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What is the difference between Indigenous Australian and non-Indigenous Australian undergraduate students' alcohol use, and alcohol-related harms at one regional Australian university?

Thesis submitted by

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In November 2017

For the degree of Doctor of Philosophy
In the College of Medicine and Dentistry
James Cook University

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Declaration

I, Peter James Malouf, declare that this thesis is my work and has not been submitted in any form for another degree or diploma at any university or other institution of tertiary education. Information derived from the published or unpublished work of others has been acknowledged in the text, and a list of references is given

Signature

Peter James Malouf

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Statement of the contribution of others

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Declaration of ethics

The research presented and reported in this thesis was conducted within the guidelines for research ethics, which is outlined in the National Statement on Ethics Conduct in Research Involving Humans (1999); NHMRC Values and Ethics Guidelines for Ethical Conduct in Aboriginal and Torres Strait Islander Health Research; NHMRC Keeping Research on Track: A guide for Aboriginal and Torres Strait Islander peoples about health research ethics (2006); the Joint NHMRC/AVCC Statement and Guidelines on Research Practice (1997); and the James Cook University Statement and Guidelines on Research Practice (2001). The proposed research methodology received clearance from the James Cook University Human Research Ethics Committee (HREC) (approval number H4920)

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Thesis Abstract

Background

Young people in Australia are more likely to consume alcohol at harmful levels on a single occasion, therefore, increasing their risk of alcohol-related harm. The research will focus on identifying patterns of drinking among Indigenous Australian and non-Indigenous Australian university students with associated factors, and potential consequent harms.

The study will also identify other factors that may influence at-risk drinking among Indigenous Australian and non-Indigenous Australian university students, and the association between at-risk drinking and consequent harms. Additional components will involve focus groups comprising Indigenous university students to elucidate further factors that may influence alcohol use and the experience of consequent harms.

Aims

This thesis aims:

1. To determine patterns and associated harms among university and college students across Australia, New Zealand, and North America (chapter 3).
2. To determine Indigenous Australian and non-Indigenous Australian student drinking patterns, including the frequency of drinking, the quantity of drinking, and the choices of alcohol consumed (chapter 4).
 - a. To determine the frequency of alcohol-related harms experienced by Indigenous Australian and non-Indigenous Australian students who drink.
 - b. To determine any differences and similarities in the association between hazardous drinking and academic performance, depressive symptoms and satisfaction with their health among Indigenous Australians and non-Indigenous Australian students.
3. To identify the experience of alcohol consumption and alcohol-related harms among Indigenous Australian and non-Indigenous Australian students (chapter 5).
 - a. To identify Indigenous Australian and non-Indigenous Australian students' understanding of student drinking culture.
 - b. To determine Indigenous Australian and non-Indigenous Australian students' attitudes towards harmful drinking behaviour.
 - c. To identify the influencing factors from Indigenous Australian and non-

Indigenous Australian students that may support students' drinking behaviour.

4. To compare and contrast any differences and similarities between Indigenous Australian and non-Indigenous Australian students' experiences of alcohol consumption and alcohol-related harms, more generally (chapter 6).
5. To provide limitations and recommendations for future research and practice regarding interventions to reduce risky alcohol consumption and alcohol-related harm among Indigenous Australian and non-Indigenous Australian students (chapter 7).

Methods

Aim 1 is addressed through a systematic review of published and grey literature. Aims 2 and 3 are addressed through a series of studies undertaken within a regional university with university students in North Queensland, Australia. These studies involved: a cross-sectional survey of 175 Indigenous Australian and 696 non-Indigenous Australian students (Aim 2); a cross-sectional survey of 871 university students aged 17-24 (Aim 3); a purposive sampling of three yarning groups (two Indigenous Australians and one non-Indigenous Australian) with a total of 18 student participants. Aim 4 is addressed through data integration by comparing both quantitative and qualitative datasets.

Key findings

- The Alcohol Use Disorder Identification Test (AUDIT) scores ranged from 0 to 33 for both Indigenous Australian students, mean = 9.4, SD ± 6.0, [t (94) = 15.08, p < 0.000] and non-Indigenous Australian students, mean = 8.7, SD ± 5.7, [t (725) = 41.50, p < 0.000] (Chapter 4).
- The Alcohol Use Disorder Identification Test – Consumption (AUDIT-C) score was summed using the first three questions of the AUDIT tool, ranged from 0 to 12 for both, Indigenous Australian students, mean = 6.3, SD ± 3.1, [t (94) = 19.45, p < 0.000] and non-Indigenous Australian students, mean = 6.0, SD ± 2.8 [t (725) = 57.19, p < 0.000] (chapter 4).
- The model indicated among Indigenous Australian hazardous drinkers, no significant relations were found. Non-Indigenous Australian students who were hazardous drinkers were 1.74 times (p=0.002) dissatisfied with their academic performance and 7.16 times (p=0.001) more likely to experience alcohol-related risk behaviour (chapter 4)
- Indigenous Australians emphasised that drinking was integrated into university life,

whereas the non-Indigenous Australians commented that university years were seen to be a time of independence to drink without serious consequences (chapter 5).

- The academic performance influencing social drinking for those who drank contributed to heavy drinking among Indigenous Australian and non-Indigenous Australian students who tended to consume alcohol above the standard recommended serving per single occasion. This led to associated consequences that were both positive and negative (chapter 5).
- This mixed methods study of Indigenous Australian and non-Indigenous Australian students' alcohol use expanded on previous quantitative and qualitative methods by having a broader focus on Indigenous Australian students at the university and by showing how Indigenous Australian and non-Indigenous Australians' alcohol use is shaped during their time at university (chapter 6).
- Drinking trends were predominantly among male students. Explicitly focusing on hazardous drinking and consequences of drinking were identified. Overall, the state of hazardous drinking among students with no difference among Indigenous Australians remains a significant concern (chapter 6).

Conclusion and discussion

The findings of this thesis support the findings of recent mixed methods studies and provide the first mixed methods study showing differences in Indigenous Australian and non-Indigenous Australian student alcohol use and alcohol-related harms. Hazardous drinking occurs predominately among Indigenous Australian and non-Indigenous Australian men, but generally among non-Indigenous Australians who experience alcohol-related risk behaviour and dissatisfaction with academic performance. If we are to improve the drinking rates among undergraduate students, universities need to consider developing a range of strategies to reduce alcohol-related harm. For example, potential supply reduction strategies could include restricting access to the supply of alcohol on campus, the level of harm associated with alcohol use may be reduced when safe environments on campus are promoted, and demand reduction strategies can be used to improve awareness of the consequences of hazardous drinking. . The thesis provides insight into the differences between Indigenous Australian and non-Indigenous Australian students regarding the culture of alcohol use at university, which may assist universities to develop prevention and education strategies to address this problem in the future.

List of Abbreviations

ANOVA	Analysis of Variance
AUDIT	Alcohol Use Disorders Identification Test
AUDIT-C	Alcohol Use Disorders Identification Test-Consumption
CI	Confidence Interval
DSM	Diagnostic and Statistical Manual of Mental Disorders
HREC	Human Research Ethics Committee
IA	Indigenous Australian
JCU	James Cook University
NHMRC	National Health and Medical Research Council
NIA	Non-Indigenous Australian
OR	Odds ratio
PHQ-9	Patient Health Questionnaire – 9
PRISMA	Preferred Reporting Items for Systematic Reviews and Meta-Analyses
QLD	Queensland
SPSS	Software Package for Statistics and Simulation, a statistical software program developed by IBM
WHO	World Health Organisation
WPR	WHO Western Pacific Region
HED	Heavy episodic drinking
EUR	WHO European Region
DEEWR	Department of Education Employment and Workplace Relations
MCEETYA	Ministerial Council on Education Employment Training and Youth Affairs
NATSISS	National Aboriginal and Torres Strait Islander Social Survey
SEWB	Social and Emotional Wellbeing
MeSH	Medical Subject Headings

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Preface: Positioning of Researcher

Being born and raised in both Aboriginal and European society has an important meaning for me as an Aboriginal researcher. As a young descendant of Wakka Wakka and Wulli Wulli people of North Burnett, Queensland and being raised in both rural and regional locations, I have lived through, and been influenced by, different life circumstances and social and historical actualities. This identity and heritage are heavily influenced by the colonising history of Queensland and its Aboriginal people.

Before I begin to describe the outline of the study, it is essential for me to consider my Indigenous standpoint in the research process. I acknowledge that my social position differs politically, culturally, racially, and economically from those researchers from settler backgrounds. In extension, my social position is framed by how I make sense of the world, which shapes my Indigenous research approach. Thus, my research practice is moulded by my social positioning.

I have been raised within a contemporary Aboriginal society that has allowed me to learn many important aspects of both Aboriginal and Torres Strait Islander culture. From early childhood, I was taught the value of family kinships, respect for Elders, the importance of respect for protocols and to appreciate those traditional customs and beliefs that make Aboriginal and Torres Strait Islander communities unique. My childhood was spent predominantly in urban locations with regular visits to rural communities where my parents were raised. This time taught me to recognise and respect the spiritual affiliations that Aboriginal and Torres Strait Islander people have with their land and sea. As a result of the strong traditional values instilled in me by my parents, I believe I can communicate effectively and sensitively with Aboriginal and Torres Strait Islander people.

As an Aboriginal man, I feel very strongly about the issues that affect Aboriginal and Torres Strait Islander people. I have seen the effects that inadequate health care, the lack of education and employment have on Aboriginal and Torres Strait Islander people. I also acknowledge that there is an urgent need to address the serious issues of alcohol and substance abuse in our communities. If these issues are not addressed, they will have serious consequences for Aboriginal and Torres Strait Islander youth and future generations.

This study was conceived through my academic experience and work practice in Alcohol, Tobacco and Other Drugs and Public Health for over ten years. The research approach embodies my Indigenous standpoint in reflecting on cultural, political, and economic issues and how they interact with a dominant Euro-Australian population. The racial landscape of Indigenous Australians past and present is shaped by the dominant social-structural reality, with Indigenous Australians experiencing low-socioeconomic positioning, a significant burden of disease and ongoing dispossession that encompasses loss of land, culture and traditional knowledge from colonisation.

Chapter One - Introduction

1.0 Introduction

The impetus for this study came from working with and teaching Aboriginal and Torres Strait Islander (here on in – Indigenous Australian) students who have, during their university experience, engaged in alcohol consumption and experienced alcohol-related harms during their time at university. The literature details the effects that alcohol use has on university students and the potential academic challenges it poses to students finishing their university degree. While the impact of alcohol consumption on an individual should not be underestimated, having student peers engaged in hazardous alcohol consumption creates additional impacts, such as peer pressure, socialisation, and alcohol-related problems. Given the abundance of evidence and literature on university students' alcohol consumption and alcohol-related harms, there is little that reflects an understanding of alcohol consumption and alcohol-related harms among Indigenous Australian university students. Apart from the individual effects related to alcohol consumption, the individual may also experience physical harms and academic challenges. Additionally, there are often aspects of depression and anxiety.

1.1 Alcohol consumption and consequences of alcohol worldwide

With health care systems around the world at extreme capacity, alcohol consumption is still a global public health concern leading to morbidity and mortality around the world. A recent 2014 World Health Organisation (WHO) global status report on alcohol and health revealed that although the European region (EUR) has the highest alcohol consumption levels, the highest rates of heavy drinking among adolescents are found in the Western Pacific region (WPR) (World Health Organisation, 2014).

The trends in alcohol consumption vary across the regions of the world. The highest consumption levels are found in the developed world, in particular, Europe and the Americas, followed by an intermediate level of consumption found in the Western Pacific Region, including Australia (World Health Organisation, 2014). Alcohol occupies a significant place in high-income countries, with the highest alcohol per capita consumption and the highest prevalence of heavy drinkers (World Health Organisation, 2014). However, alcohol use is stable in developed countries of the Western Pacific region. The recent WHO report found

that worldwide consumption was equal to 6.2 litres of pure alcohol consumed per person aged 15 years or older, which translates into 13.5 grams of pure alcohol per day (World Health Organisation, 2014).

As a result, heavy episodic drinking for people 15 years of age or older represents 16% of drinkers worldwide. A higher proportion of excessive drinking is found among young people (World Health Organisation, 2014). In all WHO regions, females are more often lifetime abstainers than males. There is a considerable variation in the prevalence of abstention across WHO regions. Alcohol-related harms in all WHO regions are experienced by people through different factors, and especially by young people (World Health Organisation, 2014).

The consequences of alcohol use across countries, the burden of disease, and death are considered in most countries. Harmful use of alcohol is ranked among the top five risk factors for disease, disability and death throughout the world. In 2012, 5.2% of the global burden of disease and injury was attributable to alcohol, with total deaths are alcohol-attributable in the age group 20-39 (World Health Organisation, 2014). The contributing factors associated with the harmful use of alcohol are linked to a range of mental and behavioural disorders and injuries. There are also the latest causal relationships which indicate that harmful use of alcohol is related to the incidence of infectious diseases such as tuberculosis (World Health Organisation, 2014). However, beyond the consequences of alcohol use lies the significant social and economic impact to individuals, families and the community at large.

1.2 Alcohol consumption among young people and university students

High quantity of alcohol per capita consumption is significantly correlated among young people in 68 countries, particularly in WHO South-East Asia Region and the WHO Western Pacific Region. According to the WHO Global Survey of Alcohol and Health (2012), young people are found to have the highest rates of heavy drinking in the WHO European Region, WHO Region of the Americas and WHO Western Pacific Region, and Heavy Episodic Drinking is more prevalent among adolescents than among the total population aged 15 years or older in all these WHO regions (World Health Organisation, 2014).

University students have the highest prevalence of alcohol use; these percentages range from 88.5-91.9% among Brazilian students (Karam, Kypri, & Salamoun, 2007). Alcohol use

among students in university environments is widely studied (Ham & Hope, 2003). The university sector, public policy officials and the broader community have become increasingly concerned about the health risks to students caused by heavy drinking (Ham & Hope, 2003). In fact, heavy drinking has become embedded in the university system, and students quickly become acculturated upon their arrival at university. Drinking to excess is widely viewed as a rite of passage early in a student's academic career (Flett et al., 2008). here is extensive literature on alcohol use by college students in the United States, New Zealand and Canada, as the most significant contributor to outcomes in student health and wellbeing (Carlson, Johnson, & Jacobs, 2010; Gliksman, Adlaf, Demers, & Newton-Taylor, 2003; Karam et al., 2007; Kypri, Langley, & Stephenson, 2005; Kypri, Paschall, et al., 2009; Polizzotto, Saw, Tjhung, Chua, & Stockwell, 2007; Utpala-Kumar & Deane, 2010). In a New Zealand study, 81% of students drank in the previous four weeks, 37% reported one or more binge episodes in the previous week, and 68% drank to hazardous levels. Students on average reported consuming 5.6 drinks per week (Kypri, Paschall, et al., 2009). Men are more likely than women to drink at least twice per week (27.0% vs 15.1%) and to drink in greater quantities per week (8.8 vs 4.6 among previous year drinkers) (Gliksman et al., 2003). However, much of the research in the area has been conducted in the United States, with evidence of similar patterns in Australia.

It is now well established that young people aged 18-25 years at university are more likely to consume alcohol at harmful levels than their same-age peers who are not at university, and harmful alcohol use affects many aspects of their lives (Engs, 1977; Ham & Hope, 2003; Karam et al., 2007; Wilks, 1985). Almost half drink at harmful and hazardous levels and two-thirds have experienced harm from their alcohol use. High levels of alcohol consumption are more prevalent in men, as well as those who are first-year students, living on campus, have come to university from a rural area, and are not international students (Rickwood, George, Parker, & Mikhailovich, 2011).

These findings appear to apply to the Australian context, with previous studies reporting the high prevalence of excessive drinking among tertiary populations in both Australia and New Zealand (Grabowski et al., 1979; Hallett et al., 2012; Kypri, Langley, McGee, Saunders, & Williams, 2002; Paschall, Kypri, & Saltz, 2006; Reavley, Jorm, McCann, & Lubman, 2011; Utpala-Kumar & Deane, 2010). In a 2016 national survey of Australian young people and alcohol, the study found almost all (96%) were consuming 5+ SD at least once a month, and

half were consuming 11+ SD at least once a month. Furthermore, most young people (85%) who participated in this survey had AUDIT-C scores of 6 or more, which is indicative alcohol-related harm (Lam, 2017; Livingston, Callinan, Raninen, Pennay, & Dietze, 2018). Most students drink fewer than three drinks per day, although male students drink more frequently and in greater quantities than female students (Grabowski et al., 1979; Hallett et al., 2012; Kypri et al., 2002; Kypri, Paschall, et al., 2009; Paschall et al., 2006; Reavley et al., 2011; Utpala-Kumar & Deane, 2010). In summary, there is consistent evidence that university students can be classed as heavy drinkers.

Although not all students are at risk of having heavy drinking sessions, those who do drink heavily are more likely to be at risk of negative consequences (Ham & Hope, 2003; Karam et al., 2007). The harmful consequences of alcohol use have been examined in a number of studies (Blank, Connor, Gray, & Tustin, 2015; Carlson et al., 2010; Kypri, Cronin, & Wright, 2005; Langley, Kypri, & Stephenson, 2003; Morrison, Ryan, Fox, McDermott, & Morrison, 2008; O'Brien et al., 2014; Oei & Jardim, 2007; Rickwood et al., 2011; Roche & Watt, 1999; Said, Kypri, & Bowman, 2013). Male students appear more likely to have trouble with authority and academic performance as a consequence of their drinking behaviour. Further, male students are exposed to more physical consequences such as injury, whereas female students were more aware and willing to admit the effects they experienced from alcohol use (Blank et al., 2015).

1.3 Need for alcohol research among Indigenous Australian students

Tertiary students in Australia have reported being a group that is exposed to heavy drinking and associated alcohol-related harms. Alcohol use among students in university environments has been widely studied. According to the Australian Bureau of Statistics, higher education students aged 18-64 were less likely than other people to exceed the guidelines for both short-term and lifetime risk of harm from alcohol consumption (Australian Bureau of Statistics, 2013). In the 2011-12 ABS trends, 14% drank more than two standard drinks per day on average. Higher education students were also less likely to binge drink (that is, consume more than four standard drinks on a single occasion in the past year) than non-higher education students (45% compared with 52%) (Australian Bureau of Statistics, 2013).

In a recent Australian study of university students, 33.7% of the sample reported drinking to

intoxication at least once per week (Roche & Watt, 1999). Of interest is that 54.4% of the students surveyed typically consume five or more standard drinks on a typical drinking occasion. Overall, 68.5% of this student sample were categorised as drinking at hazardous to harmful levels. However, a growing concern in Australia is the changing patterns and quantity consumed by young women generally, and women university students in particular (Roche & Watt, 1999). In a study of 603 Australian university students aged 18-24 years, 55.1% of male students were drinking at harmful/hazardous levels, compared to 43.1% of female students (with an AUDIT score of 8 or more) (Rickwood et al., 2011).

While students knew the current National Health and Medical Research Council guidelines, this was not associated with low levels of risky drinking (Reavley et al., 2011). While cross-national data indicate that high alcohol consumption levels are a trend among university students, it is nevertheless essential to obtain data unique to Indigenous Australians.

1.4 Indigenous Australian university students

Australian universities are unique communities with a growing Indigenous Australian student population. Indigenous Australians made up 3 % of the Australian population in 2011, while only 1.09 % of university students were Indigenous. However, the number of Indigenous Australian students enrolled at Australian universities has grown by over 40% since 2006 (Australian Council for Educational Research, 2012). An estimated 2,037 current enrolments for health-related courses were for Aboriginal and Torres Strait Islander tertiary students, as were 353 health-related course completions. Enrolment rates for Indigenous university students have increased from 29 per 10,000 in 2001 to 46 per 10,000 in 2012. However, the gap between Indigenous Australian and non-Indigenous Australian student rates has increased for both enrolment and completion rates.

The increased retention of Indigenous Australian students into university has been a direct result of the new tertiary entry pathways. For example, Australian universities have established Indigenous Australian education centres to assist students with academic performance through programs that tailor academic skills and learning development.

Life experiences have the potential to influence alcohol consumption behaviours among students. For example, inability to perform at university has been linked with alcohol abuse

and strong academic performance appears to protect against heavy alcohol consumption. While the sociocultural environment establishes patterns of behaviour that one may come to believe are normal, there may also be a range of sociodemographic factors that impact on alcohol use in Indigenous Australian students (Saggers & Gray, 1998).

Behrendt et al. (2012) have reported, for example, that Indigenous Australian students are more likely to come from rural or remote areas and to be the first in their family to attend university. Indigenous Australian students often come from low-socioeconomic backgrounds and experience a range of personal, family, financial, and other social issues, which impact on their attendance at university (Behrendt, Larkin, Griew, & Kelly, 2012). Indigenous Australian students are also likely to consider leaving their university course for financial reasons.

Many Indigenous Australian students are unprepared for the academic setting and struggle to meet the academic requirements of their study. Indigenous Australian students determine their decision to persist or withdraw based on their skill deficits and knowledge assets. Students' learning experiences are enhanced by specific support measures to address students' personal, social and cultural barriers (Behrendt et al., 2012).

Some Indigenous Australian students experience social and emotional wellbeing issues, which often are a continuation of the broader intergenerational trauma and grief (Hart et al., 2010). A recent study into the social and emotional wellbeing of Indigenous Australian students from eight universities revealed that a large number of them had a diagnosed mental health issue. The incidence of mental health disorders in higher education students was significant, with depression and anxiety being the most common mental health disorders among Indigenous Australian university students (Hart et al., 2010). Another study by Toombs and Gorman (2011) exploring the social and emotional wellbeing of Indigenous Australian students from eight universities revealed thirty-seven percent of participants identified that they suffered from a mental health disorder or had a direct family member who had a mental health disorder. The incidence of mental health disorders in higher education students was significant, with depression and anxiety the most common mental health disorder among Indigenous Australian university students (Toombs & Gorman, 2011).

Although there are low rates of Indigenous Australian participation in tertiary education,

these numbers are growing, with students coming from many different backgrounds and sometimes having to cope with mental health issues. These factors combined suggest that Indigenous Australian students may be at risk of heavy drinking and the associated harms and, as a consequence, not complete their studies. However, there are few studies addressing the issue of alcohol misuse in Indigenous Australian university students. Therefore, studying the alcohol use of Indigenous Australian students provides a more comprehensive examination of Australian university students. To unearth the comparison between Indigenous Australian and non-Indigenous Australian students, further research in this area is warranted. There is anecdotal evidence to suggest that universities are imbued with a heavy drinking culture, but the extent to which this impacts on the Indigenous Australian student population is still unknown (Hughes, 2012; Kypri et al., 2009b; Ross & Jackson, 2013).

1.5 Alcohol consumption in Australia

Alcohol occupies a significant place in Australian culture and is consumed in a wide range of social circumstances. In 2016, 3 in 4 (77%) drank alcohol in the past 12 months, according to the National Drug Strategy Household Survey. Young people were consuming alcohol less frequently in 2016, and this was due to an increasing proportion of young people abstaining from drinking (82% in 2016 compared to 72% in 2013 respectively) (Australian Institute of Health and Welfare, 2016). Nonetheless, young people aged 18-24 (56%) were more likely than any other age group to exceed the single occasion risk guidelines. In 2016, males (19%) were found to consume alcohol in quantities that exceeded Health and Medical Health Research Council (NHMRC) drinking guidelines than women (7%) in the past 12 months (Australian Institute of Health and Welfare, 2016).

Young Australians were more likely to drink at harmful levels on a single occasion than the rest of the adult population and males were more likely to drink at harmful levels than females, as well as more at risk of developing health problems over their lifetime (Australian Institute of Health and Welfare, 2016). Young Australians in their late teens and early 20s (15.3%) were more likely to consume 11 or more standard drinks at least monthly than people in other age groups (Australian Institute of Health and Welfare, 2016). Over the short term, alcohol can lead to hospitalisations due to acute intoxication and related injuries, dependence, withdrawal symptoms, psychotic disorders and amnesia (Australian Institute of Health and Welfare, 2013). There are many factors that can put young people at risk of

alcohol dependence, including peer antisocial behaviour, poor parental control and supervision, low self-esteem, academic failure, leaving school early, poor connection with family, school and community, and financial problems. (Australian Institute of Health and Welfare, 2013).

In Australia, the proportion of young people aged 12–17 (8.7% to 5.4%) and 18–24 (47% to 42%) drinking quantities of alcohol on a single occasion that exceeded single occasion risk guidelines significantly fell from 2013 -2016 (Livingston & Dietze, 2016). It was also estimated that 1 in 5 people aged 14 years or older consumed alcohol at a level that put them at risk of harm from alcohol-related disease or injury over their lifetime (Australian Institute of Health and Welfare, 2016). However, the lower proportion of Australians aged 14 or older consuming alcohol at risky quantities in 2016 than in 2013 suggests that the proportion of lifetime risky drinkers and single occasion risky drinkers had declined and, based on the NHMRC alcohol guidelines, that health risks were reduced (National Health and Medical Research Council, 2009).

Heavy drinking has no standard definition globally, but in Australia heavy drinking is commonly known as binge drinking in which the NHMRC classifies as more than four standard drinks per occasion. Heavy drinking (binge drinking) is understood to be dangerous because it tends to coincide with the occurrence of risk behaviours and adverse consequences, with a range of harms caused either by an individual's drinking or by exposure to others who consume alcohol to excess (Australian Institute of Health and Welfare, 2016).

Heavy drinking is known to be the leading cause of injury and death among university students and young adults (Australian Institute of Health and Welfare, 2016). It is also associated with personal adverse consequences, such as jeopardising future job prospects, mental health problems, sexually transmitted diseases and poor academic performance (Australian Institute of Health and Welfare, 2016), as well as having a range of adverse effects for friends and families (ranging from physical and verbal abuse, disturbed study and sleep, and drove a vehicle (Australian Institute of Health and Welfare, 2016). In 2016, almost 1 in 6 (17.4%) recent drinkers aged 14 or older put themselves or others at risk of harm while under the influence of alcohol in the previous 12 months. Driving a motor vehicle was the most likely risky activity undertaken while under the influence of alcohol (9.9% of recent drinkers), followed by swimming (6.5%) (Australian Institute of Health and Welfare, 2013a).

According to the National Drug Strategy Household Survey 2016, Indigenous Australians were more likely to abstain from drinking alcohol than non-Indigenous Australians (31% compared with 23%, respectively). The proportion of Indigenous Australians current drinkers drank at risky levels, and placed themselves at harm of alcohol-related injury. In 2014-2015 National Aboriginal and Torres Strait Islander Social Survey (NATSISS), found there was a significant improvements in drinking trends in non-remote areas however suggested suggesting that it is important to continue to collect data on this topic.

Different susceptibility and contributing factors have, however, been identified as relevant to understanding the contribution of alcohol use to the vast health problems that Indigenous Australians experience (Saggers & Gray, 1998). For example, Indigenous Australians face a variety of social stressors such as sociological disadvantage, economic deprivation, racism, assimilation policies and practices, unemployment, lack of housing, dispossession, alienation from land, and forced separation from parents, children, families and communities, and other traumas (Saggers & Gray, 1998). Challenges arising from social inequalities have a significant impact on individuals and communities.

Harmful alcohol use has been identified as a major concern for Indigenous communities across Australia. For example, although Indigenous Australians are more likely to abstain from consuming alcohol than non-Indigenous Australians (28% compared with 22% respectively) (Australian Bureau of Statistics, 2016), the National Drug Strategy Household Survey (2016) reported that rates of alcohol use were significantly higher in Indigenous Australians than in non-Indigenous Australians (Australian Institute of Health and Welfare, 2016). Heavy drinking was more common among Indigenous Australian men than Indigenous Australian women in all age groups, with men aged 25-34 years reporting the highest rates (Australian Institute of Health and Welfare, 2016). Overall, 46% of men drank at acute risk/high-risk levels compared with 28% of women and rates of heavy drinking were higher in urban than remote areas (38% compared with 33%) (Australian Institute of Health and Welfare, 2016). It is also important to note that although problems with alcohol consumption are associated with significant mortality and morbidity, many people who experience alcohol-related harm do not seek help (Australian Institute of Health and Welfare, 2016).

Despite a wealth of literature on alcohol use and alcohol-related harms among university students, there are few comparative studies that seek to examine the cultural differences between Indigenous and non-Indigenous Australian university students. To this researcher's knowledge, no published studies have examined the patterns of alcohol use and alcohol-related harms among the Indigenous Australian university subgroup. Existing research on university drinking has primarily focused on the general student population and on identifying undergraduate students aged between 15-25 years and delinquent behaviour as positive predictors of heavy drinking. A few studies in Australia have addressed ethnic differences among international students but these have rarely explained whether Indigenous Australian students were included. As a result, the current literature is sparse on whether Indigenous Australian university students consume alcohol, their drinking motives, or associated alcohol-related harms, particularly students aged between 18-25 years.

In Australian, trends in alcohol-attributable deaths appeared to have remained stable or slightly decreased over time. This also appears to be the case for young Australians – particularly Indigenous Australians – with evidence of an increase in both abstainers and heavy drinkers, the latter group experiencing a rise in alcohol harms (Pascal, Liang, Gilmore, & Chikritzhs, 2013). There is a need for more sophisticated understandings of drinking patterns and those factors that are associated with alcohol consumption in order to develop culturally appropriate reduction strategies that reduce the harmful use of alcohol among Indigenous Australian students. However, more importantly, it is vital to ensure that students feel safe in their learning environments in Australian universities.

1.6 Research Question

The research question, which arose as a result of conversations with key colleagues in the field of alcohol research and with Indigenous Australian academics, and from reviewing the literature, is ‘What are the differences between Indigenous and non-Indigenous Australian undergraduate students’ alcohol use, and alcohol-related harms at one regional Australian university?’

1.7 Aim of Study

The aim of this study, undertaken between 2013 and 2015, was to measure and explore the differences in alcohol consumption and three dimensions of harm (depressive symptoms,

physical harms and academic performance) between Indigenous Australian and non-Indigenous Australian university students.

1.8 Objectives of this Research

The Indigenous Australian population is young: 63% of Aboriginal and Torres Strait Islander people (Indigenous Australians) are under 30 years of age, compared with 52% of the non-Indigenous Australian population. The Aboriginal and Torres Strait Islander population has tripled since the last ABS census. Despite changes in demographic forces, Indigenous Australians are far less likely than non-Indigenous Australians to have completed Year 12 or higher qualifications. It is recognised by the Australian Government's Closing the Gap initiative that there is a need to improve the low retention rates and improve educational outcomes for Indigenous Australian students. With the right steps, improved educational attainment can improve employment opportunities, is associated with higher income, and promotes participation in all societal activities. Neglecting to address education in Indigenous communities will continue the cycle of social and economic inequalities.

The eight research aims are organised under the three main components of the study program of quantitative (epidemiological study), qualitative (yarning group study) and data integration:

Quantitative - Epidemiological Study

1. To determine Indigenous Australian and non-Indigenous Australian student drinking patterns, including the frequency of drinking, the quantity of drinking, and the choice of alcohol consumed.
 - To determine the frequency of alcohol-related harms experienced by Indigenous Australian and non-Indigenous Australian students who drink.
 - To determine any differences and similarities in the association between hazardous drinking and academic performance, depressive symptoms and satisfaction with their health among Indigenous Australians and non-Indigenous Australian students.

Qualitative - Yarning Group Study

2. To identify the experience of alcohol consumption and alcohol-related harms among

Indigenous Australian and non-Indigenous Australian students

- To identify Indigenous Australian and non-Indigenous Australian students' understanding of student drinking culture.
- To determine Indigenous Australian and non-Indigenous Australian students' attitudes towards harmful drinking behaviour.
- To identify the influencing factors from Indigenous Australian and non-Indigenous Australian students that may support students' drinking behaviour.

Data integration

3. To compare and contrast any differences and similarities between Indigenous Australian and non-Indigenous Australian students' experiences of alcohol consumption and alcohol-related harms, more generally.

1.9 Overview of the study design

A mixed methods concurrent triangulation study was conducted. Concurrent designs occur when both quantitative and qualitative data collection occurs at the same time. Triangulation studies are used when the intent is to facilitate validation of data through cross verification in the same phenomenon.

1.10 Overview of this dissertation

This thesis is divided into seven chapters with three main parts, each addressing the main aims of the study as described above:

Chapter 1 presents the introductory overview of the study, aim, purpose and objectives. It includes a statement positioning myself regarding the research and a clear rationale for the need of the study.

Chapter 2 presents a review of current literature about alcohol use and alcohol-related problems among university students, particularly minority groups. This chapter concludes that there is very little evidence on minority group alcohol and alcohol-related problems at university, mainly in relation to Indigenous Australian students.

Chapter 3 outlines the theoretical framework, design and methods used in the study. A critical

Indigenous perspective was used as the theoretical underpinning, and concurrent triangulation mixed methods were used to explore alcohol consumption and alcohol-related harms among Indigenous Australian and non-Indigenous Australian university students. In this chapter, the components of the study, the sample size, data collection and data analysis used in each component of the study are described.

Chapter 4 details the quantitative findings of the epidemiological study for Part 1 of the mixed methods study. Patterns and prevalence of alcohol consumption and alcohol-related harms among Indigenous Australian and non-Indigenous Australian students are described. The student survey is used help to gather the epidemiological data to understand the drinking behaviour and associated harms among Indigenous Australian and non-Indigenous Australian students in a regional university. In other words, the identified differences in alcohol behaviour among Indigenous Australian and non-Indigenous Australian students can assist in developing focused interventions and prevention strategies for these behaviours. Hazardous drinking is defined as a pattern of alcohol consumption that places a drinker at risk for adverse health events. However, it is also necessary to include the harm the drinker may cause others. In beginning the work in this thesis, there was a lack of information related to alcohol consumption and alcohol-related harms among Indigenous Australian students at university.

The information provided by the AIHW reports generally only give some idea about the level of alcohol consumption in Australia, particularly in relation to Indigenous Australians. Therefore, in the context of this thesis, the focus was on gathering the necessary additional survey data to describe in more detail students' alcohol consumption and alcohol-related harms, particularly among Indigenous Australians.

Chapter 5 details the qualitative findings of the yarning group study for Part 2 of the mixed methods study. The yarning groups that were created to explore alcohol use and alcohol-related problems among Indigenous Australian and non-Indigenous Australian students are described. It is recognised that alcohol use is determined not only by individual factors but also by the university culture. Many qualitative studies have indicated that the culture of alcohol consumption in institutions of higher learning is something that has proved difficult to alter.

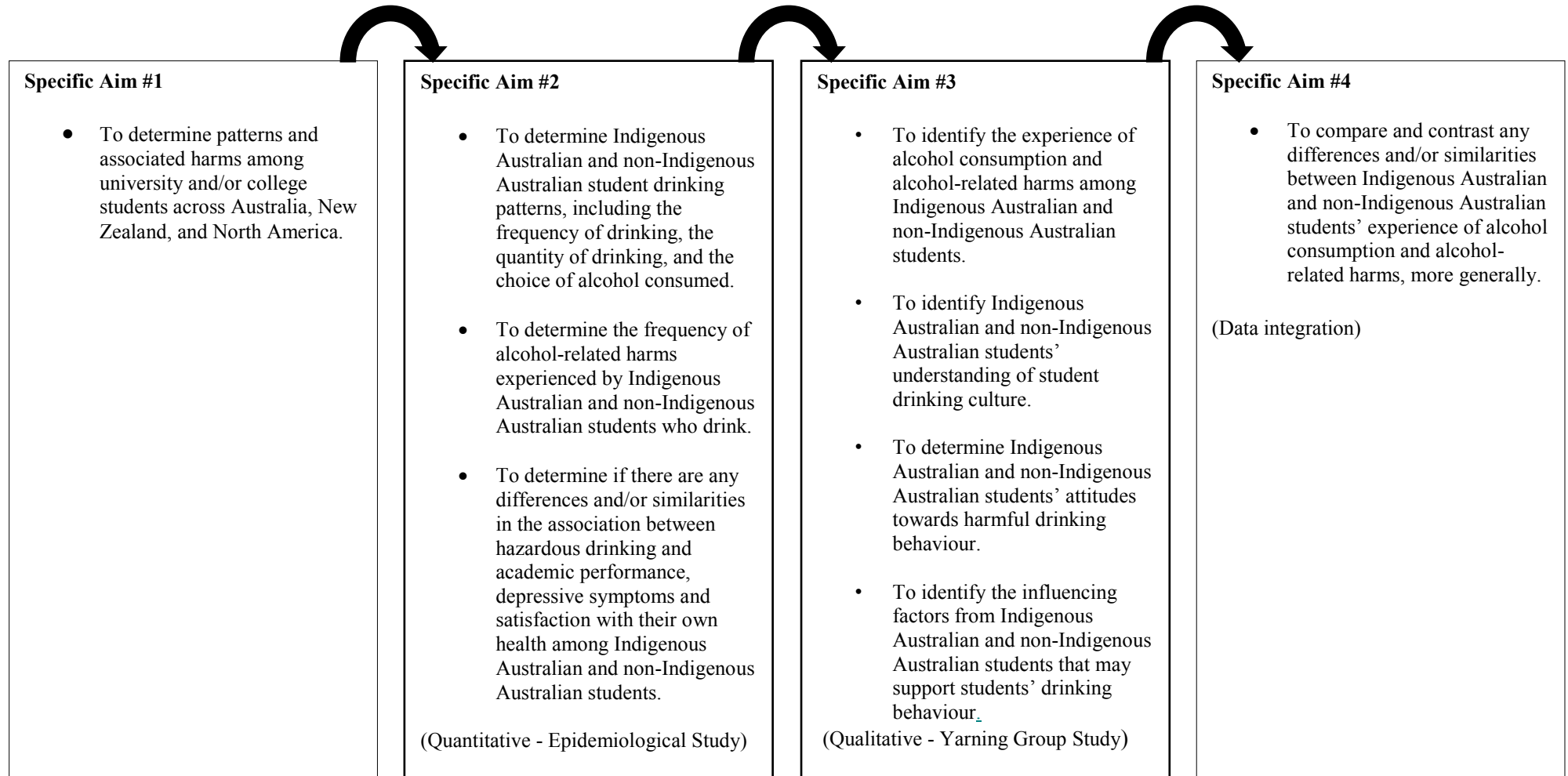
This study used yarning groups to help understand the experiences and perceptions of alcohol use and alcohol-related harms among students, particularly Indigenous Australians. A yarning group is defined as a semi-interview which is informal and a relaxed discussion to openly build relationships and trust with participants to share their experiences. When we first started the work presented in this thesis, little was known of how students experience alcohol consumption and alcohol-related harm, particularly Indigenous Australians. In the context of this thesis, we focus on exploring alcohol consumption and alcohol-related harms among Indigenous Australian and non-Indigenous Australian students. From the intervention point of view, exploring students' experiences will assist in developing strategies from a strength-based approach.

Chapter 6 details the data integration findings for Part 3 of the study. In this chapter, both epidemiological and yarning group data are integrated to compare and contrast the differences in alcohol use and alcohol-related problems among Indigenous Australian and non-Indigenous Australian students. This study is innovative in its approach to combining epidemiological and yarning group data components to compare and contrast Indigenous Australian and non-Indigenous Australian students' alcohol use and alcohol-related harms. The integrated findings from across the data sets will underpin new knowledge and understanding of how young Indigenous Australian and non-Indigenous Australian students consume alcohol and experience alcohol-related harms at the university. The findings will be used to advance fundamental knowledge in the fields of public health-related students at the university and the strategies and mechanisms related to improved outcomes.

Chapter 7 presents a discussion of the study findings and a summary of the integration of the data. Further, this chapter concludes the thesis and offers a discussion of the strengths and limitations of the study and some recommendations.

Figure 1.0 the relationship between the research questions and specific aims

Research Question: What are the differences between Indigenous and non-Indigenous Australian undergraduate students’ alcohol use and alcohol-related harms at one regional Australian university?



Chapter Two - Systematic Review of the Literature

This chapter provides a comprehensive overview of the literature relating to the study. Given the abundance of the literature related to alcohol consumption and alcohol-related harms among university or college students, it is beyond the scope of this thesis to discuss all the available literature. Therefore, a systematic review has been arranged to form a logical structure and address points related to the areas of inquiry.

2.0 Background

The portrayal of alcohol consumption globally as a public health concern, particularly among young people, is a continuing focus for governments and communities. Historically, minority ethnic groups report lower levels of alcohol consumption, and fewer minority ethnic individuals seek help with problems related to alcohol (World Health Organisation, 2014). In Australia, evidence has shown that alcohol misuse is a major problem in Aboriginal and Torres Strait Islander communities, although the variation is considerably different in regional settings (Saggers & Gray, 1998). Heavy drinking is more common among Indigenous Australian men than Indigenous Australian women in all age groups, with men aged 25-34 years reporting the highest rates (Australian Institute of Health and Welfare, 2016). Overall, 46% of men drank at acute risk/high-risk levels compared with 28% of women and rates of heavy drinking were higher in urban than remote areas (38% compared with 33%) (Australian Institute of Health and Welfare, 2016).

