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INTERNATIONAL STUDENT GAMBLING: THE ROLE OF ACCULTURATION, GAMBLING COGNITIONS AND SOCIAL CIRCUMSTANCES

Full Technical Report: A mixed-methods investigation of international student gambling

August 2011

Commissioned by Gambling Research Australia
- A partnership between the Commonwealth, State and Territory Governments

Gambling Research Australia (GRA) is a partnership between the Commonwealth, State and Territory Governments to initiate and manage a national gambling research program structured around the following five research priority areas:

- helping individuals set their limits including access to cash and pre-commitment;
- responsible gambling environments;
- gaming machine standards-developing better consumer protection;
- a preventative and early intervention strategy targeted at those at risk of problem gambling;
- development of harm minimisation measures for interactive gambling.

Further information about GRA can be accessed via its website at: http://www.gamblingresearch.org.au

The Ministerial Council on Gambling established Gambling Research Australia (GRA) to administer its research program. The Secretariat is provided by the Office of Gaming and Racing, Department of Justice, Victoria. Further information about the national research program may be obtained from www.gamblingresearch.org.au

Gambling Research Australia commissioned researchers from Swinburne University of Technology (Victoria), Bond University (Queensland) and Deakin University (Victoria) to undertake a study into gambling among international students.

This project has been funded as part of the Research Program of the Ministerial Council on Gambling and was commissioned under research priority six of the National Gambling Research Program. This priority involves:

"Conducting research into patterns of gambling and consider strategies for harm reduction in specific communities and populations, such as Indigenous, rural, remote or culturally and linguistically diverse communities, young people or older people".

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International student gambling: The role of acculturation, gambling cognitions and social circumstances

Full Technical Report

August 2011

A mixed-methods investigation of international student gambling

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TABLE OF CONTENTS

1.	**Literature Review**	7
1.1	International students in Australia	7
1.2	International students as a vulnerable group	7
1.3	Young adulthood and experimentation	10
1.4	Gambling accessibility	10
1.5	Knowledge of gambling risk	12
1.6	Cultural expectations, attitudes and norms	13
1.7	So what do we know? Review of the literature on international students and gambling	15
1.8	Help seeking among international students	17
1.9	Conclusion	19
1.10	Research Objectives	20
2.	**Method**	22
2.1	Sites and participants	22
2.2	Measures	24
2.3	Procedure	29
2.4	Data Analysis	31
3.	**Results**	33
3.1	Gambling behaviour	33
3.1.1	Popularity and frequency of Gambling Activities	33
3.1.2	Changes in Gambling since arrival in Australia	36
3.1.3	Gambling expenditure	38
3.1.4	Risky and problem gambling	40
3.1.5	Summary: Gambling behaviour	44
3.2	Psychosocial risk factors	45
3.2.1	Stressors, gambling cognitions, negative affect and alcohol consumption among international students	45
3.2.2	Comparing international and domestic students on psychosocial risk factors	51
3.2.3	Predicting gambling behaviour in international and domestic students using psychosocial risk factors	53

3.2.4	Summary: Psychosocial risk factors	57
3.3	Cultural group comparisons	58
3.3.1	Cultural group comparisons of gambling behaviours	58
3.3.2	Comparing cultural groups on psychosocial risk factors	63
3.3.3	Summary: Cultural group comparisons	66
3.4	Help seeking and gambling supports for international students	67
3.4.1	Help seeking among international students	67
3.4.2	Gambling supports for international students	73
3.4.3	Summary: Help seeking and gambling supports	79
4.	**Discussion**	81
4.1	Gambling Behaviour: Is international student gambling a cause for concern?	81
4.2	Modifiable Psychosocial Risk Factors	83
4.2.1	Stressors and Negative Affect	83
4.2.2	Alcohol Consumption	86
4.2.3	Gambling Cognitions	87
4.3	Cultural group Differences on Gambling and Risk Factors	88
4.3.1	Gambling Behaviour: Are all International Students Equally at Risk?	88
4.3.2	Modifiable Risk Factors: Are all International Students the Same?	89
4.4	Help Seeking and gambling supports for international students	91
4.4.1	Help seeking among international students	91
4.4.2	Gambling supports for international students	93
4.5	Limitations	96
5.	**Conclusions**	99
6.	**References**	101

Tables and Figures

Table A	Demographics relating to International and Domestic Students	22
Table 1	Proportion of international and domestic students who participated in different gambling activities	33
Table 2	Gambling behaviour in home country and Australia, among international students	36
Table 3	Amount spent by domestic and international student (gamblers only) on gambling	38
Table 4	International student gambling by amount spent	39
Table 5	Level of gambling risk by student status and gender	40
Table 6	Problem gambler status by gender for domestic and international students	41
Table 7	Problem gamblers by living arrangements (all students)	42
Table 8	Academic, relationship and financial stresses of international students (% agree)	45
Table 9	Adaptation stresses of international students	46
Table 10	Gambling cognitions of international students	48
Table 11	Depression, anxiety and stress among international students (% in each of the DASS-21 categories) in comparison with population norms	49
Table 12	Frequency of alcohol consumption over the previous 12 months by international students	50
Table 13	Number of alcoholic drinks consumed on a typical day of drinking by international students	51
Table 14	Frequency of heavy drinking (6 or more alcoholic drinks) among international students	51
Table 15	Mean scores of domestic and international students on stressors and negative affect	52
Table 16	Mean scores of domestic and international students on gambling cognitions	53
Table 17	Correlations between measures of psycho-social risk and measures of gambling behaviour among international students and domestic students	54
Table 18	The extent to which consuming alcohol increased after commencement at university in Australia by student status	55

Table 19 Proportion of international students from each culture who participated in different gambling activities 59

Table 20 Comparison of cultural groups on problem gambling and gambling frequency 60

Figure 1: Problem gambling intensity scores (pg-sum) of male and female international students from six cultural groups 61

Figure 2: Frequency of gambling (sum all freq-gam) of male and female international students from six cultural groups 62

Table 21 Mean scores for home country groups on stressors (international students only) 63

Table 22 Mean scores for home country groups on negative affect (international students only) 64

Table 23 Mean scores for home country groups on gambling cognitions 65

Table 24 Issues Experienced by International Students (% who selected) 68

Table 25 Percentage of International Students who used different Help Options 69

Table 26 Proportion of International Students Using Help Options who found the service Useful 70

Table 27 Reasons given for International Students NOT using Professional Help Services (% agreement) 71

LITERATURE REVIEW

1.1 International students in Australia

International students have become an important sector of the Australian University population, with almost 500,000 enrolled in courses in Australia in 2009. The highest proportion (approximately 200,000) was enrolled in higher education (Australian Government, 2010b). Almost one half of the international student population in Australia in 2009 was aged between 20 and 24 years, with the majority (88%) under 30. Students most commonly come from China (24.1%) and India (18.2%). No other nationality contributes more than 10%, but substantial numbers come from other Asian markets including Korea, Malaysia, Thailand, Vietnam, and Indonesia. About one third of Australia's higher educational international students (around 64,000) are studying in Victoria with a further 31,000 studying in Queensland (Australian Government, 2010a).

