted using six variables (logistic regression with all post-Leavers respondents)¹

DV (negative consequence)	Omnibus Tests of Model Coefficients					Variance explained by model		Correct classifications by model
	X ²	df	Missing N	N	p	Cox & Snell R Square	Nagelkerke R Square	
Vandalism	29.71	12	173	232	0.003	12.0%	30.5%	92.7%

Independent variable	B	S.E.	Wald	df	p	Odds Ratio	95% C.I. for Odds Ratio	
							Lower	Upper
Alcohol (18.67-45.00 sd)								
0-6.00 sd ^a	-16.56	5530	0.00	1	.998	0.00	0.00	.
6.33-11.33 sd	0.61	0.92	0.43	1	.512	1.83	0.30	11.21
11.67-18.33 sd	1.09	0.76	2.09	1	.149	2.98	0.68	13.10
Other drug use (none)								
Caffeine used	0.32	0.81	0.16	1	.692	1.38	0.28	6.70
Illicit drug/s used	2.05	0.83	6.02	1	.014	7.75	1.51	39.78
PBSS (14-46; safest)								
47-56	1.26	1.28	0.97	1	.325	3.54	0.29	43.94
57-65	1.16	1.31	0.78	1	.377	3.18	0.24	41.45
66-84	1.73	1.29	1.79	1	.180	5.62	0.45	70.37
Abstainer ^a	-0.76	17148	0.00	1	1.000	0.47	0.00	.
Gender (female)	1.30	0.68	3.70	1	.054	3.68	0.98	13.86
Location (main settlement)	1.39	0.62	5.01	1	.025	4.03	1.19	13.67
Modality (online)	-0.88	0.79	1.22	1	.268	0.42	0.09	1.97
Constant	-5.62	1.63	11.85	1	.001	0.00		

¹ Reference group in parentheses.

^a Statistics not for interpretation. Odds ratios were calculated using empty or near empty cells in the variable crosstabulations.

Respondents who used illicit drugs were 7.75 times more likely to report committing an act of vandalism than respondents who did not use any drugs other than alcohol (i.e. no caffeine or illicit drugs), all other factors in the model being equal.

Respondents residing in the Geordie Bay region were 4.03 times more likely to report committing an act of vandalism than respondents in the main settlement area, all other factors in the model being equal.

Removed/banned from Rottnest Island/accommodation

The model predicting removal or banning from Rottnest Island or RI accommodation was not significant (see Table 15). Note, this outcome was rarely reported (3% of the post-*Leavers* respondents) and only one participant included in the analysis was removed from their accommodation. It is likely this low prevalence led to the calculation of extreme odds ratios and possibly contributed to the model's lack of significance.

Table 15

Removal/banning predicted using six variables (logistic regression with all post-*Leavers* respondents)¹

DV (negative consequence)	Omnibus Tests of Model Coefficients					Variance explained by model		Correct classifications by model
	X ²	df	Missing N	N	p	Cox & Snell R Square	Nagelkerke R Square	
Removed/banned	12.89	12	173	232	0.38	5.4%	100.0%	100.0%
Independent variable	B	S.E.	Wald	df	p	Odds Ratio	95% C.I. for Odds Ratio	
							Lower	Upper
Alcohol (0-6.00 sd)								
6.33-11.33 sd	1.02	7992	0.00	1	1.000	2.77	0.00	.
11.67-18.33 sd	11.37	7844	0.00	1	.999	86813	0.00	.
18.67-45.00 sd	5.41	31930	0.00	1	1.000	224	0.00	.
Other drug use (none)			0.00	2	1.000			
Caffeine used	-10.42	3965	0.00	1	.998	0.00	0.00	.
Illicit drug/s used	-10.54	10626	0.00	1	.999	0.00	0.00	.
PBSS (14-46; safest)			0.00	4	1.000			
47-56	9.41	10765	0.00	1	.999	12212	0.00	.
57-65	11.43	11133	0.00	1	.999	92374	0.00	.
66-84	-14.10	33202	0.00	1	1.000	0.00	0.00	.
Abstainer	29.48	18178	0.00	1	.999	6.34 x 10 ¹²	0.00	.
Gender (female)	10.12	4279	0.00	1	.998	24825	0.00	.
Location (main	30.48	2858	0.00	1	.991	1.73 x 10 ¹³	0.00	.
Modality (online)	-21.52	3657	0.00	1	.995	0.00	0.00	.
Constant	-48.34	6033	0.00	1	.994	0.00		

¹ Reference group in parentheses.