Indigenous Australians

Current patterns of alcohol consumption among Indigenous Australians and the factors that determine those patterns are not currently understood, except when viewed from the historical context from which they have emerged. Since the first contact with Indigenous Australians, the actions of successive governments and mainstream society has in large part created and exacerbated the poor standards of health experienced by Indigenous Australians today (Brady, 1998). Dispossession from their land and payment for labour with rations of sugar, flour, and tea fostered poor nutrition (Gray, Saggers, Hulse, & Atkinson, 2002). Systematic attempts to destroy Indigenous cultures and alienation from mainstream society,

along with the forced separation of children from their families, provided the foundations for widespread loss of parenting skills and high rates of mental illness (Gray et al., 2002). Mental illness is both clinical and emotional and is fuelled by inter-generational pain, loss and grieving (Gray et al., 2002). This is compounded by numerous stressors, such as high unemployment levels, high rates of poverty, overcrowded accommodation and low levels of education. Further, there are high levels of health inequality, which affect the gap in morbidity and mortality between Indigenous Australians and non-Indigenous Australians in this country (Brady, 1998; Ministerial Council on Drug Strategy, 2003).

While Indigenous Australians were initially cautious toward alcohol, colonialism has had a discernible impact on the lifestyles of Indigenous Australians, as they were subjected to dispossession of their traditional lands, diseases related to poverty, social exclusion and institutionalised missions forced by the Australian government's assimilation policy (Saggers & Gray, 1998). This resulted in uncontrollable consumption of alcohol in some communities. Drinking patterns in Indigenous Australians are similar to those from the Indigenous populations of Canada and New Zealand as a direct or indirect result of similar colonisation, dispossession and marginalisation patterns.

Given the diverse and complex reasons for alcohol use, many reports suggest that effective alcohol intervention activities must operate at the level of population, environment and individuals (Couzos & Murray, 2003). This may help to address the cultural differences in alcohol behaviours and factors relating to disadvantage.

Indigenous communities have been responsive to government programs through improved efforts of the Aboriginal community's controlled organisations or community groups. These services primarily focus on providing a holistic model of primary health care and have worked with substance misuse by addressing the causes of the issue through preventive, promotive and curative approaches, such as holistic health screenings, social, emotional and wellbeing counselling, detoxification, and rehabilitation programs (Couzos & Murray, 2003).

Research examining alcohol consumption among university students, particularly minority ethnic groups, has not been approached consistently. The general university or college population has remained the focus of much student alcohol research activity. This is not unique to the field of alcohol research. However, it is evident in Australian research into

chronic disease in general, with Indigenous Australians being the focus on reducing health disadvantages. A few key issues do emerge from existing studies. Some research indicates that patterns of drinking in the minority ethnic groups in different social and economic contexts may start to resemble the drinking habits of the general population. Indeed, relatively recent national reports in Australia have revealed evidence that the drinking patterns of young Indigenous Australians are changing.

This review of the literature seeks to examine the existing research on alcohol consumption and alcohol-related harms among university students, particularly identified minority ethnic groups. The patterns and associated harms among students across Australia, New Zealand, and North America (including Canada) will be addressed.

2.1 Structure of the review

The review aims to examine the peer-reviewed literature about the prevalence of alcohol consumption among university students in Australia and, where possible, compare and contrast the differences for Indigenous Australian and non-Indigenous Australian students between 1992-2016.

The review of the literature is grouped into topics to clarify the importance of each variable chosen for investigation in this research program. The first topic (presented here) is a review of the prevalence of alcohol use in Australia, New Zealand, and North America (including Canada). Where useful, comparisons will be made between other nations, Indigenous Australians, and non-Indigenous Australians. There is uncertainty as to whether insights into Indigenous Australian students' patterns of alcohol use in Australia can be transferred to other drinking cultures. A few authors have raised this assertion in their studies of general university populations (Gray, 1999; Hallett et al., 2012; Sherry, Thomas, & Chui, 2009).

2.2 Method

This literature review explores literature related to heavy drinking among Indigenous university students in Australia, New Zealand, and North America (including Canada).

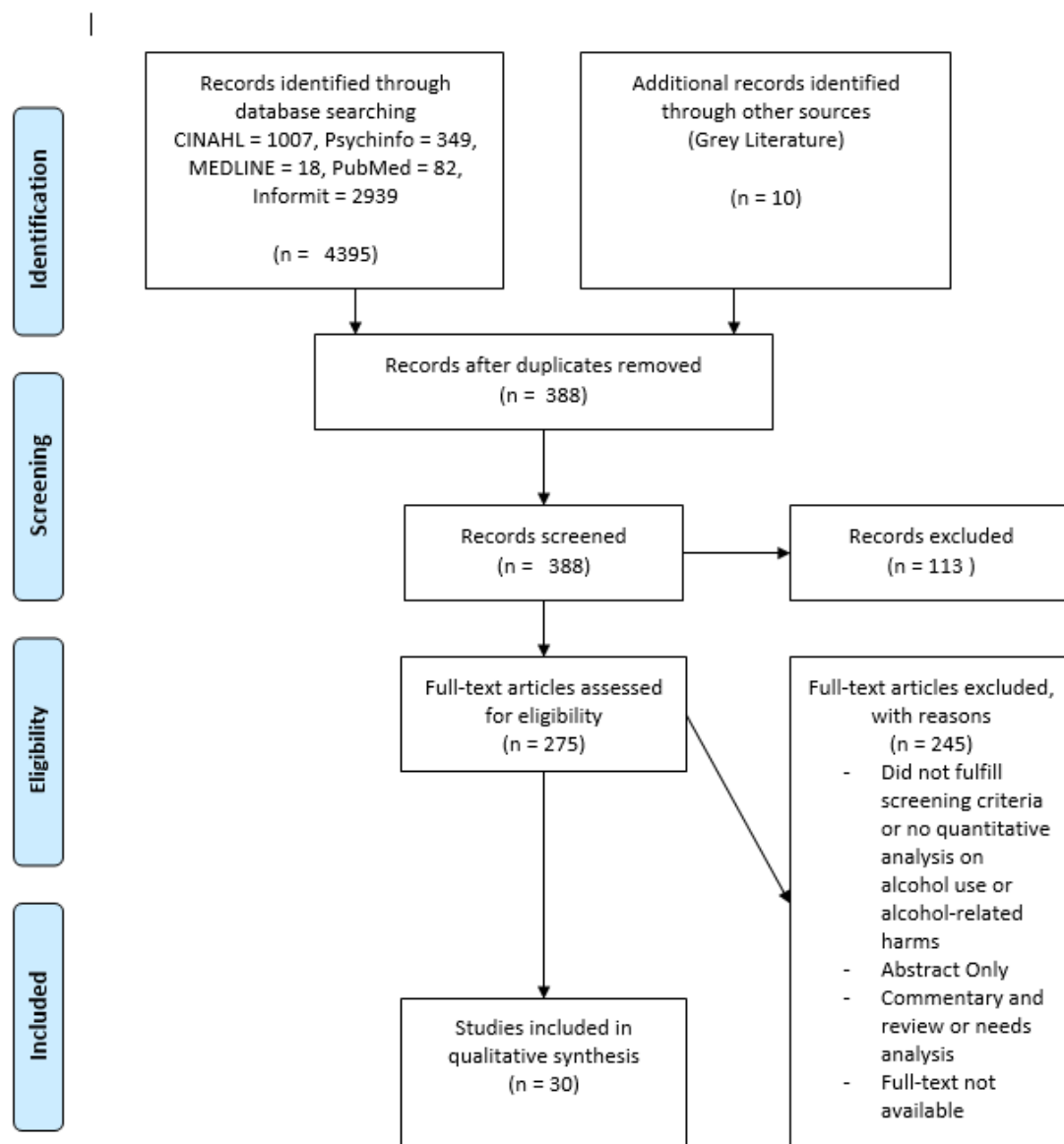
2.2.1 Inclusion criteria

Inclusion criteria for this review included: 1) cross-sectional studies which reported a prevalence of alcohol use and alcohol-related harms for university students; 2) studies conducted in a university/college student population in Australia, Canada, New Zealand; 3) studies that examine ethnicity of Indigenous, Aboriginal, First Nations, Native, Inuit, Maori and North American Indians and; 4) studies published between January 1st, 2003 and 30th June 2016. Any research article which did not correspond with each of these criteria was excluded.

2.2.2 Information sources and search strategy

CINAHL, Informit, Medline, PyschInfo, and PubMeb were systematically searched for literature published between January 2003 and June 2016. For each database search the following combination of terms was applied: (alcohol* OR drinking OR alcoholism OR alcohol use*) AND (depress* OR mental*) AND (injur* OR physical* OR behavi* OR alcohol-related*) AND (ethnic* OR indigenous OR aborigin* OR oceanic ancestr*) OR (native american* OR first nation*) OR (inuit* OR maori* OR native*) AND (academi*) OR (university OR universities OR college*) OR (grade point average*) AND (tertiary student* OR college student* OR university student*) AND (australia OR canada OR new zealand) AND (cross-sectional*) AND (questionnaire* OR survey*). Boolean logic was used for the search terms combined. Completed searches were title searched for relevant articles by two reviewers. Irrelevant articles were excluded in the first stage. All articles that referred to the research question were downloaded at the second stage. Tables and abstracts were analysed to investigate suitability (JJ and MB), and relevant articles were fully reviewed. A flow diagram of this process is shown in Figure 2.1. Endnote, a reference package (ResearchSoft, 2003), was used to keep track of the paper selection.

Figure 2.1 Literature Review Flow Diagram¹



¹ Moher D, Liberati A, Tetzlaff J, Altman DG, The PRISMA Group (2009). Preferred Reporting Items for Systematic Reviews and Meta-Analyses: The PRISMA Statement. PLoS Med 6(6): e1000097. doi:10.1371/journal.pmed1000097

2.3 Screening Tools

The full-text articles highlighted some screening tools and questionnaires available to tertiary students. The World Health Organisation (WHO) has developed a screening tool called Alcohol Use Disorders Identification Test (AUDIT) to identify hazardous drinkers (Babor, Higgins-Biddle, Saunders, & Monteiro, 2001). Further, the screening tool uses three questions to examine the frequency of consumption, the number of drinks and number of binge occasions and is called AUDIT-C. The AUDIT screening tool has been evaluated to determine its validity and reliability across a range of clinical and community settings. The tool has been found to provide good discrimination in a variety of settings where these populations are encountered and accurate in detecting alcohol dependence in university students (Fleming, 1991). The other favourable screening tool was the CAGE questionnaire, which is used within a primary care setting. This tool has four questions which identify alcohol problems over a lifetime (Stritzke, Breiner, Curtin, & Lang, 2004). The remainder of the studies used questions to identify units of consumption and alcohol beverage type to calculate standard drinks on a single occasion, with authors noting that six or more drinks on a single occasion was classed as hazardous drinking.

The references from all the acquired articles were crosschecked for other potential articles not retrieved through the database searches. Google Scholar was also used to extend the search to identify grey literature or other relevant information.

2.4 Defining heavy drinking in university students

There is currently no universal definition of heavy drinking. Current definitions in Australia, New Zealand, and Canada (North America) for heavy drinking are listed below:

2.4.1 Canada (North America)

The Canadian Centre on Substance Abuse defines heavy drinking to be four or more drinks for men or three or more drinks for women on one single occasion. Most studies conducted in Canada among undergraduate student populations used this definition of heavy drinking (Fillmore & Jude, 2011).

2.4.2 New Zealand

The Ministry of Health in New Zealand defines heavy drinking as six or more standard drinks in one single session. Most studies conducted in New Zealand among undergraduate students used this definition of heavy drinking (Ministry of Health, 2009).

2.4.3 Australia

The 2009 NHMRC guidelines define heavy drinking as consuming four standard drinks on a single occasion. Consuming more than four drinks doubles the relative risk of injury in the six hours afterwards. The relative risk rises even more rapidly when more than four drinks are consumed on a single occasion (National Health and Medical Research Council, 2009).

2.5 Data synthesis

Relevant data extracted from eligible studies are presented in Table 2.1 under the following headings:

1. Country
2. Authors, Year
3. Location
4. Study Design
5. Alcohol Measure
6. Other Measures
7. Age range
8. Sample Size
9. Prevalence of Heavy Drinking %
10. Response Rate %

This review details the prevalence of alcohol use and other associated measures of physical harms, academic performance, and psychological condition, and where ethnicity is reported among the articles.

Table 2.1 Summary of research studies investigating alcohol use and associated harms of university and/college students in Australia, New Zealand, and Canada (North America).

Country	Article Title	Authors, Year	Study Design	Alcohol Measure	Other Measures	Age	Sample Size	Prevalence of Heavy Drinking %	Response Rate %
CAN	Concurrent binge drinking and depression among Canadian youth: prevalence, patterns, and suicidality	(Archie, Zangeneh, & Akhtar-Danesh, 2012)	Descriptive	Measure of Frequency and Quantity	Demographic, Suicidality, DDS	15-24	17524	31%	100%
CAN	Binge drinking in undergraduates: relationships with sex, drinking behaviours, impulsivity, and the perceived effects of alcohol	(Balodis, Potenza, & Olmstead, 2009)	Descriptive	Measure of Frequency and Quantity	Demographic, APS and Sexual Behaviour	18>	428	72%	-
CAN	Enculturation and Alcohol Use Problems Among Aboriginal University Students	(Currie et al., 2011)	Descriptive	AUDIT	Demographic, SSS-V	18>	60	-	100%
CAN	Multilevel analysis of situational drinking among Canadian undergraduates.	(Demers et al., 2002)	Correlational	Measure of Frequency and Quantity	Demographic, Academic Year/Performance	18>	8864	-	51%
CAN	Heavy drinking on Canadian campuses	(Gliksman et al., 2003)	Descriptive	Measure of Frequency and Quantity	Demographic, Academic Year/Performance	18-25	7800	63%	51%
CAN	Situational and respondent-level motives for drinking and alcohol-related aggression: A multilevel analysis of drinking events in a sample of Canadian University students.	(Mihic, Wells, Graham, Tremblay, & Demers, 2009)	Correlational	Measure of Frequency and Quantity	Copper's DMQR, Demographic, Academic Year	18-25	6282	38%	41%
CAN	Drinking patterns and risk behaviours associated with combined alcohol and energy drink consumption in college drinkers	(Brache & Stockwell, 2011)	Correlational	Measure of Frequency and Quantity	Demographic, AmED, Academic	17>	465	23%	93%

CAN	When do first-year college students drink most during the academic year? An internet-based study of daily and weekly drinking	(Tremblay et al., 2010)	Descriptive	AUDIT	Demographic, Academic Year/Performance	17 >	415	13%	57%
CAN	Disinhibited characteristics and binge drinking among university student drinkers	(Carlson et al., 2010)	Correlational	Measure of Frequency and Quantity, MAST	Demographic, Academic Year/Performance	19 >	293	21%	97%
CAN	Drinking to enhance and to cope: A daily process study of motive specificity	(Arbeau, Kuiken, & Wild, 2011)	Correlational	AUDIT	DMQ, PNAS, SSS-V Demographic, Academic	18 >	81	77%	
NZ	Web-based alcohol intervention for Māori university students: Double-blind, multi-site randomized controlled trial	(Kypri et al., 2013)	Correlational	AUDIT	Academic Role Expectations and Alcohol Scale Leeds Dependence Questionnaire	17-24	1789	75%	26%
NZ	The role of drinking locations in university student drinking: Findings from a national web-based survey	(Kypri, Paschall, Langley, Baxter, & Bourdeau, 2010)	Descriptive	AUDIT	Demographic, APS	17-25	2548	68%	63%
NZ	Alcohol outlet density and university student drinking: A national study	(Kypri, Bell, Hay, & Baxter, 2008)	Correlational	AUDIT	APS, Demographic, Nutrition Status, Outlet of Alcohol	17-25	2550	-	77%
NZ	Episode-centred analysis of drinking to intoxication in university students	(Kypri, Langley, et al., 2005)	Descriptive	Measures of frequency and quantity	Demographic, EBAC	16-29	1564	21%	82%
NZ	Do University Students Drink More Hazardously Than Their Non-student Peers?	(Kypri, 2005)	Descriptive	AUDIT	Demographic, APS, Academic Problem Scale	18 >	1910	-	82%
NZ	High prevalence, persistent hazardous drinking among New Zealand tertiary students. 2002	(Kypri, Langley, Saunders, Cashell-Smith,	Descriptive	AUDIT	APS, Demographic, Medical Outcome Short Form 36	18 >	1480	60%	65%

		& Herbison, 2008)							
NZ	Alcohol-related problems experienced by university students in New Zealand	(McGee & Kypri, 2004)	Descriptive	AUDIT	Demographic, APS, Academic Problem Scale	18 >	1356	45%	78%
NZ	Harmful effects of alcohol on sexual behaviour in a New Zealand university community	(Cashell-Smith, Connor, & Kypri, 2007)	Descriptive	AUDIT	Demographic, APS and Sexual Behaviour	18-29	767	-	49%
NZ	Friday class and heavy alcohol use in a sample of New Zealand college students.	(Paschall et al., 2006)	Descriptive	AUDIT	Sociodemographic variables, Frequency and Quantity measure	17-25	866		97%
AUS	Alcohol consumption in tertiary education students	(Reavley et al., 2011)	Descriptive	AUDIT	K-6, Demographic, Academic Year	18-25	774	33%	65%
AUS	Harmful alcohol use on campus: impact on young people at university	(Rickwood et al., 2011)	Descriptive	AUDIT	Demographic, Academic Problem Scale	18-24	603	47%	-
AUS	Rates of alcohol consumption and risk status among Australian university students vary by assessment questions	(Utpala-Kumar & Deane, 2010)	Descriptive	AUDIT, Measures of frequency and quantity	Demographic, APS, Academic Problem Scale	18-35	303	38%	70%
AUS	Undergraduate student drinking and related harms at an Australian university: web-based survey of a large random sample	(Hallett et al., 2012)	Descriptive	AUDIT, Measures of frequency and quantity	Demographic, EBAC, Academic Problem Scale	17-25	13000	48%	56%
AUS	Alcohol consumption and drug use in a sample of Australian university students	(Davey et al., 2002)	Descriptive	AUDIT	Demographic, APS, Academic Problem Scale	18-24	275	6%	-
AUS	Drinking and university students: From celebration to inebriation	(Roche & Watt, 1999)	Descriptive	AUDIT, Measures of frequency and quantity	Demographic, APS, Academic Problem Scale, Alcohol-related knowledge, attitudes and behaviours	17-25	400	54%	94%

AUS	Alcohol consumption by undergraduate students	(C. Basten & D. Kavanagh, 1996)	Correlational	Measures of frequency and quantity	Demographic, Academic Problem Scale	18 and over	212	27%	
AUS	Randomized Controlled Trial of Proactive Web-Based Alcohol Screening and Brief Intervention for University Students	(Kypri, Hallett, et al., 2009)	Descriptive	AUDIT	Demographic, Quantity of alcohol, second-hand effects, opinions on labelling and smoking history	18-24	7237	35%	-
AUS	Alcohol expectancies, drinking refusal self-efficacy and drinking behaviour in Asian and Australian students	(Oei & Jardim, 2007)	Descriptive	AUDIT	DEP, Demographic, Academic	18>	188	-	-
AUS	Alcohol consumption and protective behavioural strategy use among Australian young adults	(Crawford-Williams, Roberts, & Watts, 2016)	Descriptive	Measures of frequency and quantity	Protective Behavioural Strategies Scale and Drinker Inventory of Consequences	18>	210	10%	
AUS	A cross-sectional evaluation of an alcohol intervention targeting young university students	(Burns et al., 2016)	Descriptive	AUDIT, Alcohol Problems Scale	Demographic data Brief Comprehensive Effects of Alcohol Scale, Academic Role Expectations and Alcohol Scale	18>	T1 2382, T2 2350	T1 (39.7 %) and T2 (38 %)	T1 32.3%, T2 30.4%

2.6 Results

Of the 30 included studies, 18 used the AUDIT screening tool, and 12 used other measures to examine the volume of alcohol consumed and beverage types to calculate standard drinks per occasion. A further three studies used CAGE questionnaires. Several New Zealand studies have been published on alcohol use among university students, however, only three focused on heavy drinking, patterns of use and related harm. Some studies have been published in Australia on alcohol and alcohol-related harm, however, there has been limited research in exploring heavy drinking in the Indigenous Australian population. From Canada, four studies were conducted to assess heavy drinking and associated factors among undergraduate students. Another eight studies assessed the prevalence of alcohol use and related parameters, including risk behaviours among university students, knowledge and attitudes towards alcohol and other substance misuse and education. Sampling techniques were different across countries and included cluster size and convenience sampling. Summaries of each study are displayed in Table 2.1.

2.6.1 Prevalence of alcohol use in university students

Although heavy alcohol use varied across different age groups in the studies, young adults aged 18-24 years showed the highest rate of alcohol use and had the greatest percentage of risky drinkers (Karam et al., 2007). The trend in the research from large-scale studies indicated that there had been a slight increase in the number of heavy drinkers among university students (Carlson et al., 2010; Kypri, Langley, Saunders, Cashell-Smith, & Herbison, 2008; Reavley et al., 2011; Rickwood et al., 2011; Roche & Watt, 1999; Utpala-Kumar & Deane, 2012). According to a study in 2003, the prevalence and frequency of heavy drinking episodes among Canadian undergraduates showed that overall, 62.7% and 34.8% of students reported consuming five or more drinks and eight or more drinks, respectively, on a single occasion at least once during the fall semester (Gliksman et al., 2003). On average, drinkers reported having five or more drinks, almost five times during the fall semester, and having eight or more drinks almost twice during the same period (Gliksman et al., 2003).

University students' understanding of the national alcohol guidelines was also a factor when it came to alcohol use. Equally male and female students considered spirits to be more harmful than beer, wine and pre-mixed drinks (Gliksman et al., 2003). In contrast, males

believed beer to be more harmful than wine when considering the short-term consequences (Gliksman et al., 2003). There were also gender-related differences in the consumption of alcohol regarding heavy drinking; males had an increased risk as they consumed more alcohol per drinking occasion than females (Balodis et al., 2009). Consumption patterns were seen to be increasing in females as the frequency of drinking occasions among women was higher than in earlier studies (Balodis et al., 2009).

In a New Zealand study by Kypri et al. (2002), the majority of university male (60.0%) and female (58.2%) drinkers typically consumed more than the NZ national safe drinking guidelines. When adjusting for gender-sensitive definitions of high-risk drinking, the mean (\pm SD) weekly consumption was 243 ± 241 g and 135 ± 157 g of ethanol for males and females respectively (Kypri et al., 2002). The screening tool used in the New Zealand study was the Alcohol Use Disorder Identification Test (AUDIT), which detected alcohol dependence (Babor et al., 2001). As a result of this test, Kypri et al. found that male university students showed more hazardous and harmful patterns of alcohol consumption on the AUDIT and that the mean (\pm SD) AUDIT scores were 10.9 ± 7.6 for men and 7.6 ± 5.9 for women (Carlson et al., 2010).

Similarly, in an Australian study, the mean highest number of standard drinks consumed in a single session in the four weeks before interviews was 11.33 (SD = 8.35) for male students and 6.95 (SD = 5.31) for female students. The study found that approximately half the males and one-fifth of the females reported drinking to intoxication at least once per week. Females showed hazardous and harmful patterns of alcohol consumption based on gender adjustment for alcohol-related harms (Roche & Watt, 1999).

In another Australian study of 774 (65%) students and 422 (35%) university staff, Reavley et al. (2011) found that staff were more likely to drink regularly and students were more likely to drink heavily (Reavley et al., 2011). Alcohol consumption was significantly higher in male students and particularly those with a history of earlier onset drinking. In most cases, alcohol-related problems were more likely to occur in students (Reavley et al., 2011).

Limited studies reported cultural differences in drinking behaviour. Most studies examined student populations in general and looked at the prevalence of alcohol consumption (Karam et al., 2007). One study examined associations between Aboriginal enculturation and alcohol

problems among Aboriginal university students living in an urban area in Canada (Currie et al., 2011). Enculturation is related to socialisation and examines how people acquire their surrounding culture and the values and behaviours appropriate to that culture. Currie et al. (2011) found that Aboriginal enculturation was associated with reduced alcohol problems for Aboriginal university students. Therefore, Aboriginal students with a strong link to their ethnic culture and history were less likely to experience alcohol-related problems (Currie et al., 2011).

Other than Currie et al. (2011), no other studies considered ethnicity or country of origin of the student population in their analysis. The studies presented in this research will provide insight on alcohol and alcohol-related harm among the Indigenous population in an Australian setting. Also, they will assist in providing knowledge of cultural variation on populations and their association with alcohol use.

2.6.2 Psychosocial factors associated with heavy drinking in university students.

There have been a few studies indicating a negative relationship between psychological health and heavy drinking in universities (Arbeau, Kuiken, & Wild, 2011; Basten & Kavanagh, 1996; Burns et al., 2016; Crawford-Williams, Roberts, & Watts, 2013; Gliksman et al., 2003; Kairouz, Gliksman, Demers, & Adlaf, 2002; Utpala-Kumar & Deane, 2012). The university setting is often a new and exciting place for students, however; some find it to be a culture shock and a stressful experience. A positive relationship between university stressors and heavy drinking has been reported (Arbeau et al., 2011; Crawford-Williams et al., 2013; Utpala-Kumar & Deane, 2012).

Many students participate in drinking games, which Polizzotto et al. suggested were motivated by boredom, social pressure and social unease (Polizzotto et al., 2007). Most drinkers (74%) reported having participated in a drinking game. Game players that were interviewed reported participating in an average of four drinking games in the six months prior. In those games, an average of six standard drinks was consumed (Polizzotto et al., 2007). Pressure from others to participate was reported by 60% of game participants while 50% reported that they had placed pressure on others to participate. Drinking games were commonly associated with binge drinking and adverse outcomes (Balodis et al., 2009). It should be noted that this was only reported in an Australian study, but drinking games may

not have been considered in those studies conducted in other countries.

Kairouz et al. (2002) demonstrated that situational drinking motives were associated with situational alcohol consumption, controlling for factors such as drinking circumstance, location, the day of the week, group size, type of relationship, drinking norms, and type of residence (Kairouz et al., 2002). This study measured social phobia and drinking behaviour through correlation analyses (controlling for gender) and revealed that: (i) social avoidance and distress had a significant negative relationship to drinking frequency; (ii) fear of negative evaluation and social avoidance and distress both had a significant positive relationship to drinking to cope with negative emotions and to conform to peer pressure, and (iii) fear of negative evaluation also had a significant positive relationship to drinking to socialise and to drinking problems (Stewart, Morris, Mellings, & Komar, 2009). Drinking behaviour reinforced positive rewards and social enhancement, which appeared to be a common predictor of heavy drinking among university students.

2.6.3 Physical Health

Some studies reported an association between alcohol consumption and physical health (Blank et al., 2015; Cashell-Smith, Connor, & Kypri, 2007; Gliksman et al., 2003; Grabowski et al., 1979; Kypri, Cronin, et al., 2005; Mihic et al., 2009; O'Hara, Harker, Raciti, & Harker, 2008; Reavley & Jorm, 2010; Rickwood et al., 2011; Roche & Watt, 1999; Slade, Grove, & Burgess, 2011). Roche and Watt (1999) examined risk factors and found that about one-third of their sampled population reported experiencing an alcohol-related accident or injury within the previous 12 months (Roche & Watt, 1999). Further, in the same study, gender differences related to types of harm were experienced significantly more by male students than female students. These included: driving a car after drinking too much, verbally abusing someone, threatening physical abuse, causing physical abuse, doing something dangerous just for fun, getting into trouble with the police, and damaging property on campus (Roche & Watt, 1999). The only harm that was experienced significantly more by female students was being taken advantage of sexually.

According to Cashell-Smith and Connor (2007), heavy drinkers had greater sexual enhancement expectations than non-heavy drinkers. This study investigated 1564 students and found that 11% of females and 15% males, respectively, had unprotected sex in the prior

three months; 6% and 7% had sex that they were unhappy with it at the time, and 16% and 19% had sex that they later regretted. Also, 34% of females and 25% of males reported unwanted sexual advances in the prior four weeks because of other people's drinking (Cashell-Smith et al., 2007). Alcohol-related risk behaviours or harmful consequences from drinking were reported in the preceding four weeks, including 33% having a blackout; 6% having unprotected sex, and 5% saying they were physically aggressive toward someone (Kypri, Paschall, Langley, Baxter, & Bourdeau, 2010). In the prior four weeks, drink-driving or being the passenger of a drink-driver was reported by 9% of females and 11% of males. Risk factors for frequent binge drinking included: lower age, earlier age of drinking onset, monthly or more frequent binge drinking in high school, and living in a residence hall or a shared house (as opposed to living with parents) (Kypri et al., 2010).

2.6.4 Living circumstances

Similar to the findings of a number of previous studies in Australia and New Zealand (Basten & Kavanagh, 1996; Cashell-Smith et al., 2007; McGee & Kypri, 2004; Mikhailovich, George, Rickwood, & Parker, 2011; Rickwood et al., 2011).. students who lived alone, in student halls of residence or with roommates, had reported using more alcohol and drinking heavily more frequently. One study concluded that drinking contexts that were positively associated with increased aggression included being at a party, at a fraternity or residence, at three or more drinking places, and having a partner present, whereas having a meal reduced the likelihood of aggression (Mitic, 2003)

According to Basten and Kavanagh (1996), students at residential halls reported drinking significantly more alcohol than students living elsewhere, but during vacation, the intake of the two groups was approximately equal. Female students residing on campus were most likely to drink at hazardous levels (Basten & Kavanagh, 1996).

Mikhailovich et al. (2011) confirmed that living off campus did not have the same risk for heavy drinking as for those who lived on campus. According to Mikhailovich et al., living at home was a protective factor against experienced and witnessed harms, and the level of alcohol use, while living on campus was a risk factor for high alcohol consumption. Living off campus in group accommodation was no different from living on campus, as students experienced alcohol-related harms which included disturbances to sleep, property damage,

verbal abuse, driving after drinking, and international students reported intimidation (Mikhailovich et al., 2011). Kypri and Paschall (2009) found that students consumed on average 7.1 drinks (SD 5.2) per drinking day, including 5.4 drinks (SD 4.5) in pubs/bars/nightclubs, flats/houses, and residential halls, and 3.7 drinks (SD 3.4) in other locations. Overall, male students drank more per location (mean 8.4, SD 6.3) than did female students (mean 6.2, SD 4.0) (Kypri et al., 2010).

There may have been gender differences in the effect of living environments, for example, gender and being at a party had a significant effect on alcohol consumption for females but not for males. A study by Mitic (2003) found that there were higher rates of heavy drinking in males, those living in university residences, those with low academic orientation, and those with high recreational orientation. The results also suggested that males were twice more likely to consume on heavy episodic occasions than were females (Mitic, 2003).

2.6.5 Problems associated with university drinking

The patterns of alcohol use among young people during adolescence to young adult is unique. However, the level of alcohol consumption increased in the transition to university, throughout their time at university, and their transition into adulthood. Some studies investigated the transitional patterns of alcohol consumption from young adult to adulthood while at university (Flett et al., 2008; Hallett et al., 2012; McGee & Kypri, 2004; O'Connor & Colder, 2009; Oei & Jardim, 2007; Rickwood et al., 2011; Roche & Watt, 1999). There was strong evidence that students aged 18 to 25 were traditionally in their first and second-year cohorts of a university undergraduate course. Further, students in this age group were most susceptible to influences affecting their alcohol use. For example, students that were new to the university were especially vulnerable to false ideas about normal university student behaviour (Karam et al., 2007).

According to Kypri et al. (2005), the relationship between the faculty of study and drinking to intoxication differed by gender. Among undergraduate women, estimates of the seven-day incidence of intoxication varied between 31% (medicine) and 44% (commerce) but differences were not statistically significant. For men, the incidence rate was narrower with no statistical significance: 38% (medicine) to 43% (humanities). There was no relationship between faculty and alcohol consumption, but further research is needed to examine alcohol

quantities and faculty (Kypri, Langley, et al., 2005)

Tremblay et al. (2010) suggested that alcohol consumption varied considerably as a function of time during the academic year. Overall, trends indicated that Canadian students drank more heavily at the beginning of each semester and less during exam periods (Tremblay et al., 2010). Daily patterns indicated that most drinking occurred on weekends. The highest drinking days in the first academic year included Halloween, New Year's Eve and St. Patrick's Day (Tremblay et al., 2010). Paschall and Kypri et al. (2006) examined the association between scheduling at least one Friday class and the pattern and levels of alcohol use and heavy drinking in a sample of New Zealand college students (Paschall et al., 2006). This study found that heavier-drinking students would be less likely to schedule Friday classes. Scheduling at least one Friday class may have reduced the likelihood of heavy drinking on Thursdays but may have had no effect on the overall levels of alcohol use and heavy drinking among college students (Paschall et al., 2006).

2.7 Summary of the studies

The results from the studies in Australia, New Zealand, and Canada revealed that university student drinking was a significant public health problem. Male students were consistently less likely than the female student to be abstainers, and more likely to consume alcohol both in greater frequency and at higher levels (Karam et al., 2007). Research showed that heavy drinking was highly embedded in undergraduates' drinking patterns, and was related to some psychological, physical and socioeconomic factors (White & Hingson, 2013). While the results revealed that both male and female students considered spirits to be more harmful than beer, wine, and pre-mixed drinks, males believed beer to be more harmful than wine when considering the short-term consequences.

There was little evidence of the association between employment status and alcohol consumption. Socioeconomic status was an important predictor of alcohol consumption and whether students engaged in heavy drinking. Demers and Kairouz et al. discussed that the drinking setting was as important as the individual's characteristics in explaining the alcohol intake per occasion. Future policies aimed at reducing students' alcohol intake may be more beneficial if they address both situational and individual factors (Demers et al., 2002).

For the most part, ethnicity was not examined in these studies, although one small study focussed their research on an Indigenous population and alcohol consumption. While general alcohol consumption across university students was problematic, cultural differences were an important predictor (Currie et al., 2011). This research will investigate Indigenous university students' alcohol and alcohol-related harm to conclude the cultural variation predictors of alcohol use and the levels of harm.

There was a clear association between psychological distress and alcohol consumption in university students (Archie et al., 2012; Demers et al., 2002; Mihic et al., 2009; O'Connor & Colder, 2009)(48, 98, 99). Students that exhibited psychological distress were more likely to respond by drinking to excess, experience negative effects and be female. These results suggest there needs to be better health promotion activities that promote awareness of psychological distress and alcohol use, and these particularly need to focus on young women (Mihic et al., 2009). The reasons for drinking were context specific because students drank for different reasons in different contexts (Mihic et al., 2009). Thus, motivational approaches may be more effective in helping to understand the various pathways to alcohol use and misuse.

Only a few studies in this review explored physical harms (Brache & Stockwell, 2011; Burns et al., 2016; Carlson et al., 2010; Hallett et al., 2012). The studies showed strong evidence of physical harm related to individual drinking levels, and it was unclear whether normal perceptions were a cause or effect of heavy drinking

Students' living circumstances were associated with alcohol consumption. Hazardous drinking was widespread and persistent among students living in the halls of residence (Rickwood et al., 2011). New Zealand studies suggested a need for university alcohol policies and intervention approaches among tertiary students (Kypri, Paschall, et al., 2009). Furthermore, certain drinking locations (i.e., pubs, residential halls, off-campus houses) appeared to promote or facilitate heavy alcohol consumption among students. Better enforcement of laws prohibiting service to intoxicated students should be prioritised to reduce alcohol-related harm among university students (Kypri, Bell, Hay, & Baxter, 2008; Kypri, Paschall, et al., 2009).

According to Rickwood et al., first-year male students from rural and regional Australian

backgrounds who lived on campus were an important target group for alcohol reduction and safety campaigns. Students with more family obligations were likely to consume higher volumes of alcohol and to engage in harmful drinking (Rickwood et al., 2011). Problems associated with alcohol consumption were relatively common and represented potential harm to the students' immediate health and academic performance. Therefore, a study looking at the effects of alcohol on actual academic performance of students is warranted.

2.8 Future Research

The literature surveyed in this document highlights some gaps in the current research on alcohol use and alcohol-related harm among university students. There is a need to further research the role of heavy drinking among Indigenous Australian university students. An initial assessment of alcohol consumption and alcohol-related harm among Indigenous and non-Indigenous Australian students was difficult to compare, as most of the studies did not obtain representative data on Indigenous Australian students. The prevalence of alcohol use among university students in results for North America, Australia and New Zealand were similar, as were the risk and protective factors identified, except for not knowing the differences by ethnicity. However, men were significantly more at risk of heavy drinking than women. Further research is needed to understand Indigenous Australian students' drinking behaviour to enable a comparison of cultural differences of alcohol consumption, drinking behaviours, associated risks and protective factors in the university setting. In particular, a specific focus on the role of cultural interventions on heavy drinking also warrants further investigation.

2.9 Conclusion

Heavy drinking among university students and the negative consequences due to this high-risk drinking behaviour represents an area of public health concern. Heavy drinking among Indigenous university students is an unexplored field of research. Due to the general high variability in drinking among university students, the goal of this review was to examine the prevalence, psychosocial and associated behaviours of alcohol consumption, and its consequent harms. The following variables were reviewed regarding their relationship with heavy drinking in university students: sociodemographic, psychological, physical activity and health, living circumstances, university-related characteristics and marital status and family circumstances.

Alcohol consumption among university students is an important issue, however; few studies have addressed Indigenous Australian students in university settings. The studies reviewed were cross-sectional studies and made international comparisons difficult. The role of heavy drinking among Indigenous Australians at university is an important area for further investigation.

Chapter Three - Methodology and Method

3.0 Introduction

This chapter describes the research design, theoretical position and methods chosen to guide the research topic (Table 3.1). Firstly, the chapter provides an overview of pragmatism as the theoretical framework, including key references to emerging Indigenised approaches. An overview of Indigenous epistemology, as well as my Indigenous standpoint and epistemological position, are discussed, followed by an overview of the critical Indigenous perspective upon which the research topic was viewed. The concurrent triangulation mixed methods approach used in this research is discussed. Both the epidemiological and yarning group data is presented, and the rationale for using this design is described. Data collection and analysis methods are also described and discussed. Finally, the ethical principles guiding this research are discussed.

Table 3.1 Research design and methods

Section	Approach
Theoretical Framework	Indigenous Research Methodology
Theoretical Lens	Critical Indigenous Perspective
Methods	Concurrent Triangulation Mixed Methods
Data Collection Techniques	Survey Yarning Groups
Outcomes	Recommendations

3.1 Theoretical Framework: Pragmatism

A mixed methods way of thinking is a direction of pointing toward social investigation that actively invites us to participate in a conversation about many standpoints in making sense of the social world. Pragmatism has been adopted as the theoretical framework for this study as it allows us to focus on the problem in its social and historical context rather than on the method and multiple forms of data collection in answering the research question (Teddlie & Tashakkori, 2009). The theory of pragmatism also addresses how epistemologies and value-based ethics direct the influence of our actions and our methodologies. A theoretical framework such as pragmatism is construed as constituting a “third methodological

movement”, following a logical link between two paradigms of quantitative and qualitative inquiry (Teddlie & Tashakkori, 2009).

The theory of pragmatism originated in the United States around 1870 by Charles Sanders Peirce. His work was later expanded by William James and John Dewey (Morgan, 2016). The influence of pragmatism declined in the early 20th century, but it has undergone a revival since the 1970s with philosophers being increasingly willing to use the writings and ideas of Peirce, James, Dewey and other pragmatists, developing philosophical views that represent later stages of the pragmatist tradition (Morgan, 2016). Peirce and James started to realise that the distinctive epistemological outlook could not be assessed by a singular scientific method (Morgan, 2016).

In the early 20th century, pragmatism became widespread and was recognised as a major contribution to philosophy. John Dewey was considered to have made the most significant contributions to the pragmatism movement in the scientific research community and to debates surrounding the application of the theoretical approach (Teddlie & Tashakkori, 2009). Dewey argued that shared inquiry directed at resolving social and political problems are core to his conception of the good life and his account of the democratic ideal (Morgan, 2016). In the late 20th century, a new wave of philosophers shared a new contemporary pragmatism with a deep sense of human thought that has an intrinsic link to action. Ideas were used as the instruments, and human reality was an ever-evolving process. The human intellect of sharing experiences shaped humans, not external forces. Although, there is new thinking about the core of pragmatism, Dewey has remained influential in the pragmatic approach to ethics, aesthetics and religion (Teddlie & Tashakkori, 2009).