1.2 International Students as a Vulnerable Group

International students have become an important contributor to university numbers in Australia. In turn, it is important for universities and the wider community to ensure this group is adequately supported while they study in this country. In many respects, they are a highly vulnerable population. They can experience a range of stresses that can lead to negative emotions and feelings of isolation (Dao, Lee, & Chang, 2007; Leung, 2001; Mori, 2000; Ramsay, Jones, & Barker, 2007; Yeh & Inose, 2003).

This will be the first time many have left family for an extended period of time. Traditionally the Indian and Chinese communities, for example, have tight family networks (Lin & Fu, 1990; Rastogi, 2007). Leaving family and friends can be a major adjustment. Loneliness and social isolation brought on by being so far from the family unit, friends and a familiar home country can be a major stressor for international students. Khawaja and Dempsey (2008) found that the international students reported lower levels of social support compared to domestic students. Further, Leung (2001) found that Chinese migrant and overseas students

studying in Australia were more lonely, had lower academic satisfaction and lower self-efficacy than Anglo-Australian students.

Financial stressors also beset many international students (Khawaja & Dempsey, 2008; Mori, 2000). Students seek qualifications in Australia to enable a better life, often at great expense to their families. While some students come from wealthy families who are able to absorb this expense, many families find the cost of sending a child overseas to study a major drain on resources. Students may have to manage a tight budget in Australia, working part-time to fund study and living expenses. A substantial family investment, often based on prior academic success, can also lead to very high achievement expectancies by family members and students (Mori, 2000; Opropeza, Fitzgibbon, & Baron, 1991). This may increase the academic pressure felt by students.

On top of these situational and emotional stressors, international students are confronted with the shock of living in a new culture. A failure to manage the process of acculturation can lead to *acculturative stress,* with negative effects on an individual's physiological, psychological or social health (Poyrazli, Kavanaugh, Baker, & Al-Timimi, 2004). Interviews conducted with 20 Chinese international students in Britain by Spencer-Oatey and Xiong (2006) found students experienced difficulties learning to live independently and adapt to the new conditions. Students said they had few opportunities to mix with British people due to differences in class and living arrangements as well as language fluency concerns. This led to difficulties forming friendships with local people, leaving students interact with other Asian international students. Similarly, a large (N=979) study of international students in Australia found most international students interacted socially with people from a similar cultural background rather than with Australians (Rosenthal, Russell, & Thomson, 2007). This lack of local student interaction may restrict acculturative adaptation (Berry, 1997).

Vulnerabilities are further exacerbated when cultural and language differences between the country of origin and the host country are large (Dao, et al., 2007; Leung, 2001; Poyrazli, et al., 2004; Spencer-Oatey & Xiong, 2006; Yeh & Inose, 2003). Differences in cultural orientation, for example, can be far greater for students coming to Australia from collectivist Eastern cultures such as China, compared to those coming from Western individualistic cultures such as the United Kingdom (Poyrazli, et al., 2004; Yeh & Inose,

2003). Language barriers are also likely to be less for those coming from countries where English is either the first language or commonly taught throughout school, such as in Europe. Certainly language difficulties have been found to impact on communication, academic success and acculturative stress (Mori, 2000; Yeh & Inose). Poyrazli, et al. (2004), for example, found international students in the United States with good English proficiency tended to experience lower levels of acculturative stress. A lack of language fluency can lead students to limit social interaction, creating a cycle in which the development of language skills can be stifled. This can then impact on other areas of the student's life. A study of 121 Taiwanese international students found those with lower English fluency and low social support were particularly vulnerable to depressive feelings (Dao, et al., 2007).

At a more 'micro' level, international students can experience additional classroom stresses over and above those experienced by local students. These can range from language-based issues such as needing more time to read materials; difficulties in understanding the actual lecture and being able to communicate any issues or concerns; to coping with cultural differences in educational systems, learning styles, assessment expectations and attitudes toward authority (Mori, 2000). In Asian and Middle Eastern countries, for example, there is a greater emphasis on students sitting quietly in lectures and taking notes, on which they are then examined. This contrasts with the American and Australian tertiary education systems where students are expected to actively participate in class and be quite independent in accessing resources or assistance.

Consideration of these factors is relevant to the current project because severity of problem gambling is known have a positive association with situational and emotional stressors (e.g., Bergevin, Gupta, Derevensky, & Kaufman, 2006; Thomas & Moore, 2003; Turner, Zangeneh, & Littman-Sharp, 2006). Loneliness and a lack of social support has similarly been linked to gambling problems (Hardoon, Gupta, & Derevensky, 2004; Treverrow & Moore, 1998). Recent models of problem gambling suggest gambling can be used to avoid situational and emotional problems by providing a pleasant temporary distraction (Blaszczynski & Nower, 2002; Sharpe, 2002; Thomas, Sullivan, & Allen, 2009).

1.3 Young Adulthood and Experimentation

Young adulthood is a time of newfound independence and experimentation with new and potentially risky behaviours including drinking or gambling (e.g., DiClemente, 2009; Kypri et al., 2009; Moore & Ohtsuka, 2001; Snow, Wallace, Staiger, & Stolz-Grobusch, 2002). This is particularly salient for international students who must necessarily take on a new level of independence when they move to a different country, far away from family supports and restrictions. One possible avenue of risk-taking involves gambling activities.

Research has shown young people like to gamble on a range of activities, particularly cards, lotto, sporting games and slot or poker machines (Clarke, 2003; Moore & Ohtsuka, 1997a; Wickwire et al., 2007). They gamble for reasons similar to those of the general population including excitement or risk taking; enjoyment; to win money; for social reasons; and to escape boredom or pass the time (Gausset & Jansbøl, 2009; Gupta & Derevensky, 1998; Neighbours, Lostutter, Cronce, & Larimer, 2002; Shields, 2009; Wickwire, et al., 2007). Young people are also known to experience more gambling problems than the general population, with recent meta-analyses suggesting youth gambling rates of between 3.4 and 6.7%, or around two to three times the problem gambling prevalence rates of adult samples (Delfabbro, Lahn, & Grabosky, 2005; Derevensky, Gupta, & Winters, 2003; Shaffer, Hall, & Vander Bilt, 1999). Further, young people often experiment with alcohol (Kypri, et al., 2009; Pederson, Larimer, & Lee, 2009; Toumbourou et al., 2005), and alcohol is a known risk factor for gambling problems (Potenza, Maciejewski, & Mazure, 2005; Welte, Wieczorek, Barnes, & Tidwell, 2006).