Note: Only one participant included in the analysis was removed from their accommodation. Extreme odds ratios were calculated due to empty or near empty cells in the variable crosstabulations.

Arrested for intoxicated behaviour

The model predicting arrest for intoxicated behaviour was not significant (see Table 16). Note: this outcome was rare (5% in the post-*Leavers* survey sample) only 8 respondents in the analysis reported being arrested.

Table 16

Arrest for intoxicated behaviour predicted using six variables (logistic regression with all post-*Leavers* respondents)¹

DV (negative consequence)	Omnibus Tests of Model Coefficients					Variance explained by model		Correct classifications by model
	X ²	df	Missing N	N	p	Cox & Snell R Square	Nagelkerke R Square	
Arrested for intoxicated behaviour	12.25	12	172	233	0.43	5.1%	19.8%	96.6%
Independent variable	B	S.E.	Wald	df	p	Odds Ratio	95% C.I. for Odds Ratio	
							Lower	Upper
Alcohol (0-6.00 sd)								
6.33-11.33 sd	-17.55	4882	0.00	1	.997	0.00	0.00	.
11.67-18.33 sd	0.01	1.42	0.00	1	.996	1.01	0.06	16.29
18.67-45.00 sd	0.40	1.52	0.07	1	.795	1.49	0.08	29.13
Other drug use (none)								
Caffeine used	-1.08	1.22	0.78	1	.379	0.34	0.03	3.75
Illicit drug/s used	0.72	0.92	0.62	1	.432	2.06	0.34	12.60
PBSS (14-46; safest)								
47-56	-0.13	1.53	0.01	1	.934	0.88	0.04	17.57
57-65	0.62	1.46	0.18	1	.673	1.85	0.11	32.20
66-84	0.68	1.40	0.24	1	.626	1.98	0.13	30.70
Abstainer ^a	-17.26	17182	0.00	1	.999	0.00	0.00	.
Gender (female)	0.33	0.80	0.17	1	.676	1.40	0.29	6.65
Location (main settlement)	0.14	0.83	0.03	1	.865	1.15	0.23	5.82
Modality (online)	-0.01	1.16	0.00	1	.992	0.99	0.10	9.67
Constant	-3.74	1.56	5.74	1	.017	0.02		

¹ Reference group in parentheses.

^a Statistics not for interpretation. Odds ratios were calculated using empty or near empty cells in the variable crosstabulations.

Note: Only eight respondents included in the analysis were arrested.

Sexual problems/risks (unprotected sex, sex unhappy about at the time or regretted sex)

The full model was statistically significant and two variables significantly and uniquely predicted reports of sexual problems/risks: illicit drug use and gender (see Table 17).

Table 17

Sexual problems/risks predicted using six variables (logistic regression with all post-Leavers respondents)¹

DV (negative consequence)	Omnibus Tests of Model Coefficients					Variance explained by model		Correct classifications by model
	χ^2	df	Missing N	N	p	Cox & Snell R Square	Nagelkerke R Square	
Sexual problems/risks	35.39	12	174	231	0.0005	14.2%	20.4%	76.6%
Independent variable	B	S.E.	Wald	df	p	Odds Ratio	95% C.I. for Odds Ratio	
							Lower	Upper
Alcohol (0-6.00 sd)								
6.33-11.33 sd	-0.16	0.59	0.07	1	.788	0.85	0.27	2.70
11.67-18.33 sd	0.97	0.57	2.88	1	.089	2.65	0.86	8.14
18.67-45.00 sd	1.03	0.63	2.61	1	.106	2.79	0.80	9.67
Other drug use (none)								
Caffeine used	0.21	0.37	0.33	1	.566	1.24	0.60	2.56
Illicit drug/s used	1.08	0.47	5.23	1	.022	2.95	1.17	7.47
PBSS (14-46; safest)								
47-56	0.62	0.52	1.41	1	.235	1.86	0.67	5.14
57-65	0.87	0.55	2.57	1	.109	2.40	0.82	6.97
66-84	1.07	0.55	3.76	1	.052	2.92	0.99	8.63
Abstainer ^a	1.65	1.11	2.20	1	.138	5.20	0.59	45.97
Gender (female)	-0.72	0.35	4.30	1	.038	0.49	0.25	0.96
Location (main)	0.00	0.36	0.00	1	.994	1.00	0.49	2.03
Modality (online)	-0.40	0.45	0.79	1	.375	0.67	0.28	1.62
Constant	-1.80	0.64	7.80	1	.005	0.17		

¹ Reference group in parentheses.