The immense quality of this down-to-earth way to deal with sociological inquiry about technique is its accentuation of the association between epistemological concerns about the idea of the learning that we deliver and specialised concerns about the strategies that we use to produce knowledge. Creswell and Plano Clark (2007) state that research requires a foundation that is based on an explicit or not worldview or theoretical framework. They argue that there is no set standard for what worldviews should be, however, there are common philosophical elements in the worldview which evolve. Pragmatism uniquely stands alone in the key worldviews.

Pragmatism as a theoretical framework positions the worldview on the consequences of the research, focal point of the research question methods used, and that multiple data collection methods inform the study (Teddlie & Tashakkori, 2009). The approach to the nature of reality can be singular or multiple because the researcher combines both deductive and inductive thinking to present a comprehensive view of reality (Teddlie & Tashakkori, 2009). The key component of pragmatism is the epistemological position and how the researcher collects the data by what works to address the research program. The value of the research is placed on the axiological view of the researcher, whether it is a biased or unbiased perspective, and the acceptance of an objective, or subjective knowledge is valued in the research. Utilisation of such frameworks could, then, fit snugly into Tashakkori and Creswell's recent definition of mixed methods: "Research in which the investigator collects and analyses the data, integrates the findings, and draws inferences using both qualitative and quantitative approaches or methods in a single study or program of inquiry" (2007, p. 4).

The place of pragmatism in social inquiry has increasingly become a formalist approach to the research, which allows for greater diversity of inquiry than a singularity of formalism. Pragmatism provides no constraint to a research problem but allows there to be no hindrance by law or rule that recognises one truth. In recognising that the patterns of alcohol use and associated harms among Indigenous Australian and non-Indigenous Australian students are a concern, a pragmatic theoretical framework is an appropriate means of inquiry for this study. The study aims to measure and explore the differences in alcohol consumption and three dimensions of harms (depressive symptoms, physical harms and academic performance) among Indigenous Australian and non-Indigenous Australian university students. To achieve this aim, the theoretical framework of pragmatism offers the researcher a process by which to explore real-life experiences of Indigenous and non-Indigenous Australian students' alcohol consumption and alcohol-related harms to be collected and interpreted. Exploration of this research program within a pragmatic framework is undertaken through the use of a mixed methods concurrent triangulation.

3.2 Theoretical Lens: Critical Indigenous Perspective

This research is explicitly viewed within a critical Indigenous perspective, a theoretical lens that provides a guide to constructing and understanding the world. Importantly, the framework links to the purpose of the research and is supported by a particular research design and method to answer the research hypothesis (Castro, Kellison, Boyd, & Kopak, 2010). The theoretical lens provides direction and allows for the findings and assumptions to be triangulated within a selected methodology (Crotty, 1998). Such approaches acknowledge the sovereignty of Indigenous ways of knowing, and recognise the intersection and relationship between researcher and participants in co-producing knowledge (Kovach, 2009; Martin, 2003; Nakata, 2014).

My Indigenous knowledge is based on my relationships in a personal and social context, which is reliant on subjective interpretation and experiences. These experiences are based on Indigenous worldviews and the customs and traditions that direct them. Indigenous worldview is also shaped by the cultural and social diversity of the close relationship between people and the environment (Nakata, 2007). The colonial legacy of Indigenous Australians has had a profound impact on their lifestyles (Nakata, 2007). After colonisation, Indigenous Australians were subject to dispossession of their traditional lands, diseases related to poverty, social exclusion, and forced institutionalisation by the government's assimilation policy. As a consequence of this legacy, Indigenous Australians today are facing the lowest levels of health, employment, income and education and the poorest housing conditions (Nakata, 2007). However, as a response to the multiple social inequalities that Indigenous Australians face, and because of their inability to control their social circumstances and emotional responses, they are subject to uncontrollable consumption and substance misuse (Nakata, 2007).

As a consequence of social policies, the supply and sale of alcohol to Indigenous Australians has increased drinking and alcohol-related harm (D'Abbs, 2012). A missionary team in South Australia noted the disproportionate amounts of money spent on alcohol on the reserve, with a resultant decline in living standards, increase in family conflicts and destruction of traditional culture and influence (D'Abbs, 2012). Therefore, my Indigenous knowledge and worldview is the core of the research process and will guide the cultural relevance of the study towards beneficial outcomes for Indigenous Australians and communities.

The goal of critical Indigenous approaches is to represent the voices of marginalised groups and support social change. However, my research is explicitly committed to supporting Indigenous and non-Indigenous Australian shortcomings – in other words, moving away from the cultural deficit perspective, which views individuals from cultural groups as lacking the ability to achieve because of their cultural background (Kozelsilverman, 2011; Smith, 2012). Therefore, the results of this study will focus on the individual characteristics of drinking practices and risky behaviour to support developing harm minimisation strategies that consider the health, social and economic consequences of alcohol use of the individual and the community.

3.3 Indigenous Epistemology

Indigenous knowledge is holistic, functional and adaptive to changes in both social and natural environments, and has been communicated orally for many thousands of generations (Kovach, 2009). My Indigenous heritage manifests in me in different forms, such as practical knowledge learned through everyday activities that revolve around survival. My people also possess empirical knowledge that is learned from careful observations of the dreaming over extended periods of time. Therefore, my Indigenous epistemology can be qualified as participatory, experiential, process-oriented and spiritual.

Before I begin to describe the outline of the study, it is important for me to consider my Indigenous standpoint in the research process (Kovach, 2009). I acknowledge that my social position differs politically, culturally and racially from researchers with settler backgrounds (Walter, 2013). My social position is framed by how I make sense of the world which shapes my Indigenous research approach. Thus, my research practice is moulded by my social positioning. As a young descendant of the Wakka Wakka and Wulli Wulli people of North Burnett, Queensland, and having been raised in both rural and regional locations, I have lived through, and been influenced by, different life circumstances and social and historical realities. This identity and heritage are heavily influenced by the colonising history of Queensland and its Aboriginal people.

I have been raised within contemporary Aboriginal society which has allowed me to learn many important aspects of both Aboriginal and Torres Strait Islander culture. From my early

childhood, I was taught the value of family kinships, respect for Elders, the importance of respect for protocols and to appreciate those traditional customs and beliefs that make Aboriginal and Torres Strait Islander communities unique. My childhood was spent predominantly in urban locations with regular visits to the Aboriginal communities where my parents were raised. These experiences taught me to recognise and respect the spiritual affiliations that Aboriginal and Torres Strait Islander people have with their land and sea. As a result of the strong traditional values instilled in me by my parents, I believe I can communicate effectively and sensitively with Aboriginal and Torres Strait Islander people. As an Aboriginal man, I feel very strongly about the issues that affect Aboriginal and Torres Strait Islander people because I have seen first-hand the effects of poor health care, lack of education and unemployment. I also acknowledge that there is an urgent need to address the serious issues of alcohol and substance abuse in our communities. If these issues are not addressed, they will continue to have profound consequences for Aboriginal and Torres Strait Islander youth and future generations.

This thesis emerged as a result of my experiences as an Indigenous Australian student and my second-hand experience working with both Indigenous and non-Indigenous Australians as an academic. These experiences of alcohol use and exposure to alcohol-related harms caused me to become concerned about students' university experiences and their exposure to risky alcohol use behaviour. The research approach embodies my Indigenous standpoint reflecting on cultural, political and economic issues and how these interact in a dominant Euro-Australian population. The subject of Indigenous Australians' past and present is shaped by the dominant social-structural reality, with Indigenous Australians experiencing low-socioeconomic positioning, a significant burden of disease, and ongoing dispossession that encompasses loss of land, culture and traditional knowledge from colonisation (Walter, 2013).

3.4 Indigenous Research Methodology

This thesis draws on Indigenous methodologies to guide the research approach and frame the study, by acknowledging Indigenous knowledge and worldviews (Kovach, 2009; Nakata, 2007; Rigney, 1999). The approach serves to preserve the Indigenous voice and creates resistance to the dominant discourse while upholding political integrity. Indigenous methodologies are a paradigmatic approach grounded in the values, customs and beliefs of

Indigenous communities (Rigney, 1999). Such an approach acknowledges the sovereignty of Indigenous ways of knowing, and accepts the intersection and relationship between researcher and participants in co-producing knowledge (Walter, 2013). Unlike traditional approaches to research, the researcher explicitly locates himself or herself in the research process, acknowledging that knowledge claims are diverse, multiple and understandable within a cultural context (Walter, 2013).

The Indigenous epistemologies and knowledge are cemented in the social and economic struggle and oppression with links to social and emotional empowerment, which is consistent with critical theory. Rigney (2009) uses critical theory as the foundation for developing what he defines as Indigenist Research Methodology (IRM) (Rigney, 1999). IRM aims to decolonise Western research practices: to reframe, reclaim, and rename Indigenous research. While using a decolonising perspective in research practice is necessary for Indigenous researchers, it is not central to an Indigenous approach. Kovach (2009) explains that the relational nature of Indigenous epistemology acknowledges the interconnectedness of the physical, mental, emotional, and spiritual aspects of individuals with all living things and with the earth, the star world, and the universe remaining central to the methodology. Hence, the methods of inquiry should be linked closely to an Indigenous research paradigm and make sense from an Indigenous knowledge perspective (Kovach, 2009).

According to Rigney (1999), there are three interrelated dimensions to Indigenist Research that sets it apart from traditional research, and that must be applied to approach research in a culturally safe and respectful way (Rigney, 1999):

- An emancipatory imperative;
- Political integrity; and
- Privileging Indigenous voices.

Indigenous research compatibility is further discussed by Martin (2003) who argues that Indigenous research must acknowledge the uniqueness of Indigenous epistemology through the following principles (Nakata, 2014):

- Recognise the realities, interests and aspirations of Indigenous worldviews and their

importance to Indigenous existence and survival.

- Acknowledge Indigenous social norms as an essential process through which they live.
- Incorporate social, historical and political contexts which shape Indigenous experience and ways of knowing.
- Privilege the voices, experiences and lives of Indigenous Australian and their connection to lands.

Indigenous epistemology is merely a ‘way of knowing’ through developing a worldview that differs from the dominant culture (Nakata, 2014). However, this can be difficult when the dominant worldview is perpetuated as the only legitimate one. Indigenous research design, methods and paradigms have taken many years to develop. However, they have moved the discourse of western research to enable Indigenising western methodologies and decolonising the lens of research to value Indigenous scholars’ worldviews and ways of knowing (Nakata, 2014).

In considering Indigenous epistemology, a critical Indigenous perspective is that one must be prudent and respectful about what one shares. This requires reflection on both the research topic and one’s motivations. The goal of critical Indigenous approaches to research is to represent the voices of marginalised groups and to support social change. Framing my research with a critical lens means that the research is explicitly committed to creating knowledge about the drinking practices and risky behaviour of young adult Indigenous and non-Indigenous Australians, to identify harm reduction strategies aimed at reducing negative consequences associated with harmful alcohol use. As such, health, social and economic consequences of alcohol consumption about individuals and the community will be considered. My Indigenous knowledge and worldview is the core of the research process and will guide the development of culturally appropriate methods and benefits for Indigenous Australians.

3.5 Indigenous Statistics

Yarning group is an Indigenous research methodology used by Indigenous Australian researchers as a cultural form of conversation and is conducted with a group of Indigenous Australian people forming a group to discuss issues inclusively and collaboratively (Bessarab

& Ng'andu, 2010; Kovach, 2009). The use of the yarning group was demonstrated by Bessarab and Ng'andu (2012) across two qualitative research projects. The method allowed both the researcher and the participant to journey together to build a deeper understanding of topics of interest (Bessarab & Ng'andu, 2010). In this journey, the process requires deep listening, sharing of cultural knowledge and standpoint, and the establishment of cultural respect. The essential part of the yarning process is the development of an organic relationship of trust and respect and it is accountable to Indigenous Australians participating in the research (Bessarab & Ng'andu, 2010; Kovach, 2009).

Bessarab and Ng'andu (2010) unpacked the following four types of yarning processes:

- 1) *Social yarning* – a conversation that takes place before the research or topic yarn involving an informal discussion without a specific topic. Yarns of this nature include news, humour, advice or information sharing;
- 2) *Research Topic Yarning* – takes place in an unstructured or semi-structured research interview. The purpose of the yarning is to gather information through participants' stories that relate to the research topic. Research topic yarning has a beginning and end for the research conversation;
- 3) *Collaborative yarning* is between two or more people where they engage in information sharing about ideas or explore similar ideas; and
- 4) *Therapeutic yarning* takes place during a research conversation, but the participants disclose stories of past and present experiences which are often intense and emotional.

The researcher has to switch from researcher to the listener. This yarning is not counselling but more exploring experiences through empowerment and support (Bessarab & Ng'andu, 2010). This study utilised research topic yarning to explore participants' experiences and their knowledge of alcohol consumption and alcohol-related harms among Indigenous and non-Indigenous Australian university students.

3.6 Ethical Considerations

Concerning Aboriginal and Torres Strait Islander protocols, I would like to acknowledge Bindal and Wulgurukaba of the lands upon which James Cook University Townsville is located. As part of the oldest surviving and continuous culture in the world, I pay my respects to the spirit of this land and her Aboriginal people.

This study received ethical approval from James Cook University Human Research Ethics Committee (HREC4920). The purpose of the Human Research Ethics Committee is to review research proposals involving human participants to ensure the research is conducted in accordance with the National Statement on Ethical Conduct Involving Humans (NHMRC), Values and Ethics: Guidelines for Ethical Conduct in Aboriginal and Torres Strait Islander Health Research and James Cook University guidelines (NHMRC, 2005).

Under the guidelines for ethical conduct in Aboriginal and Torres Strait Islander Health Research, key criteria were addressed in conducting health and medical research among Indigenous Australians. As recommended by the National Health and Medical Research Council (NHMRC, 2005), there are six key values that lie at the heart of research engagement with Indigenous communities and steps were undertaken to address these values while conducting this research as outlined below.

Reciprocity- *To ensure that research outcomes include equitable benefits of value to Aboriginal and Torres Strait Islander communities or individuals.*

The research contributed to the sharing of knowledge and expertise with the Indigenous and non-Indigenous Australian students involved in the research. I provided the Indigenous Australian Students Association and non-Indigenous Australian Students Association with information about my research agenda and provided a brief overview of how the research would be conducted and what was required to set up a research project.

Respect- *Respectful research relationships acknowledge and affirm the right of people to have different values, norms, and aspirations. Those involved in research processes should not be blind to difference. Also, essential to a respectful research relationship is the recognition of the contribution of others and the consequences of research.*

The research respects the diversity of Indigenous Australian students at the university and the

importance of consulting students about the research process. In building relationships with Indigenous Australian students, I sought guidance from my cultural mentor about the cultural protocols for engagement. As an Aboriginal researcher, I acknowledge the different cultural beliefs and values that Indigenous Australian students experience.

Equality- *Equality affirms Aboriginal and Torres Strait Islander People's right to be different. Demonstrated commitment to distributive fairness and justice.*

Before the commencement of the research, Indigenous Australian students and Indigenous staff were engaged to add value and knowledge to the research process. Regular contact with Indigenous Australian students and a cultural mentor provided comments and suggestions on each of the components of this research to enable fairness and justice.

Responsibility- *Recognition of core responsibilities – to not harm, transparent accountability.*

A cultural mentor was approached to develop a strategy for creating a safe environment, transparently conducting research and being accountable and mindful of Indigenous Australian students while conducting the research. The contact details of key service providers in Townsville were on the information sheet for students who felt distressed as a result of the research. I also approached other Indigenous academics and Indigenous support staff for input into disseminating the research findings to ensure it was accepted as culturally respectful and also to provide feedback on how I conducted the research.

Survival and Protection- *Importance of collective identity.*

The research used a critical Indigenous perspective to disseminate the results, which acknowledged Indigenous Australian beliefs and did not inadvertently contribute to discrimination against Indigenous Australians.

Spirit and Integrity- *Community decision making based on shared values.*

Before the recruitment of the participants, I worked with the cultural mentor to ensure the research framework acknowledged and respected Indigenous Australian students by sharing the research journey. The research framework involved a cultural exchange between myself and Indigenous Australian students when participating in the research, which assisted in establishing mutual respect. The cultural exchange was the open dialogue of our cultural background which included traditional language groups, as well as our cultural and spiritual

beliefs.

As per the NHMRC guidelines in human research, informed consent was obtained from all participants involved in the cross-sectional survey and yarning group. Surveys were stored in lockable filing cabinets accessible only by the researcher and the advisory team. Electronic data were stored in password-protected electronic databases. Processes for collecting and storing data were as per the NHMRC guidelines.

3.7 Research design: A mixed methods concurrent triangulation study

Using both quantitative and qualitative as a singular method of research is now widely accepted as a methodological movement in social, behavioural and health science (Johnson, Onwuegbuzie, & Turner, 2016). The term 'mixed method research' is defined by Tashakkori and Teddlie (2003) as a research methodology that involves collecting, analysing and integrating quantitative and qualitative data in a single study or longitudinal program of inquiry. However, there are multiple perspectives when an appropriate mixed method approach fits in the framework design. Tashakkori and Teddlie (2003) believe in mixed methods as a methodology. However, Creswell argues that mixed methods as a research methodology is a focused philosophical assumption and worldview, like pragmatism, which adds another layer of the research design. He believes that research has an unquestionable layer of philosophical assumption or worldviews. Most mixed methods scholars emphasise the approach as a technique or methods of data collection and analysis that are key to mixed methods research.

Creswell's (2007) definition of mixed methods will be utilised for this research. Creswell defines the mixed methods inquiry to be the incorporation of a philosophical worldview, pragmatism, and the accommodating notion of both quantitative and qualitative methods as a methodology while highlighting the importance of method. The fundamental principle of this mixed methods research is using the combination of the datasets to provide a clearer understanding of the research problem.

The mixed methods approach has continued to evolve, providing further options for health and behavioural researchers. This approach provides a more comprehensive picture and understanding of the topic being researched than if only one method were applied. Therefore,

the mixed methods provide the researcher with more questions within the study which could not be answered separately (Creswell & Plano Clark, 2011). The balance of either quantitative and qualitative weaknesses or biases inherent in one approach is evened out by the other approach, which is the benefit of a mixed methods approach. In public health and related disciplines, there are opportunities to utilise multiple datasets and growing interest in combining quantitative and qualitative approaches. Public health uses ‘real-life’ situations to solve problems, and the act of applying multiple ways of decision making provides the opportunity for a comprehensive public health response (Castro et al., 2010; Johnson et al., 2016).

However, the health research community has criticised the use of mixed methods, specifically the time and resources required to collect and analyse data (Castro et al., 2010). In any mixed methods study, the researcher must be skilled in both quantitative and qualitative forms, as the data risks a lack of integrity or completeness if not constructed properly. It may be a positive to have two researchers from a qualitative and a quantitative method to provide the support to form the mixed methods approach. Working in a socially homogeneous team can be an asset but can “also make it difficult to foster effective communication among team members” (Creswell & Plano Clark, 2011).

As a means to help understand the mixed methods design in research, Morse introduced a notation system which now appears in most mixed methods literature. The notation system consists of symbols such as pluses (+) to signify the methods which occur at the same time and arrows (→) to indicate methods occurring in sequence (Morse, 1991). Plano and Creswell built on the system to explain other complex research designs in diagrammatical formats. The primary method of inquiry in the diagrammatical format as a display is uppercase lettering and secondary method in lowercase (Plano Clark, Garrett, & Leslie-Pelecky, 2009). Geometrical shapes illustrate steps in the process of the design, and the use of parentheses indicates methods, embedded in the research methods (Plano Clark et al., 2009). The diagrammatic representation of both Creswell’s Mixed Method Concurrent Triangulation Design in Figure 3.1 and application of this design to the current research study in Figure 3.2 is presented.

A mixed method, concurrent triangulation design is well suited for measuring and exploring alcohol use and alcohol-related harms among Indigenous and non-Indigenous Australian

university students. A concurrent triangulation design is based on the use of qualitative and quantitative information gathered simultaneously in one stage. The data is broken down independently and afterward analysed or potentially joined. An example would be if a scientist gathered survey data and focus group data at the same time and compared outcomes. This technique is utilised to affirm, cross-approve or authenticate discoveries (Plano Clark et al., 2009). It is regularly used to defeat a shortcoming in one technique with the qualities of another. It can likewise be valuable in extending quantitative information through the accumulation of open-ended qualitative data (Plano Clark et al., 2009). The concurrent triangulation mixed methods approach will gather both epidemiological and yarning group data to understand the above primary objective (Creswell & Plano Clark, 2007). In this method, epidemiological data (chapter 4) and yarning group data (chapter 5) were collected at the same time, with neither one being dominant in priority. However, the epidemiological study was collected as the predominant method, and the yarning group data was collected at the same time, and both were triangulated together (chapter 6) (Creswell & Plano Clark, 2007).

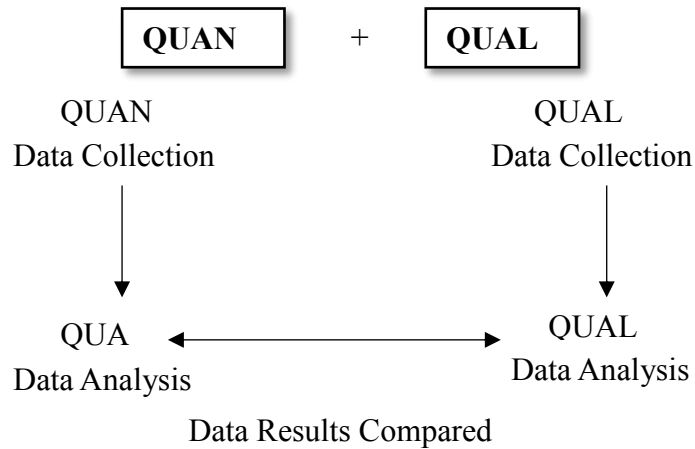


Figure 3.1 Mixed Method Concurrent Triangulation Design

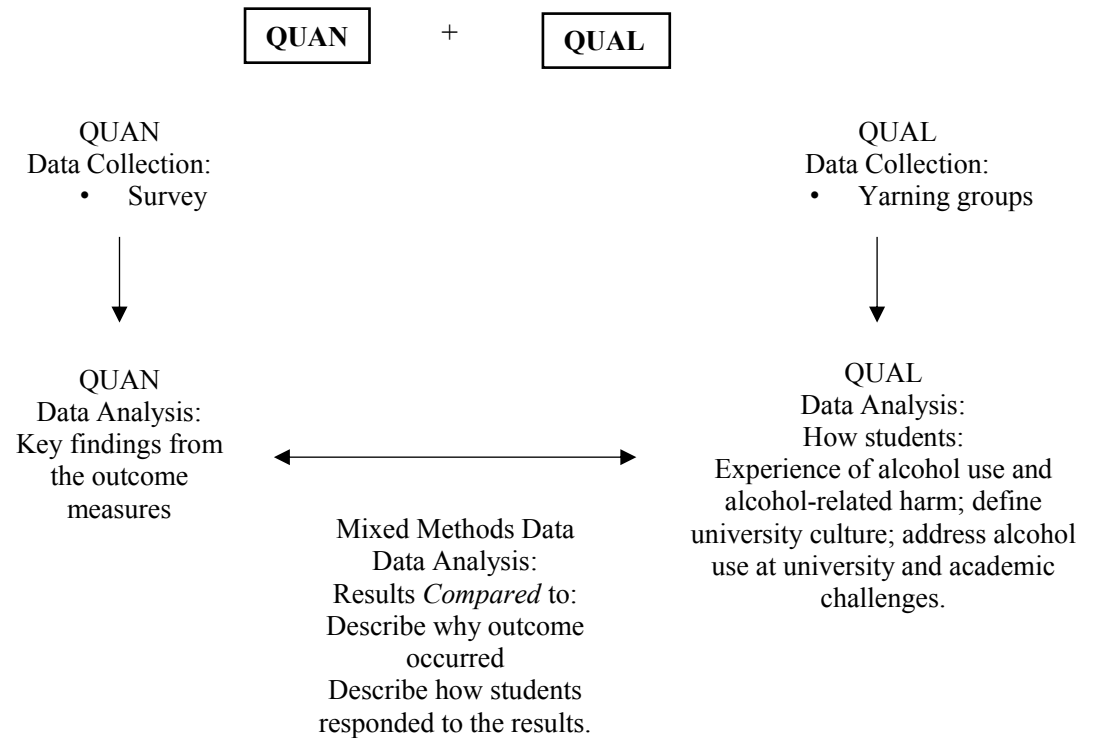


Figure 3.2 A mixed method concurrent triangulation study to measure and explore alcohol use and alcohol-related harms among Indigenous and non-Indigenous Australian university students

In this study, the use of a concurrent triangulation design enabled the collection of surveys throughout the academic year while continuing to collect data from students participating in yarnning groups. This was especially useful for two reasons. Firstly, engaging students to participate in the yarnning group allowed yarnning data collection to occur during the survey. Secondly, it provided the opportunity to collect data at peak times during the academic year.

The concurrent triangulation design was chosen to allow collection of data concurrently, and for equal priority given to ensuring that participants collected fulsome information.

Tashakkori and Teddlie (2009) believe that a mixed-approach design uses the strengths of both methodologies to provide a broader perspective on the overall research topic. The principal limitation of this method relates to the use of multiple methods and approaches and an understanding of how to mix them appropriately (Teddlie & Tashakkori, 2009). Within this study, the data were analysed separately and are presented in the epidemiological study and yarnning group study sections.

3.8 Quantitative (Epidemiological Study)

The epidemiological study used a questionnaire to examine patterns of alcohol consumption and to determine associations between alcohol-related harms. The survey was designed to estimate the prevalence of alcohol consumption and alcohol-related harms among university students (Gliksman et al., 2003; Grabowski et al., 1979; Hallett et al., 2012; Ham & Hope, 2003; Hasking, Shortell, & Machalek, 2005; Karam et al., 2007; Utpala-Kumar & Deane, 2012). The study investigates whether alcohol consumption is associated with the risk of three harms: 1) physical harm (injury and other health outcomes); 2) poor academic performance; and 3) depressive symptoms.

3.8.1 Participants

To be included in the study, participants needed to:

1. Be a student from the regional university in North Queensland;
2. Identify as Indigenous Australian or non-Indigenous Australian;
3. Be aged between 17 and 24 years; and
4. Be enrolled in an undergraduate degree or diploma program.

3.8.2 Sample size and sampling method

With the support of the regional university corporate services, the researcher was able to access student enrolment data in 2012 to select a sample of university students that met the above criteria. Data on the total student enrolments for Semester 2, 2012 identified 8,027 undergraduate students aged 17-24 years (2900 male and 5127 female), including 232 Aboriginal and Torres Strait Islander students (75 male and 157 female).

The sample size was chosen so that the precision of the prevalence estimate for hazardous alcohol consumption and alcohol-related harms would be 5% with a 95% confidence interval. We adopted a conservative approach by assuming a prevalence of 50% (where the confidence interval is at its widest for a given sample size). Alpha was set at 0.05, with the power of the significant effect set at .80. To obtain a representative sample of Indigenous Australian university students in this age group (17-24 years) and by gender, 112 female and 63 male participants were required (a total of 175 Indigenous Australian students). Using the same parameters to obtain a representative sample of non-Indigenous Australian university students in the same age group by gender, 357 female and 339 male participants were required (a total of 696 non-Indigenous Australian students). Given the small number of enrolments, all Indigenous Australian students were invited to participate. See Table 3.2 for more detail.

Table 3.2 Sample size calculation by gender and Indigenous Australians status

Student categories	Total number of students enrolled	Sample Size Estimate
Non-Indigenous Australian students		
Female	4,970	357
Male	2,825	339
Total	7,795	696
Indigenous Australian students		
Female	157	112
Male	75	63
Total	232	175
Total sample	8,027	871

3.8.3 Data collection

A 15-minute questionnaire was designed to gather information on drinking patterns, depressive symptoms, academic performance and physical harms using previously validated measures. Also, potential harms associated with alcohol consumption were examined. Three measures of harm were studied: 1) physical harms 2) academic performance and 3) depressive symptoms.

3.8.3a Alcohol Use

Respondents were asked to describe their usual drinking patterns. The typical consumption quantity and beverage type were recorded (i.e., respondents were asked to record what they normally consumed regarding brand and measure). The recorded information was converted into the number of standard Australian drinks consumed per occasion and per week based on the 2009 National Health and Medical Research Council alcohol guidelines for short-term harm (National Health and Medical Research Council, 2009). The approach conducted to describe students usual drinking patterns has not been evaluated, however, a previous study conducted by Roche and Watt did use a similar method (Roche & Watt, 1999). Nonetheless, there is a need to establish reliability and validity in future studies.

Respondents were also asked to complete the 10-item Alcohol Use Disorders Identification Test (AUDIT) for the previous four weeks (Babor et al., 2001). The AUDIT tool is a reliable screening tool for the identification of alcohol dependence and has previously been utilised in large-scale studies and evaluated for reliability and validity as a clinical tool within a university among settings (Fleming, 1991) (Basten & Kavanagh, 1996; Carlson et al., 2010; Gliksman et al., 2003; Grabowski et al., 1979; Hallett et al., 2012; Reavley et al., 2011; Utpala-Kumar & Deane, 2012). The AUDIT score on each item was summed to obtain a total score out of 40 (Babor et al., 2001). The score was then transformed into three risk categories: low-risk drinking (score 1-7); hazardous drinking (score 8-15); and harmful drinking (score > 15) (Babor et al., 2001). Responses to the first three questions of the questionnaire were coded into response categories of the AUDIT-Consumption (AUDIT-C), which identified hazardous drinking (Babor et al., 2001). Students were also asked the location where they consumed alcohol during the previous four weeks.

3.8.3b Mental Health

Respondents were asked to complete a 9-item Patient Health Questionnaire (PHQ-9), that examined the severity of depression in the previous two weeks (Kroenke, Spitzer, & Williams, 2001). The PHQ-9 is a reliable screening tool for the identification of clinical depression. Each item was scored from 0 = 'not at all' to 3 - 'nearly every day', with a total score of 27 (Kroenke et al., 2001). Students were also asked about their level of stress during their studies.

3.8.3c Physical Harms

Respondents were asked questions about physical harm and physical health. Physical harm was covered by an item in the Alcohol Use Disorder Identification Test which probed the question of occurrence of injury after drinking (to self or other) in the previous 12 months. This item was examined individually to determine the prevalence of alcohol-related injury among university students (Babor et al., 2001). Additional information on other physical harms from alcohol in the previous four weeks was also obtained (e.g., verbally or physically abusing someone), as well as other behaviours that may have resulted in physical harms, such as: driving a car under the influence of alcohol, creating a public disturbance or having unprotected sex. Students were asked whether they had accessed health services in the previous four weeks (e.g., first aid, admission to the emergency department and general practice visit).

3.8.3d Demographics

Respondents also provided demographic information including age, gender, Indigenous status, year and faculty of enrolment, relationship status, living arrangements, language spoken at home, driver's license, highest qualification obtained, financial scholarship and employment status.

3.8.4 Recruitment

All students who met the eligibility criteria were invited to participate in the study. An agreement was reached between the university administration and the researcher to provide access to the web-based questionnaire link on the student educational portal called Blackboard (LearnJCU). Also, an email was sent to all undergraduate students to invite them

to participate in the questionnaire. In encouraging Indigenous Australian students to take part in the survey, the university's Indigenous Australian support unit was approached to support recruitment through organised social gatherings of students. Students enrolled in any undergraduate course across all faculties within the university, between the start and the end of the 2013 academic year, were invited to participate. Additional recruitment strategies included a request for lecturers to make in-class time available for completing the hard copy questionnaire. Residential colleges were also targeted so that students living in university residential accommodation were approached to participate.

Students were provided with an information sheet that outlined the purpose of the study, the benefits to students, the potential risk associated with participating, and contact numbers of mental health services as well as a consent form to participate in the study (Appendix 1). Students were provided with the questionnaire and were asked to complete it once they had consented. Questionnaires were returned in three ways: directly to the researcher; by placing them into one of the colourful, clearly labelled boxes located in one of the frequently accessed areas on the university campus; or by completing the web-based questionnaire using SurveyMonkey®.

3.8.5 Statistical analysis

Descriptive analyses were undertaken to examine the prevalence and patterns of alcohol consumption and the three dimensions of alcohol-related harm. Further analyses were conducted to determine whether there were differences between Indigenous and non-Indigenous Australians in hazardous patterns of drinking and alcohol-related harms, and whether these varied with other demographic characteristics (e.g., age, gender, year and faculty of enrolment, relationship status, living arrangements, work details, financial scholarship, driver licence and language spoken at home). Specifically, where continuous variables are used, t-tests and ANOVA are used (for between-group comparisons). For categorical variables, Pearson's chi-square test (χ^2) tests are used. Alpha was set to 0.05. The dependent variable was the AUDIT-C score dichotomised as hazardous (≤ 4) and non-hazardous drinking (> 4). The binary variable of hazardous and non-hazardous drinking was used for the logistic regression to test for associations between demographic variables and the three dimension of harm variables. The independent variables included three dimensions of alcohol-related harm: 1) physical harm 2) depressive symptoms 3) academic performance.

All variables were initially entered into the model. Non-significant variables were removed one at a time, to create a more parsimonious model. Multivariate analysis was then conducted to determine whether there were cultural variations in the association between patterns of alcohol consumption and alcohol-related harm in this cohort. Data were imported into a Microsoft Excel Spreadsheet and were cleaned before exported for analysis using Statistical Package for Social Sciences v22.0 software (SPSS v22.0, IBM Inc., Armonk, NY, USA).

3.9 Qualitative (Yarning Group)

The yarning group was undertaken to explore alcohol use and alcohol-related harms among both Indigenous and non-Indigenous Australian university students. Yarning group provided a culturally sensitive approach for understanding experiences and attitudes about alcohol and alcohol-related behaviour by contextualising the epidemiological results. This information generated a range of factors that young people associated with drinking and the consequent harms. The primary method of data analysis for the yarning group data in this study was content analysis. Content analysis is a method to deal with identifying, analysing and reporting on the creation of themes or patterns within data (Braun & Clarke, 2006; Clarke & Braun, 2016). The qualitative content analysis was adopted to this study data collected through open-ended questions during yarning groups with participants and formed the approach to look for common themes and ideas (Holloway & Freshwater, 2016). Common themes were extracted from the data.

A yarning group discussion guide was developed which identified areas of interest and explored the alcohol experience, knowledge about at-risk alcohol use, reasons for heavy drinking and the level of knowledge about student support services on campus.

The nature of the yarning method provided the flexibility which enabled the participants to talk freely and used prompts to gather further information. The data was collected between the 8th and 22nd April 2013. All sessions were between 60-90 minutes with two Indigenous Australian groups and one non-Indigenous Australian group. The yarning groups were conducted in a conference room at the regional university. Each of the yarning groups was audio recorded and transcribed verbatim (Kovach, 2009). Before commencing the yarning groups, an explanation was given about how the yarning group was structured. Following this, participants introduced themselves by sharing where they were from and what they were studying. Then, a small survey was distributed to obtain demographic data (age, gender,

Indigenous status, language spoken at home, education information, faculty, and year/semester enrolled at university) from each participant. During the yarning group, the researcher recorded the discussion and documented phrases or statements on the whiteboard so that key points could be viewed by the group.

3.9.1 Data Analysis

Data were analysed using content analysis. Content analysis is a process of coding and identifying themes or patterns in interview data and is a widely used qualitative research methodology (Hsieh & Shannon, 2005). Transcripts were de-identified and entered into the qualitative software analysis package NViVO version 22 (Brink et al., 2006; Godau, 2004). The analysis proceeded by listening to each recording while reading the transcripts and coding aspects of the data relevant to the students' experiences and their knowledge of alcohol use and alcohol-related harms. The audio recording was then played for a second time to identify extra coding, with particular attention paid to the participants' tones when speaking certain phrases or comments. Subsequent analyses involved examining the initial set of codes to identify broader significant patterns of meanings (Krippendorff, 2004). Comparing the Indigenous Australian and non-Indigenous Australian groups continued until saturation was achieved for both groups.. The primary supervisor of the thesis reviewed a cross-section of the transcripts which were independently coded. We then discussed this coding technique and themes to ensure there was analytic rigour and to reach an agreement about our understanding of the data and the patterns that were emerging..

3.9.2 Rigour and Trustworthiness

I kept a data collection book, analysis log and attended regular meetings with my supervisor to discuss the important themes as they emerged. The transcripts were also fed back to yarning group members to check their accuracy. This was considered important because the aim was to gain an in-depth understanding of alcohol use and alcohol-related harm experienced in an interpretative study (Creswell & Plano Clark, 2007). Trustworthiness was further enhanced by continuing data collection until the same meanings were being relayed in the yarning groups. Participants agreed with the sentiments of other participants by stating 'yes I agree' and when asked what they meant, they indicated their agreement with the views of previous participants.

3.9.3 Participants

Yarning groups with between five and eight participants were conducted at the regional university. Participants were undergraduate students of Indigenous and non-Indigenous Australian status, and the yarning groups were conducted separately for each group.

The use of yarning group as a research method to facilitate discussions contributed to a culturally safe environment for participants. The strategy was adopted to encourage young people to share their knowledge and experiences. This method involved using a suitable relaxing venue that was accessible, and that encouraged open dialogue. Refreshments were also provided for participants.

3.9.4 Recruitment

A purposive sampling process was used to recruit the students. The university administration section emailed the students with information on how to register their interest in participating in these yarning groups. The yarning group invitation was also posted in the university's online newsletter. There were two Indigenous Australian and one non-Indigenous Australian yarning groups conducted. The two Indigenous Australian yarning groups had between five and eight participants, while the non-Indigenous Australian group had five participants, with a total of 19 students agreeing to participate in the yarning groups (Table 3.4).

Table 3.4: Sample of the yarning group

	Gender		Age	Language		Enrolment	
	Male	Female	Mean	English	Second English	FT	PT
Yarning Group 1 - Indigenous Australian	4	4	20.63	3	5	8	0
Yarning Group 2 - Indigenous Australian	3	3	20.83	3	3	6	1
Yarning Group 3- non-Indigenous Australian	1	4	18.60	4	1	5	0
Total	8	11		10	9	19	1

3.10 Data Integration

Data integration in a concurrent mixed methods design is an important aspect of the methodology. This involved separately analysing both epidemiological and yarning group

datasets and then comparing or ‘mixing’ the emergent findings (Teddlie & Tashakkori, 2009). The analysis was conducted using a concurrent triangulation strategy, whereby epidemiological and yarning group data contributed equally to the analysis and were used for cross-validation. This approach is known as inferences, which draws on both conclusions from the epidemiological and yarning group data and across them, known as inferences (Teddlie & Tashakkori, 2009).

The interpretation of the connected results of the epidemiological and yarning group dataset was used to strengthen and confirm the results drawn from a multivariate analysis, along with explanatory descriptions from content analysis. The aim of the interpretation of the connected results was to discuss the extent the yarning groups results explain and add insight on alcohol consumption, factors associated with heavy alcohol use and alcohol-related harms including depression, physical harms and poor academic performance. Findings from the quantitative phase were used to identify topics that needed to be explored in depth in the yarning groups. In turn, the qualitative data provided a rich description of the identified topics, which explored students’ experiences, knowledge and attitudes.

Connecting the results from both datasets, provided an insight into these population groups and assisted in developing harm reduction strategies to reduce harmful alcohol consumption among Indigenous Australian and non-Indigenous university students. A three-staged approach was adopted to connect the results from both phases. Firstly, themes were identified from the yarning group data and were described in terms of experience, knowledge and attitudes towards alcohol consumption and related harms. Secondly, the themes were linked to corresponding yarning group categories (e.g., physical traits, gender, alcohol behaviour, environment, influences). Finally, the data from the yarning group were then matched to key results from the epidemiological study.

3.11 Limitation of theoretical framework and design

Quantitative researchers consider generalisation to be a key quality criterion as it allows inferences to be drawn from a sample to a broader population. In qualitative research, generalisation is not a goal but the transferability of findings to other contexts and settings is important.

In this research project, the population under scrutiny was young Indigenous and non-Indigenous Australian students aged between 17-24 years engaging in alcohol consumption and who may have had/or had experienced alcohol-related harm. These students were involved in undergraduate studies and were expected to adhere to the standard of academic integrity.

While alcohol use and alcohol-related harms are seen to be common across universities, this study focused on a regional university. I suggest that it was reasonable to generalise from the survey that alcohol use occurred in other universities as well. Regarding the qualitative study, the uniqueness of the participants was important in understanding the epidemiological data. Consequently, another university and another geographical location might have different experiences, but this study provides information about the particularity of participants that will contextualise the support for students with alcohol misuse concerns. While the type of support for students may have varied depending on their alcohol dependence or alcohol-related harm needs, the commonalities concluded the specifics, which were attributed to students' responses to the survey, rather than what was in the survey itself.