1.4 Gambling Accessibility

International students therefore have a potentially explosive combination of youth, new-found independence in a foreign country and an increased number of stressors associated with emotions, relationships, culture and academic studies. In addition, international students are likely to have a sudden increase in exposure to gambling opportunities when they reach Australia. Legal gambling in India and China, for example, are based on a destination model, such only a very few gambling venues exist and prospective patrons

must go to some effort and pre-planning to travel to a venue. Indonesia and Pakistan are predominantly Muslim countries and have no legalised gambling. The exceptions of course are online gambling and other illegal gambling opportunities, but access to these is likely to be much more restricted, particularly for a young student.

In contrast, accessibility to gambling in Australia is very high. EGMs and off-course betting is available in thousands of venues throughout the community and lottery or scratch-it tickets can be purchased in local newsagents. Telephone or online gambling in the form of sports and off-course race betting is also easily accessed. Exposure and accessibility to gambling has been linked to increased uptake, frequency and problems (e.g., Jacques, Ladouceur, & Ferland, 2000; Moore, Thomas, Kyrios, Bates, & Meredyth, online first; Storer, Abbott, & Stubbs, 2009; Thomas, Allen, & Phillips, 2009; Welte, Wieczorek, Barnes, Tidwell, & Hoffman, 2004). High rates of gambling participation demonstrate the public acceptance of gambling as a legitimate form of entertainment in Australia (Productivity Commission, 2010). Thus, even if a student has not gambled in their home country, they may decide to experiment with gambling in Australia if their peers present it as an acceptable form of entertainment (Dowling, Clarke, Memery, & Corney, 2005; Shields, 2009). The gaming industry also works hard to maximise the social accessibility of venues by providing a warm and welcoming atmosphere and a variety of fun, social activities (Moore, et al., online first). Different types of venues and games will be attractive to different sections of the community, with the atmosphere of a casino, for example, designed to be particularly attractive to the Asian market (Raylu & Oei, 2004b).

Accessibility to gambling is also related to available funds. International students may have access to lump sums of money, sent by their families to cover living and studying expenses for a term or semester. A young person with little experience in budgeting for living expenses over an extended period may see these sums as quite substantial. This may lead to a temptation to use some of the money to fund entertainment including gambling.

1.5 Knowledge of gambling risk

A lack of prior exposure may also mean international students are less aware of the potential risks associated with gambling. Gambling risk is not equivalent across form. EGMs, card games and off-course betting are known to be much more closely associated with excessive and problematic gambling for instance, than are lotto or scratch it tickets (e.g., Dickerson, 2002; Petry, 2003). A lack of prior experience is also likely to mean students are less familiar with strategies for self-regulating gambling such as taking a set amount of money to venues and mixing gambling with other forms of entertainment (Thomas et al., 2010).

Further, a lack of prior knowledge may make this group more vulnerable to erroneous beliefs around gambling and the likelihood of winning. The *illusion of control*, for example, occurs when individuals believe that they have greater control over the outcome of a game than is the case (Delfabbro, 2004; Ladouceur, 2004). *Biased evaluation of outcome or interpretative bias* is a type of illusion of control where gamblers have a biased tendency to attribute successful gambling to internal factors such as effort and skill and unsuccessful outcomes to external factors such as bad luck (Aasved, 2002; Raylu & Oei, 2004a). Another very common erroneous belief relates to a “near miss”, where players perceive a losing outcome as ‘almost winning’, such as when his or her lotto numbers are close to the winning numbers. People may also incorrectly believe they can *predict a win* based on cues such as superstitions or hunches, or simply because a win has not occurred for some time (Aasved, 2002; Delfabbro & Winefield, 1999; Raylu & Oei, 2004a). *Luck and superstitions* are common, with people performing rituals such as talking to the dice, changing machines to change bad luck, rubbing lucky charms, playing “lucky numbers” (Wood & Griffiths, 2002). These rituals are performed because they are irrationally thought to positively influence the outcome of the game (Dickerson, 1996; Joukhador, Blaszczynski, & MacCallum, 2004). Erroneous beliefs about gambling can be an issue as they can contribute to extended gambling sessions in the belief that a win is imminent. This can eventually lead to excessive and problematic gambling (Blaszczynski & Nower, 2002; Griffiths & Delfabbro, 2001; Ladouceur, 2004).

Finally, despite the reality of gambling odds and 'the house advantage', a major motivation for gambling is to make money (Lee, Chae, Lee, & Kim, 2007). Those experiencing an early win are particularly likely to see gambling as a money-making opportunity, with problem gamblers being more likely to report having had an early experience of winning (Turner, et al., 2006). International students on a tight budget may similarly see gambling as a way to earn easy money.

1.6 Cultural Expectations, Attitudes and Norms

Cultural influences and attitudes towards gambling from their home country are likely to have a major influence on international students' gambling choices. The Chinese culture, for example, has a long history with gambling and traditionally views gambling as an acceptable social activity (Raylu & Oei, 2004b). This cultural acceptance has continued despite official bans of most gambling activities in mainland China. In contrast, strong community-led discouragement of gambling is prevalent in countries where religious beliefs prohibit this activity. This is the case in countries such as Pakistan, Indonesia and Malaysia where the Muslim faith predominates (GAMECS Project, 1999; Tan, Yen, & Nayga, 2010).

Studies of major cultural groups migrating to Australia suggest there are some differences in the game preferences *rates* of problem gambling (GAMECS Project, 1999; VCGA, 2000). Focussing on the results for cultures most commonly represented in the international student intake, the studies showed that Australian migrants from Chinese cultures prefer card games and casino gambling and migrants from a Vietnamese background also enjoyed the casino(GAMECS Project, 1999; VCGA, 2000). Raylu and Oei (2004b) have suggested that these groups may feel more comfortable in the casinos as they are surrounded by others with similar backgrounds. The two studies also showed that those from Arabic backgrounds were more likely to gamble on cards (GAMECS Project, 1999; VCGA, 2000). Unfortunately these studies did not provide any results on the gambling habits of other major groups of international students.

The Victorian Casino and Gaming Authority (VCGA) (2000) further found that participation rates amongst Chinese, Greek, and Vietnamese community groups (N=664) were lower than

the general population but that those who did participate gambled more money than the general community and had higher rates of problem gambling. Oei and Raylu (2010) similarly found that although a group of 199 Chinese-Australians were less likely to have gambled at all compared to a Caucasian-Australian group (N=306), they were more likely to have placed large bets (gambled over $100). Interestingly, this study, and another by Oei and colleagues (Oei, Lin, & Raylu, 2008), found no significant difference in severity of gambling problems between Chinese-Australians and Caucasian-Australians, which contrasted with VCGA's findings.