^a Statistics not for interpretation. Odds ratios were calculated using empty or near empty cells in the variable crosstabulations.

Respondents who used an illicit drug were 2.95 times more likely to report a sexual problem/risk compared to respondents who did not use any drugs other than alcohol, all other factors in the model being equal.

Females were 2.04 times more likely to report a sexual problem/risk compared to male respondents, all other factors in the model being equal.

Legal problems (stealing, vandalism, removal/banning or arrest)

The full model was statistically significant and one variable, illicit drug use, significantly and uniquely predicted reports of a legal problem (see Table 18).

Table 18

Legal problems predicted using six variables (logistic regression with all post-Leavers respondents)¹

DV (negative consequence)	Omnibus Tests of Model Coefficients					Variance explained by model		Correct classifications by model
	X ²	df	Missing N	N	p	Cox & Snell R Square	Nagelkerke R Square	
Legal problems	41.16	12	172	233	0.0005	16.2%	28.4%	86.7%

Independent variable	B	S.E.	Wald	df	p	Odds Ratio	95% C.I. for Odds Ratio	
							Lower	Upper
Alcohol (0-6.00 sd)								
6.33-11.33 sd	0.44	0.86	0.26	1	.611	1.55	0.29	8.45
11.67-18.33 sd	0.47	0.88	0.29	1	.590	1.61	0.29	9.05
18.67-45.00 sd	0.21	0.97	0.05	1	.825	1.24	0.19	8.29
Other drug use (none)								
Caffeine used	0.24	0.53	0.21	1	.645	1.28	0.45	3.61
Illicit drug/s used	2.27	0.57	15.72	1	0.0005	9.71	3.16	29.85
PBSS (14-46; safest)								
47-56	0.89	0.72	1.53	1	.216	2.44	0.59	10.07
57-65	0.46	0.79	0.33	1	.564	1.58	0.33	7.47
66-84	1.47	0.76	3.75	1	.053	4.33	0.98	19.10
Abstainer ^a	-18.71	16756	0.00	1	.999	0.00	0.00	.
Gender (female)	0.12	0.44	0.07	1	.789	1.13	0.47	2.67
Location (main settlement)	0.49	0.45	1.22	1	.269	1.64	0.68	3.93
Modality (online)	-0.36	0.58	0.39	1	.532	0.69	0.22	2.18
Constant	-3.46	0.94	13.54	1	.000	0.03		

¹ Reference group in parentheses.

^a Statistics not for interpretation. Odds ratios were calculated using empty or near empty cells in the variable crosstabulations.

Respondents who used an illicit drug were 9.71 times more likely to report a legal problem compared to respondents who did not use any drugs other than alcohol, all other factors in the model being equal.

Post-hoc test 4: Caffeine used with alcohol and negative AOD consequences at Leavers

Table 19

Hangover predicted using: caffeine combined with alcohol, alcohol, gender, location and modality (logistic regression with post-Leavers respondents who used caffeine)¹

DV (negative consequence)	Omnibus Tests of Model Coefficients					Variance explained by model		Correct classifications by model
	χ^2	df	Missing N	N	p	Cox & Snell R Square	Nagelkerke R Square	
Hangover	31.41	7	63	123	0.0005	22.5%	31.8%	76.4%
Independent variable	B	S.E.	Wald	df	p	Odds Ratio	95% C.I. for Odds Ratio	
							Lower	Upper
Caffeine with alcohol (did not use together)	1.64	0.57	8.35	1	.004	5.15	1.69	15.67
Alcohol (0-6.00 sd)								
6.33-11.33 sd	1.51	0.72	4.36	1	.037	4.52	1.10	18.67
11.67-18.33	1.86	0.75	6.06	1	.014	6.41	1.46	28.10
18.67-45.00	1.91	0.80	5.71	1	.017	6.77	1.41	32.52
Gender (female)	-0.02	0.50	0.00	1	.967	0.98	0.37	2.59
Location (main settlement)	0.52	0.54	0.95	1	.330	1.69	0.59	4.84
Modality (online)	-1.64	0.84	3.85	1	.050	0.19	0.04	1.00
Constant	-0.54	0.87	0.38	1	.536	0.58		

¹ Reference group in parentheses.