Further, Indigenous Australian student enrolment numbers vary across Australian universities, so the lower enrolment numbers of Indigenous Australians students would make it difficult to obtain a representative sample. Thus, a generalisation of the results may not be possible. The sensitive nature of discussing alcohol consumption in Indigenous Australian populations was a potential threat to the validity of the study. Furthermore, the comparison of Indigenous and non-Indigenous Australian students' data may have been subjected to a weighted analysis if the required sample size was not achieved.

3.12 Summary

This chapter has outlined the theoretical framework and methods for the research, discussed the research questions and outlined the mixed methods concurrent triangulation design. Details of the inclusion criteria provided the parameters of the study and defined the recruitment process. Ethical considerations were addressed including James Cook University's ethical guidelines and the National Health and Medical Council legislation.

The following chapters present the findings of this study. Chapter 4 outlines the findings of the epidemiological study which examines the prevalence and association of alcohol use and related harms including depression, physical harms and poor academic performance among Indigenous and non-Indigenous Australian students. Chapter 5 outlines the findings of the yarning group which explores further the results of the epidemiological study and differences of alcohol experience among Indigenous and non-Indigenous Australian students. Chapter 6 outlines the interpretation of connected results on how the yarning groups explain and add insight into the epidemiological study results of alcohol consumption, factors associated with heavy drinking and alcohol-related harms including depression, physical harms, and poor academic performance. Finally, chapter 7 discusses the findings, recommendations, and conclusion of this thesis.

Chapter Four – Quantitative Findings (Epidemiological Study)

Research Aims:

- To determine Indigenous Australian and non-Indigenous Australian student drinking patterns, including the frequency of drinking, the quantity of drinking, and the choices of alcohol consumed.
 - To determine the frequency of alcohol-related harms experienced by Indigenous Australian and non-Indigenous Australian students who drink.
 - To determine any differences and similarities in the association between hazardous drinking and academic performance, depressive symptoms and satisfaction with their health among Indigenous Australian and non-Indigenous Australian university students.

4.0 Introduction

This chapter discusses the epidemiological study, which examined the prevalence and predictors of alcohol consumption (depressive symptoms, academic performance and physical harms) and alcohol problems in a sample of Indigenous Australian and non-Indigenous Australian university students in a North Queensland regional university.

Most societies look to university students as their future professionals. Students' health habits can affect their academic performance (Bergen, Martin, Roeger, & Allison, 2005) and the vast majority of students feel that university life is a rite of passage and time of independence with alcohol use a part of university culture (Henderson, Xiao, Sieglhoff, Kelton, & Paterson, 2014).

Heavy drinking in young people leads to future alcohol dependence and alcohol-related injury (World Health Organisation, 2014). University students are young people in whom alcohol has been shown to be associated with physical and verbal abuse (Droste et al., 2014) and adverse impacts on academic achievement (Mitic, 2003; Singleton, 2007). Alcohol use among university students is known to have increased since the 1990s (Boland et al., 2006; Ham & Hope, 2003). Studies in Australia, the United States, and New Zealand indicate that drinking is a coping mechanism (Arbeau et al., 2011; Armeli, Conner, Cullum, & Tennen, 2010; LaBrie, Ehret, Hummer, & Prenovost, 2012). University students' living situation, frequency of drunkenness and number of drinks consumed (Leontini et al., 2015) are

associated with alcohol problems, and missing lectures and physical abuse are also associated with alcohol consumption (Gliksman et al., 2003; Johnston & White, 2004; Singleton, 2007).

Between 39% and 68% of university students drink over recommended safe limits (Connor, Gray, & Kypri, 2010; Kypri, Paschall, et al., 2009; McAnally & Kypri, 2004) and between 14% and 63% drink at hazardous levels (Connor, Psutka, Cousins, Gray, & Kypri, 2013; Hallett et al., 2013; Ham, Zamboanga, & Bacon, 2011). In Australia, Roche and Watt (1999) examined risk factors and found that about one-third of the sample reported experiencing an alcohol-related accident or injury within the last 12 months. A recent survey of Australian youth (NDSHS) in 2016 showed that the highest drinking rate occurs among 18-24-year-olds (29.8%), followed by 25-29-year-olds (26.2%) (Australian Institute of Health and Welfare, 2013).

Regarding alcohol-related harm, the prevalence of negative consequences of alcohol use is high in both male and female students in developed countries such as New Zealand and the USA (Kypri, Paschall, et al., 2009). After drinking, male and female students often experience blackouts, unintended/unprotected sexual activity, academic impairment, short and long-term physical illness and poor mental health, as well as anti-social risk behaviour, fights and interpersonal violence (Hallett et al., 2013; White & Hingson, 2013). A study among young Australian students suggested that alcohol-related harm has increased dramatically in recent years (Livingston, 2008).

However, no investigations of the prevalence of alcohol use, alcohol problems and associated factors among Indigenous Australian university students have been published. Investigating factors associated with alcohol problems in Indigenous Australian and non-Indigenous Australian students is important for planning intervention programs to educate future professionals better.

4.1 Methods

4.1.1 Sampling

Convenience sampling was used with the university: data collection was based on attending

areas such as lectures, library, food outlets and open space etc. of the university where students would be conveniently available to participate in the study.

With the support of the regional university corporate services, the researcher was able to access student enrolment data in 2012 to select a sample of university students that met the above criteria. Data on the total student enrolments for Semester 2, 2012 identified 8,027 undergraduate students aged 17-24 years (2900 male and 5127 female), including 232 Aboriginal and Torres Strait Islander students (75 male and 157 female).

The sample size was chosen so that the precision of the prevalence estimate for hazardous alcohol consumption and alcohol-related harms would be 5% with a 95% confidence interval. We adopted a conservative approach by assuming a prevalence of 50% (where the confidence interval is at its widest for a given sample size). Alpha was set at 0.05, with the power of the significant effect set at .80. To obtain a representative sample of Indigenous Australian university students in this age group (17-24 years) and by gender, 112 female and 63 male participants were required (a total of 175 Indigenous Australian students). Using the same parameters to obtain a representative sample of non-Indigenous Australian university students in the same age group by gender, 357 female and 339 male participants were required (a total of 696 non-Indigenous Australian students). Given the small number of enrolments, all Indigenous Australian students were invited to participate. See Table 3.2 for more detail.

4.1.2 Questionnaire

A self-administered, anonymous questionnaire was developed and pre-tested with university students and revised before it was used. Questions included demographic factors (gender, age, education level, Indigenous status, marital status, spoken language at home and accommodation), Alcohol Use Disorder Identification Test (AUDIT), Patient Health Questionnaire – 9 (PHQ-9), academic performance and seeking health advice. Questions about the volume of beer and wine consumed last month using a beverage-specific, quantity-frequency method were also asked.

4.1.3 Exposure measures

- Abstainers: students who reported never drinking in their life,

- Ex-drinkers: students who had not consumed alcohol in the previous 12 months.
- Drinkers: students who reported drinking alcohol at least once during the previous 12 months.
- Alcohol problems: drinkers having an AUDIT score of ≥ 8 .
- Hazardous drinking: drinkers having an AUDIT-C score of ≥ 4
- Depressive symptoms: students having a PHQ-9 score of ≥ 10 .

4.1.4 Ethics

This study was approved by the Human Research Ethics Committee of James Cook University. All participants gave signed consent.

4.2 Data analysis

Descriptive analyses were undertaken to examine the prevalence and patterns of alcohol consumption and the three dimensions of alcohol-related harm. All analyses were adjusted for the stratified sampling approach. Logistic regressions compared current drinkers with the combined group of abstainers and ex-drinkers by Indigenous Australian status. Results were presented as odds ratios (OR) with 95%-confidence intervals (95%-CI). Pearson's chi-square test (χ^2) was used to assess the statistical significance of differences in frequency and distributions of alcohol-related harms and patterns of alcohol consumption among Indigenous Australian and non-Indigenous Australian respondents. Similarly, Indigenous Australian and non-Indigenous Australian students with alcohol problems (AUDIT-C score ≥ 4) were compared with demographic characteristics, PHQ-9 and academic performance using logistic regression, non-parametric Wilcoxon tests, and cluster adjusted t-tests. The statistical significance was set at P values < 0.05 , and all P values tests were two-sided. Multivariate logistic regression analyses were conducted to identify independent predictors of drinking status and alcohol problems (AUDIT score of ≥ 4) by Indigenous Australian status. These analyses were adjusted for confounding factors. Data were imported into a Microsoft Excel Spreadsheet and were cleaned before being exported for analysis using Statistical Package for Social Sciences v22.0 software (SPSS v22.0, IBM Inc., Armonk, NY, USA).

4.3 Results

Of the 871 university students surveyed, 102 Indigenous Australians students ($\bar{x} = 20$ years [t

(102) = 13.71, $p < 0.000$, $d = 0.7$]) and 760 non-Indigenous Australian students ($\bar{x} = 19.1$ years [$t(760) = 33.79$, $p < 0.000$, $d = 1.2$]) participated in the survey (final sample total $n = 862$), respectively. Only 9 (2%) students who were approached refused to complete the questionnaire. Both Indigenous Australian and non-Indigenous Australian students were enrolled in a wide range of courses. Modal age range was 17-20 years. Over 23% of the Indigenous Australian sample comprised of students aged 20, compared to 26.8% of the non-Indigenous sample, with only a small proportion of students aged 24 in both groups

Over 60% of respondents were female, with most of the female respondents identified as non- Indigenous Australian. A large number of non-Indigenous students who attended the university had obtained a Year 12 Certificate (86.1%); a small percentage of Indigenous Australian students obtained a TAFE qualification (17.6%) before attending university More than half of the survey sample were working part-time (54.0%) compared to 45% not working.

Table 4.1 Indigenous Australian and non-Indigenous Australian student sociodemographic characteristics

		Indigenous Australians N=102	Non-Indigenous Australians N=760
		n (%)	n (%)
Gender	Male	37 (36%)	239 (31%)
	Female	65 (64%)	521 (69%)
Age in years	17	14 (13.7%)	128 (16.8%)
	18	17 (16.7%)	204 (26.8%)
	19	19 (18.6%)	178 (23.4%)
	20	24 (23.5%)	122 (16.1%)
	21	8 (7.8%)	54 (7.1%)
	22	8 (7.8%)	36 (4.7%)
	23	4 (3.9%)	19 (2.5%)
	24	8 (7.8%)	19 (2.5%)
Marital status	Single	62 (62%)	474 (62.4%)
	In a relationship (boyfriend or girlfriend)	33 (33%)	225 (29.6%)
	Married/de facto relationship	5 (5.0%)	60 (7.9%)
	No response	2 (2.0%)	1 (0.1%)
Language spoken at home	English	79 (77.5%)	671(88.3%)
	English and second language	23 (22.5%)	89 (11.7%)
Driver's Licence	No	10 (9.8%)	60 (7.9%)
	Yes	89 (87.3%)	688 (90.5%)

	No response	3 (2.9%)	12 (1.6%)
Highest qualification	Year 12 certificate	80 (78.4%)	662 (87.1%)
	TAFE qualification	18 (17.6%)	49 (6.4%)
	Tertiary qualification	3 (2.9%)	33 (4.3%)
	No response	1 (1.0%)	16 (2.1%)
Enrolment status	Full-time	95 (93.1%)	735 (96.7%)
	Part-time	7 (6.9%)	25 (3.3%)
Year of study	1st	56 (54.9%)	440 (57.9%)
	2nd	24 (23.5%)	160 (21.1%)
	3rd	19 (18.6%)	131 (17.2%)
	4th and higher	3 (2.9%)	29 (3.8%)
Financial Scholarship	No	54 (52.9%)	665 (87.5%)
	Yes	45 (44.1%)	84 (11.1%)
	No response	3 (2.9%)	11 (1.4%)
Employment status	Not employed	53 (58.2%)	322 (43.4%)
	Part-time	37 (40.7%)	413 (55.7%)
	Full-time	1 (1.1%)	7 (0.9%)
	No response	11 (10.8%)	18 (2.4%)
Sample size varies slightly for each category because of missing values			

4.3.1 Patterns of Alcohol Consumption, Depression Symptoms, Physical Harms and Academic Performance among Indigenous Australian and non-Indigenous Australian students

Of the students who completed the questionnaire, 88% identified themselves as drinkers and 7.2% identified as non-drinkers. Non-Indigenous Australian students reported the highest rate of alcohol usage, 89% (n=675) [$t(725) = 97.95, p < 0.000$], compared to 82.4% (n = 84) Indigenous Australians (70.5%) [$t(101) = 26.80, p < 0.000$] (see Table 4.2).

Table 4.2 Rate of alcohol consumption across ethnicity groupings

Ethnicity	Alcohol consumption in the previous 12 months			
	Yes		No	
	% within row	(n)	% within row	(n)
Indigenous Australian	82.4	(84)	10.8	(11)

non-Indigenous Australian	88.8	(675)	6.7	(51)
Total	88.1	(759)	7.2	(62)

Of Indigenous Australians drinkers, 53.7% were 17-19 years of age, whereas, among non-Indigenous Australian drinkers, 65.1% were 17-19 years of age (CI = 62.6-68.7).

The proportion of student drinkers tended to decrease with age; with Indigenous Australian drinkers, 46.3% were 20-24 years of age (CI = 39.3-58.2), while with non-Indigenous Australian drinkers 34.9% were 20-24 years of age (CI = 31.2-37.3). Among the non-Indigenous Australians who classified themselves as drinkers, the age with the highest proportion was 18 years (26.8%). In contrast, Indigenous Australian students aged 20 had the highest proportion who classified themselves as drinkers (23.8%).

Figure 4.1

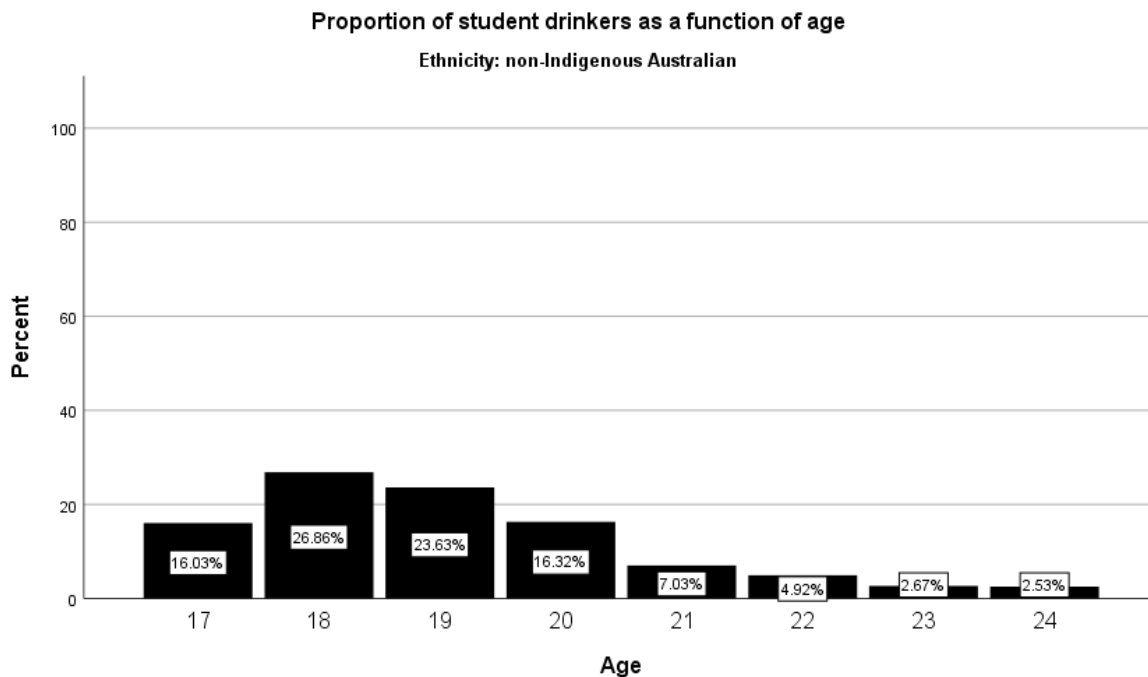
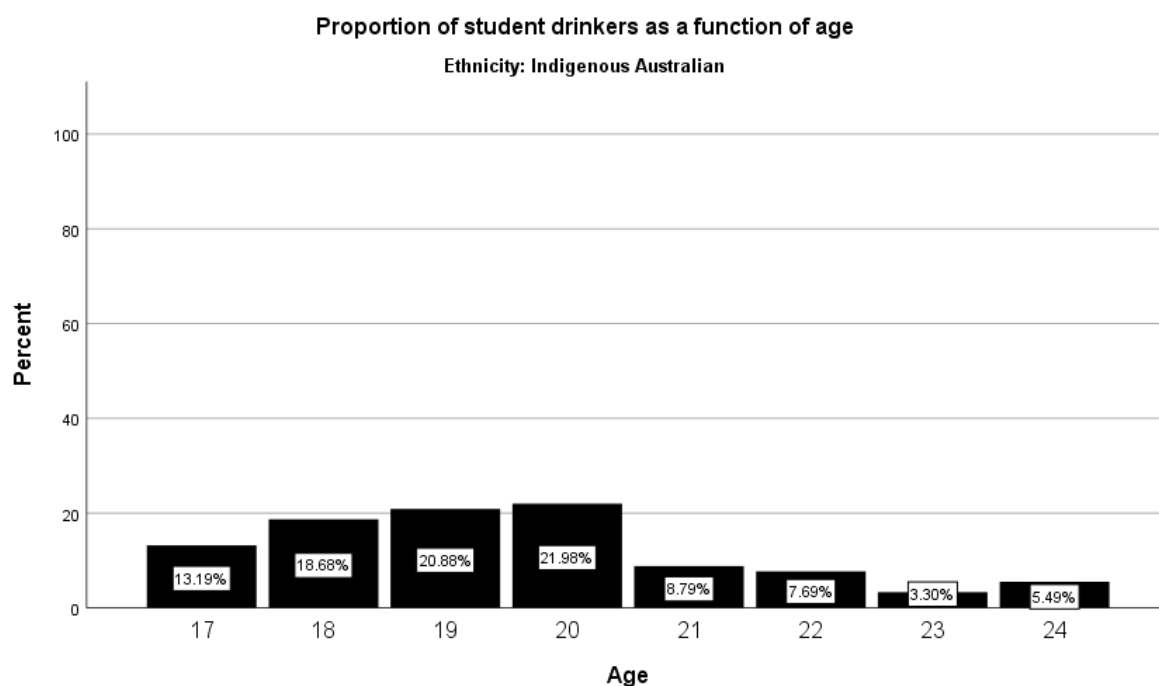


Figure 4.2



The prevalence of alcohol use among Indigenous Australian students in the previous year was 70.5%; 11.6% were lifetime abstainers, and 17.9% were ex-drinkers. For non-Indigenous Australian students, the prevalence of alcohol use in the previous year was 69.7%; 7.0% were lifetime abstainers, and 20.0% were ex-drinkers.

4.3.2 Preferred Choice of Alcohol

The majority of non-Indigenous Australians (63%) reported spirits as their preferred alcohol of choice followed by wine (33.3%). In contrast, the majority of Indigenous Australians (57.8%) reported spirits as their preferred alcohol choice, followed by beer (26.5%) and cider (15.7%). A summary of students' responses is shown in Table 4.3.

Table 4.3 Rate of Preferred Choice of Alcohol across ethnicity groupings

Alcoholic Beverage	Indigenous Australian		non-Indigenous Australian	
	% within row	(n)	% within row	(n)
Beer	26.5	(27)	28.7	(218)
Wine	14.7	(15)	33.3	(253)
Cider	15.7	(16)	13.9	(106)
Spirits	57.8	(59)	63	(479)

Total	11	117	89	1056
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4.3.3 Quantity of Alcohol Students Are Consuming

Drinking students, both Indigenous Australian (mean = 3.0, SD ± 1.6, [t (94) = 17.4, p < 0.000]) and non-Indigenous Australian (mean = 3.0, SD ± 1.5, [t (725) = 47.7, p < 0.000]) reported consuming a median of seven to nine drinks on a typical drinking occasion (see Table 4.4). Analysis showed no significant difference in the number of drinks students consumed on a typical drinking occasion across both Indigenous Australian and non-Indigenous Australian status.

Table 4.4 Number of drinks students consume on a typical drinking occasion by Indigenous Australian status

	Indigenous Australian		non-Indigenous Australian	
	Yes (%)	(n)	Yes (%)	(n)
How many drinks containing alcohol do you have on a typical day when you are drinking (AUDIT item 2)				
1 or 2	14.7	14	14.5	105
3 or 4	13.7	13	12.7	92
5 or 6	5.3	5	10.5	76
7 to 9	4.2	4	15.3	111
10 or more	62.1	59	47.1	342
Total	13.1	95	86.9%	725

4.3.4 Drinking Setting

Over 65% of students reported drinking at a nightclub or bar, with most of the respondents identified as Indigenous Australian. However, non-Indigenous Australian students reported (56.1%) to drinking in their home with family and friends. A summary of students' responses is shown in Table 4.5.

Table 4.5 Drinking setting by Indigenous Australian status

Place of Drinking	Indigenous Australian		non-Indigenous Australian	
	Yes (%)	(n)	Yes (%)	(n)
In my home with family and friends	48.3	43	56.1	394

Open space (beach, outdoor sport activities)	26.7	23	23.3	152
At home alone	24.3	18	10	54
Dining out (restaurant)	34.2	24	40	219
In a night club or bar	69.3	52	65.6	372
Celebration party	42.7	32	48.3	280

4.3.5 AUDIT data

Table 4.6 summarises patterns of alcohol consumption, AUDIT and AUDIT-C scale scores by Indigenous status. Of the respondents, 444 students (54.1%) had an AUDIT score of > 8. The AUDIT scores ranged from 0 to 33 for both Indigenous Australians (mean = 9.4, SD ± 6.0, [$t(94) = 15.08, p < 0.000, d = 1.5$]) and non-Indigenous Australian students (mean = 8.7, SD ± 5.7, [$t(725) = 41.50, p < 0.000, d = 1.5$]). The AUDIT-C score was summed using the first three questions of the AUDIT, ranged from 0 to 12 for both Indigenous Australians (mean = 6.3, SD ± 3.1, [$t(94) = 19.45, p < 0.000, d = 2.0$]) and non-Indigenous Australians (mean = 6.0, SD ± 2.8 [$t(725) = 57.19, p < 0.000, d = 2.1$]).

Over 15% of Indigenous Australians were found to be possibly alcohol dependent (+20), versus 9% of non-Indigenous Australians. Analysis of the AUDIT scores revealed no significant differences between risk categories or within Indigenous Australian status ($p > 0.05$). Non-Indigenous Australians fell more within the hazardous AUDIT category (39.6%, CI = 36.2-42.9) than any other risk category (low, 37.8%; CI = 34.5-41.1; harmful, 7.2%; CI = 5.5-9.1 or possibly alcohol dependent, 8.9%; CI = 7.2-11.1). A similar pattern was observed for Indigenous Australians, whereby 39.2% fell within the hazardous category (CI = 29.4-49.0). However, a greater proportion of Indigenous Australians were categorised as being possibly alcohol dependent (14.7%; CI = 7.9-22.5) than low risk (29.4%; CI = 20.6-39.2) categories.

Table 4.6 AUDIT and AUDIT-C scores by Indigenous Australian status.

	Indigenous Australians n=94	Non-Indigenous Australians n=725
AUDIT Score, Mean (SD)		
Females	7.5 (5.5)	8.3 (5.5)
Males	12.3 (5.7)	9.6 (5.8)
All	9.4 (6.0)	8.7 (5.7)
AUDIT-C Score, Mean (SD)		
Females	5.4 (3.2)	5.7 (3.0)
Males	7.7 (2.5)	6.6 (3.0)
All	6.3 (3.1)	6.0 (2.8)
Drinking summary data*		
Six or more drinks on one occasion, monthly or more often		
Females	47.0%	29.0%
Males	33.0%	21.0%
All	26.3%	24.0%
AUDIT risk category		
Abstainer (0)	10.8%	6.4%
Low risk (1-7)	29.4%	37.8%
Hazardous (8-15)	39.2%	39.6%
Harmful (16-19)	5.9%	7.2%
Possibly Alcohol Dependent +20	14.7%	8.9%
Sample size varies slightly for each category because of missing values		

AUDIT items 4-10 were used to examine alcohol problems, presented in Table 4.8. Indigenous Australians (18.9%; CI = 11.6 - 26.3) reported being unable to stop drinking once they had started less than monthly (item 4) compared to non-Indigenous Australians (12.1%, CI = 9.8 – 14.6). A failure to do what was normally expected of them because of drinking was reported less than monthly (item 5) by Indigenous Australians (23.2%, CI = 14.7 – 31.6), compared with non-Indigenous Australians (18.6%, CI = 15.8 – 21.3). Feelings of guilt or remorse after drinking were reported less than monthly (item 7) by both non-Indigenous Australians (23.7%, CI = 20.5-26.9) and Indigenous Australians (14.7%, CI = 8.4 – 22.1). Non-Indigenous Australians (28.4%, CI = 25.1 – 31.7) reported drinking less than monthly and being unable to remember what happened the night before (item 8). Being injured as a result of their drinking in the past 12 months (item 9) was reported higher among Indigenous

Australians (21.1%, CI = 12.6 – 29.5), than among non-Indigenous Australians (13.4%, CI = 10.7 – 15.8).

Table 4.7 AUDIT item 4-10

How often during the past year have you found that you were not able to stop drinking once you had started		N	%	95% CI
non-Indigenous Australian	less than monthly	88	12.1	9.8, 14.6
	monthly	39	5.4	3.7, 7.0
	weekly	25	3.4	2.2, 4.8
	daily or almost daily	3	0.4	0.0, 1.0
Indigenous Australian	less than monthly	18	18.9	11.6, 26.3
	monthly	8	8.4	3.2, 14.7
	weekly	4	4.2	1.1, 8.4
	daily or almost daily	1	1.1	0.0, 3.2
How often during the past year have you failed to do what was normally expected of you because of drinking		N	%	95% CI
non-Indigenous Australian	less than monthly	135	18.6	15.8, 21.3
	monthly	43	5.9	4.3, 7.6
	weekly	12	1.7	0.8, 2.8
Indigenous Australian	less than monthly	22	23.2	14.7, 31.6
	monthly	6	6.3	2.1, 11.6
	weekly	3	3.2	0.0, 7.4
How often during the past year have you needed a first drink in the morning to get yourself going after a heavy drinking session		N	%	95% CI
non-Indigenous Australian	less than monthly	11	1.5	0.7, 2.5
	monthly	8	1.1	0.4, 1.9
	weekly	1	0.1	0.0, 0.6
Indigenous Australian	less than monthly	8	8.4	3.2, 13.7
	monthly	1	1.1	0.0, 3.2
How often during the past year have you had a feeling of guilt or remorse after drinking		N	%	95% CI
non-Indigenous Australian	less than monthly	172	23.7	20.5, 26.9
	monthly	56	7.7	5.8, 9.8
	weekly	18	2.5	1.4, 3.7
	daily or almost daily	3	0.4	0.0, 1.0
Indigenous Australian	less than monthly	14	14.7	8.4, 22.1
	monthly	7	7.4	2.1, 12.6
	weekly	2	2.1	0.0, 5.3
How often during the past year have you been unable to remember what happened the night before because you had been drinking		N	%	95% CI
non-Indigenous Australian	less than monthly	206	28.4	25.1, 31.7

	monthly	70	9.6	7.7, 11.7
	weekly	16	2.2	1.2, 3.3
	daily or almost daily	5	0.7	0.1, 1.4
Indigenous Australian	less than monthly	22	23.2	14.7, 32.6
	monthly	4	4.2	0.0, 9.4
	weekly	2	2.1	0.0, 5.3

Have you or has someone else been injured as a result of your drinking

		N	%	95% CI
non-Indigenous Australian	yes, but not in the past year	63	8.7	6.7, 10.7
	yes, during the past year	97	13.4	10.7, 15.8
Indigenous Australian	yes, but not in the past year	10	10.5	4.2, 16.8
	yes, during the past year	20	21.1	12.6, 29.5

Has a relative or friend or a doctor or other health worker been concerned about your drinking or suggested you cut down

		N	%	95% CI
non-Indigenous Australian	yes, but not in the past year	16	2.2	1.2, 3.3
	yes, during the past year	26	3.6	2.2, 5.1
Indigenous Australian	yes, but not in the past year	4	4.2	1.1, 8.4
	yes, during the past year	3	3.2	0.0, 7.4

Sample size varies slightly for each category because of missing values

4.3.6 Alcohol use induced risky behaviours

Table 4.8 outlines the alcohol use induced risky behaviours experienced in the previous four weeks by those who drank alcohol regularly. Most of the student respondents did not experience any alcohol-related behaviour. However, Indigenous Australians were most likely to report verbally abusing someone (14.8%, CI – 6.9- 21.8); going to university (13.5%, CI – 4.6-18.4); and having unprotected sex under the influence of alcohol (11.2%, CI – 4.6-17.2).

Table 4.8 Alcohol use induced risky behaviours

		N	%	95% CI
Went to university (Under the influence)				
non-Indigenous Australian	yes	44	6.5	4.0, 7.6
Indigenous Australian	yes	12	13.5	4.6, 18.4
Drove a motor vehicle (Under the influence)				
non-Indigenous Australian	yes	27	4	2.1, 4.9
Indigenous Australian	yes	6	6.7	1.1, 9.2
Created a public disturbance or nuisance (Under the influence)				
non-Indigenous Australian	yes	28	4.1	2.1, 4.9
Indigenous Australian	yes	4	4.5	0.0, 8.0
Verbally abused someone (Under the influence)				
non-Indigenous Australian	yes	38	5.6	3.3, 6.4

Indigenous Australian	yes	13	14.8	6.9, 21.8
Physically abused someone (Under the influence)				
non-Indigenous Australian	yes	7	1	0.1, 1.5
Indigenous Australian	yes	6	6.8	2.3, 12.6
Had unprotected sex (Under the influence)				
non-Indigenous Australian	yes	47	6.9	4.0, 7.4
Indigenous Australian	yes	10	11.2	4.6, 17.2

Sample size varies slightly for each category because of missing values

4.3.7 Satisfaction with academic performance

The majority of Indigenous Australians (58.4%, CI – 48.5- 68.3) and non-Indigenous Australians (62.2%, CI – 58.6-65.9) were satisfied with their academic performance (Table 4.9).

Table 4.9 Satisfaction with academic performance

		N	%	95% CI
non-Indigenous Australian	Dissatisfied	102	13.7	11.2, 15.9
	Neither satisfied nor dissatisfied	180	24.1	21.3, 27.3
	Satisfied	465	62.2	58.6, 65.9
Indigenous Australian	Dissatisfied	16	15.8	8.9, 22.8
	Neither satisfied nor dissatisfied	26	25.7	17.8, 34.6
	Satisfied	59	58.4	48.5, 68.3

Sample size varies slightly for each category because of missing values

4.3.8 Severity of depressive symptoms

Students completed the 9-item PHQ questionnaire which was summed to obtain a total score (possible range 0-27). The students' scores ranged from 0-27, with Indigenous Australians, mean score = 5.0, SD ± 3.9 [$t(93) = 11.69, p < 0.000, d = 1.2$], compared to non-Indigenous Australians, mean score = 5.2, SD ± 4.0 [$t(746) = 30.90, p < 0.000, d = 1.1$].

The PHQ-9 scores were dichotomous with a cut-off score > 10 indicative of clinical depression. A higher proportion of non-Indigenous Australians (16.5%, CI -14.1-19.0) reported having experienced depressive symptoms than Indigenous Australians (10.8% CI- 4.3-17.2) (Table 4.10 and Table 4.11).

Indigenous Australians (33.3%, CI – 23.7-44.1) reported higher frequencies of feeling down, depressed or hopeless (item b) on at least several days, compared to non-Indigenous Australians (29.5%, 26.3-32.7). Indigenous Australians reported having trouble falling or staying asleep or sleeping too much at least several days (43%, CI – 33.3-52.7), compared to non-Indigenous Australians (33.1%, CI – 29.9-36.6).

Poor appetite or overeating (item e) over several days was more common in Indigenous Australians (34.4%, CI- 24.7- 44.1), than non-Indigenous Australians students (25.3% CI- 22.3-28.8). Indigenous Australians (10.8% CI – 4.3-17.2) reported more frequent thoughts about death and hurting themselves on several days (item i), compared to non-Indigenous Australians (4.3%, CI – 2.9-5.8).

Table 4.10 Distribution of Responses to Patient Health Questionnaire-9 (PHQ-9) items by Indigenous status (n=862)

		N	%	95% CI
1 Little interest or pleasure in doing things				
non-Indigenous Australian	Not at all	419	56.2	52.7, 59.8
	Several Days	228	30.6	27.2, 34.0
	More than half the days	72	9.7	7.6, 11.7
	Nearly everyday	27	3.6	2.4, 5.0
Indigenous Australian	Not at all	56	60.2	50.5, 70.9
	Several Days	28	30.1	20.5, 39.8
	More than half the days	7	7.5	3.2, 12.9
	Nearly everyday	2	2.2	0.0, 5.4
2 Feeling down, depressed or hopeless				
non-Indigenous Australian	Not at all	466	62.5	59.0, 66.0
	Several Days	220	29.5	26.3, 32.7
	More than half the days	48	6.4	4.7, 8.3
	Nearly everyday	12	1.6	0.8, 2.5
Indigenous Australian	Not at all	57	61.3	50.5, 71.0
	Several Days	31	33.3	23.7, 44.1
	More than half the days	3	3.2	0.0, 7.5
	Nearly everyday	2	2.2	0.0, 5.4
3 Trouble falling or staying asleep or sleeping too much				
non-Indigenous Australian	Not at all	271	36.3	33.1, 39.5
	Several Days	247	33.1	29.9, 36.6
	More than half the days	146	19.6	16.9, 22.4
	Nearly everyday	82	11	8.7, 13.1
Indigenous Australian	Not at all	34	36.6	26.9, 45.2
	Several Days	40	43	33.3, 52.7
	More than half the days	12	12.9	6.5, 20.4
	Nearly everyday	7	7.5	2.2, 14.0
4 Feeling tired or having little energy				
non-Indigenous Australian	Not at all	174	23.3	20.5, 26.5
	Several Days	341	45.7	42.1, 49.2
	More than half the days	155	20.8	17.8, 23.7
	Nearly everyday	76	10.2	8.2, 12.3
Indigenous Australian	Not at all	27	29	19.4, 38.7
	Several Days	45	48.4	38.7, 58.1
	More than half the days	18	19.4	11.8, 28.0
	Nearly everyday	3	3.2	0.0, 7.5
5 Poor appetite or overeating				
non-Indigenous Australian	Not at all	428	57.4	53.8, 60.7
	Several Days	189	25.3	22.3, 28.8
	More than half the days	80	10.7	8.3, 13.1
	Nearly everyday	49	6.6	4.8, 8.4

Indigenous Australian	Not at all	50	53.8	44.1, 63.4
	Several Days	32	34.4	24.7, 44.1
	More than half the days	8	8.6	3.2, 15.0
	Nearly everyday	3	3.2	0.0, 7.5
6 Feeling bad about yourself – or that you are a failure or have let yourself or your family down				
non-Indigenous Australian	Not at all	500	67	63.7, 70.5
	Several Days	169	22.7	19.6, 25.6
	More than half the days	49	6.6	5.0, 8.6
	Nearly everyday	28	3.8	2.4, 5.2
Indigenous Australian	Not at all	70	75.3	66.7, 83.9
	Several Days	19	20.4	12.9, 29.0
	More than half the days	3	3.2	0.0, 7.5
	Nearly everyday	1	1.1	0.0, 3.2
7 Trouble concentrating on things, such as reading the newspaper or watching television				
non-Indigenous Australian	Not at all	484	64.9	61.5, 68.1
	Several Days	188	25.2	22.0, 28.3
	More than half the days	55	7.4	5.6, 9.2
	Nearly everyday	19	2.5	1.5, 3.8
Indigenous Australian	Not at all	57	61.3	51.6, 71.0
	Several Days	29	31.2	21.5, 40.9
	More than half the days	4	4.3	1.1, 8.6
	Nearly everyday	3	3.2	0.0, 7.5
8 Moving or speaking so slowly that other people could have noticed? or the opposite - being so fidgety or restless that you have been moving around a lot more than usual				
non-Indigenous Australian	Not at all	612	82	79.4, 84.9
	Several Days	100	13.4	11.0, 15.8
	More than half the days	25	3.4	2.0, 4.7
	Nearly everyday	9	1.2	0.5, 2.0
Indigenous Australian	Not at all	77	82.8	75.3, 90.3
	Several Days	11	11.8	5.4, 18.3
	More than half the days	3	3.2	0.0, 7.5
	Nearly everyday	2	2.2	0.0, 5.4
9 Thoughts that you would be better off dead or of hurting yourself in some way				
non-Indigenous Australian	Not at all	703	94.2	92.5, 95.8
	Several Days	32	4.3	2.9, 5.8
	More than half the days	6	0.8	0.3, 1.5
	Nearly everyday	5	0.7	0.1, 1.3
Indigenous Australian	Not at all	80	86	78.5, 92.5
	Several Days	10	10.8	4.3, 17.2
	More than half the days	3	3.2	0.0, 7.5

Proportion of respondents with a PHQ-9 score of > 10				
non-Indigenous Australian	no depressive symptoms	623	83.5	81.0, 85.9
	yes, depressive symptoms	123	16.5	14.1, 19.0
Indigenous Australian	no depressive symptoms	83	89.2	82.8, 95.7
	yes, depressive symptoms	10	10.8	4.3, 17.2

Sample size varies slightly for each category because of missing values

4.3.9 Satisfaction with own health and service utilisation

Most Indigenous Australians (68.3%, CI – 59.4-77.2) and non-Indigenous Australian students (68.2%, CI- 64.9-71.7) were satisfied with their health. Further, most non-Indigenous Australian (45.7%, CI – 42.4-49.4) and Indigenous Australian students (39.6%, CI -29.7-49.) had informal and supportive contact with relatives, friends, and neighbours, including letters, phone calls or e-mails daily (Table 4.11).

Table 4.11 Satisfaction with own health

		N	%	95% CI
For the past four weeks, how satisfied have you been with your health?				
non-Indigenous Australian	Dissatisfied	119	16.1	13.4, 18.5
	Neither satisfied nor dissatisfied	117	15.8	13.0, 18.4
	Satisfied	505	68.2	64.9, 71.7
Indigenous Australian	Dissatisfied	17	16.8	9.9, 24.8
	Neither satisfied nor dissatisfied	15	14.9	8.9, 21.8
	Satisfied	69	68.3	59.4, 77.2
Have you had informal and supportive contacts with relatives, friends, and neighbours, including letters, phone calls, or e-mails in the past four weeks?				
non-Indigenous Australian	Daily	339	45.7	42.4, 49.4
	Several times a week	210	28.3	25.1, 31.6
	Once per fortnight/once per month	179	24.2	20.9, 27.5
	Not at all	13	1.8	0.9, 2.7
Indigenous Australian	Daily	40	39.6	29.7, 49.5
	Several times a week	36	35.6	26.7, 45.5
	Once per fortnight/once per month	25	24.8	16.8, 33.7

4.3.10 Alcohol consumption and associated factors among Indigenous Australian and non-Indigenous Australian students

Of the sample of Indigenous Australian students, 11.6% were abstainers, 17.9% were ex-drinkers, and 70.5% were drinkers, compared to the sample of non-Indigenous Australian students, 7.0% were abstainers, 20% were ex-drinkers and 69.7% drinkers.

Drinkers, compared with non-drinkers, were more likely to be both Indigenous Australian (OR=2.97; 95%-CI= [1.0, 8.2]), and non-Indigenous Australian males (OR=1.5; 95%-CI= [1.0, 2.2]), with Indigenous Australian students (OR=20.0; 95%-CI= [1.7, 241.7]) 18 years or younger more likely to report drinking than older students (more than 19 years old) (OR=8.33; 95%-CI= [1.3, 55.7]). Non-Indigenous Australian students who speak English were more likely to drink alcohol than those who do not speak English at home (OR= 2.6,95%-CI= [1.6, 4.2]) (Table 4.6). For both Indigenous Australians (OR= 0.14,95%-CI= [0.0, 0.5]) and non-Indigenous Australians (OR= 0.01,95%-CI= [0.0, 0.1]), drinkers were more likely to experience alcohol-related behaviour than non-drinkers. Non-Indigenous Australian students who were neither satisfied nor dissatisfied with their health, were likely to be drinkers (OR= 1.64,95%-CI= [0.9, 2.7]).

Multivariate logistic regression analysis showed that non-Indigenous Australian students were 57.0 times (95%-CI = [7.8,414.7]; p=0.000) and Indigenous Australian male students were 6.8 times (95%-CI = [1.7, 26.9]; p=0.000) more likely to be current drinkers and experience alcohol-related behaviour. Non-Indigenous Australian students who reported English as the language spoken at home were 0.4 times more likely to be current drinkers (95%-CI = [0.2, 0.7]; p=0.003). Non-Indigenous Australian students who reported dissatisfaction with their health were 0.47 times more likely to be a current drinker (95%-CI = [0.2, 0.7]; p=0.004) These models were adjusted for the confounding effects of age, gender, language spoken at home, health satisfaction, alcohol-related behaviour and for the cluster sampling approach.