There is also some evidence of elevated erroneous or irrational cognitions in gamblers from a Chinese background. A survey of 773 Chinese students from Universities in Hong Kong and Macau (Tang & Wu, 2010) found that gamblers who had a strong fate control belief (i.e., belief that fate can potentially be influenced), were more likely to have positive expectancies around gambling and less likely to think they could resist gambling (gambling self-efficacy). In turn, high positive expectancies and low gambling self-efficacy were related to gambling problems. Two comparative studies by Oei and colleagues found that Chinese-Australians were significantly higher on illusions of control, more likely to report chasing their loses and to report they were winning even if they were losing than a comparative Caucasian group (Oei, et al., 2008; Oei & Raylu, 2010). These studies suggest that gamblers from a Chinese culture may be more susceptible to irrational gambling cognitions than other groups and that those with elevated irrational cognitions may have higher expectancies that gambling will improve their lives and be less able to resist gambling. These findings relate to groups who are permanent migrants to Australia, many of whom will have lived in their new country for a considerable period. It is not known whether similar cultural group trends exist among overseas students who are in Australia for a shorter period.

1.7 So what do we know? Review of the literature on International Students and Gambling

The above findings provide a broad perspective; however only a few studies have been conducted specifically investigating gambling within the international student population in Australia. This small body of research is discussed below.

Rosenthal et al. (2008), included two items measuring gambling within a large study of health and well-being in international students. They found most students (88.2%) were not involved in gambling either at home or in Australia. A significant proportion (7.3%), however, who had not gambled at home reported that they had begun gambling in Australia. Even in this limited study of gambling, a significant proportion of the total sample (3%) perceived their gambling as problematic.

A study of Mahjong gambling was conducted with a convenience sample of 172 Chinese international students at an Australian university (Zheng, Walker, & Blaszczynski, 2008). Thirty-eight percent of the sample gambled in the last year, 26% specifically on Mahjong. Nearly 3% identified as Mahjong problem gamblers. Cognitive distortions around winning and losing streaks were common across the Chinese international students and Mahjong gamblers were significantly higher on positive gambling expectancies (expecting gambling will make them feel good) compared to the non-gamblers. Interestingly, neither irrational beliefs nor level of acculturation predicted severity of gambling problems.

As well as these two peer reviewed journal articles, an unpublished masters thesis used a qualitative design to explore gambling among 12 Chinese international students in New Zealand (Li, 2007). This study is small but rich in information. Although it is not an Australian study, New Zealand is in the same geographical region and culturally quite similar to Australia so it has been included here. The students rarely reported problem gambling in their country of origin, even if they did gamble socially at home. Family and Governmental restrictions on gambling in China also acted as strong protective factors. Seven of the 12 participants presented as probable problem gamblers since their arrival in New Zealand. Gambling issues related to personal, academic and acculturation stressors. Casino table games were popular with the problem gamblers who were drawn to the excitement and

chance of winning. Some of the problem gamblers who had managed to reduce or stop gambling related this to the importance of family, peer models, social support/support services, exclusion programs and financial hardship which made gambling untenable.

Finally, some research with international students has been disseminated in three conference presentations/proceedings. It was unclear whether any of these studies were subjected to peer review so findings should be taken with caution. A study of 280 international students in Australia (Thomas & Thomas, 2002) found that nearly 70% had gambled in their lifetime and that 60% of previously non-gambling international students had tried gambling in Australia. A significant proportion of these new gamblers were reported to be at-risk of gambling problems, although exact figures were not provided. Irrational cognitions associated with illusions of control and believing you have a winning system were related to gambling expenditure and problems. Further, a higher proportion of Chinese international students (20.4%) were found to be at risk of gambling problems compared to non-Chinese international students (10.1%).

Findings from an earlier conference presentation suggested that international students may be more vulnerable to gambling issues than domestic students. Spence-Thomas, Thomas and Smith (2000) compared 157 domestic students to 155 international students in an Australian university. They found that international students were slightly higher in problem gambling severity than domestic students, despite being less likely to gamble overall. Further, while both groups showed significant positive relationships between gambling measures and measures of negative affect, the relationships were stronger for international students. A conference paper presented by Brown and Dowling (2008) similarly compared (N=108) domestic students to a small sample of international students (N=34). Brown and Dowling also found that domestic students gambled on more activities but that international students had more gambling problems. They further found that irrational cognitions around luck and illusions of control were risk factors for gambling problems in both student groups, but measures of negative mood were only predictive of gambling issues for domestic students. The small sample size of international students, however, means that this study may not have had sufficient statistical power to detect a significant relationship even if it did exist in the population.

This, only a small body of research has investigated gambling within the Australian international student community, still less has been subject to peer review. What little exists suggests that gambling may be fairly infrequent within the international student population, but that some international students who did not gamble at home will take it up when they arrive in Australia. Exposure and access to gambling may therefore be influential in at least the uptake of gambling. The combined findings further suggest that significant proportions of international students who do gamble may be at risk of gambling problems, possibly at greater rates than domestic students. The relationships between gambling problems among international students and potential predictors such as irrational cognitions, stressors or negative affect remain unclear as the findings were inconsistent across studies.

1.8 Help seeking among International Students

As summarised above, the studies conducted so far involving international students have indicated some noteworthy trends. In particular, a proportion of students who did not gamble in their home country are taking up gambling in Australia. Of these, a significant proportion is experiencing problems controlling their gambling, possibly at greater rates than local students. Australia now has a large international student population, so this may represent a substantial issue. Further, gambling problems are likely to have a knock-on effect on the general wellbeing of students as well as negatively impacting on academic success and financial resources.

The extent of gambling problems among international students is likely to be a hidden issue within universities. Universities provide extensive support systems for their students including financial and health services. There are also additional services such as international student advisors specifically tasked with guiding and supporting international students during their transition to university and beyond. However, international students are not necessarily accessing these services. This group is often unaware of services available to them or are unaware that the services are either free or low cost to students. Russell, Thomson and Rosenthal (2008) examined reasons behind not seeking counselling in a group of international students in a large Australian university. They found reasons given

for not accessing counselling services were commonly knowledge-related, including not knowing about the existence of the service, its location, appointment protocols or the absence of fees. They further found that Asian students were significantly more likely than other international students to attribute help-seeking inaction to lack of information regarding the service.

Even where international students are aware of the existence of services, cultural differences can mean that students do not fully understand what the services offer, are hesitant to seek out services, or do not feel the services are appropriate or relevant to them (Raylu & Oei, 2004b; Russell, et al., 2008; Spencer-Oatey & Xiong, 2006). Russell et al. (2008) reported that international students may not feel they are important enough, or they may feel discomfort about asking for help, concern about being understood and about the help being effective.