Table 20

Emotional outbursts predicted using: caffeine combined with alcohol, alcohol, gender, location and modality (logistic regression with post-Leavers respondents who used caffeine)¹

DV (negative consequence)	Omnibus Tests of Model Coefficients					Variance explained by model		Correct classifications by model
	X ²	df	Missing N	N	p	Cox & Snell R Square	Nagelkerke R Square	
Emotional outbursts	14.04	7	64	122	0.05	10.9%	14.5%	62.3%

Independent variable	B	S.E.	Wald	df	p	Odds Ratio	95% C.I. for Odds Ratio	
							Lower	Upper
Caffeine with alcohol (did not use together)	1.48	0.52	7.98	1	.005	4.40	1.57	12.32
Alcohol (0-6.00 sd)								
6.33-11.33 sd	0.56	0.67	0.69	1	.405	1.75	0.47	6.56
11.67-18.33	0.21	0.68	0.09	1	.760	1.23	0.32	4.70
18.67-45.00	0.21	0.71	0.09	1	.766	1.24	0.30	5.02
Gender (female)	-0.69	0.43	2.55	1	.110	0.50	0.22	1.17
Location (main settlement)	-0.51	0.43	1.40	1	.236	0.60	0.26	1.39
Modality (online)	0.08	0.63	0.02	1	.893	1.09	0.32	3.72
Constant	-0.95	0.77	1.53	1	.216	0.39		

¹ Reference group in parentheses.

Table 21

Heated arguments predicted using: caffeine combined with alcohol, alcohol, gender, location and modality (logistic regression with post-Leavers respondents who used caffeine)¹

DV (negative consequence)	Omnibus Tests of Model Coefficients					Variance explained by model		Correct classifications by model
	χ^2	df	Missing N	N	p	Cox & Snell R Square	Nagelkerke R Square	
Heated argument	18.88	7	65	121	0.009	14.4%	19.7%	66.1%

Independent variable	B	S.E.	Wald	df	p	Odds Ratio	95% C.I. for Odds Ratio	
							Lower	Upper
Caffeine with alcohol (did not use together)	1.43	0.62	5.37	1	.020	4.17	1.25	13.94
Alcohol (0-6.00 sd)								
6.33-11.33 sd	-0.40	0.74	0.29	1	.588	0.67	0.16	2.85
11.67-18.33	0.78	0.73	1.16	1	.281	2.19	0.53	9.13
18.67-45.00	0.52	0.77	0.45	1	.501	1.68	0.37	7.57
Gender (female)	-1.40	0.49	8.26	1	.004	0.25	0.10	0.64
Location (main settlement)	0.32	0.45	0.50	1	.480	1.37	0.57	3.30
Modality (online)	-0.37	0.66	0.32	1	.574	0.69	0.19	2.50
Constant	-1.04	0.83	1.59	1	.207	0.35		

¹ Reference group in parentheses.

Table 22

Accident/injury predicted using: caffeine combined with alcohol, alcohol, gender, location and modality (logistic regression with post-Leavers respondents who used caffeine)¹

DV (negative consequence)	Omnibus Tests of Model Coefficients					Variance explained by model		Correct classifications by model
	X ²	df	Missing N	N	p	Cox & Snell R Square	Nagelkerke R Square	
Accident/injured self	16.16	7	67	119	0.02	12.7%	17.0%	69.7%

Independent variable	B	S.E.	Wald	df	p	Odds Ratio	95% C.I. for Odds Ratio	
							Lower	Upper
Caffeine with alcohol (did not use together)	1.18	0.56	4.37	1	.037	3.25	1.08	9.79
Alcohol (0-6.00 sd)								
6.33-11.33 sd	0.54	0.71	0.58	1	.445	1.72	0.43	6.85
11.67-18.33	0.15	0.74	0.04	1	.837	1.16	0.27	4.94
18.67-45.00	0.35	0.76	0.22	1	.643	1.43	0.32	6.37
Gender (female)	-0.70	0.45	2.40	1	.121	0.50	0.20	1.21
Location (main settlement)	0.83	0.43	3.65	1	.056	2.29	0.98	5.34
Modality (online)	0.71	0.70	1.04	1	.307	2.04	0.52	8.00
Constant	-2.01	0.90	5.02	1	.025	0.13		

¹ Reference group in parentheses.