Table 4.12 Social and demographic characteristics of 67 Indigenous Australian and 530 non-Indigenous Australian students who consumed alcohol during the previous year compared with 11 Indigenous Australian and 51 non-Indigenous Australian students who reported never drinking alcohol and 17 Indigenous Australian and 145 non-Indigenous Australian students who reported not drinking in the previous year.

		non-Indigenous Australian					Indigenous Australian						
		Abstainers N= 51	Ex-drinkers N=145	Drinkers N =530	p-value	OR	95% CI	Abstainers N= 11	Ex-drinkers N=17	Drinkers N =67	p-value	OR	95% CI
Gender	Male	15	34	179	p-0.02	1.5	1.0,2.2	1	5	30	p-0.03	2.97	1.0,8.2
	Female†	36	111	351				10	12	37			
Age	17	15	28	75	p-0.39	0.6	0.2, 1.8	2	3	9	p-0.23	3.00	0.5, 18.2
	18	13	34	145	p-0.85	1.1	0.4, 3.2	0	1	12	p-0.01	20.0 0	1.7, 241.7
	19	10	37	125	p-0.92	0.9	0.3, 2.8	0	3	15	p-0.02	8.33	1.3, 55.4
	20	6	23	89	p-0.87	1.0	0.4, 3.3	4	4	16	p-0.15	3.33	0.6, 17.6
	21	5	9	39	p-0.99	0.9	0.3, 3.3	0	1	6	p-0.07	10.0 0	0.8, 128.8
	22	1	6	29	p-0.55	1.4	0.4,5.5	1	2	5	p-0.32	2.77	0.4, 21.0
	23	0	4	14	p-0.77	1.2	0.3, 5.7	1	1	1	p-0.89	0.83	0.0, 13.6
	24†	1	4	14				3	2	3			
Language spoke at home	English	38	123	489	p-0.00	2.6	1.6, 4.2	7	15	54	p-0.82	1.10	0.4, 3.4
	English and another language†	13	22	41				4	2	13			
Relationship status	Single	43	82	322	p-0.16	0.8	0.5, 1.1	7	7	43	p-0.44	1.50	0.6, 3.8
	Married/de facto relationship	4	16	37	p-0.06	0.6	0.3, 1.0	2	1	2	p-0.24	0.30	0.0, 2.2
	In a relationship†	4	47	171				2	8	21			
Housing situation	Living with family	26	58	163	p-0.74	1.2	0.4, 3.8	4	6	24			
	Living with spouse/partner	3	13	37	p-0.56	1.4	0.4, 5.1	3	1	4			
	Living with roommates	21	69	314	p-0.18	2.2	0.7, 6.8	3	7	35			
	Living alone†	0	5	8				1	0	0			
Driver's licence	Yes	46	130	483	p-0.21	0.3	0.0, 2.2	10	15	57			

	No	5	14	37	p-0.13	0.2	0.0, 1.6	1	2	7			
	No response†	0	1	10				0	0	3			
Enrolment status	Full time studying	49	141	514	p-0.97	1.0	0.4, 2.6	10	17	62	p-0.48	0.5	0.1, 4.1
	Part-time studying†	2	4	16				1	0	5			
Highest education qualification completed	Year 12 Certificate	45	125	461	p-0.26	1.8	0.6, 5.2	7	13	54			
	TAFE qualification	1	10	37	p-0.19	2.2	0.7, 7.7	3	3	12			
	University qualification	4	5	23	p-0.41	1.7	0.5,6.2	1	1	0			
	No response†	1	5	9				0	0	1			
Government benefits or scholarships	Centrelink (Youth Allowance, Abstudy)	14	60	157	p-0.10	0.6	0.3, 1.1	3	9	40	p-0.40	3.3	0.2, 57.4
	Scholarship/Cadetship	2	2	11	p-0.73	0.8	0.2, 2.8	4	1	10	p-0.64	2.0	0.1, 39.1
	Family Allowance†	4	15	65				0	1	1			
Employment	Full-time employment	0	2	4	p-0.79	0.8	0.1, 4.4	0	0	0			
	Part-time employment	21	86	296	p-0.58	1.1	0.8, 1.5	5	5	26	p-0.67	1.2	0.5, 3.1
	Not employed†	29	57	217				5	11	34			
Alcohol-related behaviour	Absence	51	105	171				11	12	28			
	Presence†	0	40	359	p-0.00	0.01	0.0,0.1	0	5	39	p-0.00	0.14	0.0,0.5
Academic Performance	Dissatisfied	6	26	66	p-0.25	0.76	0.4,1.2	0	4	9	p-0.97	0.98	0.2,3.6
	Neither satisfied nor dissatisfied	12	30	129	p-0.53	1.13	0.7,1.7	5	2	19	p-0.75	1.18	0.4,3.3
	Satisfied†	33	89	330				6	11	39			
PHQ-9 (binary)	Non-clinical depression	40	118	443	p-0.25	0.78	0.5,1.1	8	14	56	p-0.70	1.37	0.2,7.1
	Clinical depression†	11	27	87				3	3	11			
Health Satisfaction	Dissatisfied	5	33	76	p-0.20	0.75	0.4,1.1	1	4	11	p-0.93	1.05	0.3,3.4
	Neither satisfied nor dissatisfied	9	12	92	p-0.05	1.64	0.9,2.7	1	1	12	p-0.19	2.86	0.5,13.9
	Satisfied†	37	98	359				9	12	44			

† Reference category; *OR = odds-ratio adjusted for cluster sampling approach comparing combined abstainers and ex-drinkers with drinkers; **95%-CI = 95%-confidence interval. Numbers in the table might not add up because of missing values.

4.3.11 Association between hazardous drinking and alcohol-related harm

Overall, 60 Indigenous Australian students (58.6%) and 367 non-Indigenous Australian students (48.3%) were identified as hazardous drinkers with an AUDIT score of ≥ 4 (Table 4.8). Both Indigenous Australian (OR=1.4; 95%-CI= [1.4, 9.8]) and non-Indigenous Australian (OR=1.6; 95%-CI= [1.2, 2.2]) males were considerably more likely to be hazardous drinkers than females. Year 12 Certificate (OR= 4.3; 95%-CI= [1.2, 15.5]), speaking English (OR=1.9; 95%-CI= [1.2, 3.2]), alcohol-related behaviour (OR=7.2; 95%-CI= [4.2, 12.3]), and dissatisfaction with academic performance (OR=1.8; 95%-CI= [1.1, 2.8]) were also associated with hazardous drinkers among non-Indigenous Australian students. Indigenous Australians aged 18 were identified to be hazardous drinkers (OR=9.2; 95%-CI= [1.1,73.2]) (see Table 5.3).

Multiple logistic regression analysis showed that non-Indigenous Australians were 1.6 times more likely to have an AUDIT-C ≥ 4 score compared to Indigenous Australian students (95%-CI= [1.21, 2.28]; p=0.002). There were significant associations found between dissatisfaction with academic performance and alcohol-related behaviour. Analyses were adjusted for the confounding effects of age and gender (see Table 5.4) The model indicated the odds of a non-Indigenous Australian who was dissatisfied with their academic performance reporting hazardous drinking were 1.74 times (p=0.002) greater than Indigenous Australians. A slight change in alcohol-related risk behaviour reduced the odds of self-reported hazardous alcohol use to 7.16 times (p=0.001).

Table 4.13 Association between alcohol problems (hazardous drinking (cut off score ≥ 4) vs non-hazardous drinking (≤ 4) of the AUDIT-C) and demographic factors

		Non-Indigenous Australian (n=726)			Indigenous Australian (n=95)						
		Non-Hazardous Drinking n = 359 (47.2%)	Hazardous Drinking n = 367 (48.3%)	OR	95% CI	p value	Non-Hazardous Drinking n = 35 (34.3%)	Hazardous Drinking n = 60 (58.3%)	OR	95% CI	p value
Gender											
	Male	93 (40.8%)	135 (59.2%)	1.66	1.2, 2.2	p-0.00	7 (19.4%)	29 (80.6%)	1.47	1.4,9.8	p-0.00
	Female†	266 (53.4%)	232 (46.6%)				28 (47.5%)	31 (52.5%)			
Age in years (group)											
	17	56 (47.5%)	62 (52.5%)	1.52	0.5,4.0	p-0.40	6 (42.9%)	8 (57.1%)	2.22	0.3,13.1	p-0.37
	18	92 (47.9%)	100 (52.1%)	1.49	0.5,3.8	p-0.40	2 (15.4%)	11 (84.6%)	9.16	1.14,73.2	p-0.03
	19	90 (52.3%)	82 (47.7%)	1.25	0.4,3.2	p-0.64	3 (16.7%)	15 (83.3%)	8.33	1.2,55.3	p-0.02
	20	59 (50.0%)	59 (50.0%)	1.37	0.5,3.6	p-0.52	12 (50.0%)	12 (50.0%)	1.66	0.3,8.5	p-0.54
	21	27 (50.9%)	26 (49.1%)	1.32	0.4,3.8	p-0.60	2 (28.6%)	5 (71.4%)	4.16	0.4,36.7	p-0.19
	22	16 (44.4%)	20 (55.6%)	1.71	0.5,5.2	p-0.34	3 (37.5%)	5 (62.5%)	2.77	0.3,21.0	p-0.32
	23	8 (44.4%)	20 (55.6%)	1.71	0.4,6.3	p-0.41	2 (66.7%)	1 (33.3%)	0.83	0.0,13.6	p-0.89
	24†	11 (57.9%)	8 (42.1%)				5 (62.5%)	3 (37.5%)			
Marital status											
	Single	224 (50.1%)	223 (49.9%)	0.84	0.6,1.1	p-0.31	25 (43.9%)	32 (56.1%)	0.44	0.1,1.1	p-0.09
	In a relationship (boyfriend or girlfriend)	33 (57.9%)	24 (42.1%)	0.61	0.3,1.1	p-0.10	2 (40.0%)	3 (60.0%)	0.52	0.0,3.7	p-0.51
	Married/de facto relationship†	102 (45.9%)	120 (54.1%)				8 (25.8%)	23 (74.2%)			
Language spoken at home											
	English	310 (47.7%)	340 (52.3%)	1.99	1.2,3.2	p-0.00	28 (36.8%)	48 (63.2%)			
	English and second language†	49 (64.5%)	27 (35.50%)				7 (36.8%)	12 (63.2%)			
Driver's Licence											
	No†	34 (60.7%)	22 (39.3%)	0.60	0.1,2.0	p-0.42	4 (40.0%)	6 (60.0%)			
	Yes	321 (48.7%)	338 (51.3%)	0.37	0.0,1.4	p-0.14	31 (37.8%)	51 (62.2%)			
Highest qualification											
	Year 12 certificate	302 (47.9%)	329 (52.1%)	4.35	1.2,15.5	p-0.02	24 (32.4%)	50 (67.6%)			
	TAFE qualification	25 (52.1%)	23 (47.9%)	3.68	0.9,14.7	p-0.06	8 (44.4%)	10 (55.6%)			

	Tertiary qualification†	20 (62.50%)	12 (37.5%)	2.40	0.5,10.2	p-0.23	2 (100%)	0 (0.0%)		
Enrolment status										
	Full-time	345 (49.0%)	359 (51.0%)	1.82	0.7,4.3	p-0.18	32 (36.0%)	57 (64.0%)	1.78	0.3,9.3 p-0.49
	Part-time†	14 (63.6%)	8 (36.4%)				3 (50.0%)	3 (50.0%)		
Employment status										
	Not employed	158 (52.1%)	145 (47.9%)	1.09	0.2,5.4	p-0.91	21 (42.0%)	29 (58.0%)		
	Part-time	188 (46.7%)	215 (53.3%)	1.24	0.9,1.6	p-0.14	10 (27.8%)	26 (72.2%)	1.88	0.7,4.7 p-0.17
	Full-time†	3 (50.0%)	3 (50.0%)				0	0		
Alcohol-Related Behaviour										
	Absence†	311 (55.7%)	247 (44.3%)				23 (41.8%)	32 (58.2%)		
	Presence	18 (14.8%)	104 (85.2%)	7.27	4.2, 12.3	p-0.00	7 (21.9%)	25 (78.1%)	2.56	0.9,6.9 p-0.06
PHQ-9										
	No clinical depression †	297 (49.4%)	304 (50.6%)				28 (35.9%)	50 (64.1%)		
	clinical depression	59 (50.0%)	59 (50.0%)	0.97	0.6, 1.4	p-0.90	2 (22.2%)	7 (77.8%)	1.96	0.3,10.0 p-0.42
Academic performance										
	Satisfied†	321 (51.4%)	304 (48.6%)				30 (38.5%)	48 (61.5%)		
	Dissatisfied	35 (36.8%)	60 (63.2%)	1.81	1.1, 2.8	p- 0.00	4 (28.6%)	10 (71.4%)	1.56	0.4,5.4 p-0.48
Health Satisfaction										
	Satisfied†	300 (49.4%)	307 (50.6%)				29 (36.7%)	50 (63.3%)		
	Dissatisfied	56 (49.1%)	58 (50.9%)	1.01	0.6, 1.5	p-0.95	6 (37.5%)	10 (62.5%)	0.96	0.3,2.9 p-0.95

† Reference category; *OR = odds---ratio adjusted for stratified sampling approach comparing Indigenous Australian and non-Indigenous Australian with combined students with hazardous drinking (cut off score ≥ 4) vs. non-hazardous drinking (≤ 4) of the AUDIT-C; **95%---CI = 95%---confidence interval. Numbers in the table might not add up because of missing values.

Table 4.14 Association between hazardous drinking (AUDIT-C > 4 scores) measured as four dimensions of harms and Indigenous Australian status

	Model 1 – unadjusted				Model 2 - Adjusted			
	Indigenous Australian OR, (95% CI)	p-value	non-Indigenous Australian OR (95% CI)	p-value	Indigenous Australian aOR* (95% CI)	p-value	non-Indigenous Australian aOR* (95% CI)	p-value
Dissatisfied with academic performance	1.56 (0.45-5.43)	0.48	1.81 (1.16-2.82)	p<0.001	1.29 (0.35-4.75)	0.70	1.74 (1.11-2.72)	0.02
Dissatisfied with health	0.96 (0.31-2.93)	0.95	1.01 (0.67-1.51)	0.95	0.77 (0.23-2.48)	0.66	1.10 (0.73-1.66)	0.62
Depressive symptoms	1.9 (0.38-10.0)	0.42	0.97 (0.65-1.4)	0.90	1.84 (0.33-10.3)	0.48	1.08 (0.72-1.61)	0.71
Alcohol-related risk behaviour	2.56 (0.94-6.94)	0.06	7.27 (4.29-12.3)	p<0.001	2.23 (0.78-6.37)	0.13	7.16 (4.21-12.1)	p<0.001

*Adjusted for age category and gender

4.4 Discussion

The prevalence of alcohol consumption among non-Indigenous Australian students found in this study is much higher than that among the young Australian population in general. 29.8% of young people in Australia aged 18-24 in 2013 reported to be single occasion risk drinkers (compared to 30.1% of Indigenous Australians) and 18.5% reported they were lifetime abstainers (compared to 28% of Indigenous Australians) (Australian Institute of Health and Welfare, 2013).

Alcohol consumption among Indigenous Australian students in this study is more prevalent than among non-Indigenous university students. The prevalence of alcohol problems was found to be greater among Indigenous Australians, however, was lower among non-Indigenous Australians in this study. Alcohol problems are consistent with the general patterns in Australian university students (Grabowski et al., 1979; Mikhailovich et al., 2011; Reavley et al., 2011).

Indigenous Australian status and gender strongly predicted alcohol consumption and alcohol problems. The finding of gender as a predictor is consistent with other studies (Wells, Mihic, Tremblay, Graham, & Demers, 2008). However, Indigenous Australian status is a new predictor of alcohol consumption. The prevalence of heavy episodic drinking in Australia amongst those aged 18-24 years was 17.8% (Australian Institute of Health and Welfare, 2013).

Studies in other countries show a different degree of gender difference in hazardous drinking (Blank et al., 2015; Connor et al., 2013; Livingston, 2013). Hazardous drinking is around 5 times more likely in male university students in New Zealand (Kypri, Cronin, et al., 2005) and hazardous drinking is more likely in male students in Australia, while recent studies in Australia have highlighted that consumption of alcohol by females is increasing (Reavley et al., 2011; Rickwood et al., 2011).

Our findings suggest that alcohol problems are common among university students in Australia. The results indicate that non-Indigenous Australian and Indigenous Australian students have a similar experience regarding the most common types of harm (physical harms and depressive symptoms) and less common types of harm (academic performance and health

satisfaction), but differ in the prevalence of alcohol-related harms and factors (age, gender, and drinking pattern) that influence harms.

Our findings are similar to those from other international studies. For example, in New Zealand, the most common negative consequences of alcohol among students are hangover (55%), blackouts (33%) and vomiting (21%) (Kypri, Paschall, et al., 2009), and among Australian students, being sick (12.8%), hangovers (12.3%), and being unable to remember what happened after drinking (10.4%) (McBride et al., 2000). In the present study, non-Indigenous Australian and Indigenous Australian males were more likely to experience alcohol-related behaviour as a current drinker. The data suggested that the current alcohol patterns of this sample were harmful and not merely predictive of possible harms.

Our results confirm that Indigenous Australians and non-Indigenous Australians differ in factors that influence alcohol-related harm. In non-Indigenous Australians, age, gender and spoken English are better predictors of specific types of harm than in Indigenous Australians. This study found a relationship between the dissatisfaction with academic performance and experience of alcohol-related risk behaviour, suggesting that non-Indigenous Australian students who were hazardous drinkers were the most affluent. Also, we did control for individual factors (depressive symptoms, physical harms and academic performance) that have also been shown to predict hazardous drinking and alcohol-related problems among the general student population (Clarke, Kim, White, Jiao, & Mun, 2013).

The present study also shows a considerable gender difference in drinking behaviour. Both Indigenous Australian and non-Indigenous Australian male students drank more frequently, engaged in more binge drinking, and experienced more alcohol-related harms than Indigenous Australian and non-Indigenous Australian female students; this finding is consistent with other studies among students in New Zealand, Australia and America (Grabowski et al., 1979; Hallett et al., 2012; Kypri, Paschall, et al., 2009; Venegas, Cooper, Naylor, Hanson, & Blow, 2012).

4.5 Study limitations

Alcohol abuse can create a social stigma, especially among Indigenous Australians and males, who might not report alcohol consumption and depressive symptoms reliably. Thus, it is possible that alcohol consumption and depressive symptoms were under-reported (Calabria et al., 2014; Esler, Johnston, Thomas, & Davis, 2008). For Indigenous Australians, the WHO version of the AUDIT instrument may not be a valid tool to assess alcohol problems and the cut-off ≥ 8 may not be suitable for this population (Calabria et al., 2014). Other studies relating to Indigenous Australians used a lower cut-off score (AUDIT ≥ 5) to detect alcohol problems (Schlesinger, Ober, McCarthy, Watson, & Seinen, 2007).

The study was a cross-sectional survey. Therefore, only associations were investigated rather than causal links. Lastly, answers to the questionnaires were self-reported; this might entail some level of self-report bias and incorrect recall of information.

4.6 Conclusions

Alcohol consumption and alcohol-related harms are more common amongst Indigenous Australian than non-Indigenous Australian students. Indigenous Australians' alcohol consumption is related to gender and potentially to the social context of university life. Indigenous Australians were found to drink more heavily and more frequently than non-Indigenous Australians. Similar differences were found in both Indigenous Australians' and non-Indigenous Australians' preferred choice of alcohol, with the majority of students preferring spirits. Two-thirds of both Indigenous Australians and non-Indigenous Australians reported that a nightclub or bar was the setting where they consumed alcohol most often. The most common alcohol-related harm reported by Indigenous Australians while under the influence of alcohol was verbally abused someone, going to university, and having unprotected sex. In contrast, non-Indigenous Australians had unprotected sex, physically abused someone and drove a motor vehicle under the influence of alcohol.

Non-Indigenous Australians were significantly more likely than Indigenous Australians to report experiencing alcohol-related harms. Non-Indigenous Australians who consumed hazardous levels of alcohol were more likely to report higher rates of exposure to injury. Students had a high tolerance towards most alcohol-related harms. Non-Indigenous

Australians were more likely to consume hazardously and be exposed to alcohol-related behaviour and be dissatisfied with their academic performance. Therefore, targeted interventions to address alcohol-related behaviour and to improve academic performance should take their university experience into account. With alcohol attributable harms increased between 2001 and 2010 despite relatively stable per capita consumption. This is also being observed among young Australians – particularly Indigenous Australians and there is evidence that drinking patterns appear to be split with an observed increase in both abstainers and heavy drinkers, with the rise of alcohol harms attributed to this latter risky drinking group.. Alcohol consumption and alcohol-related harms may also increase among Indigenous Australian and non-Indigenous Australian university students. Hence, this reinforces the need to develop reduction strategies to reduce hazardous drinking among this population. Given the study limitations, further Indigenous Australian research using mixed methods should investigate alcohol behaviour and patterns of alcohol consumption among post-university students for a broader understanding.

4.7 Summary of chapter

- Alcohol use among Indigenous Australian students was more prevalent than among non-Indigenous Australians, however, Indigenous Australian and non-Indigenous Australian males were more likely to score higher on the AUDIT and AUDIT-C.
- Most of the students in the sample were more likely to be satisfied with their health. Non-Indigenous Australians were more likely to be satisfied with their health compared to the overall sample.
- The proportion of the sample with a PHQ-9 score of 10 or higher was significant among non-Indigenous Australians, compared to Indigenous Australians.
- Injury as a result of drinking (item 9) in the 12 months prior was more highly reported by Indigenous Australians compared to non-Indigenous Australians.
- Non-Indigenous Australian and Indigenous Australian male students were more likely to be current drinkers and experience alcohol-related behaviour.
- Non-Indigenous Australian students who consume some drinks on a typical occasion, and who drink at hazardous levels, were also most likely to report experiencing higher rates of alcohol-related harms.
- Non-Indigenous Australian and Indigenous Australian male students were more likely to have experienced alcohol-related behaviour with an AUDIT score of ≥ 8 .

- Non-Indigenous Australian students who had completed their year 12 certificate were more likely to have scored a higher AUDIT score.
- A relationship between dissatisfaction with academic performance and exposure to hazardous drinking was found in the non-Indigenous Australians more likely to have an AUDIT-C ≥ 4 score but not in the Indigenous Australian students.
- The relationship between alcohol-related risk behaviour and exposure to hazardous drinking was found in the non-Indigenous sample but not in the Indigenous Australian students more likely to have an AUDIT-C ≥ 4 score.

Chapter 5 discusses and documents the data from the yarning groups (Phase 2) of the study and provides details of the narrative findings.

Chapter Five – Qualitative Findings (Yarning Groups)

Students Drinking Culture Research Aims:

- To identify the experience of alcohol consumption and alcohol-related harms among Indigenous Australians and non-Indigenous Australian students.
 - To identify Indigenous Australian and non-Indigenous Australian students' understanding of student drinking culture.
 - To determine Indigenous Australian and non-Indigenous Australian students' attitudes towards harmful drinking behaviour.
 - To identify the influencing factors from Indigenous Australian and non-Indigenous Australian students that may support students' drinking behaviour.

5.0 Introduction

This chapter presents the findings from the yarning groups, conducted to inform the epidemiological results discussed in chapter 4. The epidemiological results revealed some differences in the patterns of alcohol use and alcohol-related harms between Indigenous Australian and non-Indigenous Australian students. The epidemiological results were similar to studies that have been conducted in New Zealand and North America which classified college students as being heavy drinkers who consumed a high quantity of alcohol during a single occasion and were most vulnerable to alcohol-related harms (Carlson, Johnson, & Jacobs, 2010; Davey, Davey, & Obst, 2002; Hallett et al., 2012; Ham & Hope, 2003; Karam, Kypri, & Salamoun, 2007; Kypri, Langley, McGee, Saunders, & Williams, 2002; Reavley, Jorm, McCann, & Lubman, 2011; World Health Organisation, 2014). However, the logistical regression analysis revealed relationships between patterns of alcohol use and three dimensions of harms which were stronger among non-Indigenous Australian students than Indigenous Australian students.

Research in Australia has mainly focused on general student populations, with limited knowledge about patterns of alcohol use and related harms among students from ethnic origins, in particular, Indigenous Australian students. There have been a few studies in Australia that explored university students' experiences with alcohol use. These studies used qualitative methods of focus groups and in-depth interviews to explore students' life

experiences to understand alcohol behaviour (Crawford-Williams, Roberts, & Watts, 2016; Hepworth et al., 2016; Murugiah & Scott, 2014)(Hughes, 2012). In a recent study using focus groups, Hepworth et al. (2016) found that the social influences toward young people's drinking behaviour cannot be assumed, as social influence itself becomes negotiable within local contexts of drinking. Another study using semi-structured interviews found that alcohol use during many college students' social and extracurricular activities was associated with heavy and frequent drinking (Leontini et al., 2015).

This chapter presents the findings of the yarning groups and builds on the epidemiological findings (chapter 4- Epidemiological Study) to explore the experiences and knowledge of alcohol use and related harms among Indigenous Australian and non-Indigenous Australian students.

5.1 Method/Design

Yarning groups are designed to be an informal, culturally appropriate method for engaging Aboriginal and Torres Strait Islander participants (Indigenous Australians) (Bessarab & Ng'andu, 2010). Yarning groups are designed to capture participants' life experiences in a way that supports their cultural norms and values. The use of this method for the study invited a balanced and meaningful relationship between the researcher and the participants. This approach was explained in more detail in chapter 3 (Methodology and Methods).

5.2 Recruitment

A purposive sampling process was used to recruit Indigenous and non-Indigenous Australian students. The university administration section emailed the students with information on how to register their interest in participating in these yarning groups. The yarning group invitation was also posted in the university's online newsletter. Two Indigenous Australian and one non-Indigenous Australian yarning groups were conducted. The two Indigenous Australian yarning groups had between five and eight participants respectively, while the non-Indigenous Australian group had five participants; a total of 19 students agreed to participate in the yarning groups (Table 3.4 and 5.1).

Table 3.4: Sample of the yarning group

	Gender		Age	Language		Enrolment	
	Male	Female	Mean	English	Second English	FT	PT
Yarning Group 1 - Indigenous Australian	4	4	20.63	3	5	8	0
Yarning Group 2 - Indigenous Australian	3	3	20.83	3	3	6	1
Yarning Group 3- non-Indigenous Australian	1	4	18.60	4	1	5	0
Total	8	11		10	9	19	1

Table 5.1 Yarning group profile

Yarning Group	Indigenous Status	Gender	Age	Faculty	Coded
Yarning 1	Indigenous Australian	Female	20	MHMS	1
Yarning 1	Indigenous Australian	Female	21	MHMS	2
Yarning 1	Indigenous Australian	Female	23	MHMS	3
Yarning 1	Indigenous Australian	Female	26	MHMS	4
Yarning 1	Indigenous Australian	Male	17	MHMS	1
Yarning 1	Indigenous Australian	Male	17	MHMS	2
Yarning 1	Indigenous Australian	Male	20	MHMS	3
Yarning 1	Indigenous Australian	Male	21	MHMS	4
Yarning 2	Indigenous Australian	Female	21	MHMS	1
Yarning 2	Indigenous Australian	Female	25	MHMS	2
Yarning 2	Indigenous Australian	Female	24	MHMS	3
Yarning 2	Indigenous Australian	Male	20	MHMS	1
Yarning 2	Indigenous Australian	Male	18	MHMS	2
Yarning 2	Indigenous Australian	Male	17	MHMS	3
Yarning 3	non-Indigenous Australian	Female	19	SE	1
Yarning 3	non-Indigenous Australian	Female	19	MHMS	2
Yarning 3	non-Indigenous Australian	Female	18	MHMS	3
Yarning 3	non-Indigenous Australian	Female	19	MHMS	4
Yarning 3	non-Indigenous Australian	Male	18	MHMS	1

The majority of participants were from the Faculty of Medicine, Health and Molecular Sciences. Most of the Indigenous Australian students were recruited with the support of the Indigenous Health Unit. At the end of the yarning group, each participant received a movie voucher as a reward for their participation.

5.3 Ethical Consideration

Ethical approval was obtained from the James Cook University Ethics Committee (H4920). The ethical approval met the required National Health and Medical Research Council (2003) Values and Ethics in Aboriginal and Torres Strait Islander Health Research, where the research addressed the following six principles – reciprocity, respect, equality, responsibility, survival and protection, spirit and integrity (further explained in chapter 3 - Research Design). A consent form and information sheet were provided to each participant before the commencement of the yarning group. The audiotapes and transcripts were stored on a USB device and were kept in locked filing cabinets.

5.4 Yarning Groups

A yarning group discussion guide was developed which identified areas of interest and explored the alcohol experience, knowledge about at-risk alcohol use, reasons for heavy drinking and the level of knowledge about student support services on campus.

The nature of the yarning method provided the flexibility which enabled the participants to talk freely and used prompts to gather further information. The data was collected between the 8th and 22nd April 2013. All sessions were between 60-90 minutes with two Indigenous Australian groups and one non-Indigenous Australian group. The yarning groups were conducted in a conference room at the regional university. Each of the yarning groups was audio recorded and transcribed verbatim (Kovach, 2009). Before commencing the yarning groups, an explanation was given about how the yarning group was structured. Following this, participants introduced themselves by sharing where they were from and what they were studying. Then, a small survey was distributed to obtain demographic data (age, gender, Indigenous status, language spoken at home, education information, faculty, and year/semester enrolled at university) from each participant. During the yarning group, the researcher recorded the discussion and documented phrases or statements on the whiteboard so that key points could be viewed by the group.

5.5 Data Analysis

Data were analysed using content analysis. Content analysis is a common approach to qualitative data analysis and is defined as a process of coding and identifying themes or patterns (Hsieh & Shannon, 2005). Data were managed using the qualitative software

analysis package NViVO version 22 (Brink et al., 2006; Godau, 2004). The software was used to identify factors that explained students' experience of drinking alcohol and any subsequent alcohol-related harm. The transcripts were de-identified and then analysed by listening to each recording while reading the transcripts. An iterative coding process was implemented that involved coding important aspects of the data relevant to the students' experiences and their knowledge of alcohol use and alcohol-related harms. The audio recording was then played for a second time to identify extra coding with particular attention paid to the participants' tones when speaking certain phrases or comments. Subsequent analyses involved examining the codes to identify broader significant patterns of meanings (Krippendorff, 2004). Comparing the Indigenous Australian and non-Indigenous Australian groups continued between coding the themes until saturation was achieved between both groups. The primary supervisor of this thesis reviewed a cross-section of the transcripts which were separately coded. We then discussed this coding technique and themes to ensure there was analytic rigour and to reach an agreement about our understanding of the data and the patterns we were seeing.

5.6 Rigour and Trustworthiness

I kept a data collection book, analysis log and attended regular meetings with my supervisor to discuss the important themes as they emerged. Rigour has also supported the researcher feeding back the transcripts to the yarning group members to check the accuracy of the content of the transcripts. The yarning group member checking was an important consideration because the aim was to gain an in-depth understanding of alcohol use and alcohol-related harm experienced in an interpretative study (Creswell & Plano Clark, 2007). Trustworthiness was enhanced by continuing the data collection until the same meanings were being relayed to me during the yarning groups. Participants agreed with the sentiments of other participants by stating 'yes I agree' and when asked what they meant, they indicated their agreement with the views of previous participants.

5.7 Results

The factors involved in alcohol use and alcohol-related harms among Indigenous Australian and non-Indigenous Australian students were organised into four broad themes and related sub-themes. The major themes were: 1) Contextual role of university - drinking rates; 2) Academic performance influencing social drinking; 3) Negative effects of drinking alcohol,

and 4) Support systems at the university. In the following themes, participants were identified as either Indigenous Australian or non-Indigenous Australian.

5.7.1 Contextual role of university - drinking rates.

During the yarning groups, students discussed many positive outcomes of drinking and placed less emphasis on negative outcomes. Most of the Indigenous Australians and non-Indigenous Australians commented that drinking alcohol is an acceptable and expected component of student culture at the university. Discussion with Indigenous Australian and non-Indigenous Australian students during the yarning group discussions revealed that most students viewed the contextual role of the university as facilitated by the accessibility of alcohol, independence, peer pressure and alcohol consumption.

a) Accessibility of Alcohol

On campus, alcohol was readily available for students at the university bar and bottle shop and drinking alcohol was regarded as “...*an acceptable thing you do in college*” (Yarning Group 2 Indigenous Australian Male 1). Many students drank at the university bar before going home or to another bar because it was seen as easy access. “*The university club itself, it is so easily accessible. You can finish class and then go to a bar. You can walk over from college*” (Yarning Group 1 Indigenous Australian Female 2).

Heavy drinking was often justified by special events that promoted alcohol use, such as Australia Day, “...*if it is Australia Day or something like that when people start at like midnight, you tend to drink more, heaps, just keep going. You do not get as charged up, but you drink more*” (Yarning Group 1 Indigenous Australian Female 1).

The university bar was a strong focal point for socialising on campus because alcohol was cheap and accessible. Living on campus was also acknowledged to have a considerable influence on drinking, because of the accessibility of cheap drinks “*Say you go to Cheap Tuesday and Wednesday; you have an eight o'clock class, and you have to go...*” (Yarning Group 2 Indigenous Australian Female 2). University clubs and associations were also thought to actively promote and encourage heavy drinking through “student nights” held off campus. One participant said, “...*look at it, virtually every event that [JCUMSA] organises*

involves drink deals” (Yarning Group 3 non-Indigenous Australian Male 1).

The drinking culture observed was based on fitting in on campus and off campus, which was often used to justify participants’ current drinking patterns. The social context of participants’ drinking experiences was justified by motives such as keeping up with peers. One participant said “...*I think that is also like, coupled with wanting to fit in, which could be the reason you are stressed and depressed and then drinking for that*” (Yarning Group 2 Indigenous Australian Female 3).

Some Indigenous Australian participants highlighted differences between genders regarding excessive drinking. “*I think it depends on sex as well - like boys drink much beer and girls drink a lot of wine - and even how much money you've got to spend*” (Yarning Group 1 Indigenous Australian Female 3). Drink types were also a factor. “*I'm a lightweight. A six-pack of beer mixed with my ciders*” (Yarning Group 1 Indigenous Australian Male 2). Excessive drinking among male participants was often fuelled by involvement in drinking games. “*Beer Pong yeah. Go for the occasional run through the college*” (Yarning Group 2 Indigenous Australian Male 2).

b) Independence

Independence was particularly relevant to Indigenous Australian students who had recently left home or their community and were adjusting to living away from family for the first time. For non-Indigenous Australians, the student lifestyle of living on campus provided them with new-found freedom. However, drinking was associated with various personal and social advantages that reinforced participants’ intentions and willingness to drink. The students described that alcohol and the anticipated outcomes of drinking were largely positive and included sentiments such as “*it was fun*”, “*gets the creative juices flowing*”, “*de-stress*” and “*freedom*”. Another positive outcome from drinking included expectations of enjoyment and spontaneous activities. In some cases, alcohol was also seen as an excuse for being “*independent*”. One participant said “...*Living on campus I was like; I have got all this freedom, I am going to get smashed for most of the week and do a little bit of study.*” (Yarning Group 2 Indigenous Australian Male 2).

c) Peer Pressure

Both Indigenous Australian and non-Indigenous Australian students reported mixed views on the role of peer pressure at the university. Students thought that peer pressure from other students to engage in drinking alcohol was a normal part of the university experience and contributed to students drinking heavily and being accepted into social groups. In contrast, some students commented that internal pressure was placed upon themselves, rather than being pressured externally by other peers. One participant said, *“It is more of everyone's drinking, and if you do not keep up to their level, you are excluded from that group”* (Yarning Group 2 Indigenous Australian Male 2). Another said, *“we came back, and they were making us - the whole goon bag thing and sculling drinks and the older students were giving everyone goon bags”* (Yarning Group 3 non-Indigenous Australian Male 1).

d) Alcohol Consumption

With university culture facilitating heavy drinking among students, students tend to consume alcohol above the standard recommended serving per single occasion, which leads to negative consequences. Orientation week (week) was viewed by many Indigenous Australian and non-Indigenous Australian students as influencing drinking, particularly initiating first-year students into university culture. A weekly event is a formal event for the university organised by the James Cook University Student Association and informal events initiated by local clubs and bars. Some students commented on the high frequency of drinking and getting drunk as part of social events at the university. The university environment has the potential to facilitate social drinking that may involve heavy consumption and in large groups, at bars, clubs, house parties or other special occasions. One participant said, *“....Upward of 20 standard drinks before I go to town”*(Yarning group 2 Indigenous Australian female 1). Another said, *“See maximum for me is like two cocktails at the club because something happened and that's where I know where my limit is; two cocktails”*. Yarning Group 3 non-Indigenous Australian female 1). For Indigenous Australian males, peer pressure within the social group impacts on drinking behaviour, even if the group is involved in hazardous or delinquent behaviour. One participant said *“Beer Pong yeah. Go for the occasional run through the college.”* (Yarning Group2, Indigenous Australian male 1).

Excessive use of alcohol is socially accepted, the university environment is a common place to facilitate heavy drinking among students; and students tend to consume alcohol above the standard recommended serving per single occasion, which leads to negative consequences. Both groups commented on being exposed to many attractions such as the club, peer pressure, and societies where alcohol use is a highly accepted behaviour.

5.7.2 Academic performance influencing social drinking

Discussion with both Indigenous Australian and non-Indigenous Australian students during the yarning groups revealed that academic performance is influencing social drinking. Many Indigenous Australian students reported that socialising at university was the reason they consume alcohol, compared to non-Indigenous Australians students who commented on academic demands. Social drinking is a communal activity that brings people together and promotes peers to drink more. Students viewed the drinking culture as the consumption of high quantities of alcohol and the socialisation of others into this behaviour. One participant said, *"I think it is pretty normal for the university for sure."* (Yarning Group 1 Indigenous Australian Female 2). Another said. *"...drinking culture is pretty intertwined with the whole socialising and meeting people part of that"* (Yarning Group 3 non-Indigenous Australian Female 1). Some students reported that they did not drink alcohol because of academic demands, with one non-Indigenous Australian student reporting a lack of time to drink and another student commenting that her Asian culture forbade her from drinking.

a) Socialising at University

Drinking alcohol was considered an essential vehicle for socialising at the university. Some major factors influencing students' drinking were socialising at the university with friends in large groups at bars or house parties, drinking on special occasions and celebrations. Drinking was described as *"being a part of a group"* and *"makes people new friends"*, allowing participants to bond with fellow peers and form new friendships.

The stories shared by the students indicated the importance of socialising at the university. One student spoke about *"Drink, socialise, dance. That is pretty much it. Meet new people, catch up with mates. Try and find ways home or somewhere to stay the night"* (Yarning Group 1 Indigenous Australian Female 1).

The non-Indigenous Australian participants identified that alcohol played a meaningful role in making them feel that they belonged at university and contributed to their experiences of the “uni lifestyle”. One participant said “*Socialising here was the equivalent to - you must drink to socialise. I am just comparing this to back home. Yeah, so I guess the drinking culture is pretty intertwined with the whole socialising and meeting.*” (Yarning Group 2 Non-Indigenous Australian Female 2). Another non-Indigenous Australian student said, “*I know for other degrees, like medicine, you do not have the same people in each of your classes, so it is hard to get to know people.*” (Yarning Group 3 non-Indigenous Australian Female 2)

b) Academic demands.

Alcohol was considered an important vehicle in dealing with academic demands and featured strongly in participants’ experiences. Participants discussed how academic demands reinforced their intention and willingness to drink. Most comments related to stress and were associated with doing assignments and exams. Both Indigenous Australian and non-Indigenous Australian participants discussed how the challenges of university life, such as dealing with the competing demands of attending lectures, completing assignments and studying for exams, influenced their alcohol use. One participant said “*Some people drink a lot when they stuff up an exam or an assignment. They write themselves off*” (Yarning Group 3 non-Indigenous Australian female 2). Another said, “*Say you have not drunk for two weeks because you had an exam coming up and you hold out for two weeks to finish that review*” (Yarning Group 1 Indigenous Australian Male 1). In some cases, alcohol was also perceived as a method for enhancing creativity “*Sometimes you have like a mental block, and you have a glass of wine. It just gets the creative juices flowing or doing a quiz*” (Yarning Group 1 Indigenous Australian Female 2).

5.7.3 Negative Effects of Alcohol

Students identified adverse consequences from drinking alcohol during their time at university, and the culture of heavy drinking appeared to have some negative effects on their university experience. This theme encompassed the three sub-themes: physical abuse, safety concerns, and self-medication.