There is a tradition amongst some cultures to solve problems within the extended family network rather than seeking outside help. To seek help outside the family unit can be seen as a sign of weakness and may result in a loss of face for the family (Loo, Raylu, & Oei, 2008; Scull & Woolcock, 2005). A study with 120 Turkish born students (Kilinic & Granello, 2003) found 50% would turn to a friend for psychological help, but only 14% would seek help from a psychologist. Similarly, a study of 172 Chinese international students in Australia found around half preferred to resolve gambling problems within the family (Zheng, et al., 2008). If the family cannot solve the problem alone, assistance may be sought within the community, for example from religious and community leaders who are seen as trusted and legitimate sources of help (Scull & Woolcock, 2005; Victorian Multicultural Gambler's Help Program, 2006).

Another issue involves the appropriateness of the professional counselling services on offer to international students. As western-style counselling is almost non-existent in some Asian countries, it can be viewed as an alien concept to students coming from these countries (Mori, 2000). Chinese individuals, for example, do not traditionally verbalise their problems in the way westerners do within professional counselling (Papineau, 2005). In support of this, studies have found that Asian students reporting higher levels of acculturation towards their western host culture had more positive attitudes towards counselling or seeking help

(Atkinson & Gim, 1989; Hamid, Simmonds, & Bowles, 2009; Zang & Dixon, 2003). These cultural boundaries can mean that Western style counselling is seen as appropriate only for treating significant psychiatric problems rather than being seen as a potentially helpful option for high prevalence, lower severity issues such as depression, anxiety, or gambling problems (Victorian Multicultural Gambler's Help Program, 2006). Thus, although problem gambling may be a significant issue within international student groups, the likelihood of those affected seeking professional assistance or even coming to the attention of the university, is low.

1.9 Conclusion

This literature review has found that international students form a substantive and important section of the Australian university population. They are, however, susceptible to a range of emotional, financial, academic and acculturative stressors. This combined with the experimentation common to young people and a new-found independence in a foreign country may be an explosive combination. Gambling is likely to be much more accessible and acceptable form of entertainment for international students in Australia compared to their home countries. It is a popular activity among young people when it is accessible, but young people also have higher rates of gambling problems than the average population. Further, international students coming from regions with low gambling accessibility may lack knowledge about gambling risks associated with specific games, may have irrational beliefs about their chances of winning and may also lack adequate self-regulation strategies to control gambling. All of these place international students at greater risk of gambling problems. The evidence to date is sparse but suggests that international students may be at greater risk of gambling problems than domestic students and that gambling problems in this group may be related to irrational cognitions or situational and emotional stresses. Further, while those at-risk may turn to family or friends for assistance they are fairly unlikely to utilise the professional help services available to them.

1.10 Research Objectives

An extensive study of the gambling behaviour of international students was undertaken in fulfilment of a grant provided Gambling Research Australia. Gambling Research Australia is a partnership between the Commonwealth and State and Territory Governments and is responsible for managing and implementing a national research agenda.

The methodology of the project involved a large survey of international students and a comparison group of local (domestic) students, across three universities, Swinburne, Deakin and Bond. Several focus groups conducted with international students from Victoria and Queensland were used as a secondary source of data to inform on specific research questions. Following a detailed description of the research methodology, study results are presented in four major sections, designed to move from more general to specific findings.

Where appropriate, we have included a comparative sample of local/domestic students to enable readers to see when and how international students differ from local students. The findings are presented as follows:

A. Gambling Behaviour

International and domestic students were compared on their gambling behaviour. Gambling behaviour examined relative popularity and frequency of different gambling activities, gambling expenditure, risky gambling and problem gambling. The relationship between gambling behaviour and several demographic variables were also assessed.

B. Psychosocial Risk Factors

International students were assessed for a variety of potentially modifiable psychosocial risk factors linked to gambling including (a) academic, relational, financial and socio-cultural adaptation stressors, (b) negative affect, (c) gambling cognitions, and (d) alcohol use. Domestic students were compared to international students on these psychosocial risk factors. The relative strength of relationships between these psychosocial risk factors and gambling problems were examined for domestic and international student groups.

C. Cultural group comparisons

The international student sample was divided into several major cultural groups. These groups were compared in terms of gambling behaviour, gambling risk and psychosocial risk factors.

D. Help seeking and gambling supports for international students

International students were assessed with regard to problems experienced, type of help seeking favoured and perceived utility of various help options. Reasons for not seeking help for problems were also examined. Finally, we explored informational and support preferences of international students in relation to gambling.

METHOD

2.1 Sites and participants

International and domestic students were sampled from three universities, two in Victoria and one in Queensland. After data cleaning our final survey sample consisted of 764 international students and 836 domestic students across the three universities, a total sample of 1600. A breakdown of demographic characteristics can be found in Table A.

Table A

Demographics relating to International and Domestic Students

Variable	International Students		Domestic Students	
	n	***%***	***n***	***%***
University attended				
Bond University	278	26.4	458	54.9
Deakin University	303	39.7	194	23.2
Swinburne University	183	24.0	184	22.0
Living Arrangements				
Alone	70	9.2	50	6.0
Share house (with mostly Australians)	48	6.3	92	11.0
Share house (with mostly non-Australians)	325	42.7	22	2.6
Student residence (on or off campus)	108	14.2	96	11.5
With a host family	26	3.4	5	0.6
In a family-type situation[a]	174	22.8	555	66.4
Other	11	1.4	14	1.6
Marital Status (% single)	496	65.3	445	54.5
Academic Status (% undergraduate)	408	53.6	710	85.0
Study status (% full time)	746	98.3	732	87.6

Country of Birth	***n***	***%***	***n***	***%***
Australia	N/A	NA	693	83.1
China/Chinese Countries	200	26.3	17	2.0
India	111	14.6	14	1.7
Canada/USA	98	12.9	12	1.4
Other Asian Countries	159	20.9	24	2.9
Western Europe	75	9.9	6	0.7
Middle East	14	1.8	6	0.7
South America	25	3.3	1	0.1
New Zealand/Pacific Islands	5	0.7	16	1.9
Eastern Europe	10	1.3	10	1.2
Pakistan/ Sri Lanka	37	4.8	3	0.4
Africa	17	2.2	17	2.0
United Kingdom	10	1.3	15	1.8
Religion				
No stated religion/agnostic	324	42.7	443	53.4
Protestant type religions	19	2.5	42	5.1
Catholic	99	13.0	138	16.6
Orthodox religions	5	0.7	18	2.2
Christian (no details provided)	102	13.4	133	16.0
Hindu	90	11.9	14	1.7
Sikh	8	1.1	0	0.0
Islam/Muslim	34	4.5	12	1.4
Chinese	4	0.5	0	0.0
Buddhism	62	8.2	13	1.6
Jewish	8	1.1	5	0.6
Other	4	0.5	12	1.4
Length of time in Australia				
Less than 1 year	374	49.0	6	0.7
1-4 years	350	45.8	15	1.8
5-9 years	39	5.1	37	4.4
10+ years (but not for your whole life)	1	0.1	118	14.1
All your life	N/A	0.0	659	78.9
	M	SD	M	SD
Mean Years studying at University in Aust.	1.34	1.24	1.89	1.91
Mean Age	23.84	4.22	23.35	7.85

[a]Family-type situation = living in a family situation which could be with parents or other family member(s), with a partner, and/or with children; Marital status coded single/partnered, Academic status coded undergraduate/ postgraduate, Study status coded full time/part time

Note: In each case the percentages refer to the percentage of responses in each category as a proportion of each student group (i.e., as a percentage of international students and as a percentage of domestic students).