Post-hoc test 7: Attitudes, norms and expectations, and intent to use alcohol

Table 23

Expectations of Conditions at Leavers and Alcohol use Intention (including those who intend to abstain from alcohol)

	Mean alcohol use intention (including intended abstainers)			Mann-Whitney test statistics											
	Agree	Undecided	Disagree	Agree vs. Undecided				Agree vs. Disagree				Undecided vs. Disagree			
				U	z	p	r ¹	U	z	p	r ¹	U	z	p	r ¹
I'm interested in "letting loose" at Leavers and doing something I usually wouldn't do at home	13.48	7.22	6.63	7280	-6.54	0.0005*	-0.33	5699	-6.68	0.0005*	-0.35	2973	-1.7	0.09	-0.13
It is acceptable/OK for someone of my age and gender to get drunk at Leavers	12.58	6.21	3.00	3957	-5.55	0.0005*	-0.27	1913	-7.65	0.0005*	-0.37	477	-3.4	0.001*	-0.38
My friends and I have an understanding that we <u>will</u> get drunk at Leavers	13.05	8.06	2.76	3335	-4.92	0.0005*	-0.25	1953	10.98	0.0005*	0.54	663	-4.04	0.0005*	-0.39
My friends and I have an understanding that we will <u>not</u> get drunk at Leavers	3.60	6.52	12.79	788	-3.48	0.001*	-0.34	2301	-8.75	0.0005*	-0.44	4175	-6.04	0.0005*	-0.30
My friends and I have an understanding that we <u>will</u> experiment with drugs other than alcohol at Leavers	20.82	13.50	7.97	2133	-4.46	0.0005*	-0.34	3365	-8.71	0.0005*	-0.46	8185	-6.33	0.0005*	-0.32
My friends and I have an understanding that we will <u>not</u> experiment with drugs other than alcohol at Leavers	7.70	12.35	17.74	7998	-6.11	0.005*	-0.32	5361	-8.28	0.0005*	-0.45	4011	-3.5	0.0005*	-0.24
I would get drunk if it seemed like everyone was drinking at Leavers	14.23	9.57	7.74	5575	-5.21	0.0005*	-0.30	7966	-8.15	0.0005*	-0.43	5072	-2.06	0.04	-0.14
I will feel pressured to drink alcohol at Leavers ²	10.55	10.16	11.51												
I will feel pressured to use cannabis at Leavers	15.48	11.84	10.59	630	-1.76	0.08	-0.20	5863	-3.17	0.002*	-0.15	6496	-0.67	0.51	-0.03
I will feel pressured to use amphetamines at Leavers	16.41	12.03	10.64	334	-1.56	0.12	-0.20	3417	-2.61	0.009*	-0.13	5767	-1.65	0.1	-0.08
I will feel pressured to use ecstasy at Leavers	16.77	12.66	10.62	405	-1.39	0.16	-0.17	3807	-3.03	0.002*	-0.15	5404	-2.15	0.03	-0.10
I will feel pressured to use drugs other than the above substances at Leavers	14.08	11.63	10.71	453	-1.35	0.18	-0.16	3963	-2.24	0.03	-0.11	6630	-1.31	0.19	-0.06
You need to consume alcohol to "fully experience" Leavers	14.53	11.09	7.93	5936	-3.48	0.001*	-0.21	9037	-7.63	0.0005*	-0.40	6577	-3.01	0.003*	-0.33
You need to consume drugs other than alcohol to "fully experience" Leavers	20.33	16.22	9.41	672	-1.79	0.07	-0.20	2646	-6.17	0.0005*	-0.31	5064	-4.68	0.005*	-0.23
Using alcohol and other drugs at Leavers will help me act in a way that is amusing and memorable to my friends	14.72	11.13	8.79	4408	-2.8	0.005*	-0.19	9287	-6.53	0.0005*	-0.34	8037	-2.96	0.003*	-0.16

* p < .017 for the Mann-Whitney U tests. ¹ r: .1 = small effect, .3 = medium effect, .5 = large effect.

² Mann-Whitney tests were not run for this statement as the Kruskal Wallis test was not significant.