Both Indigenous Australian and non-Indigenous Australian participants described their drinking on a typical night out at a club or bar. However, they were not aware of the risk

associated with heavy drinking – “...*upward of 20 standard drinks before I go to town.*” (Yarning Group 2 Indigenous Australian Female 2). Another said, “*I reckon six to 10 drinks I would drink*” (Yarning Group 1 Indigenous Female 2).

a) Physical Abuse

The relationship between alcohol use and physical and verbal abuse among university students is a complex social phenomenon. Students discussed how consuming alcohol provides a way to unwind, relax and to ease social anxiety at university, however, it can also have negative effects such as depression, heightened emotionality, impulsive behaviour and can contribute to physical and verbal abuse by a person affected by alcohol. Many participants admitted to being physically abused while drunk and some students admitted to getting into physical fights: “...*sometimes I get into fights. Not every night. Like it depends if I am pissed you are going to get punched*” (Yarning Group 2 Indigenous Australian Female 2). Another said: “*There were a couple of fights at uni club that many people got involved; a lot of med students actually*” (Yarning Group 3 non- Indigenous Australian Female 1).

b) Safety Concerns

Both Indigenous Australian and non-Indigenous Australian participants described circumstances in which the risk associated with heavy drinking was based on concerns about their friends' drinking behaviour. Their perception of safety concerns was not associated with their heavy drinking, but rather concerns about their friends' ability to handle consuming large quantities of alcohol and the influence that alcohol had on their behaviour. Some participants highlighted safety concerns about friends during drinking situations, particularly their friend's awareness when drinking, “*I get concerned about when you are uptown, and your friend starts acting like they have been drugged*” (Yarning Group 2 Indigenous Australian Female 2). Another participant said they would discourage their friend from drinking: “*I would say you seem to party quite a bit. Maybe we could do something else?*” (Yarning Group 3 non-Indigenous Australian Female 2). In some cases, in the absence of a sober driver, students discussed that they would access taxis or public transport to get home from a night out. “*They had had too much and tried to put them in taxis, send them back, take them home, that sort of thing*” (Yarning Group 1 Indigenous Australian Male 1).

c) Self-medication

Drinking played a role in self-medication for students dealing with personal and university challenges. Self-medication, as a motive for drinking, was common among Indigenous Australian students to relieve the adverse effects of university studies and coping with the exhausting tasks of study demands. This sub-theme was exemplified in this quote by an Indigenous Australian female, *“University is pretty stressful. A lot of the times it is like this is when kids have been on their own, don't have - not living with parents and having parents look after them and things like that. Maybe it is a bit of a coping mechanism”* (Yarning Group 1 Indigenous Australian Female 3).

Alcohol was also considered an important vehicle for dealing with social and university life, as some students self-medicated with alcohol to help mask depressive symptoms. A few participants illustrated how their education impacted on their mood, *“...like you are low, you are upset so just go do that (drinking)”* (Yarning Group 2 Indigenous Australian Female 3). Another student said, *“... I think that is also like, coupled with wanting to fit in which could be the reason. You are stressed and depressed and then drinking for that”* (Yarning Group 3 non-Indigenous Australian Male 1).

Cultural identity was a factor that influenced Indigenous Australian students' drinking behaviour. Indigenous Australian students considered that racism promoted drinking at the university. One Indigenous Australian said, *“...I know I have drunk because of racism here. I have drunk because – like just being an Indigenous student I have drunk because I have had a rough day at school as they teach you stuff about your culture and you are like that is not right”* (Yarning Group 2 Indigenous Australian Female 1).

5.7.4 Support systems at the university

There was a difference in the support systems at the university between Indigenous Australian and non-Indigenous Australian students. The theme encompassed three sub-themes: support, health messages and dealing with stress.

Both Indigenous Australian and non-Indigenous Australian students discussed the awareness of student services and messages to help students understand the risk of harms from drinking

heavily. Many students identified the person whom they would seek help from at university. *“Having the Indigenous Health Unit, like if I have any troubles, sometimes I have run in there and burst out crying and yeah whatever, told them all my problems”* (Yarning Group 1 Indigenous Australian Female 1).

a) Support

During the yarning groups, many students reported that the university provided them with a supportive transition into both academic and university culture. The university provided student support services through their health clinic, counselling services, and academic support programs to improve wellness and health promotion efforts on campus. Participants acknowledged that student support helped with academic demands, but there were limited support services to address drinking problems at the university. *“Yeah, there are services out there. They're not very much promoted.”* (Yarning Group 2 Indigenous Australian Female 3). Another said, *“I felt stressed at managing uni, but it's not really focused preventative measure of alcohol”* (Yarning Group 3 non-Indigenous Female 3).

b) Health messages

Many drinking Indigenous Australian and non-Indigenous Australian students participating in yarning group discussions commented that standard drinks and safe drinking guidelines were irrelevant. Students believe that binge drinking behaviour is an attitude that excessive alcohol use is an enjoyable social activity and it would be hard breaking the cycle. Consequently, most participants were unreceptive to health messages and advice on restricting alcohol use, therefore, these messages appeared to have limited impact on their alcohol behaviour – *“...bad TV commercials and shit like that, it is not going to affect them* (Yarning Group 2 Indigenous Australian Female 2). Another said, *“Anything health promotion would have to be student-based”* (Yarning Group 3 non-Indigenous Australian Male 1).

c) Dealing with stress

Some students focused on improving health through physical fitness to relieve stress and avoid drinking alcohol. A non-Indigenous Australian male participant commented that alcohol was not the only option to reduce stress; he found that physical activity helped him to reduce stress, *“....I do actually believe that that's possible, but I think that's not necessarily*

the major reason here because I find that doing exercise, getting out of the house, doing that sort of stuff is perfectly fine to manage the levels of stress, as high as they are, in the medical course" (Yarning Group 3 non-Indigenous Australian Male 1).

5.8 Discussion

The yarning group findings complemented the epidemiological results (chapter 4) by providing an understanding of drinking motives for heavy alcohol consumption by university students, and through exploring both Indigenous Australian and non-Indigenous Australian students' personal experiences with alcohol and associated motives for drinking at harmful levels. Both Indigenous Australian and non-Indigenous Australian students perceived heavy alcohol consumption to be omnipresent and central to the university experience, as indicated by the yarning group findings. Alcohol use was viewed to be a positive factor in helping to socialise with fellow students, and decisions about drinking frequency and quantity were influenced by peer pressure, social and personal influences and academic demands. Drinking was moderated by social norms and university culture (e.g., university bar and clubs, relationships with fellow peers, first university experience) and the associated expectations (new friendships, social inclusion, and positive mood). Some non-Indigenous Australian students had strategies to reduce their alcohol use when they did not want to drink (e.g., excused themselves and avoided drinking by exercising).

5.8.1 Understanding the alcohol influence and motive.

Alcohol use was associated with a positive experience which influenced incentives to engage in heavy drinking. For both Indigenous Australian and non-Indigenous Australian participants, the anticipated benefits of drinking (e.g., acceptance in social groups, social inclusion, and self-confidence) outweighed the expectation of negative consequences. Similarly, the yarning data found that positive intention with drinking often led to a superior discourse around both alcohol-related harms and awareness of the limits of standard drinks. Findings from recent studies that investigated the factors that influenced drinking behaviour and motives suggested that students might not concede what constitutes negative consequences. Read *et al.* found that the strength of motives was also likely to be a factor; young people were ambivalent or even weakly committed to avoiding negative consequences, and they were unlikely to curb their involvement in hazardous drinking, particularly when the drinking occurred in the context of socially reinforced behaviour (Read, Wardell, &

Bachrach, 2013). There seemed to be agreement that students perceived their drinking to be influenced by the availability of alcohol on campus and by their peers, which formed the basis of their socialisation at the university. In that sense, alcohol became a means of creating social bonds and new friendships at the university.

Despite the similarities between Indigenous Australian and non-Indigenous Australian students' perceptions of alcohol consumption, there were different motives for, and positive outcomes from, drinking alcohol among the two groups. The positive outcome of drinking was associated with the idea that the university experience provided the motive to engage in heavy drinking. Further, Indigenous Australians who participated in heavy drinking may have also chosen friends and social events that promoted positive outcomes for heavy drinking, rather than the university experience.

Based on Indigenous Australian participants' drinking experiences, the benefits of heavy drinking seemed to be related to social situations, peer acceptance into both social groups and increased self-confidence at college, rather than the expected negative consequences. There have been few studies that have explored how youths construct cultural identity and how this relates to alcohol use and risk-taking behaviours. Studies have assessed multiple potential cultural risks and protective factors of student ethnicity and their drinking. LaBrie et al. suggested the relationship between perceived norms and drinking differed by ethnicity. Hispanics/Latinos' drinking behaviour more strongly related to general student norms (LaBrie, Atkins, Neighbors, Mirza & Larimer, 2012).

Our findings suggested that Indigenous Australian students self-medicated to deal with the challenges of academic demands. These behaviours highlighted that drinking practices were associated with a level of risk related to the quantity and frequency of alcohol consumed (Currie et al., 2011). In recent studies, students exposed to different situations where alcohol was a common factor were more susceptible to risky behaviour (Bailey & Baillie, 2012; Crundall, 1995; Hasking, Shortell, & Machalek, 2005; O'Hara, Harker, Raciti & Harker, 2007; Robertson & Forbes, 2011; Utpala-Kumar & Deane, 2012; Young, Connor, Ricciardelli & Saunders, 2006). Physical abuse was common among Indigenous Australian students, who perceived these issues to be part of their heavy drinking practices. Indigenous Australian students perceived their drinking to be influenced by being exposed to racism because of the stereotype associated with being an Indigenous Australian.

5.8.2 Context of University Culture

The cultural dimensions that influence students' drinking experiences are explored in this study. Both Indigenous Australian and non-Indigenous Australian students believed heavy drinking to be an embedded practice at university, which was portrayed as socially acceptable as they legitimised their behaviour through personal experiences. Both Indigenous Australian and non-Indigenous Australian students suggested that peer drinking was based on students' behavioural decisions. Perkins *et al.* found that students who overestimated the amount of alcohol consumed by their peers were more likely to consume more themselves and were less likely to see their drinking as problematic, instead viewing it as normal and acceptable behaviour (Perkins, Haines, & Rice, 2005).

University student research has been instrumental in exploring social norms as a social construct of the nature of drinking and against broader environmental influences (Kypros, Kypri & Langley, 2003). What has become known from the findings of this study is that drinking culture at the university was perceived to be embedded in the student experience through exposure to social activities arranged by different student associations or clubs. Non-Indigenous Australian participants reported that drinking behaviour was influenced by associations or clubs advertising cheap drinks and alcohol events. Non-Indigenous Australian participants found it useless to implement preventive alcohol measures at the university. They were of the view that a change in drinking behaviour would only be likely to occur if interventions were made across different social settings and at the university level.

Another noteworthy finding from our study was that non-Indigenous Australian students were of the view that the culture of drinking at the university was similar to their non-university peers' alcohol consumption and as such was perceived as a broader social norm (LaBrie, Ehret, Hummer & Prenovost, 2012). The influence of drinking for both groups was dependent on the level of stress resulting from various academic, social and developmental challenges during their time at university (LaBrie, Ehret, et al., 2012). Engaging in heavy drinking was an indicator of a youth reaching independence from community and family and, in a sense, drinking was a rite of passage (Ham et al., 2011)

The early stages of a student's university career are a time when young people are at greatest risk of hazardous drinking and the associated harms. Non-Indigenous Australian students in our study recalled heavy drinking to be a normal part of the early years of university life. In

some cases, students' drinking declined as their university demands increased. Heavy drinking among students has been associated with negative consequences such as physical and verbal abuse, injury, antisocial behaviour and alcohol dependence. In this study, many of these young university students were given guidance by parents before attending university.

Therefore, the drinking culture at the university was a new experience. Students expressed that drinking was a practice associated with being social, having fun and making friends and was promoted by social events at the university. Being in a learning environment was linked with concentration and academic performance whereas drinking was related to partying and having fun (Polizzotto, Saw, Tjhung, Chua, & Stockwell, 2007). Peer pressure was viewed by both Indigenous Australian and non-Indigenous Australian students to influence their independence at the university. However, non-Indigenous Australian students highlighted that heavy drinking was not exclusively a practice occurring at the university, but rather a practice of social groups in general. This idea was supported by previous studies that found alcohol to aid and support student immersion in university culture and student identity (Caudwell & Hagger, 2014; Kropp, Lavack, Silvera, & Gabler, 2004).

5.9 Conclusion

This qualitative study using yarning groups explored how Indigenous Australian and non-Indigenous Australian students engaged in alcohol use and their exposure to alcohol-related harms. The findings suggested that alcohol consumption was an integrated part of both Indigenous Australian and non-Indigenous Australian students' life and was associated with being social and making new friends. Additionally, it was found that for those who drank, the high level of alcohol consumption not only occurred at university but was also perceived to be a part of the broader Australian culture. For those who consumed alcohol, drinking was viewed as a common practice; students defined their drinking behaviour as being influenced by social groups, the need for social inclusion and self-confidence. Alcohol use and alcohol-related harms remain a major part of academic life. Although engaging university students in curriculum development is challenging, using young people's insight to derive culturally appropriate intervention strategies and messaging may improve awareness of the risk associated with heavy drinking.

5.10 Summary of chapter

- Alcohol use is embedded in the culture of academic life.
- Indigenous Australians emphasised that drinking is integrated into university life, whereas the non-Indigenous Australians commented that university years are seen to be a time of independence to drink without serious consequences.
- The academic performance influencing social drinking for those who drank contributed to heavy drinking among Indigenous Australian and non-Indigenous Australian students who tended to consume alcohol above the standard recommended serving per single occasion. This led to associated consequences that were both positive and negative.
- The Indigenous Australian students commented on their interactions with the student services, particularly regarding support for ensuring their safety and wellbeing and the guidance and approaches they took in supporting Indigenous Australian students for their personal and academic life.
- The university health messages are not going to change drinking behaviour among Indigenous Australians or non-Indigenous Australians.

Chapter 6 discusses and documents the integration of the epidemiological and yarning group data and provides details of the narrative findings.

Chapter Six – Mixed Methods Data (Data Integration)

6.0 Introduction

This chapter provides the integration and interpretation process that comprises the final phase of a concurrent mixed methods study. The analysis of the mixed methods design involved the analyses of the epidemiological (chapter 4) and yarning group data (chapter 5) separately and then ‘comparing’ the data to provide the final integration (Creswell & Plano Clark, 2011). In this study, the epidemiological and yarning group data were analysed separately, as outlined in chapter 3, whereafter the datasets are merged for a concurrent mixed methods design (Creswell & Plano Clark, 2011). Four tables are presented to demonstrate the merging of the data for interpretation.

As argued throughout this thesis, most studies on alcohol consumption and alcohol-related harms carried out in Australian university settings have concentrated on the general student population, with limited comparative data available for Indigenous Australian students. Compared with non-Indigenous Australian students, Indigenous Australian students who attend university encounter increased barriers and challenges, such as financial hardships, health problems, racism, low academic aspirations, social obligations and lack of education capital (Frawley, Nolan, & White, 2009). As a result, many Indigenous Australian students experience isolation and exclusion from the mainstream academic environment (Frawley et al., 2009).

For many young people, higher education at universities is a time of enjoyment and challenge. Young people are often exposed to embedded university cultures, such as heavy alcohol use, which may affect their academic performance and wellbeing (Lorant, Nicaise, Soto, & d'Hoore, 2013). Alcohol use and alcohol-related harms among young university students continue to be a significant public health concern across the world (Ham & Hope, 2003; Karam et al., 2007; Keller, Maddock, Laforge, Velicer, & Basler, 2007). Several international studies have assessed the patterns and prevalence of alcohol use and alcohol-related harms among university students (Karam et al., 2007). Most of these studies have found that students drink at hazardous levels, with serious immediate risks and long-term harms, such as alcohol dependency (Burns et al., 2016; Hallett et al., 2013; Oei & Jardim,

2007; Polizzotto et al., 2007).

Studies consistently show that hazardous alcohol use is associated with physical harm and depressive symptoms. In Australia, research has demonstrated an increased risk of physical harm and depressive symptoms with alcohol consumption in the university population (Burns et al., 2016; Said et al., 2013; Toombs & Gorman, 2011)

The relationship between alcohol consumption and alcohol-related harms, especially depressive symptoms and physical harm which leads to poor academic performance among university students, is complex and bidirectional. On the one hand, physical harm and depressive symptoms may be a risk factor for the initiation of alcohol use, as people may self-medicate as a way to deal with life stressors (Bailey & Baillie, 2013; Digdon & Landry, 2013; Flett, Vredenburg, & Krames, 1995; LaBrie, Ehret, et al., 2012; Stewart et al., 2009). Conversely, comparing Indigenous Australian and non-Indigenous Australian students, alcohol use results in numerous psychosocial harms, including social isolation, poor academic performance, and loss of employment and cultural identity, which contribute to physical harm and depressive symptoms.

Regardless of whether alcohol-related harm experiences precede or follow the initiation of hazardous alcohol use, understanding the experiences and needs of university students is important, as alcohol-related harms such as depressive symptoms and physical harm may be a barrier to harm reduction efforts at an environmental level and seeking help at an individual level. There has been little research on how alcohol drinkers and non-drinkers, especially Indigenous Australian students, experience depressive symptoms, physical harms, and poor academic performance.

To date, studies have used either a qualitative or a quantitative approach to explore alcohol consumption and alcohol-related harms among the general population of university students. While research has demonstrated that university students consume alcohol at hazardous levels with associated harms, very little is known about the patterns of alcohol use and alcohol-related harms among Indigenous Australian university students. I undertook this study with a focus on comparing Indigenous Australian students' alcohol consumption and alcohol-related harms with that of non-Indigenous Australian students to address this gap. This mixed methods study aims to inform the development of more appropriate cultural

alcohol intervention programs for hazardous alcohol drinkers in Australian universities.

6.1 The Study

The aim of this research, undertaken between 2013 and 2014, was to examine and explore alcohol use and alcohol-related harms among Indigenous Australian and non-Indigenous Australian students. The research questions are summarised in Figure 1.0.

6.2 Design

The present study used a concurrent triangulation mixed methods design (Figures 3.1 and 3.2) (Creswell & Plano Clark, 2011). I have elected to use this mixed methods approach as a technique to collect, analyse and integrate quantitative and qualitative data, with the understanding that both datasets will provide a clearer understanding of the differences in alcohol use and alcohol-related harms (i.e., depressive symptoms, physical harms and academic performance) between Indigenous Australian and non-Indigenous Australian students. The mixing of both sets of data in the final phase strengthens the overall outcome integration of results.

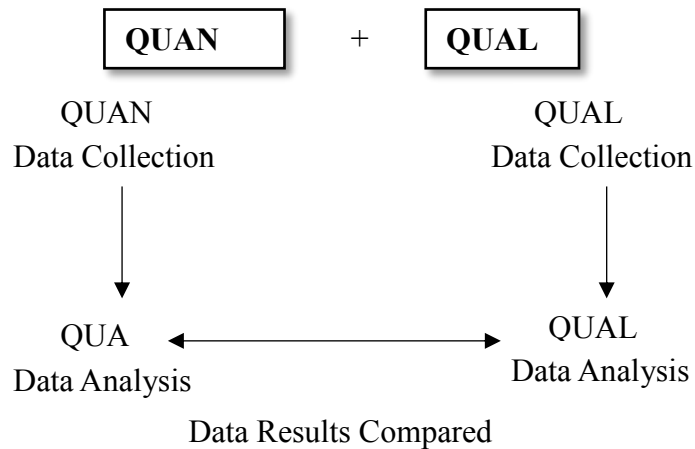


Figure 3.1 Mixed Methods Concurrent Triangulation Design

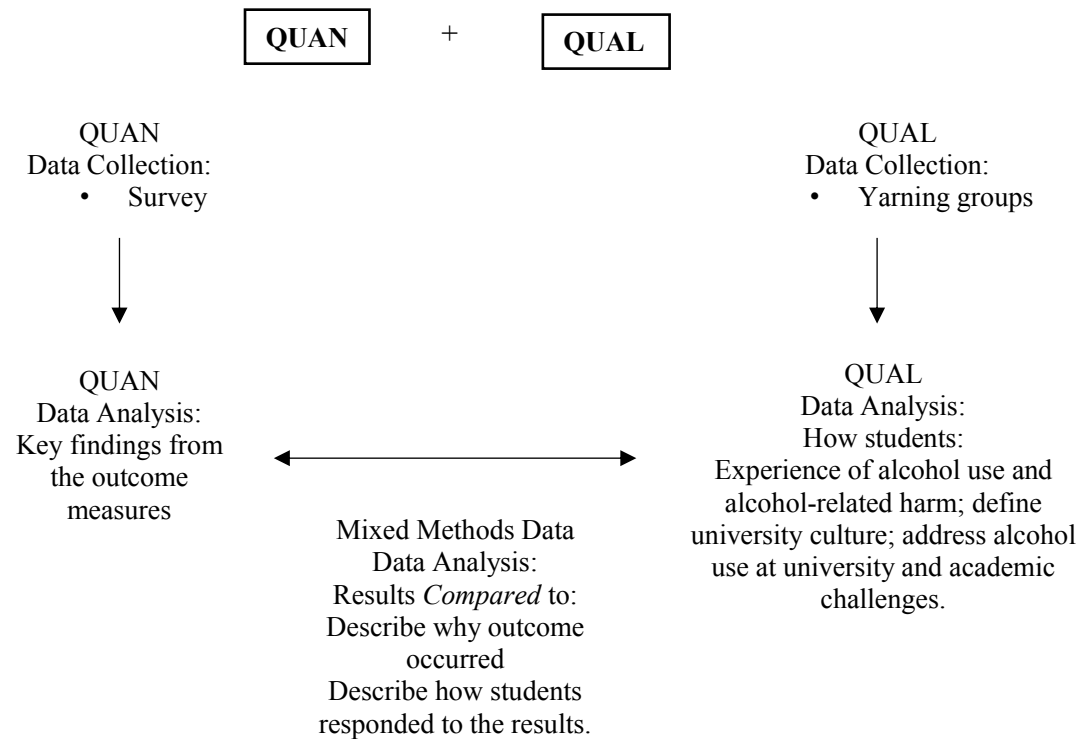


Figure 3.2 A mixed methods concurrent triangulation study to measure and explore alcohol use and alcohol-related harms among Indigenous Australian and non-Indigenous university students

6.3 Participants

Participants were recruited to participate in a cross-sectional survey using a purposive sampling strategy, as described in chapter 3. Individuals were eligible to participate if they were 17 - 24 years old and enrolled in an undergraduate course at this regional university. A subset of 25 participants self-nominated to participate in the yarning groups to explore their knowledge and experiences of alcohol use in greater depth. The yarning group participants were purposefully selected as Indigenous Australian and non-Indigenous Australian students.

6.4 Data collection

The results presented here are from a mixed methods study that included a cross-sectional survey of 872 undergraduate Indigenous Australian and non-Indigenous Australian students to measure the pattern of alcohol consumption, frequency of alcohol consumption, depressive symptoms, physical harms, academic performance and health-seeking behaviour in three yarning groups (two Indigenous Australian and one non-Indigenous Australian), which took approximately 60 - 90 minutes per group. A semi-structured interview guide was used that included broad open questions with more specific follow-up probes, as described in chapters 3-4. Data collection was completed between January 2013 and December 2014 at a regional university in North Queensland.

6.5 Ethical concerns

Given the sensitive nature of the yarning groups, as the researcher, I provided each participant with an information sheet containing key contact numbers of health services in the region. The university's psychologist was also on call to advise on the steps that needed to be taken with distressed participants. The study protocol was approved by the ethics committee at James Cook University (H4920).

6.6 Data integration using critical Indigenous perspective

Throughout this study, a critical Indigenous perspective has been used as a lens through which to view data and inform the study. The aim is to measure and explore the differences in alcohol consumption and the three dimensions of harms (depressive symptoms, physical harms and academic performance) between Indigenous Australian and non-Indigenous

Australian university students. The data from both quantitative and qualitative phases of the study were compared with the critical Indigenous perspective to identify the cogency between the findings and the theoretical lens.

The study used a critical Indigenous perspective approach to understanding the position of Indigenous Australian and non-Indigenous Australian students' alcohol experience that enables participants to speak for and represent themselves. Furthermore, much of the critical Indigenous perspective resonated with the overall picture of students in this study. The research approach embodies an Indigenous standpoint reflecting on cultural, political and economic issues and how these interact in a dominant Euro-Australian population. The subject of Indigenous Australians' past and present is shaped by the dominant social-structural reality, with Indigenous Australians experiencing low-socioeconomic positioning, a significant burden of disease, and ongoing dispossession that encompasses loss of land, culture and traditional knowledge from colonisation. For example, Indigenous Australian students drinking patterns were more prevalent than non-Indigenous Australians, but the narrative from the yarning groups identified socialised factors that influence Indigenous Australian students. However, non-Indigenous Australians were more likely to be hazardous drinkers and experience personal and academic challenges.

Critical Indigenous perspective indicates three fundamental principles for building and understanding alcohol use and alcohol behaviour in Indigenous Australian and non-Indigenous Australian students: involvement in resistance as the emancipator imperative; political integrity; and giving privilege to Indigenous voices. Within each of these three principles, the critical Indigenous perspective guides students' standpoints towards their own alcohol experience. When the data from both phases of this mixed methods study was compared, the theoretical lens allowed the researcher to apply the philosophies of Indigenous Australians, while acknowledging the complex methodological and ethical considerations in discussing alcohol use and alcohol behaviour with students.

6.7 Data integration

When describing the importance of data analysis within concurrent triangulation mixed methods, Creswell and Plano Clark (2011) use the phrase ‘compared mixed methods data analysis.’ The analysis was conducted using a concurrent triangulation strategy, whereby epidemiological and yarning group data contributed equally to the analysis and were used for cross-validation. The data analysis was driven by the research objectives and informed by the study’s theoretical framework: critical Indigenous perspectives. In taking a critical stance from which to explore alcohol use and alcohol-related harm faced by Indigenous Australian and non-Indigenous Australian students, I have intentionally aimed to introduce an Indigenous perspective on the issue.

The aim of the concurrent triangulation mixed methods study, undertaken using an Indigenous research methodology, was to uncover current differences between Indigenous Australian and non-Indigenous Australian alcohol use and alcohol-related harms rather than to focus on failures or deficit. The goal of critical Indigenous perspective is to represent the voices of marginalised groups and to support social change. Therefore, this study was undertaken from a strengths-based approach and, as a result, provides key findings on the factors involved in Indigenous Australian and non-Indigenous Australian students’ drinking behaviour and associated consequences. The focus on students identifying the issues encourages them to adopt a positive stance when attempting to develop effective preventative strategies that consider their health, social and economic factors at the university.

The numerical data from the epidemiological study were described using mean, and standard deviation (SD), and categorical variables were described by percentages (see chapter 4). The yarning group data were subjected to content analysis to identify the experiences of alcohol use and alcohol-related harm at university, identified by Indigenous Australian and non-Indigenous Australian students. Findings from each dataset were then merged in a side-by-side comparison process as outlined by Creswell and Plano Clark (2011). The side-by-side comparison process presents the integrated results to describe the study outcomes. The final integration of data is presented in Tables 6.1, 6.2, 6.3, 6.4 and 6.5.

The epidemiological results reveal that drinking alcohol among Indigenous Australian students was more prevalent than among non-Indigenous Australian students. The gender

difference was observed between Indigenous Australian and non-Indigenous Australian groups, as Indigenous Australian males were more likely to score higher on the AUDIT and AUDIT-Consumption tests. There were gender differences in the non-Indigenous Australian sample, with non-Indigenous Australian females more likely to score higher in AUDIT and AUDIT-Consumption compared to non-Indigenous Australian males. Injury as a result of their drinking (item 9) in the 12 months prior was more highly reported in Indigenous Australian males, compared to non-Indigenous Australian males. Further, the inability to stop drinking once started (item 4) experienced monthly or more often was reported higher in Indigenous Australia males, compared to non-Indigenous Australian males.

Although most of the students in the sample were more likely to be satisfied with their health, non-Indigenous Australian males were more likely to be satisfied with their health, compared to the overall sample. A significant proportion of the sample with a PHQ-9 score of 10 or higher was among Indigenous Australian females, compared to non-Indigenous Australian females. However, non-Indigenous Australian males were likely to score higher in the PHQ-9 compared to Indigenous Australian males.

A relationship between dissatisfaction with academic performance and exposure to hazardous drinking was found in the non-Indigenous Australian sample but not in the Indigenous Australian sample. The relationship between alcohol-related risk behaviour and exposure to hazardous drinking was found in the non-Indigenous Australian sample but not in the Indigenous Australians (See chapter 4 for further information).

Indigenous Australian and non-Indigenous Australian students' experiences, knowledge and attitudes described that heavy drinking was a norm of university life. University years were seen to be a time of independence to drink without serious consequences. Most students commented that being at university, social groups and peer pressure facilitated heavy drinking and both Indigenous Australian and non-Indigenous Australian students tended to consume alcohol above the standard recommended serving per single occasion, that leads to negative consequences.

Most of the Indigenous Australian group's participants commented on a number of their standard drinks per occasion, while non-Indigenous Australian participation expressed the types of servings of alcohol beverages. Commentary on injury and mental health effects from

drinking alcohol was a common trend among Indigenous Australian and non-Indigenous Australian student groups.

Factors to reduce heavy drinking were explored among Indigenous Australian and non-Indigenous Australian students. The Indigenous Australian students described their interaction with the Indigenous Health Unit as support for their safety and wellbeing as students and providing academic guidance. Non-Indigenous Australian groups focused on the important education and social activities that focus on the awareness that may reduce heavy drinking among students. The following themes, discussed and integrated below, emerged from the content analysis of Indigenous Australian and non-Indigenous Australian students (See chapter 5 for further information). The analysis of the Indigenous Australian and non-Indigenous Australian yarning groups' transcripts revealed four themes with subthemes which support the content analysis themes, which are:

- 1) Contextual role of university – drinking rates
- 2) Negative effects of alcohol use;
- 3) Academic performance influencing social drinking; and
- 4) Support systems at the university.

The following section discusses each of the key findings of patterns of alcohol use and its potential harms among Indigenous Australian and non-Indigenous Australian students. Quotes from both Indigenous Australian and non-Indigenous Australian yarning groups for each theme and sub-theme demonstrate the integration of the two sets of analysis. This final step in the concurrent triangulation mixed methods design produces the comprehensiveness of the overall research program. Both datasets were then merged side-by-side to compare the process outlined in the concurrent triangulation mixed methods design (Creswell & Plano Clark, 2011).

6.8 Contextual role of university - drinking rates

A key finding unique to this study is the importance of the contextual role of the university on the drinking rates among Indigenous Australian and non-Indigenous Australian students – in particular, students' motives for consuming alcohol. Evident in the analysis of both Indigenous Australian and non-Indigenous Australian yarning groups, this finding highlights

the students' sense of independence transitioning to university and a key reason that students consume alcohol at hazardous levels.

This finding was also evident in the epidemiological analysis of the alcohol use measures and identified a concern for both Indigenous Australian and non-Indigenous Australian students, particularly men, consuming alcohol at hazardous levels. The students' strongest motivation was peer pressure to fit in at university, in their respective social groups and in the wider university. The students' independence at university is driven by the need to fit into social groups. In relation to independence, Astudillo and colleagues explain, alcohol use in the university environment is a widely accepted social activity and is embedded in the university culture and tradition (Astudillo, Kuntsche, Graham, & Gmel, 2010). The university years for many students is a period of transition for young adults involving a myriad of changes, such as new living arrangements, increase academic pressures and changes in social norms and expectations (Astudillo et al., 2010). Importantly, this study is the first to identify the difference in Indigenous Australian and non-Indigenous Australian student motives for consuming alcohol.

Most students in this study also identified the accessibility of alcohol as a critical element of their university experience. For Indigenous Australian students, particularly women, consuming six or more drinks on a single occasion was part of their university experience. They acknowledged that consuming alcohol at a harmful level 'was not okay' for some reasons. Some non-Indigenous Australian students also identified alcohol use as being important as part of the university experience. Some universities socialised the issue of alcohol use and recognised the complex consequences it has on the student population.

Students' experience with alcohol, and the manner in which the students integrated this experience within their university experiences, was a further important component of the contextual role of the university. The study revealed that Indigenous Australian and non-Indigenous Australian students who attend university have different life experiences and have greater awareness of the impact of alcohol use and associated harms.

Previous research has identified patterns of alcohol use among university students in general, specific to hazardous drinking, quantity of consumption, and factors that facilitate alcohol use in a university environment (Basten & Kavanagh, 1996; Gliksman, 1988; Hallett et al., 2012;

Hasking et al., 2005; Jiang, Li, Boyce, & Pickett, 2008; Karam et al., 2007; Kuo et al., 2002; Kypri, Cronin, et al., 2005; McGee & Kypri, 2004; Polizzotto et al., 2007; Roche & Watt, 1999; Smart & Ogborne, 2000; Utpala-Kumar & Deane, 2012). However, in this study, alcohol use affected both Indigenous Australian and non-Indigenous Australian participants' university life. Students who consumed alcohol were not aware of the serious consequences of the quantity of alcohol they consumed.

Hazardous drinking can be immediately and directly harmful to an individual's health. For young people, there is a low perception of the risk associated with hazardous drinking, and many are unaware of the harmful effects alcohol can cause (Carlson, 2010). In regard to hazardous drinking, the National Health and Medical Research Council alcohol guidelines advise that consuming four or more drinks on a single occasion increases the risk of alcohol-related harm. Most students in this study were engaged in hazardous drinking exceeding the safe level on a single occasion. This finding is unique to this study, and not identified in the previous literature on alcohol use among university students. Table 6.1 provides evidence of the data integration of the Indigenous Australian (IA) and non-Indigenous Australian (NIA) students on the theme of contextual role of university – drinking rates

Table 6.1 An Integration of data of Contextual Role of University – Drinking Rates as identified by Indigenous Australian (IA) and non-Indigenous Australian (NIA) students

Epidemiological Findings:			Yarning Groups Findings:		
			Content Analysis for “Contextual Role of University - Drinking Rates”		
	Indigenous Australian	Non-Indigenous Australian	Indigenous Australian	Sub-themes	Non-Indigenous Australian
AUDIT Score, Mean (SD)			Participants with experience: <i>“...uni clubs, like during the day they've got that \$10 meal and pot of beer” (Yarning Group 2, IA female 1);</i> <i>“The university club itself, it is so easily accessible. You can finish class and then go to a bar. You can walk over from college” (Yarning Group 1 IA Female 2).</i>	Accessibility of Alcohol	Participants with experience: <i>“...look at it, virtually every event that [JCUMSA] organises involves drink deals” (Yarning Group 3 NIA Male 1),</i> <i>“There's always one for every faculty like medicine and dentistry they have their own, and then colleges have pub crawls as well...”(Yarning Group 3 NIA female 1)</i>
Women	7.5 (5.5)	8.3 (5.5)			
Men	12.3 (6)	9.6 (5.8)			
AUDIT-C Score, Mean (SD)					
Women	5.4 (3.2)	5.7 (3.0)	Participants with experience: <i>“I reckon that's what it's all about coming to college and university. It's giving you a sense of independence. If you come here and you've been chucked into the deep end, you've got to figure out what you've got to do. (Yarning Group 2 IA Male 1),</i> <i>“on a typical night get drunk, dance, make out with people and sometimes I get into fights. Not every night. Like it depends if I'm pissed you're going to get punched. Don't fuck with me when I'm drunk. (Yarning Group 2 IA female 1)</i>	Independence	Participants with experience: <i>“...look at it, virtually every event that [JCUMSA] organises involves drink deals” (Yarning Group 3 NIA Male 1),</i> <i>“Coming from an Asian culture, you are expected to do so well in your studies. A lot of parents are really strict so a lot of my friends, it depends, they're not allowed to drink at all...” (Yarning Group 3 NIA female 1)</i>
Men	7.7 (2.5)	6.6 (3.0)			
Six or more drinks on one occasion, monthly or more often.					
Women	47.0%	29.0%			
Men	33.0%	21.0%	Participants with experience: <i>“Beer Pong yeah. Go for the occasional run through the college” (Yarning Group 2 IA Male 2).</i> <i>“University students party and get on the piss all the time...” (Yarning Group 1 IA female 3)</i>	Peer Pressure	Participants with experience: <i>“we came back, and they were making us - the whole goon bag thing and sculling drinks and the older students were giving everyone goon bags” (Yarning Group 3 NIA female 1).</i> <i>“you know they go out on pub crawls every month or so...” (Yarning Group 3 NIA male 1)</i>
AUDIT risk category					
Abstainer (0)	10.8%	6.4%			
Low risk (1-7)	29.4%	37.8%			
Hazardous (8-15)	39.2%	39.6%			
Harmful (16-19)	5.9%	7.2%			
Possibly Alcohol Dependent +20	14.7%	8.9%			

		<p>Participants with experience: <i>" I reckon six to 10 drinks I would drink..."</i> <i>(Yarning Group 1 IA female 1)</i> <i>"I'm a lightweight. A six-pack of beer mixed with my ciders"</i> (Yarning Group 2 IA Male 1).</p>	<p>Alcohol Consumption</p>	<p>Participants with experience: <i>" maximum for me is like two cocktails because something happened and that's where I know where my limit is; two cocktails..."</i> (Yarning Group 3 NIA female 1) <i>" What are the guidelines? No more than two standard drinks in an hour or was it every day"</i> <i>(Yarning Group 3 NIA male 1)</i></p>
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6.9 Negative effects of alcohol use

The third key finding is that negative effects from heavy drinking and heavy alcohol use are linked with a wide-range of physical, mental and social harms (Astudillo et al., 2010; Reavley et al., 2011; Said et al., 2013). There were three negative effects that were described by students: physical abuse, injury and feeling unwell. The effects of heavy drinking during their university experience had a negative impact on the individual, their family, and the community. Alcohol use among Indigenous Australian students was more prevalent than among non-Indigenous Australians, however, Indigenous Australian and non-Indigenous Australian males were more likely to score higher on the AUDIT and AUDIT-C. University culture facilitated heavy drinking among Indigenous Australian and non-Indigenous Australian students, as students tended to consume alcohol above the standard recommended serving per single occasion, which often led to negative consequences.

The most concerning factor was physical abuse from heavy drinking among both Indigenous Australian and non-Indigenous Australian students. Physical abuse by a person affected by alcohol was seen to be common among all groups. Injury as a result of their drinking (item 9) in the 12 months prior was more highly reported in Indigenous Australian males compared to non-Indigenous Australian males. Participants identified that heavy drinking fuelled physical fights on campus. As one Indigenous Australian student stated '*...sometimes I get into fights. Not every night. Like it depends, if I'm pissed you're going to get punched*'.

Students who reside at university experienced friends' negative effects from heavy drinking, with one student describing that their friend fell off a balcony at the university accommodation and ended up in hospital. Although, heavy drinking was highlighted, other students commented on the negative effects of the combination of alcohol and drugs experienced by students at the university. As one Indigenous Australian participant stated, '*A lot of people on college resort to other drugs to have a good time now*'. Alcohol and drugs is a serious concern within the university culture.

The relationship between alcohol use and alcohol-related harm among university students is a complex social phenomenon. The logistic regression within the epidemiological data found that non-Indigenous Australian students were more likely to be dissatisfied with their

academic performance and experienced alcohol-related risk behaviours when exposed to hazardous drinking.

Participants identified that heavy drinking caused them to be concerned about their friends feeling unwell. The stories shared by participants indicated how they would help their friends who were drinking too much. As one Indigenous Australian student stated, 'they'd had too much, and I try to put them in taxis, send home, and take them home, that sort of thing'. However, one student commented on being exposed to a friend who was a heavy drinker and self-harmed. It is clear from participants that heavy drinking has negative effects of harm on individuals, families and communities. The university environment provides a place where students are very connected, and the association of heavy drinking within the university culture is prevalent.

The second key finding, also identified in the literature on university students' alcohol use is students' drinking motives in general (Arbeau et al., 2011; Bailey & Baillie, 2013; LaBrie, Ehret, et al., 2012; Loxton, Bunker, Dingle, & Wong, 2015; Treeby & Bruno, 2012). In this study, Indigenous Australian students were asked about their understanding of their alcohol behaviour and drinking motives, compared to non-Indigenous Australian students. Motives to consume alcohol, including social reasons to get drunk, were researched by Montgomery (2010) who found that among 109 undergraduates, more men than women used alcohol to meet new people, to meet those of the opposite sex, and to feel better about themselves. They also found that females were frequent binge drinkers, had lower self-esteem, and a stronger desire to be liked and accepted. Although there were no significant differences between urban/rural students, most of these students exhibited behaviour that would potentially compromise their present and future health and would place their academic career in jeopardy (Kairouz et al., 2002).