In addition, a total of 11 focus groups and interviews, involving 40 international students, were conducted across the three universities. There were 16 females and 24 males. Participants were recruited to maximise diversity in terms of country of birth and cultural background with the final sample including participants from Indian, Chinese, other Asian, and Western cultures (USA, Europe). Participants were also recruited to provide diversity in terms of type of gambling preferred and level of gambling involvement.

2.2 Measures

Measures associated with the survey:

Demographics: age, gender, country of birth, home country, religion, marital status, living arrangements, student status (domestic, international), university attended, academic status (undergraduate/postgraduate), full or part/time study, number of years in Australia, and number of years studying in Australia.

Stressors: A new scale was developed for the current study to measure participants' level of stress from several sources likely to be relevant to international students, but also applicable to domestic students. The 19-item scale was compiled by researchers based on established measures and literature review. There were three subscales: A four item subscale measuring *academic/study stressors* (e.g., 'I put pressure on myself to succeed academically'); a four item subscale measuring *financial stressors* (e.g., 'It is a constant struggle to pay regular bills'), and an 11 item subscale measuring *relationship stressors* including items around being bullied or experiencing racism (e.g., 'I am being bullied at University'). All items were rated on a 5-point Likert scale where 1 = *(Strongly disagree)* and 4 = *(Strongly agree)*. Scores on each subscale were summed so that scores on academic stress and financial stress ranged from 4-20 and those for relationship stress ranged from 11-55 with higher scores reflecting higher levels of stress. Internal consistency of each of the subscales was as follows: academic/study stressors subscale α=.54, relationship stressors subscale α=.84 and financial stressors subscale α=. 86. The internal consistency for the

academic/study stressors is quite low so results pertaining to this subscale should be viewed with caution.

Sociocultural Adaptation: Participants completed 18 items of the *Sociocultural Adaptation Scale* (SACS; Ward & Kennedy, 1999) which measures degree of adaptation to a new culture. Participants were asked to indicate the amount of difficulty experienced in various areas since starting university studies in Australia (e.g., 'making friends'). The 18-items were rated on a 5 point Likert scale from 1 = *(no difficulty)* to 5 = *(extreme difficulty)*. Scores on the SCAS can range from 18 to 90, where a high score reflects low levels of culture competence. The SCAS has shown high Internal consistency ranging from 0.75 to 0.91 and excellent construct validity (Ward & Kennedy, 1999). Internal consistency for the current study was α=.89.

English Fluency: The *English Fluency Scale* (Yeh & Inose, 2003) was used to measure perception of English fluency. The scale comprises three items: 'What is your present level of English Fluency?' which was rated on a five point Likert scale from 1 = *(very low fluency)* to 5 = *(excellent fluency)*, 'How comfortable are you communicating in English?' rated from 1 = *(very uncomfortable)* to 5 = *(very comfortable)*, and 'How often do you communicate in English?' rated from 1 = *(rarely/never)* to 5 = *(almost always/always).* Responses from the three items were summed to indicate level of English fluency, where higher scores reflect higher levels of English fluency. The scale has shown an acceptable alpha reliability of 0.78 (Yeh & Inose, 2003), present study α = 0.77.

Depression, Anxiety and Stress: The 21 item *Depression Anxiety Stress Scale* (DASS-21) (Lovibond & Lovibond, 1995) was used to measure three separate factors; depression, anxiety and stress, each containing seven items. Statements are rated by participants on a 4-point Likert scale where 0 = *(did not apply to me at all)* and 3 = *(applied to me very much or most of the time)* in relation to how much each of the statements applied to the participant over the past week (e.g., 'I found it hard to wind down' [stress subscale], 'I felt close to panic' [anxiety subscale] and 'I felt I wasn't worth much as a person' [depression subscale]. Scores on each subscales can range from 0 to 21, with higher scores reflecting a higher severity ratings. The DASS-21 has shown high internal consistency for each of the subscales (α=.88 for depression, α=.82 for anxiety and α=.90 for stress (Henry & Crawford, 2005). Additionally, the scale demonstrates excellent validity (Antony, Bieling, Cox, Enns, &

Swinson, 1998). Internal consistency was high for the present study (depression α = .90; anxiety α = .84; stress α = .88).

Alcohol Use/Abuse: The three item *AUDIT Alcohol Consumption Questions* (AUDIT-C; Bush, Kivlahan, McDonell, Malone, & Fihn, 1998) was used to assess frequency and level of drinking and to identify heavy drinking. Item one 'How often did you have a drink containing alcohol in the past year?' is rated on a 5 point scale where 0 = *(never)*, 1 = *(monthly or less)*, 2 = *(2 to 4 times a month)*, 3 = *(2 to 3 times a week)*, 4 = *(4 or more times a week)*. Item two 'How many drinks containing alcohol did you have on a typical day when you were drinking in the past year?' is rated on a 5 point scale where 0 = *(1 to 2 drinks)*, 1 = *(3 to 4 drinks)*, 2 = *(5 to 6 drinks)*, 3 = *(7 to 9 drinks)*, 4 = *(10 or more drinks)*. Item three 'How often did you have six or more drinks on one occasion in the past year?' was rated on a 5 point scale where 0 = *(Never)*, 1 = *(Less than monthly)*, 2 = *(Monthly)*, 3 = *(Weekly)*, 4 = *(Daily or almost daily)*. Scores from the three items were summed, ranging from 0 to 12 where higher scores reflect more severe drinking behaviour. The AUDIT-C has shown good sensitivity and specificity for heavy or risky drinking (Bush, et al., 1998; Gual, Segura, Contel, Heather, & Colom, 2002). Cut off points for at-risk drinking have been debated for the AUDIT-C, the present research used a conservative estimate of four and above as representing risky drinking status (Bradley et al., 2007; Dawson, Grant, & Stinson, 2005). Internal consistency for this study was good (α=0.85). Participants were also asked to respond to the item *"I drink more alcohol since I began my university studies here"* (adapted from Rosenthal et al., 2008) on a 4-point Likert scale where 1 = *(Does not apply to me)* and 4 = *(Applies to me very much, or most of the time)*. Internal consistency for this study was good (α=0.85).