Previous research has identified academic demands among university students in general as drinking motives. Alcohol misuse also results in greater absenteeism from university and increases the risk of ceasing study programs (Oei & Jardim, 2007). However, in this study, most students identified that alcohol was used as a coping mechanism to help with the demands of university life. Alcohol was seen to assist students with the competing demands of attending lectures, assignments and exams. Both Indigenous Australian and non-Indigenous Australian students identified consuming alcohol as a way to unwind or celebrate

the completion of exams or assignments. The competing demands of attending lectures, completing assignments and studying for exams may also influence how much alcohol students drink. A relationship between dissatisfaction with academic performance and exposure to hazardous drinking was found in the non-Indigenous Australian sample but not in Indigenous Australians. As one non-Indigenous Australian student stated, ‘every time we finish an assessment, or we finish exams, it’s always about going out’. Students had used alcohol to self-medicate to cope with depressive symptoms and study demands.

Self-perceived psychological health appeared to be not associated with the frequency of binge drinking and the quantity consumed per occasion. In a recent study, students who never or seldom experienced depressive moods had a lower prevalence of problem drinking, however, contrary to this finding, neither depression nor anxiety was associated with frequency of drinking, or average alcohol consumption (Gliksman et al., 2003). Most students used alcohol to self-medicate or to relieve negative effects such as depression and aggression. The proportion of the sample with a PHQ-9 score of 10 or higher was significant among Indigenous Australian females, compared to non-Indigenous Australian females. However, non-Indigenous Australian males were likely to score higher in the PHQ-9 compared to Indigenous Australian males; feeling tired or having little energy (item d) during several days was reported by most students; and trouble falling or staying asleep or sleeping too much (item c) during several days were reported by a third of students. An Indigenous Australian student stated, ‘university is pretty stressful, particularly not living with parents and things like that...maybe it's a bit of a coping mechanism’.

University life can seem to be a foreign place for students and can affect their mental wellbeing. Indigenous Australian students revealed that racism and their cultural obligations were thought to be a contributor to their alcohol consumption. A student stated, ‘I have drunk because of racism here. I have drunk because I felt alone my community and shit. I’ve drunk because – like just being an Indigenous Australian student I’ve drunk because I’ve had a hard day at school, as they teach you stuff about your own culture, and you’re like that’s not right’. However, a participant from an Asian background commented that in Asian culture you are expected to do well in studies which demonstrates the cultural pressure for students from culturally and linguistically diverse backgrounds to drink alcohol. Drinking motives among students appear to be a contributing factor to students’ alcohol use. Table 6.2 provides evidence of the data integration of the Indigenous Australian (IA) and non-Indigenous

Australian (NIA) students for the theme of negative effects of alcohol.

Table 6.2 An Integration of data of Negative Effects of Alcohol as identified by Indigenous Australian (IA) and non-Indigenous Australian (NIA) students

Epidemiological Findings: Alcohol Use			Yarning Group Findings		
			Content Analysis for “Negative Effects of Alcohol”		
	Indigenous Australian	Non-Indigenous Australian	Indigenous Australian	Sub themes	Non-Indigenous Australian
Alcohol use induced risky behaviour*			Participants with experience: <i>"I get concerned about when you are uptown, and your friend starts acting like they have been drugged" (Yarning Group 2 IA Female 2),</i> <i>"They had had too much and tried to put them in taxis, send them back, take them home, that sort of thing" (Yarning Group 1 IA Male 1).</i>	safety concerns	Participants with experience: <i>"I would say you seem to party quite a bit. Maybe we could do something else?" (Yarning Group 3 NIA Male 1),</i> <i>"one girl from Uni Hall that fell off a balcony on a Friday night and she ended up in hospital..." (Yarning Group 3 NIA Female 2)</i>
Went to university (yes)	11.5%	5.6%			
Verbally abused someone (yes)	13.8%	4.8%			
Physically abused someone (yes)	6.9%	1%			
Had unprotected sex (yes)	10.3%	5.8%			
AUDIT item 4-10*			Participants with experience: <i>"...sometimes I get into fights. Not every night. Like it depends if I am pissed you are going to get punched" (Yarning Group 2 IA Female 2).</i> <i>" Like it depends if I'm pissed you're going to get punched. Don't fuck with</i>	physical abuse	Participants with experience: <i>"There were a couple of fights at uni club that many people got involved; a lot of med students actually" (Yarning Group 3 NIA Male 1).</i> <i>"go to the hospital, get fixed up, and then the next weekend they do it again..." (Yarning Group 3 NIA</i>
How often during the past year have you found that you were not able to stop drinking once you had started (AUDIT4 Dependence), Monthly	8.4%	5.4%			
How often during the past year have you failed to do what was normally expected of you because of drinking (AUDIT5 Dependence), Monthly	6.3%	6%			

How often during the past year have you had a feeling of guilt or remorse after drinking (AUDIT7 Alcohol-related problems), Monthly	7.4%	7.7%	<i>me when I'm drunk." (Yarning Group 2 IA Male 2)</i>		<i>Female 2)</i>
How often during the past year have you been unable to remember what happened the night before because you had been drinking (AUDIT8 Alcohol-related problems), Monthly	4.2%	9.6%			
Have you or has someone else been injured as a result of your drinking (AUDIT9 Alcohol-related problems), yes, during the past year?	21.1%	13.4%			
Median PHQ-9 Score (SD)	5.0, SD ± 3.9	5.2, SD ± 4.0	Participants with experience:	self-medication	Participants with experience:
Proportion of respondents with a PHQ-9 score of > 10	10.8%	16.5%	<i>"University is pretty stressful. A lot of the times it is like this is when kids have been on their own, don't have – not living with parents and having parents look after them and things like that. Maybe it is a bit of a coping mechanism" (Yarning Group 1 Indigenous Australian Female 3),</i>		<i>"... I think that is also like, coupled with wanting to fit in which could be the reason. You are stressed and depressed and then drinking for that." (Yarning Group 3 NIA Male 1).</i> <i>"stressed and depressed and then drinking for that..." (Yarning Group 3 NIA Female 3)</i>

* Alcohol use induced risky behaviour and AUDIT 4-10 excluded less significant findings

6.10 Academic performance influencing social drinking

Having a satisfactory academic performance was a further factor that was pivotal to students' drinking behaviour at the university. Both Indigenous Australian and non-Indigenous Australian students identified consuming alcohol during the academic semester was an enabler towards achieving satisfactory academic performance. The impact of assignments and exams was evident in the content analysis theme of 'academic demand' that included students' study habits. Having social drinks with peers at university was a key factor influencing academic performance. Both Indigenous Australian and non-Indigenous Australian students were influenced by social drinking to help overcome the challenges of academic demand. Alcohol consumed correlates significantly with academic performance as identified by Singleton (2007).

Alcohol used as a coping mechanism to overcome academic demand among students has been well documented. Mitic (2003) found the second-hand effect of student drinking is academic performance; academic consequences of their drinking including missing class, falling behind, doing poorly on exams or papers, and receiving lower grades overall. These factors have relevance in the context of academic performance for university students. In the context of this research, Lorant et al. (2013) found that students entering into university will be exposed, during this transitional period, to substantial changes in living arrangements, socialisation groups, and social activities, which will have an impact on their drinking behaviour. However, there is no significant difference in overall levels of alcohol use between academic performances. These factors were evident in this study, and this finding highlights the differences in the anecdotal evidence on alcohol use and academic performance, including Indigenous Australian students.

Indigenous Australian students often come from low-socioeconomic backgrounds and many experience a range of social determinants, which often impact on their academic performance. Understanding Indigenous Australians' social relationships outside the university environment is critical to developing strategies that continue to support the range of social determinants which shape students' drinking behaviour.

In this study, the students identified that socialising at university was an essential factor for their drinking behaviour. Baer (2002) identified that to enhance general wellbeing and to facilitate social interaction with others are common motivations for drinking among college students (Baer, 2002). In this study, alcohol use among Indigenous Australian and non-Indigenous Australian university students occurred in the specific social environments characterised by independence, increased social homogeneity and university social activities (university clubs and other recreational activities by the student association). Regarding the transition to university, Merrill et al. identified that college's overall drinking level imparts significant risk to incoming students beyond that conferred by the student's drinking level in high school (Merrill & Carey, 2016). These factors were evident in this study, which highlights that transition to university brings changes in Indigenous Australian and non-Indigenous Australian students' adjustment to their social environment and academic performance, which in turn influences alcohol use.

This study shows that when Indigenous Australian and non-Indigenous Australian students actively socialise at university involving alcohol their likelihood of academic performance increases. Table 6.3 provides evidence of the data integration of the Indigenous Australian (IA) and non-Indigenous Australian (NIA) students on the theme of academic performance influencing social drinking.

Table 6.3 An Integration of data of academic performance influencing social drinking as identified by Indigenous Australian (IA) and non-Indigenous Australian (NIA) students.

Epidemiological Findings: Alcohol Use			Yarning Groups Findings:		
			Content Analysis for “Academic performance influencing social drinking”		
	Indigenous Australian	Non-Indigenous Australian	Indigenous Australian	Sub-themes	Non-Indigenous Australian
How satisfied are you with your academic performance?			Participants with experience:		Participants with experience:
Dissatisfied	15.8%	13.7%	<p>“Say you have not drunk for two weeks because you had an exam coming up and you hold out for two weeks to finish that review” (Yarning Group 2 IA Male 1),</p> <p>“sometimes you have like a mental block, and you have a glass of wine. It just gets the creative juices flowing or doing a quiz...” (Yarning Group 1 IA female 1)</p>	academic demands	<p>“Some people drink a lot when they stuff up an exam or an assignment. They write themselves off” (Yarning Group 3 NIA female 2).</p> <p>“I drink when I study...” (Yarning Group 3 NIA female 3)</p>
Neither satisfied nor dissatisfied	25.7%	24.1%	Participants with experience:		Participants with experience:
Satisfied	58.4%	62.2%	<p>“Drink, socialise, dance. That is pretty much it. Meet new people, catch up with mates. Try and find ways home or somewhere to stay the night” (Yarning Group 1 IA Female 1).</p> <p>“No not mental, physical. Like after a footie game you're sore and everybody's drinking or like...” (Yarning Group 2 IA Male 1)</p>	socialising at university	<p>“Socialising here was the equivalent to you must drink to socialise. I am just comparing this to back home. Yeah, so I guess the drinking culture is pretty intertwined with the whole socialising and meeting.” (Yarning Group 3 NIA Female 2),</p> <p>“if you want to hook up with someone and get drunk and wasted, go to med camp” (Yarning Group 3 NIA male 1)</p>

6.11 Support systems at the university

Another finding, also identified in the previous literature on university students' experience with alcohol use, and alcohol-related harms is students' lack of awareness and understanding of the consequences of hazardous drinking. The findings from this study indicate that support systems at university provide a distinctively positive role for Indigenous Australian and non-Indigenous Australian students. The support system serves as a strategy to assist and guide students to cope with challenges faced at the university. Page and Asmar (2008) discuss the function of Indigenous Australian academic support roles. They identify that student support systems offer tutorial support and safe cultural spaces for Indigenous Australian students to learn (Page & Asmar, 2008). In this study, Indigenous Australian participants stated that the Indigenous Health Unit was their support system at the university. As one Indigenous Australian stated, *'having the Indigenous Health Unit, like if I have any troubles sometimes I've run in there and burst out crying and yeah, whatever, told them all my problems'*. There seems to be importance in having Indigenous support systems to reduce stress among Indigenous Australian students. However, non-Indigenous Australian participants stated that having an academic advisor helped with their alcohol and other problems.

It appears from this study that the mere presence of alcohol has the potential to reduce the stress that can exist for Indigenous Australian and non-Indigenous Australian students at the university. However, it is more than just consuming alcohol that seems to be having a positive impact on student academic performance and university experience. In this study, the relationship between alcohol use and students' stress levels created a coping strategy to deal with challenges at the university. Digdon et al. (2011) showed that drinking to cope was best predicted by poor sleep, social drinking, and avoidant coping with stress. Other authors confirm that alcohol use was predicted as a coping strategy (Digdon & Landry, 2013).

The major finding of alcohol use at university in this study was students' ability to identify that health messages at the university could potentially reduce hazardous drinking and the associated consequences. The students in this study suggested that health promotion activities needed to be peer-based and employ health messages that support students to navigate the challenges of the university system.

The university provides wellness and prevention efforts on campus but faces challenges when attempting to break the culture of heavy drinking on campus. Some students thought that programs like the '*Red Frog*' that promote safe drinking behaviour to reduce alcohol-fuelled violence were a positive strategy among students. Other prevention measures that were discussed were the alcohol-free events that provided students with other social network opportunities than drinking. Jones et al. take this further by finding that health messages must be integrated with other educational measures and strategies aiming to internalise alcohol risk information by changing beliefs and, ultimately, behaviours (Jones & Gregory, 2010). Indigenous Australian students also need to be exposed to and encouraged to utilise support systems through culturally appropriate health messages. Table 6.4 provides evidence of the data integration of the Indigenous Australian (IA) and non-Indigenous Australian (NIA) students on the theme of support systems at the university.

Table 6.4 An integration of data of support systems at the university as identified by Indigenous Australian (IA) and non-Indigenous Australian (NIA) students.

Epidemiological Findings:			Yarning Groups Findings:		
			Content Analysis for "Support systems at the university."		
	Indigenous Australian	Non-Indigenous Australian	Indigenous Australian	Sub-themes	Non-Indigenous Australian
Have you had informal and supportive contacts with relatives, friends, and neighbours, including letters, phone calls, or e-mails in the past four weeks?			Participants with experience: <i>"having the ladies in the [IHU] who are just regulars. They know us, and they know our problems." (Yarning Group 2, IA female 3),</i>	Support	Participants with experience: <i>"I felt stressed at managing uni, but it's not really focused preventative measure of alcohol" (Yarning Group 3 NIA Female 3),</i>
Daily	39.6%	45.7%	<i>"Tell parents, brothers and sisters..." (Yarning Group 2, IA male 2)</i>		<i>"Actually, a counsellor is really good. They always willing to listen..." (Yarning Group 3 NIA male 1)</i>
Several times a week	35.6%	28.3%			
Once per fortnight/once per month	24.8%	24.2%			
For the past four weeks, how satisfied have you been with your health?			Participants with experience: <i>"...bad TV commercials and shit like that, it is not going to affect them" (Yarning Group 2 IA Female 2).</i>	Health messages	Participants with experience: <i>"I think the education program would have to be focused. Rather than educating individual people not to drink, educate how can you reduce peer pressure for drinking." (Yarning Group 3, NIA female 3),</i>
Dissatisfied	16.8%	16.1%	<i>"need a lot of games and activities that aren't centred around alcohol" (Yarning Group 2 IA male 2)</i>		<i>"Anything health promotion would have to be a student-based" (Yarning Group NIA Male 1).</i>
Neither Satisfied nor Dissatisfied	14.9%	15.8%	Participants with experience: <i>"Yeah, I've been in a situation like that, but it didn't help. My mood didn't pick up from the drinking,</i>	Dealing with stress	Participants with experience: <i>"...I do actually believe that that's possible, but I think that's not necessarily the major reason here because I find that doing exercise,</i>

Satisfied	68.3%	68.2%	<p><i>but it was just a way of getting..." (Yarning Group 2 IA Female 3).</i></p> <p><i>"like drinking, going out to the university club and stuff, is like one of the best ways to meet people too so if you're feeling lonely in a place..." (Yarning Group 1 IA male 3)</i></p>		<p><i>getting out of the house, doing that sort of stuff is perfectly fine to manage the levels of stress, as high as they are, in the medical course" (Yarning Group 3 NIA Male 1).</i></p> <p><i>"resort to alcohol to manage stress..." (Yarning Group 3 NIA female 2)</i></p>
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6.12 Hazardous drinking in Indigenous Australian and non-Indigenous Australian students: the association of academic performance, alcohol-related risk behaviour, health satisfaction and depressive symptoms.

The final key finding is the association of hazardous drinking and the four dimensions of harm among Indigenous Australian and non-Indigenous Australian students. This study found association of harms and hazardous drinking, which is similar to previous research (Kypri, Cronin, et al., 2005; Robertson & Forbes, 2011). However, this is the first study that examined Indigenous Australian students in a university context. Table 6.5 provides evidence of the data integration of association between hazardous drinking (AUDIT-C > 4 scores) measured as four dimensions of harms as identified by Indigenous Australian (IA) and non-Indigenous Australian (NIA) students.

Dissatisfaction with their own academic performance was associated with hazardous drinking among non-Indigenous Australians; thus, non-Indigenous Australians who reported hazardous drinking were more likely to have higher dissatisfaction with their academic performance than those who reported no hazardous drinking. During the yarning groups, non-Indigenous Australians identified that specific university courses had an image of being healthy and responsible, however, one participant stated a different view: *“I thought medical students, yeah, they're pretty responsible people, they're healthy, and now that I'm here [laughs], you know they go out on pub crawls every month or so and drink heavily. It's very different from what you'd expect.”* (Yarning Group 3 non-Indigenous Australian Male 1). However, the association between dissatisfaction with academic performance and hazardous drinking in this cross-sectional study is not clear for Indigenous Australians.

The relationship between academic performance and hazardous drinking is not determined in this study, for example, whether Indigenous and non-Indigenous Australian students who drink hazardously may have increased academic concerns as a result of alcohol-related dissatisfaction with their academic performance. Conversely, students may be hazardous drinkers in response to study dissatisfaction or to distract themselves or others from their study dissatisfaction or results. Further research is needed to determine the causal pathway between hazardous drinking and academic performance. For example, if academic performance proves to be a motivator to avoid hazardous drinking among Indigenous Australians and non-Indigenous Australians, focusing on academic consequences of

hazardous drinking may be a topic for inclusion in prevention programs.

Dissatisfaction with academic performance did remain in the multivariate model that predicted hazardous drinking by Indigenous Australian status, so it was a powerful enough predictor to remain significantly associated with hazardous drinking in the model. Alcohol-related risk behaviour, however, was a significant multivariate predictor of hazardous drinking among non-Indigenous Australian students. Non-Indigenous Australian students stated in the yarning group *“It was like if you want to hook up with someone and get really drunk and wasted, go to med camp.”* (Yarning Group 3 non-Indigenous Australian Female 2). We had hypothesised that hazardous drinking would be associated with alcohol-related risk behaviour because of the rite of passage for young people attending university (Hallett et al., 2012; Hart & Burns, 2016; Hepworth et al., 2015). Contrary to our expectations, Indigenous Australian participants’ alcohol-related risk behaviour was not a significant predictor and they were least likely to report hazardous drinking.

Again, because of the cross-sectional nature of this study, the relationship between alcohol-related risk behaviour and hazardous drinking is complicated to interpret for both Indigenous Australian and non-Indigenous Australian students. Because alcohol-related risk behaviour was a variable that differentiated hazardous drinkers from non-hazardous drinkers, further study of this relationship is warranted among Indigenous Australians. Further research is needed to understand this relationship between Indigenous Australian and non-Indigenous Australian students; these findings may facilitate hazardous drinking prevention and intervention efforts explicitly targeted for university students. Contrary to our hypothesis, self-reported depression symptoms measured by a cut-off score on the PHQ-9 and dissatisfaction with health were not associated with hazardous drinking. This finding may support previous research findings that indicated that stress and health satisfaction with negative effect were not significant motives for hazardous drinking (Gliksman et al., 2003; Kelly, Masterman, & Young, 2011).

Consequently, hazardous drinking may not be a response to distress for Indigenous Australians. Indigenous Australian students at the university have specific support services to deal with the stress of study, with one participant stating, *“Having the Indigenous Health Unit, like if I have any troubles a number of times I’ve run in there and burst out crying and yeah whatever, told them all my problems.”* (Yarning Group 1 Indigenous Australian Female

2). If this finding is supported in future studies, it may suggest that prevention and intervention programs that focus on managing health and depressive symptoms may not be helpful in decreasing hazardous drinking among Indigenous Australian and non-Indigenous Australian students at the university.

Two out of four variables of interest in this study, alcohol-related risk behaviour and dissatisfaction with academic performance, were significantly associated with hazardous drinking in both univariate and multivariate analyses in our non-Indigenous Australian sample. The Indigenous Australian sample had no significant association with hazardous drinking in both univariate and multivariate analyses. Further research is required to determine which cultural, social and environmental factors are associated with hazardous drinking among Indigenous Australians and non-Indigenous Australians. Our results suggest that the perception of frequent alcohol use by Indigenous Australian status is an essential predictor of hazardous drinking.

Table 6.5 An Integration of data of association between hazardous drinking (AUDIT-C > 4 scores) measured as four dimensions of harms as identified by Indigenous Australian (IA) and non-Indigenous Australian (NIA) students.

Association between hazardous drinking (AUDIT-C > 4 scores) measured as four dimensions of harms and Indigenous Australian status		Associated Yarning Groups Narrative	
Indigenous Australian	Non-Indigenous Australian	Indigenous Australian	Non-Indigenous Australian
Dissatisfied with academic performance		Participants with experience:	Participants with experience:
1.29 (0.35-4.75) <i>p</i> -value 0.70	1.74 (1.11-2.72) <i>p</i> -value 0.02	<p>“...sometimes you have like a mental block and you have a glass of wine. It just gets the creative juices flowing or doing a quiz” (Yarning Group 1 Indigenous Australian Female 1).</p> <p>“...like it kind of puts stuff in perspective after you've done it for a year and your outcomes academically aren't as good as what you expected them to be. It makes you think and push you.” (Yarning Group 2 Indigenous Australian Male 1).</p>	<p>“Coming from an Asian culture, you are expected to do so well in your studies...” (Yarning Group 3 non- Indigenous Australian Female 1).</p> <p>“I thought medical students, yeah, they're pretty responsible people, they're healthy and now that I'm here [laughs], you know they go out on pub crawls every month or so. It's very different from what you'd expect.” (Yarning Group 3 non- Indigenous Australian Male 1).</p>
Dissatisfied with health		Participants with experience:	Participants with experience:
0.77 (0.23-2.48) <i>p</i> -value 0.66	1.10 (0.73-1.66) <i>p</i> -value 0.62	<p>“No not mental, physical. Like after a footie game you're sore, and everybody's drinking or like...” (Yarning Group 2 Indigenous Australian Male 2).</p> <p>“My mood didn't pick up from the drinking, but it was just a way of getting...” (Yarning Group 2 Indigenous Australian Female 2).</p>	<p>“I find that doing exercise, getting out of the house, doing that sort of stuff is perfectly fine to manage the levels of stress, as high as they are, in the medical course.” (Yarning Group 3 non- Indigenous Australian Male 1).</p> <p>“It's bad for their body, but I don't think that they'd be addicted.” (Yarning Group 3 non- Indigenous Australian Female 2).</p>

Depressive symptoms		Participants with experience:	Participants with experience:
1.84 (0.33-10.3) <i>p</i> -value 0.48	1.08 (0.72-1.61) <i>p</i> -value 0.71	<p>“Having the Indigenous Health Unit, like if I have any troubles the amount of times I've run in there and burst out crying and yeah whatever, told them all my problems.” (Yarning Group 1 Indigenous Australian Female 2).</p> <p>“Grass before beer. Beer before grass and you're on your arse.” (Yarning Group 2 Indigenous Australian Male 3).</p>	<p>“...it could be stress, depression, things like that. I'm not saying is stressed and depressed but a lot of people. But I think that's also like coupled with wanting to fit in which could be the reason you're stressed and depressed and then drinking for that.” (Yarning Group 3 non-Indigenous Australian Female 1).</p> <p>“Like a lot of people who are really stressed and probably do have maybe a mental thing but it's not necessarily due to alcohol.” (Yarning Group 3 non-Indigenous Australian Female 2).</p>
Alcohol-related risk behaviour		Participants with experience:	Participants with experience:
2.23 (0.78-6.37) <i>p</i> -value 0.13	7.16 (4.21-12.1) <i>p</i> <0.001	<p>“We got into a fight. She'd like a little bit - there was a couple of hits. It wasn't massive. Then it got broken up, and we did our own separate things”. (Yarning Group 2 Indigenous Australian female 2).</p> <p>“I took a mate over, and we got into a blue like a brothers fight. Too much drink didn't want to listen and then - but we laughed about it the next morning, woke up and laughed.” (Yarning Group 2 Indigenous Australian Male 2).</p>	<p>“...yeah there was a couple of fights at Uni Club that a lot of people got involved; a lot of med students actually.” (Yarning Group 3 non-Indigenous Australian Female 1).</p> <p>“It was like if you want to hook up with someone and get really drunk and wasted, go to med camp.” (Yarning Group 3 non-Indigenous Australian Female 2).</p>

6.13 Discussion

While previous studies in Australia have documented the high prevalence of alcohol use and alcohol-related harm among university students, none have explored how Indigenous Australian and non-Indigenous Australian students understand the association between alcohol use and alcohol-related harms. In this study, I have combined epidemiological and yarning group methods to document the depressive symptoms, physical harm and poor academic performance experiences from one regional university in North Queensland. This study yields information that could potentially inform the development of university health services for Indigenous Australian and non-Indigenous Australian students who use alcohol, and more specifically hazardous use of alcohol in universities in Australia.

The results of this mixed methods study of alcohol use and alcohol-related harms among Indigenous Australian and non-Indigenous Australian students revealed that in the sample, the majority of Indigenous Australian and non-Indigenous Australian students were current drinkers relative to research questions posed for this study. First, it is apparent that there are differences among Indigenous Australian and non-Indigenous Australian students. Drinking tends to be perceived as male dominant. Specifically, particular patterns of drinking – including hazardous drinking and public drunkenness – are considered. The persistence of ethnic stereotypes for drinking and drunkenness is notable given that among Indigenous Australian and non-Indigenous Australian students there were significant differences in drinking patterns and heavy episodic drinking.

Alcohol use among participants in this study was consistent with the literature on university drinking. However, the levels of alcohol use measured by AUDIT found that there was a higher prevalence of hazardous alcohol use among Indigenous Australian than non-Indigenous Australian students. Gender differences in AUDIT scores revealed that in the Indigenous Australian student sample, male students scored statistically higher than female students did with similar scores among non-Indigenous Australian students. Participants indicated that drinking is engrained into university culture and that excessive use of alcohol is socially accepted by colleges who facilitate alcohol use. Students identified that their alcohol use was above the standard recommended serving per single occasion, and although it led to negative consequences, they continued to drink excessive amounts of alcohol even though

they knew the consequences of this behaviour. The findings accord with other studies, and show that young people – like university in general – socially construct a culture in which they are around a range of health behaviours and other social activities (Foxcroft, Moreira, Almeida Santimano, & Smith, 2015; Hepworth et al., 2015; Leontini et al., 2015; Lorant et al., 2013; Murugiah & Scott, 2014; Read, Wardell, & Bachrach, 2013). The qualitative data directly addressed the issue of double-standards for alcohol use and revealed that most of the Indigenous Australian and non-Indigenous Australian men and women who were interviewed felt that drinking high levels of alcohol is acceptable.

Approximately two-thirds of respondents across Indigenous Australian and non-Indigenous Australian students scored above 10 – the cut-off for depression – associated with alcohol consumption, although, the findings indicated that a substantial proportion of hazardous alcohol users could benefit from integrated support services to address alcohol consumption, depressive symptoms, and academic performance. The qualitative data suggest that harms from alcohol use for both Indigenous Australian and non-Indigenous Australian students is found to precede the initiation of alcohol consumption, with many students reporting that they consume alcohol as a way of coping with the feeling of stress with alcohol-related harms experienced. Whether in relation to Indigenous Australian or non-Indigenous Australian students in this regional university, effective support requires addressing these experiences while at the university.

Alcohol-related harms were described by students due to their alcohol use, which found that non-Indigenous Australian students were more likely to experience harms, compared to Indigenous Australians. Alcohol-related harms included depressive symptoms, poor academic performance, and physical harms. The results indicated that the majority of non-Indigenous Australian students in the sample who experienced these harms did so because of their drinking. Gender differences in alcohol use were revealed among Indigenous Australian students; female students scored statistically higher than male students across the depressive symptoms, poor academic performance and physical harms, however, non-Indigenous Australian male students scored statistically higher than female students. Students identified from their personal experience that harm such as physical abuse, injury and feeling unwell are common negative effects from drinking.

The promotion of alcohol was indicated through drinking motives related to academic demands. These drinking motives were a result of students feeling stressed or depressed and a sense of isolation. Students described that alcohol was used as a self-medication to relieve negative effects of stress, depression and isolation. Strategies to help with student alcohol behaviour were suggested by students. The Indigenous Health Unit minimised the feeling of isolation which was a drinking motive for Indigenous Australian students. Non-Indigenous Australian students had identified student services and academic advisors as a support to overcome the challenges of university life.

The finding suggests other implications for alcohol harm minimisation at the university. First, prevention programs should consider gender differences in both Indigenous Australian and non-Indigenous Australian students by equipping students with problem-focused coping skills to help delay initiation of alcohol use. And secondly, as the three dimensions of harms (depressive symptoms, physical harms, and academic performance) are risk factors for poor health outcomes, health services in the university should screen all student alcohol users for co-occurring alcohol-related harms and provide students with adaptive strategies to deal with stress.

This mixed methods study of Indigenous Australian and non-Indigenous Australian students' alcohol use expanded on previous quantitative and qualitative methods by having a broader focus on Indigenous Australian students at the university and by showing how Indigenous Australian and non-Indigenous Australian students' alcohol use is shaped during their time at university. The results suggest that both the perception of alcohol use and alcohol behaviour compared to empirical data by Indigenous Australian and non-Indigenous Australian students is important to inform the development of intervention and prevention programs for Indigenous Australian and non-Indigenous Australian students who use alcohol, and more specifically, hazardous use of alcohol in universities in Australia. Most recent data suggest that social influences may not reduce alcohol use among university students. An alternative approach to addressing the prevalence of hazardous drinking may be important interventions targeting both Indigenous Australian and non-Indigenous Australian males, who are hazardous drinkers.

6.14 Limitations

Large Indigenous Australian sample sets are required to gain the necessary statistical power to examine comparative data effectively. Although Indigenous Australian student enrolment numbers vary across Australian universities, the lower enrolment numbers of Indigenous Australian students would make it difficult to obtain a representative sample. Thus, a generalisation of the results may not be possible. The sensitive nature of discussing alcohol consumption in Indigenous Australians is a potential threat to the validity of the study. Furthermore, the comparison of Indigenous Australian and non-Indigenous Australian students' data may be subjected to a weighted analysis if the required sample size is not achieved.

The key strength of the concurrent triangulation mixed method design is the two-phased approach, with the design commencing with the collection and analysis of the epidemiological data followed by subsequent collection and analysis of the yarning group data. The two-phase approach allows for a connection between the survey data and the yarning group data. The research design is a fusion of both traditional and Indigenous research methods. While yarning groups is an emerging research method, this study hopes to highlight the importance of this approach in research by promoting a culturally safe research environment.

6.15 Conclusion

There is potential for greater participation for Indigenous Australian and non-Indigenous Australian university students to contribute to the development of effective preventative measures to reduce hazardous drinking on campus. Integration of the epidemiological and yarning group data in this study found that the contextual role of university – drinking rates, coupled with academic performance and negative effects of alcohol use, determine how both Indigenous Australian and non-Indigenous Australian students experience university life. Regarding Indigenous Australian students, this study provided some insight into their drinking behaviour and exposure to alcohol-related consequences. Importantly, the study has privileged the Indigenous Australian voice and the collective narratives of Indigenous Australian students' experience of alcohol use and alcohol-related harm during their university life. Given that this evidence has not been previously described elsewhere, these

results are unique and offer an understanding of alcohol use differences among Indigenous Australian and non-Indigenous Australian students instead of the usual focus on the general student population. Overall, the state of hazardous drinking among students with no difference among Indigenous Australians remains a significant concern. If we are to improve the drinking rates among students, universities need to consider developing student-based strategies designed to educate them about the consequences of hazardous drinking and improve awareness of support systems at the university. The following chapter provides the study's limitations, recommendations and reflections.

Chapter Seven - Discussion, Recommendations and Conclusion

7.0 Introduction

Alcohol is a significant contributor to preventable illness and mortality in many countries and is causing problems in low socioeconomic populations (World Health Organisation, 2014).

Alcohol is the most widely used psychoactive drug globally. It is responsible for a considerable burden of mortality, disease and injury worldwide (World Health Organisation, 2014).

In Australia, heavy drinking is associated with a range of harms that can be caused either by an individual's drinking or exposure to others who consume alcohol to excess and is the leading cause of injury and death for young adults (Australian Institute of Health and Welfare, 2016). For many young people, higher education at universities is a time of enjoyment and challenge. Young people are often exposed to embedded university cultures, such as heavy alcohol use, which may impact on their academic performance and wellbeing (Lorant et al., 2013). Drinking to excess is widely viewed as a rite of passage early in a student's academic career. This initial submersion within drinking culture becomes the norm, and excess drinking may continue for years after beginning university studies. Alcohol use and alcohol-related harms among young university students continue to be a significant public health concern across the world (White & Hingson, 2013). There are several international studies that have assessed the patterns and prevalence of alcohol use and alcohol-related harms among university students. Most of these studies have found that students drink at hazardous levels, with serious immediate risks and long-term harm, such as alcohol dependency (Engs & Hanson, 1990; Ham & Hope, 2003; Kuntsche, Knibbe, Gmel, & Engels, 2006).

Since there has been a lack of information about Indigenous Australian students' alcohol use, the above evidence led us to study alcohol consumption and alcohol-related harms among Indigenous Australian students, particularly in North Queensland.

The focus of the study has been to describe the patterns of alcohol use and alcohol-related harms, the implication of the findings for interventions to reduce hazardous drinking among

Indigenous Australian and non-Indigenous Australian university students in North Queensland.

This thesis aimed to measure and explore the differences in alcohol consumption and three dimensions of harms (depressive symptoms, physical harms and academic performance) among Indigenous Australian and non-Indigenous Australian university students. In chapter 4, the patterns of alcohol use and alcohol-related harms were examined. Subsequently, in chapter 5, knowledge and experience of alcohol use and alcohol-related behaviour were explored. Additionally, in chapter 6, the combined quantitative and qualitative data to compare and contrast any differences and similarities between Indigenous Australian and non-Indigenous Australian experiences of alcohol consumption and alcohol-related harms were discussed more generally. This discussion chapter will provide an overview of the main findings of this thesis. Secondly, limitations of the study and the direction of future research will be presented. Lastly, recommendations for prevention are given.

7.1 Patterns of alcohol consumption and alcohol-related harms

This section will summarise the quantitative findings of patterns of alcohol consumption and alcohol-related harms (depressive symptoms, physical harms and academic performance) among Indigenous Australian and non-Indigenous Australian university students.

7.1.1 Patterns of Alcohol Consumption

Chapter 4 described the patterns of alcohol consumption between Indigenous Australian and non-Indigenous Australian students, showing that drinking patterns are somewhat similar to the different studies of university students in general, particularly among male students. Indigenous Australian drinkers is a new finding in the current literature. Data related to frequency and quantity of alcohol consumption and alcohol-related harms (depressive symptoms, physical harms and academic performance) and hazardous drinking were calculated based on drinkers only.

In this sample of Indigenous Australian and non-Indigenous Australian students, there are less drinkers and more abstainers compared with students in New Zealand, Australia and North America (Burns et al., 2016; Gliksman et al., 2003; Hingson, Heeren, Zakocs, Kopstein, & Wechsler, 2002; Kypri, Paschall, Maclennan, & Langley, 2007; Mikhailovich et

al., 2011; Robertson & Forbes, 2011; Roche & Watt, 1999).

Chapter 4 of this thesis reported that the prevalence of alcohol use among Indigenous Australian students in the previous year was 70.5%; 11.6% were lifetime abstainers, and 17.9% were ex-drinkers; and the figure for non-Indigenous Australian students in the previous year was 69.7%; 7.0% were lifetime abstainers, and 20.0% were ex-drinkers. Additionally, a difference in Indigenous and non-Indigenous Australian students is found in chapter 4. Indigenous Australians were 2.97 times more likely to be current drinkers, however, non-Indigenous Australian males were 1.6 times more likely to be hazardous drinkers than non-Indigenous Australian female students. The prevalence of hazardous drinking is high among Indigenous Australian students (58.6%) and 367 non-Indigenous Australian students (48.3%) were identified as hazardous drinkers with an AUDIT score of ≥ 4 (chapter 4).

The gender difference in drinking and patterns of drinking among students in this sample, in general, was much higher compared to other countries such as New Zealand, Australia and North America (Kuo et al., 2002; Livingston, 2008; Pedersen & LaBrie, 2006). Furthermore, Indigenous Australian male drinkers drink less than once a month and consume at hazardous levels compared with other students from ethnic backgrounds in New Zealand and North America (Kypri et al., 2013; Paschall, Bersamin, & Flewelling, 2005; Pedersen & LaBrie, 2006)

7.1.2 Alcohol-related harms

Individuals experience different harms related to their drinking patterns. The high volume of alcohol use among drinkers has been shown to be associated with different degrees of harm (World Health Organisation, 2014). Chapter 4 reported the harms, particularly depressive symptoms, physical harms and academic performance, among Indigenous Australian and non-Indigenous Australian student drinkers.

7.1.3 Depressive symptoms

In the sample of Indigenous Australian and non-Indigenous Australian students, more non-Indigenous Australian students (16.5%) reported having experienced depressive symptoms than Indigenous Australians (10.8%). Depressive symptoms in general among students were

comparative with students in North America and Australia (Armeli et al., 2010; Said et al., 2013).

7.1.4 Physical harms

Chapter 4 reported the physical harms that students experienced due to their drinking. There is a higher percentage of Indigenous Australian students that verbally abused someone (14.8%), went to university (13.5%); and had unprotected sex under the influence of alcohol (11.2%) than non-Indigenous Australians, compared with other students from ethnic backgrounds in New Zealand and North America (Kypri, Paschall, et al., 2009; LaBrie, Atkins, Neighbors, Mirza, & Larimer, 2012; Paschall et al., 2005). However, non-Indigenous Australian students were 57.0 times and Indigenous Australian male students were 6.8 times more likely to be current drinkers and experience alcohol-related behaviour. In general, current drinkers experience physical harms at similar rates to other studies in New Zealand, North America and Australia (McGee & Kypri, 2004; Read et al., 2013; Saewyc et al., 2009).

7.1.5 Academic performance

Regarding frequency of satisfaction with academic performance, chapter 4 showed that the majority of Indigenous Australians (58.4%) and non-Indigenous Australians (62.2%) were satisfied with their academic performance. However, non-Indigenous Australian students who reported dissatisfaction with their health were 0.47 times likely to be a current drinker, compared to general studies in North America and New Zealand (Gliksman et al., 2003; Ram, Hussainy, Henning, Jensen, & Russell, 2016; Singleton, 2007).

7.1.6 Hazardous drinking and alcohol-related harms

Findings in chapter 4 reported the prevalence of hazardous alcohol use among 60 Indigenous Australian students (58.6%) and 367 non-Indigenous Australian students (48.3%). Additionally, the difference in gender by Indigenous Australian status found Indigenous Australian (OR=1.4) and non-Indigenous Australian (OR=1.6) males were considerably more likely to be hazardous drinkers than females. The gender difference in drinking and patterns of hazardous drinking among students, in general, was much higher compared to other students in New Zealand, Australia and North America (Brache & Stockwell, 2011; Connor et al., 2010; Kuo et al., 2002; Livingston, 2008). Furthermore, non-Indigenous Australians

who were dissatisfied with their academic performance were 1.74 times more likely to report hazardous drinking than Indigenous Australians. Alcohol-related risk behaviour in self-reported hazardous alcohol use was 7.16 times more likely among non-Indigenous Australians compared with other students in New Zealand and North America (Carlson et al., 2010; Connor et al., 2010; Connor et al., 2013; Hallett et al., 2013; Hasking et al., 2005; Livingston, 2013).

7.1.7 Knowledge and experience of alcohol consumption

Alcohol knowledge, alcohol experience and drinking motives are often described as the determinants of students' alcohol use and their problematic drinking. Recent studies demonstrated that alcohol experiences and motives are related to alcohol use (Kuntsche et al., 2006; Leontini et al., 2015; Merrill & Carey, 2016). Furthermore, several studies demonstrated alcohol experiences among minority students (Clarke et al., 2013; Currie et al., 2011; Oei & Jardim, 2007). Knowledge and experience of alcohol consumption were studied in chapter 5.

Findings of alcohol experience in chapter 5 found most students mentioned that alcohol use was embedded in the culture of academic life, on and off campus. In chapter 5, we reported that Indigenous Australians emphasised that drinking was integrated into university life, whereas the non-Indigenous Australians commented that university years were seen to be a time of independence to drink without serious consequences, which is similarly found in New Zealand, Australian and North American students whose drinking was influenced by the university (Cousins, Connor, & Kypri, 2014; Grabowski et al., 1979; Hepworth et al., 2015; Mihic et al., 2009; Mitic, 2003).