Frequency and type of gambling and expenditure: Frequency and type of gambling was assessed by a slightly amended version of Moore and Ohtsuka's (1997a) *Gambling Behaviour Scale* which relates to frequency of gambling over the past 12 months across 12 different types of games (e.g., 'Played cards' or 'Bet on sports'). Frequency is measured on a 4 point Likert-type scale where 0 = *(Not in the last year or never)* and 3 = *(Frequently, once a week or more)*. Scores can also be summed across the different games to create a total frequency score ranging from 0 to 36. In each case higher scores indicate higher frequencies

of gambling. The scale has been found to have acceptable internal reliability α = 0.71 (Moore & Ohtsuka, 1997b). The current study found high internal consistency for the scale α = .86. Participants were also asked to indicate the largest amount of money spent in one week over the past year with six options from 0 = (Never gambled) to 5 = ($5000 or more).

Problem Gambling: The *Problem Gambling Severity Index* (PGSI; Ferris & Wynne, 2001) is part of the Canadian Problem Gambling Index and was used to assess the severity of problem gambling among participants in the study. The PGSI consists of 9 items across two subscales; four items on the problem gambling behaviours subscale (e.g., 'Have you gone back another day to try to win the money you lost?') and five items on the adverse consequences of gambling subscale (e.g., 'Has your gambling caused you any health problems, including stress or anxiety?'). Items are rated by participants on a 4-point Likert scale where 0 = *(Never)* and 3 = *(Almost always)*. Scores are summed across the whole scale, thus ranging from 0-27. Risk levels as set by Ferris and Wynne were as follows: 0 = Non problem gambling, 1-2 = Low risk gambling, 3-7 = moderate risk gambling, 8+ = problem gambling. Research indicates the PGSI is psychometrically sound, with demonstrated high internal consistency (α = .84 - .92), stability (test-retest at 3-4 weeks .78), and validity with high correlations between the PSGI and other measures of problem gambling (Ferris & Wynne, 2001). The current study found the PGSI to have high internal consistency α = .92.

Changes in gambling behaviour: International students were asked if they gambled prior to coming to Australia (coded Yes/No). They were also asked to respond to the item *"I gamble more since I began my university studies here"* (Rosenthal et al., 2008) on a 4-point Likert scale where 1 = *(Does not apply to me)* and 4 = *(Applies to me very much, or most of the time)*.

Gambling Cognitions: The 23 item *Gambling Related Cognitions Scale* (GRCS; Raylu & Oei, 2004a) was used to assess participants gambling related cognitions across 5 subscales: *Interpretative control bias* (GRCS-IB; e.g., 'relating my losses to probability makes me continue gambling'), *illusion of control* (GRCS-IC; e.g., 'praying helps me win'), *predictive control* (GRCS-PC; e.g., 'I have some control over predicting my gambling wins'), *gambling-related expectancies* (GRCS-GE; e.g., 'gambling makes me happier') and a *perceived inability to stop gambling* (GRCS-IS; e.g., 'I can't function without gambling'). Statements are rated

by participants on a 7-point Likert scale where 1 = *(Strongly disagree)* to 7 = *(Strongly agree)*. Item scores can be summed for each subscale or across all items to create a total score. In each case higher scores reflect stronger gambling related cognitions. The GRCS has shown to be psychometrically sound, with demonstrated moderate to high reliabilities for each scale; GRCS-GE, α =0.87; GRCS-IS, α = 0.89; GRCS-PC, α = 0.77; GRCS-IC, α =0.87; and GRCS-IB, α = 0.91, and good validity (Raylu & Oei, 2004a). The current study also found the GRCS to have excellent reliability, as indicated by alpha coefficients of .83 for GRCS-G; .90 for GRCS-IS; 87 for GRCS-PC; 83 for GRCS-IC and .86 for GRCS-IB.

Difficulties and Help Seeking: Participants were asked to indicate if they had experienced any difficulties over the past 12 months across a range of issues (e.g., emotional problems/issues and drug or alcohol problems). Participants who indicated that they had experienced one or more of the listed problems were then asked about their help seeking experiences. Participants were provided with a range of informal help-seeking options (e.g., family or friends) and more formal help-seeking options (e.g., university-based counselling or health services) as well as an 'Other help' option where they could provide an alternative option. For each option participants were asked to respond Yes/No in terms of whether they had sought that type of help for problems. Where participants responded 'Yes' to a listed help option they were then asked to indicate how useful they found this help option on a 3-point Likert scale where 1 = *(Not useful)* and 3 = *(Very useful)*. Finally, to elucidate on why some individuals do not seek help from professional services, we asked participants who had reported difficulties but who did not select any of the professional help seeking options (e.g., university-based services) why they had not. A range of tick box options were listed including 'I got all the help I needed/did not think it was necessary', 'I felt that they would not understand me' and 'I didn't know there were free services available'. People could also detail their own explanation.

Measures associated with the focus groups:

Focus groups were semi-structured in nature but participants were asked about the following issues/topics:

- Why they liked to gamble and the types of games they played
- Whether they had gambled prior to coming to Australia (or only since arrival) and whether they gambled more/differently since coming to Australia
- Whether they had any beliefs about luck and winning in relation to gambling
- Whether gambling was important/accepted/encouraged/frowned in their culture/home country
- Whether they were aware of gambling problems in the international student community (students could discuss personal experiences and any wider instances of which they were aware).
- Help seeking preferences (for gambling and general problems). Prompts were included for use/appeal of university and counselling services if this did not arise naturally.
- What (if any) gambling-related information they had received
- What (if any) gambling-related information they thought would be useful for new international students to receive

Demographics: gender, age, country of birth, home country.

Gambling Behaviour: Participants were asked to describe their gambling experiences in their own words and were also asked to complete the previously described measures of gambling frequency and problem gambling (PGSI).

2.3 Procedure

Ethics approval to conduct the survey and focus groups with the targeted student populations was obtained from the Human Research Ethics Committees of the three participating universities. Recruitment for the survey was co-ordinated separately for each university. In the Victorian universities support was obtained from the international divisions at Swinburne and Deakin to send emails directly to all on-campus international students in the Higher Education division. Recruitment of domestic students was via flyers

on electronic and paper-based notice boards at the universities and handouts provided at lectures and around campuses. In Queensland permission was obtained to directly email all on-campus Higher Education students (international and domestic) inviting them to participate in the study. All surveys were completed via a single online website. Students were eligible whether they had gambled in the past or not.