Chapter 5 showed that academic performance influencing social drinking contributed to heavy consumption among Indigenous Australian and non-Indigenous Australian students who tended to consume alcohol above the standard recommended serving per single occasion. These findings are consistent with the findings in chapter 4.

Indigenous Australian students commented on their interactions with the student services, particularly regarding support for ensuring their safety and wellbeing and the guidance and approaches they took in supporting Indigenous Australian students for their personal and

academic life. However, student services engaged in health messages to change drinking behaviour among Indigenous Australians or non-Indigenous Australians, which is similar to most studies that suggest health promotion strategies to reduce hazardous drinking and associated harms (Blee, Reavley, Jorm, & McCann, 2015; Bonevski, Guillaumier, Paul, & Walsh, 2013; Cousins, Connor, & Kypri, 2010; Hernandez, Leontini, & Harley, 2013).

7.2 Data Integration

In chapter 6, the combined data of quantitative and qualitative findings was investigated to compare and contrast patterns of alcohol consumption and alcohol-related harms among Indigenous Australian and non-Indigenous Australian students.

Findings in chapter 6 showed that drinking occasion, social influences and negative personal effects among Indigenous Australians and non-Indigenous Australians are contextual factors associated with hazardous alcohol consumption. Among those variables, the contextual role of university – drinking rates, coupled with academic performance and negative effects of alcohol use – determine how both Indigenous Australian and non-Indigenous Australian students experience university life. The results of this study suggest that both individual and contextual variables contribute to the explanation of patterns of alcohol consumption and alcohol-related harms. In this study, the qualitative variables explained more variance on alcohol consumption and associated harms at an individual and group level among Indigenous Australians and non-Indigenous Australians. Although there are increasing numbers of studies about the effect of individual factors on alcohol consumption, this study is one of the few studies investigating this topic and Indigenous Australian university students using mixed methods analysis. The findings indicated an adjustment to the drinking environment at university explains more of the actual drinking than harms between Indigenous Australian and non-Indigenous Australian students. This suggested that an important part of any prevention strategy at university should be aimed at influencing the opportunities to drink rather than only the motives to drink.

7.3 Strengths of the study

The use of the concurrent triangulation mixed methods approach, through the combination of epidemiological and yarning group data, is an important strength of the research program. The mixed methods approach enhanced the strength of the research outcome of the study,

through the type of data collected and how they complemented each other during the process (Creswell & Plano Clark, 2011). In this study, the integration of data helped to emphasise the mixed methods approach to ensure complementarity was achieved. I undertook a process based on Onwuegbuzie and Burke Johnson (Onwuegbuzie & Burke Johnson, 2006, p.58.), who recommended that researchers must '*...consciously and carefully assess the extent to which the weakness of one approach can be compensated by the strengths of the other approach and then plan and design the study to fulfil this potential*'; referred to as weakness minimisation legitimisation (Onwuegbuzie & Burke Johnson, 2006, p.58.). This has achieved legitimisation in the use of different data collection and data analysis.

The yarning group among Indigenous Australian and non-Indigenous Australian university students strengthened the overall study outcome as the data helped to explain the epidemiological findings further. For example, the yarning groups indicated social norms of drinking at university among students and then comparing the epidemiological data helped to unpack the attributes related to hazardous drinking at the university.

The yarning groups strengthened the overall outcome as much as the yarning data helped to explain in-depth the initial epidemiological data. I have used a variety of statistical analyses in the epidemiological study that addresses Onwuegbuzie and Burke Johnson's conversion legitimisation reference. Conversion legitimisation is where the data techniques lead to interpretable data of high inference quality. A range of quantitative and qualitative analyses were performed in the study to provide more than one type of interpretive outcome. Combining the epidemiological and yarning group data gives a more nuanced view of Indigenous Australian outcomes.

The use of the Indigenous methodology was a particular strength of this research program as it provided a consistent framework to the topic of alcohol use and alcohol-related harm and provided a methodological lens through which the research program could be conducted. It was a novel research design not used before in alcohol research.

7.4 Study limitations

Students that participated in both the epidemiological study and yarning groups were drawn from one regional university in North Queensland. There is a possibility that students from other Australian universities may have different alcohol experiences and be exposed to different alcohol-related harms. Further, students in the study were recruited on the university's main campus via lectures, outdoor activities, social groups and online advertising through the university's website, which may have also excluded potential participants with different alcohol experiences from those in the study.

Even though there were a significant number of non-Indigenous Australian students in the cross-sectional survey, Indigenous Australian students were only a size sample. Further, data collection of Indigenous Australian status on the survey depended on Aboriginal and Torres Strait Islander students' self-identification which posed data limitations.

One-third of the participants in the epidemiological study and yarning group represented the Faculty of Medicine, Health, and Molecular Sciences. Further, only female students participated in both survey and yarning groups for both Indigenous Australian and non-Indigenous Australian students. Therefore, the perspectives of students' alcohol behaviour represented in this study may not necessarily represent the views of all Indigenous Australian and non-Indigenous Australian students. The research requires the further involvement of men, both Indigenous Australian and non-Indigenous Australian, and the experiences of other disciplines within the university sector.

7.5 Validity of the study

It is critical for the epidemiological (quantitative), and yarning group (qualitative) approaches to meet validity criteria specific to both datasets in a mixed methods study. I have addressed validity in each component of the study in this study. Notwithstanding, Onwuegbuzie and Burke Johnson (2006) suggest mixed methods studies need legitimating checks across the mixed methods process, rather than general validity checks at each phase of the study. Further, they developed a potential list of legitimising checks that could be applied to the mixed methods study. In this chapter, I have adapted their list to appraise the validity of my study (Table 7.1).

Table 7.1 Adapted from Onwuegbuzie and Burke Johnson (2006) *Typology of Mixed Methods Legitimation Types*.

Types of Legitimation for Mixed Research	Description (study title)
1. Sample Integration - The extent to which the relationship between the quantitative and qualitative sampling designs yields quality meta-inferences.	The yarning group sample was drawn beside the epidemiological sample. The yarning group questions asked were devised from the initial analysis of the epidemiological study.
2. Inside-outside - The extent to which the researcher accurately presents and appropriately utilises the insider's view and the observer's views for purposes such as description and explanation.	The inside-outside position has been discussed in chapter 3 and chapter 7, which outlines my positioning as an Indigenous Australian researcher and frames the research within an Indigenous methodological lens.
3. Weakness Minimisation - The extent to which the weakness of one approach is compensated by the strengths of the other approach.	The weakness of collecting Indigenous Australian epidemiological data was addressed by the collection of yarning group data. The yarning data provided further information to offset the limitations of the statistical analysis of a small size for Indigenous Australian epidemiological data.
4. Sequential - The extent to which one has minimised the potential problem wherein the meta-inferences could be affected by reversing the sequence of the quantitative and qualitative phases.	A concurrent triangulation design was employed by this study, due to the nature of the research topic and methods applied. Both the epidemiological study and the yarning groups were conducted at the same time, but during the initial data collection of the epidemiological study, I identified key questions for further exploration in the yarning groups.
5. Conversion - The extent to which the quantising or qualifying yields quality meta-inferences.	Data collected from the yarning groups were quantised to identify counts across the sample and within the Indigenous Australian and non-Indigenous Australian students as subgroups.
6. Paradigmatic mixing - The extent to which the researcher's epistemological, ontological, axiological, methodological, and rhetorical beliefs that underlie the quantitative and qualitative approaches are successfully (a) combined or (b) blended into a convenient package.	To fully explore alcohol use and alcohol-related harms among Indigenous Australian and non-Indigenous Australian students was difficult to take a unique approach by isolating quantitative and qualitative data, in the attempt to create a full meaning. As an Indigenous researcher, I viewed the study as a continuum and trusted that the critical Indigenous perspective applied through interaction between

	the epidemiological study and yarning groups approaches would strengthen the study outcome.
7. Commensurability - The extent to which the meta-inferences made reflect a mixed worldview based on the cognitive process of Gestalt switching and integration.	Commensurability was attained through this study by incorporating both epidemiological and yarning group datasets in the final data integration.
8. Multiple Validities - The extent to which addressing legitimization of the quantitative and qualitative components of the study result from the use of quantitative, qualitative, and mixed validity types, yielding high-quality meta-inferences	In the epidemiological and yarning group phases of this study, validity was addressed and achieved. Data integration allowed for strong meta-inferences. As an Indigenous Australian researcher, I recognised the importance of the individual approaches of the study, however, I believe that the integration of the data creates a comprehensive picture which is greater than the sum of each approach.
9. Political - The extent to which the consumers of mixed methods research value the meta-inferences stemming from both the quantitative and qualitative components of a study.	The findings of the study highlighted differences in the predictor of alcohol-related harms among Indigenous Australian and non-Indigenous Australian students, and similar patterns of alcohol use among university students as in previous studies in Australia. There is a need to further research patterns of alcohol use among Indigenous Australian students. However, this study provides the starting point for academics and public health researchers to expand this phenomenon that may assist students to reduce hazardous drinking at the university. I believe that without using a mixed methods approach, the findings would not have been achieved.

7.6 Recommendations for prevention

This thesis has provided additional understanding of alcohol consumption and alcohol-related harms among Indigenous Australian and non-Indigenous Australian students at an Australian university. To best develop appropriate interventions, it is important to know the specific factors that need to be considered to effectively reduce the harmful health behaviours associated with alcohol use.

Our finding showed both Indigenous Australian and non-Indigenous Australian students had different social-demographic factors about consumption and negative consequences: level of educational qualification, language spoken at home, age, males and relationship status. Additionally, risk factors of respondents included alcohol-related risk behaviour, health satisfaction and academic performance. These risk factors should be incorporated when implementing prevention programs.

7.6.1 Intervention for Indigenous Australian and non-Indigenous Australian students

This study has challenged the traditional views about students' alcohol use and alcohol-related harms at the university. The finding in chapter 4 was that the Alcohol Use Disorder Identification Test (AUDIT) detected Indigenous Australian and non-Indigenous Australian differences in alcohol-related problems, more specifically among males. This finding suggested that tailored intervention should focus on Indigenous Australian and non-Indigenous Australian men and use the AUDIT tool to detect students who drink at hazardous levels. The AUDIT tool is a proven, cost-effective measure to identify at risk or harmful alcohol use with improved interventions, both on an individual and population level (Babor et al., 2001).

Additionally, each type of alcohol-related risk behaviour and academic performance were found to be associated with hazardous drinking. Therefore, identifying alcohol-related risk behaviour and academic performance as an exposure measure should be used to detect individuals at harmful risk of alcohol use. Notably, alcohol-related risk behaviour and academic performance were found to have a correlation with hazardous drinking among non-Indigenous Australian students (showed in chapter 4), which is similar to other studies

examining ethnicity and alcohol use (Kypri, Langley, et al., 2005; LaBrie, Atkins, et al., 2012; Morrissey, 2005; Murugiah & Scott, 2014). Alcohol-related risk behaviour and academic performance should be incorporated into the screening process to detect students who drink at hazardous levels. This finding provides a foundation of evidence that can inform effective targeted alcohol interventions to support Indigenous Australian and non-Indigenous Australian students to reduce their hazardous drinking at the university. Such interventions will maximise the potential for Indigenous Australian and non-Indigenous Australian students to complete their qualifications, particularly Indigenous Australian students, contributing to closing the gap for their community.

7.6.2 Intervention in a university setting

One approach to circumventing hazardous alcohol consumption at universities is the preventive strategies that raise the awareness of risk associated with hazardous drinking, teach skills to deal with peer pressure, and create alternative social activities instead of drinking among Indigenous Australian and non-Indigenous Australian students. Additionally, academic performance is associated with hazardous drinking (chapter 4), and the universities should issue alcohol regulation on campus.

The highest prevalence of alcohol-related harms were “going to university drunk”, “physical harm”, “had unprotected sex” and “public disturbance”. Intervention programs should take into account students’ anticipated regrets across Indigenous Australian and non-Indigenous Australian students. Research shows that students who understand the consequences are less likely to drink at hazardous levels (Jones, Barrie, & Berry, 2012; Ricciardelli & McCabe, 2008).

A number of evidence-based prevention programs and resources have been developed that aim to deter use, delay initial use, or reduce harms associated with alcohol use in young people at university (Barrett, Newton, Teesson, Slade, & Conrod, 2015; Crawford-Williams et al., 2013; Reavley & Jorm, 2010). However, the vast array of available education programs makes it challenging for universities to determine which education programs are optimal for their student population. Co-designing and implementing education programs with students will improve the delivery and engagement among Indigenous Australian and non-Indigenous Australian students. The education program will be tailored to the hazardous effects of

alcohol use and alcohol-related harms evident in this study. The education program could also address the issue of peer pressure and social isolation facing students. These programs will offer an important background to alcohol use and promote constructive dialogues on the behaviours that enhance wellbeing; and help universities to respond more effectively to the prevalence of hazardous drinking among the student population.

7.6.3 Intervention through policy creation.

Given the large variation in alcohol consumption among Indigenous Australian and non-Indigenous Australian students demonstrated in chapter 4 and the synthesis of the key findings in chapter 6, the contextual aspects seem to be strongly related to the availability of alcohol on the university campus. It is recommended that a policy limiting the availability of alcohol be a key step in reducing alcohol-related harm. Availability of alcohol is a key environmental factor explaining the differences in Indigenous Australian and non-Indigenous Australian students' trends in alcohol use and associated harms. There is evidence from other countries (Burns et al., 2016; Hallett et al., 2013; Rowland et al., 2014) that suggests that limiting the availability of alcohol can reduce individuals' alcohol consumption and associated harms.

Chapters 4 and 5 showed that the difference in the perception of alcohol consumption and actual alcohol consumption among Indigenous Australians and non-Indigenous Australians was alarming. As contextual aspects supported by the university environment, these findings suggest that the university campus environment facilitates the use of alcohol more than off campus. The university culture promotes alcohol consumption, and this supports the need for a health promotion campaign targeting both Indigenous Australian and non-Indigenous Australian students. Therefore, universities should encourage Indigenous Australian and non-Indigenous Australian students to not drink heavily during the academic year by raising awareness of the harmfulness of heavy drinking.

Results from chapter 4 showed that alcohol-related harms are associated with hazardous drinking, and there should be an alcohol policy that restricts the sale and provision of alcohol for intoxicated students. Literature exists that supports the need for policy changes in prevention at university based on the information about patterns of alcohol consumption. Policy makers in Australia can be informed by the research findings to begin a process of

change that will help to address the overburden of harmful drinking behaviour faced by Indigenous Australian and non-Indigenous Australian students. Further, the findings relating to Indigenous Australians suggest the need to develop an Indigenous Australian research agenda on alcohol policy to be considered by universities. The research agenda will involve promoting and facilitating alcohol research among Indigenous Australian populations, designing research activities using Indigenous research methodologies, as well as disseminating research findings to build Indigenous Australian capacity in the field. Also, the agenda will inform alcohol policy issues relating to Indigenous populations internationally, as well as at national, state and local government levels within Australia. It is very important that the policymakers who draft the national alcohol policy in universities should consider and include existing findings.

7.7 Further Research

The previous chapters of this thesis have demonstrated that prevention strategies to modify hazardous alcohol consumption among both Indigenous Australian and non-Indigenous Australian students are needed that are acceptable to universities and culturally appropriate to be effective in reducing alcohol-related behaviour and associated harms. Further research is required to extend exploring Indigenous Australian students' alcohol use and alcohol-related harms prior to and after attending university. Insight on alcohol use and alcohol-related harms prior to and after university could be beneficial in regional universities' approach to addressing health education and prevention measures. Additionally, the collection of epidemiological data could be useful in conjunction with the yarning groups used in this study. This research could further investigate the differences by Indigenous Australian and non-Indigenous by regional universities.

In the literature review and this current study, it has been identified that research needs to examine the effectiveness of alcohol prevention programs. The latest measures in prevention and education include online material, a university alcohol policy, academic sanctions on alcohol-related behaviour, and student health policies that encourage self-help for students. Regional universities need to examine their prevention efforts and share their experiences and success with other universities. There are a range of opportunities for exploring differences between Indigenous Australian and non-Indigenous Australian university alcohol use and alcohol-related harms. With alcohol use being a complex issue with students, alcohol use is

often paired with other substance use. This research topic warrants comparative research among Indigenous Australian and non-Indigenous Australian students because of the impact it has on society, university institutions, families, peers, and individuals. Further, to gain a comprehensive picture of alcohol programs among Indigenous Australian university students, the effectiveness of alcohol education needs to be evaluated.

7.8 Conclusion

This study set out to investigate the differences in alcohol consumption and alcohol-related harms among Indigenous Australian and non-Indigenous Australian students at a regional university. The nature of the research was developed to examine and explore experiences that Indigenous Australian and non-Indigenous Australian students had at university and themes were identified using quantitative and qualitative analysis to analyse the data collected. On review of the literature, there was a reasonable amount of information available on alcohol use and alcohol-related harms of university/or college students. However, literature investigating the alcohol use and alcohol-related harms of Indigenous Australia students at university was limited.

Although there were examples of international universities investigating alcohol use and alcohol-related harms, there was no formal investigation into what effects university may have on the differences between Indigenous Australian and non-Indigenous Australian students. This final chapter provides an overview of the research and outcomes of the findings.

7.9 Overview of the research

This research aimed to examine differences in alcohol consumption and alcohol-related harms among Indigenous Australian and non-Indigenous Australian students. There were several objectives of this mixed methods research. The first was to determine Indigenous Australian and non-Indigenous Australian student drinking patterns, including the frequency of drinking, the quantity of drinking, and the choice of alcohol consumed; the frequency of alcohol-related harms experienced by Indigenous Australian and non-Indigenous Australian students who drink; and any differences and/or similarities in the association between hazardous drinking and associated harms. The second was to identify the experience of alcohol consumption and alcohol-related harms among Indigenous Australian and non-

Indigenous Australian students. The third aim was to compare and contrast any differences and similarities between Indigenous Australian and non-Indigenous Australian student experiences of alcohol consumption and alcohol-related harms, more generally.

7.10 Outcomes of research

The findings of this mixed methods study provided some insight into the culture of alcohol use at the regional university. The notable difference in alcohol-related harms (depressive symptoms, academic performance, and physical harms) was justified by the data that indicated a significant difference in alcohol use between Indigenous Australian and non-Indigenous Australian university students, which indicated more Indigenous Australian students consume at hazardous levels than non-Indigenous Australian students.

There was a statistically significant difference in the alcohol-related harms (depressive symptoms, academic performance, and physical harms) among Indigenous Australian and non-Indigenous Australian students associated with hazardous alcohol use which is important for practice. These findings indicate that alcohol-related harms (depressive symptoms, academic performance, and physical harms) should not be the focus of prevention efforts. Based on these results, Indigenous Australian and non-Indigenous Australian students drink for similar reasons. The primary concern is the pattern of alcohol and frequency at which Indigenous Australian and non-Indigenous Australian students consume alcohol. The multiple regression analysis found that non-Indigenous university students drinking at hazardous levels were associated with dissatisfaction with academic performance and experience of alcohol-related harm, which is valuable information for public health practice. This result indicates the need to further investigate hazardous alcohol use and alcohol-related harms by non-Indigenous Australian students on campus, however, there is a need to further investigate the issue of hazardous drinking among Indigenous Australian university students. Importantly, this study has revealed a great deal of valuable information about Indigenous Australian university students and the differences between them and non-Indigenous Australian students at the regional university and can provide the university sector with the data to support prevention efforts that target Indigenous Australian and non-Indigenous Australian student populations.

7.11 Final reflections

The history of invasion and colonisation of Indigenous Australians has been one of disempowerment and marginalisation. This has resulted in the gap between the health outcomes of Aboriginal and Torres Strait Islander Australians, and the broader Australian population, which is well recognised (Closing the Gap: Prime Minister's Report 2013; Marmot, 2005). A contributing factor to this situation has been the considerable influence of alarming health problems, racism, the impact of government policies, and educational outcomes. Any effort to close this gap must acknowledge the importance that university education plays in enabling our Aboriginal and Torres Strait Islander young people towards this process. However, significant multi-layered disadvantage across all measures of wellbeing for Aboriginal and Torres Strait Islander young people at the university have been influenced by the culture of alcohol use. The impact of alcohol use and associated harms on Aboriginal and Torres Strait Islander university students has led to low retention and completion rates of university degrees. This thesis is further evidence of alcohol use and the associated harms that Aboriginal and Torres Strait Islander young people experience at the university. The objective of undertaking this thesis was to develop an understanding of whether alcohol use and alcohol-related harms among Aboriginal and Torres Strait Islander students should be a concern for the university, particularly affecting retention and completing rates.

As an Aboriginal man who has attended university and had experienced the culture of university life, I have been met with institutionalised racism, family and cultural obligations, and financial barriers along the way. I wanted to help improve the university experience for many Aboriginal and Torres Strait Islander young people, particularly for students who use alcohol to cope with university life. This thesis contributes to the current alcohol research into university student drinking culture and provides regional universities with insight into the patterns of alcohol use and alcohol-related harms that exist for many Aboriginal and Torres Strait Islander university students. In addition, it provides recommendations for prevention and education initiatives to improve their university experience and to increase retention and completion rates for Aboriginal and Torres Strait Islander students at the university.

Appendix One - Human Research Ethics

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Appendix Two - Poster for the Epidemiological Study

Does ALCOHOL consumption affect us as students?

Little is known about patterns of drinking among university and TAFE students and its relation to:

- Physical harms,
- Social and emotional well-being &
- Academic performance.

We need your **HELP**, please volunteer and complete a simple 15 minute survey today.



This research is about exploring the experiences of 17-24 year old university and TAFE students with alcohol consumption and the possible consequences of drinking. It doesn't matter if you drink a lot of alcohol, or a little. We are interested in hearing from everyone.

The answers you provide are strictly confidential. Your name is not recorded, however, we also ask that you record your student number on the survey. The student number can be linked to participants' information. This study will only obtain information about participants' GPAs for semester 1 and semester 2. Note that you do NOT record your name or other identifying information. We will provide student services with a list of student numbers, and they will provide the relevant GPAs. Student services will not have access to the survey information. The Principal Investigator will NOT have information about your name or personal details. Thus, the information you provide can not be linked to you personally.

Please visit link to access the survey, <https://www.surveymonkey.com/s/patternsofdrinkinghealth>

Or Scan QR code to access the survey



If you have any questions about the study, please contact:

Principal Investigator: Mr Peter Malouf, School of Public Health, Tropical Medicine and Rehabilitation Science, James Cook University,

Email: peter.malouf@my.jcu.edu.au



Appendix Three - Epidemiological Study – Information Sheet

INFORMATION SHEET



Patterns of Drinking and associated harms of depression and academic performance among Indigenous and non-Indigenous university students

Purpose of the Study:

This research is about experiences of 18-24 yr old university students with alcohol consumption and possible consequences of drinking. It doesn't matter if you drink a lot of alcohol or a little. We are interested in hearing from everyone. You are being asked to participate in this study because you are an 18-24 yr old university student. Currently, little is known about the patterns of alcohol use in Australian university students, and associated factors. Your participation will help us understand the issue further.

Description of the Study and Your Involvement:

If you decide to participate, you will be asked to sign this consent form to show that you understand the study and the survey process. The questionnaire should only take 15 minutes to complete. We also ask that you record your student number on the survey. This will allow us to obtain information about study participants' GPAs for semester 1 and semester 2. Note that you do NOT record your name or other identifying information. We will provide student services with a list of student numbers, and they will provide the relevant GPAs. Student services will not have access to the survey information. The research team will not have information about your name or personal details. Thus, the information you provide cannot be linked to you personally.

The survey is about alcohol consumption and associated factors. You will be asked questions regarding your background, educational experiences, and physical and psychological health.

Participation in this survey is completely **voluntary**. You will not be penalised in any way should you choose not to participate. Further, if you do choose to participate, you may skip any questions you do not wish to answer and you may stop your participation at any time without penalty. Ethics approval has been obtained for this study from James Cook University Human Research Ethics Committee.

Possible Discomforts and Risks:

This study involves completing a survey. Some of the questions are about drinking alcohol, and health, including psychological health. If you are worried about your drinking, or someone else's drinking, or you are worried about your own or someone else's psychological health, you can contact any of the services below.

Lifeline Crisis Chat (24 hours, anonymous)

<https://www.lifeline.org.au/Get-Help/Online-Services/crisis-chat>

Lifeline on 13 11 14.

Beyond blue (24 hours, anonymous)

[1300 22 4636](tel:1300224636)

Alcohol and Drug Information Service (24-hour anonymous counselling service)

1800 177 833

Alcohol, Tobacco and Other Drugs Service

35-43 Gregory Street, North Ward

Phone: (07) 4778 9677

Townsville headspace

Riverway Village Boulevard

Phone (07) 4799 1799

Townsville Aboriginal and Islander Health Services

57-59 Gordon Street, Garbutt
Social and Mental Health Unit
Phone: (07) 4759 4000

Wuchopperen Health Services, Cairns
Phone: (07) 4080 1000

Alcohol, Tobacco and Other Drugs Service
31 Shield Street, Cairns
Phone: (07) 4226 3900

If you are in a crisis situation or need immediate medical assistance contact Mental Health Services or Emergency Services at 000.

Benefits:

Your participation in this study will provide information which will be used to develop strategies to reduce harms associated with alcohol for university students. It will also provide information on the physical and psychological health of students, and help to develop appropriate services. We hope to understand what factors are associated with harmful alcohol use, and also what factors prevent harmful use.

Confidentiality:

The answers you provide are strictly **confidential**. Your name is not recorded, and your responses cannot be linked to you.

The information from the survey will be entered into an electronic database which will be password protected. Only the researchers will have access to the surveys and data. The surveys will be kept in a locked filing cabinet. The data from the study will be used in research publications, reports and conference presentations, but at a summary level only. You will not be identified in any way in these publications.

If you have any questions about the study, please contact – Mr Peter Malouf or Associate Professor Kerriane Watt.

Principal Investigator:
Mr Peter Malouf
School of Public Health, Tropical Medicine and Rehabilitation Science
James Cook University
Mobile:
Email: peter.malouf@my.jcu.edu.au

Supervisor:
Associate Professor Kerriane Watt
School of Public Health, Tropical Medicine and Rehabilitation Science
James Cook University
Phone:
Email: kerriane.watt@jcu.edu.au

If you have any concerns regarding the ethical conduct of the study, please contact:
Human Ethics, Research Office
James Cook University, Townsville, Qld, 4811
Phone: (07) 4781 5011 (ethics@jcu.edu.au)

Appendix Four - Epidemiological Study Consent Form

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has been removed

Appendix Five – Epidemiological Study Survey

DEMOGRAPHIC CHARACTERISTICS

We would like to know about the different people participating in our study

PERSONAL INFORMATION

What are your student number?

Are you male or female?

Male

Female

What is your age (at last birthday)?

years

Do you identify as Aboriginal or Torres Strait Islander? *mark one response only*

No	Yes, Aboriginal	Yes, Torres Strait Islander	Yes, both Aboriginal and Torres Strait Islander
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What language do you speak at home? *mark one response only*

English only	Another Language	English and another language
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Which one of the following best describes your present relationship status? *mark one response only*

Single	Married/long-term partner	Separated / Divorced	Boyfriend/girlfriend)
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How would you describe your housing situation ? *mark one response only*

Live in family home (Parents/Stepparents /Other Relatives)	
Live with Spouse/ partner	
Share house	
On-campus accommodation	
Alone	
Other	

Do you have a driver's license?

Yes

No

EDUCATION INFORMATION

Are you a full-time or part-time student?

FT

PT

Do you study on campus or off campus?

On Campus

Off-Campus

What Faculty at James Cook University are you enrolled in? *mark one response only*

Arts, Education	Law, Business and Creative	Medicine, Health and	Science and Engineering
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and Social Sciences	Arts	Molecular Sciences	
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What year and semester are you in ? mark one response only

1st year (1st/2nd semester)	
2nd year (3rd/4th semester)	
3rd year (5th/6th semester)	
4th year (7th/8th semester)	
5th year (9th/10th semester)	
6th year (11th/12th semester)	
Other	

What is the highest education qualification you have completed? mark one response only

Secondary (yr 12)	Apprenticeship / Trade Cert	TAFE (Cert, Dip, Adv Dip)	Tertiary – Undergrad	Tertiary – Postgrad
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What is your average GPA per semester? mark one response only

Below 1.5	1.5-2.0	2.5-3.0	3.5-4.0	4.5-5.0	5.5 Above	Unknown
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How challenging is a university for you? mark one response only

Easy	Not very challenging	Somewhat challenging	Difficult
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How academically prepared were you for this class at the beginning of the semester? mark one response only

Not prepared	Somewhat prepared, but lacking some important skills or knowledge	Prepared
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EMPLOYMENT INFORMATION

Do you have the scholarship to undertake your studies?

Yes

No

Do you receive any of the following government benefits or government/university scholarships? mark one response only

Youth Allowance	
Austudy Payment	
Abstudy Payment	
Government or private sector cadetship	
Family/Parenting Allowance	
undergraduate scholarships)	
Other	

Are you employed? mark one response only

Full-time	Part-time	Casual	Not Employed
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What is your job title?

--

Do you usually work... *mark one response only*

Daytime	Evenings	Night time	Shift work
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LIFE OUTLOOK

For the past four weeks how satisfied have you been with your health? *mark one response only*

Very Dissatisfied	Dissatisfied	Neither Satisfied nor Dissatisfied	Satisfied	Very Satisfied
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Have you had informal and supportive contacts with relatives, friends, and neighbours, including letters, phone calls, or e-mails in the past four weeks? *mark one response only*

Daily	Several times a week	Once or twice a week	1 to 3 times in the last 30 days	Not at all
-------	----------------------	----------------------	----------------------------------	------------

Over the last two weeks, how often have you been bothered by any of the following problems? *mark one response per row*

<i>for <u>each</u> below mark <u>one</u> response</i>	Not at all	Several days	More than half the days	Near everyday
Little interest or pleasure in doing things				
Feeling down, depressed, or hopeless				
Trouble falling or staying asleep, or sleeping too much				
Feeling tired or having little energy				
Poor appetite or overeating				
Feeling bad about yourself — or that you are a failure or have let yourself or your family down				
Trouble concentrating on things, such as reading the newspaper or watching television				
Moving or speaking so slowly that other people could have noticed? Or the opposite — being so fidgety or restless that you have been moving around a lot more than usual				
Thoughts that you would be better off dead or of hurting yourself in some way				

How stressful is your study situation? *mark one response only*

Very stressful	Somewhat stressful	A little stressful	Not at all stressful
----------------	--------------------	--------------------	----------------------

How well do you like your studies? *mark one response only*

Hate it	Dislike	Indifferent	Like	Love it
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How satisfied are you with your academic performance? *mark one response only*

Very Dissatisfied	Dissatisfied	Neither Satisfied nor dissatisfied	Satisfied	Very Satisfied
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ALCOHOL AND OTHER DRUG USE

For many people alcohol and other drug use are common ...Remember... your responses are anonymous and confidential

Have you ever consumed more than four drinks on one occasion? Yes No

Did you drink alcohol before enrolling at University?

Yes	<input type="checkbox"/>	No	<input type="checkbox"/>
Yes	<input type="checkbox"/>	No	<input type="checkbox"/>

Have you had any drinks containing alcohol in the past four weeks

We are interested in how much alcohol you usually drink, when you drink. Please be honest, and as accurate as you can. Remember that we do not know your name or any other information about you. This information is confidential.

How often do you drink alcohol? (tick one box only)

<input type="checkbox"/> Every day	<input type="checkbox"/> 2-3 times per week	<input type="checkbox"/> Once per week
<input type="checkbox"/> Once per fortnight	<input type="checkbox"/> Once per month	<input type="checkbox"/> Once every 2-3 months
<input type="checkbox"/> Once every 6 months	<input type="checkbox"/> Once per year or less often	<input type="checkbox"/> Never

*When you drink alcohol, how many drinks do you **USUALLY** have on one occasion? Please be as specific as you can in your answer – include **type of alcohol, brand, and a number of drinks** in the relevant box.*

If you usually share a bottle with someone else, try to estimate how much of the bottle you drink – eg write ¾ bottle, ½ bottle etc

BEER	Number of drinks (e.g, 6 stubbies; 2/3 bottle)	Brand Please write brand (e.g., XXXX GOLD, VB, etc)
Cans / stubbies (375mL)		
Bottles (Tallies) 750 mL		

Glasses / pots		
Other (specify)		

WINE	Number of drinks (e.g. 2 glasses; 2/3 bottle)	Type (red or white or champagne)
Glasses		
Bottles - 750 mL		
Cask (specify size - 1L; 2L; 4L)		
Other (specify)		

CIDER	Number of drinks (e.g., 4 glasses; 2/3 bottle)	Brand Please write brand (e.g., 5 Seeds, Strongbow, Dirty Granny, etc.)
Cans / bottles (375mL)		
Bottles 750 mL		
Glasses / pots		
Other (specify)		

SPIRITS	Number of drinks	Brand Please write type (e.g., vodka, rum, scotch, etc.)
Cans / bottles (375mL)		
Bottles 750 mL		
Nips (30 mL)		
Other (specify)		

If you usually drink something else, please write as much information as you can in the box below (Eg – cocktails).

OTHER	Number of drinks	Brand Please write what it is
Please specify		

Thinking about the type of drink you described in the space above, please indicate **how often you drink:**

	More than once per week	Once per week	Once per fortnight	Once per month	Once every 2-3 months	Less frequently (< every 3 months)	Never
2 drinks or more							

	More than once per week	Once per week	Once per fortnight	Once per month	Once every 2-3 months	Less frequently (< every 3 months)	Never
4 drinks or more							

	More than once per week	Once per week	Once per fortnight	Once per month	Once every 2-3 months	Less frequently (< every 3 months)	Never
10 drinks or more							



1.	<i>how often do you have a drink containing alcohol? (please tick the answers that best describe your typical pattern of drinking)</i>					
	never	monthly or less	2-4 x a month	2-3 x a week	more than 3 x week	
2.	<i>how many drinks containing alcohol do you have on a typical day when you are drinking?</i>					
	1 or 2	3 or 4	5 or 6	7 to 9	10 or more	
3.	<i>how often do you have six or more drinks on one occasion?</i>					
	never	less than monthly	monthly	weekly	daily or almost daily	
4.	<i>how often during the past year have you found that you were not able to stop drinking once you had started?</i>					
	never	less than monthly	monthly	weekly	daily or almost daily	
5.	<i>how often during the past year have you failed to do what was normally expected of you because of drinking?</i>					
	never	less than monthly	monthly	weekly	daily or almost daily	
6.	<i>how often during the past year have you needed a first drink in the morning to get yourself going after a heavy drinking session?</i>					
	never	less than monthly	monthly	weekly	daily or almost daily	
7.	<i>how often during the past year have you had a feeling of guilt or remorse after drinking?</i>					
	never	less than monthly	monthly	weekly	daily or almost daily	
8.	<i>how often during the past year have you been unable to remember what happened the night before because you had been drinking?</i>					
	never	less than monthly	monthly	weekly	daily or almost daily	

9.	have you or has someone else been injured as a result of your drinking?		
	no	yes, but not in the past year	yes, during the past year
10.	has a relative or friend or a doctor or other health worker been concerned about your drinking or suggested you cut down?		
	no	yes, but not in the past year	yes, during the past year

Here is a list of places where people drink alcohol. Please indicate where you usually consume alcohol in the past four weeks?

for <u>each</u> below mark <u>one</u> response	
	X
I haven't had a drink in the past four weeks	
In my home with family or friends	
Sporting events or activity	
At home alone	
In a car/street/open air	
Restaurant	
Dance/Disco	
Beach	
Private party	
In a hotel	
University	
In a club	

If you bought alcohol in the past four weeks, where did you buy it?

Hotel	Bottle Shop	Restaurant	Club	Supermarket
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Have you in the last four weeks done any of the following while under the influence of alcohol?

for <u>each</u> below mark <u>one</u> response		
	Yes	No
went to university		
drove a motor vehicle		
created a public disturbance or nuisance		
verbally abused someone		

physically abused someone		
had unprotected sex		

HEALTH SERVICE USE

Excluding today, in the last four weeks have you asked or looked for health or medical advice from...

<i>for each below mark <u>one</u> response</i>	Yes	No	How many Times?
a. a pharmacist/chemist			
b. First Aid			
b. General practitioner (doctor)			
c. Emergency Department			
d. the Internet			
e e-health, such as Queensland Health website or Health Online			

In your opinion, how likely is it for a student to find help from counsellors, professors or other adults to reduce or quit consuming alcohol or other drugs? *mark one response only*

Very likely	
Likely	
Not likely	
I don't know	

Thank you very much for participating in our survey. This is important work and will help us to investigate issues that may impact on the health and well-being of university students at JCU. We appreciate your time and your honesty.

Appendix Six – Yarning Group Information Sheet

INFORMATION SHEET

PROJECT TITLE: Patterns of drinking & physical harms, social and emotional well-being & academic performance among University students: cultural variations



Purpose of the study:

This research is about exploring the experiences of 17-24-year-old university students with alcohol consumption and the possible consequences of drinking. It doesn't matter if you drink a lot of alcohol or a little. We are interested in hearing from everyone. You are being asked to participate in this study because you are a 17-24-year-old university student. Currently, little is known about the patterns of alcohol use and associated factors in Australian university students. Your participation will help us further understand this issue.

Description of the Study and Your Involvement:

If you decide to participate, you will be asked to sign this consent form to show that you understand the study and the yarning group process. You will also be asked to fill out a questionnaire about your name, age, gender, location, etc. before the Yarning Group commences. Your participation will take approximately 60-90 minutes of your time and will involve sitting in a Yarning Group. The Yarning Groups will be digitally recorded. The Principal Investigator would like to explore the following questions:

- What is the knowledge and experience of alcohol and alcohol-related harms in University Indigenous students?
- What is the perception of cultural norms of alcohol use among Indigenous university students?
- What influences and facilitates alcohol use University Indigenous students?
- What are the perceived harm reduction strategies and perceived support?

Participation in this yarning group is completely **voluntary**. Further, if you do choose to participate, you may skip any questions you do not wish to answer, and you may stop your participation at any time without penalty. Ethics approval has been obtained for this study from James Cook University Human Research Ethics Committee. A summary of the information from the Yarning Group will be sent to you to check for accuracy prior to preparing the final report.

Risks and Benefits

You do not have to discuss anything you do not want to discuss. If you feel uncomfortable when discussing something during the Yarning Group, let the Principal Investigator know, and you will be provided with the option to leave the yarning group or to change the topic.

It is unlikely that you will gain any direct benefits from taking part in the study. However, you might feel that talking about your experiences is helpful.

If participating in this research has caused you to feel upset or if you are worried about your drinking, or someone else's drinking, or you are worried about your own or someone else's psychological health, you can contact any of the services listed below.

JCU Counselling Team at Townsville or Cairns for JCU students: Townsville (07 4781 4711) or Cairns (07 4042 1150)

Lifeline Crisis Chat (24 hours, anonymous)
Lifeline on 13 11 14.

Beyond blue (24 hours, anonymous)
1300 22 4636

Alcohol and Drug Information Service (24-hour anonymous counselling service)
1800 177 833

Alcohol, Tobacco and Other Drugs Service (Townsville)
35-43 Gregory Street, North Ward
Phone: (07) 4778 9677
8.30am to 5.00pm Monday to Friday

Townsville headspace
Riverway Village Boulevard, Townsville QLD 4814
Phone (07) 4799 1799
8.30am to 4.45pm Monday to Friday

Townsville Aboriginal and Islander Health Services
57-59 Gordon Street, Garbutt
8.30am to 5.00pm Monday to Friday
Phone: (07) 4759 4000

Wuchopperen Health Services (Cairns)
Phone 07 4080 1000
13 Moignard Street Manoora
8.30am to 5.00pm Monday to Friday

Alcohol, Tobacco and Other Drugs Service (Cairns)
31 Shield St, Cairns.
Phone: (07)4226 3900.
8am to 8pm Monday to Friday

If you are in a crisis situation or need immediate medical assistance contact Mental Health Services or Emergency Services at 000.

Privacy

Your name will not be used in the research report or in any publications, however, as there is a small number of people taking part in this study and the knowledge about you by family and friends in the community then readers of the research may be able to tell who you are. Others in the Yarning Group will hear what everyone is saying so we can't guarantee confidentiality, however we will ask that what is said in the group is not discussed outside the group.

Payments

You will not be paid for your involvement in this research.

Additional information

This research involves Aboriginal and Torres Strait Islanders. The methods and protocol of the yarning groups have been designed under the advisement of a cultural advisor.

If you have any questions about the study, please contact – Mr Peter Malouf or Dr Jenni Judd

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If you have any concerns regarding the ethical conduct of the study, please contact:
Human Ethics, Research Office
James Cook University, Townsville, Qld, 4811
Phone: (07) 4781 5011 (ethics@jcu.edu.au)

Appendix Seven – Yarning Group Consent Form

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