All students (local and international) were asked to complete the majority of the questionnaire items to allow the maximum number of comparisons between the two student groups. This included the socio-cultural adaptation items as, although they had been designed to measure socio-cultural adaptation in international students, they were general enough to be interpreted by all students in terms of adaptation to university life. We considered all students would need to adapt to university life some degree and so may be subject to some level of adaptation stress. By asking questions of all students we could test whether international students were subject to a significantly greater degree of adaptation stress over and above that felt by local students. Only International students were asked to complete the questions relating to English fluency as this was considered to be largely irrelevant to Australian citizens and was only used for comparisons within the international student sample. We only asked participants who reported gambling on at least one occasion to complete the measures relating to gambling cognitions as these questions refer to thoughts/cognitions about personal gambling and so could not meaningfully be answered by people who have never gambled. Finally, participants who reported experiencing any difficulties during the past 12 months were asked to complete a set of questions relating to help seeking.

At the end of the survey respondents submitted their responses electronically and these were saved anonymously to a secure online database. After submission participants were invited to click on a new link to provide their contact details to go into a prize draw for one of several shopping vouchers. Separate prize draws were conducted for each university. These details were saved to a second secure online database to preserve participant anonymity.

To facilitate recruitment for the second stage of the study (the focus groups), we asked all international student survey participants if they would be willing to be contacted about

focus groups. This information was collected after survey submission. Researchers contacted individuals at each university who indicated willingness to be contacted. We asked each individual we were able to contact if they were still prepared to be involved. If they said yes we collected information about gender, age, gambling participation, ethnic background and availability. We excluded those who did not gamble or who only gambled very occasionally (i.e., once/twice a year) on the basis that the focus groups were designed to gain a more detailed picture of the gambling experience of this group. We sought to recruit clusters of individuals who were similar in terms of gender and cultural background for each focus group. We also conducted three individual interviews in cases where people could not attend at the scheduled time or who did not fit into a wider group. We recruited purposively to ensure we had a good range of participants in terms of gender, age, cultural group and gambling experiences (type and frequency of participation).

Focus groups/interviews took place on-campus at each university. Groups/interviews ranged from one to two hours in length and all were either audio or video taped for later transcription with participants' permission. Groups were facilitated by a researcher experienced in focus group facilitation with an additional researcher taking notes at some groups. Confidentiality cannot be guaranteed with focus groups, but all group participants were requested to respect the other members' confidentiality in terms of disclosure. To further facilitate confidentiality, participants were asked to refrain from disclosing specific personal information and participants used pseudonyms for the duration of the group. The pseudonyms were used for transcriptions and analysis and any personal or potentially identifying information inadvertently discussed in groups was removed from transcriptions.

2.4 Data Analysis

Statistical analysis was conducted on the survey data as appropriate and included presentation of descriptives, comparison of groups via chi-square or analysis of variance and its variants (ANOVA, MANOVA, ANCOVA), and assessment of relationships via correlations. Note that sample numbers vary slightly in tables and for different analyses due to small amounts of missing data.

A basic level of thematic analysis was conducted on the focus group data with transcript data read and coded according to meaning (Braun & Clarke, 2006; Charmaz, 2006; Rennie, 2006; Smith & Osborn, 2008). The qualitative data was used as a secondary source of data for this report. Its main purpose was to augment the survey findings, providing either confirmatory or discriminatory evidence from this alternative perspective. Therefore, after initial coding, themes were identified which related to specific areas of concern, such as irrational cognitions among participants, uptake of gambling in Australia, and gambling in relation to stressors. Quotes within relevant categories were used to illustrate survey findings.

RESULTS

3.1 Gambling Behaviour

3.1.1 Popularity and frequency of gambling behaviour

Table 1 below shows the proportion of international and domestic students who gambled for money on different activities over the last year, as well as the proportion who gambled regularly on each form (defined as at least monthly).

Table 1

Proportion of international and domestic students who participated in different gambling activities

	International students		Domestic students	
Activity	% who played game	% frequent gamblers	% who played game	% frequent gamblers
Cards (face to face)	41.0	2.5	34.9	1.8
Horses/dogs	12.1	0.7	36.2	1.4
Sports betting	19.3	1.9	19.6	2.0
Lottery/scratch it tickets	34.3	1.9	53.6	1.9
Gaming tables (casino)	19.5	1.1	28.0	1.2
EGMs at casino	21.2	1.1	37.7	0.7
EGMs outside casino	11.8	0.7	35.9	1.2
Bingo	10.5	0.4	7.2	0.4
Pool or similar (bet on results)	14.3	0.8	12.0	1.1
Internet – casino type games	11.0	0.4	7.7	1.2
Internet – EGM type games	12.2	0.5	5.4	0.7
Internet – Card games	21.0	2.0	13.8	2.5

Note: Frequent gamblers = people who play this game more than once a month

The most popular games in terms of any kind of participation over the last 12 months for international students were card games (face to face or internet), lottery/scratch-it tickets, EGMs or table games at the casino and sports betting. For domestic students the most popular games were also face-to-face card games, lottery/scratch-it tickets, EGMs and table games at the casino, and sports betting. Horse/dog betting and EGMs outside the casino were also popular choices for this group but internet card games were less popular than was the case for international students. Looking at frequent play, it was clear that only small percentages of either student group gambled more than once a month. The games most likely to be played by both international and domestic frequent gamblers were cards (face to face or internet), sports betting and lottery/scratch-it games.

To compare domestic and international students with respect to preferred gambling options, a student status by gender MANCOVA with age as a covariate was conducted on the 12 gambling items. There was significant main effect for student status on frequency of gambling items ($F(12,1565)= 24.86$, partial eta squared =.16). Domestic students were significantly more likely (at $p<.001$) than international students to bet on horses and dogs, buy lottery or scratch-it tickets, bet on gaming tables at the casino and bet on EGMs both at the casino and outside the casino. International students were significantly more likely than domestic students to play bingo ($p<.05$) and bet on EGM type games on the internet ($p<.001$). Multivariate gender effects showed males were more likely than females to gamble on the activities listed ($F(1,1565) = 22.24$, $p<.001$, partial eta square =.15), with univariate tests showed males gambled significantly more often on average on all activities except bingo and buying lottery tickets, for which there were no gender differences. Although there was a multivariate interaction between gender and student status ($F(1, 1565) = 2.77$, $p =.001$, partial eta square = .02), it was significant only for one item, betting on horses and dogs, which was more common among male domestic students than among international students or female domestic students.

To compare international and domestic students on overall frequency of gambling, we added ratings of frequency of use (0=never or rarely thru 3 = once a week or more) for each of the 12 gambling activities shown in Table 1, to produce a scale potentially ranging from 0 to 36. Overall, scores were low on the scale (Mean score = 3.14, Standard deviation = 3.55),

indicating that for the most part, students were infrequent gamblers. A gender by student status ANCOVA with age as the covariate showed that domestic students scored higher on this scale than international students (Mean gambling frequency: Domestics = 3.67; Internationals = 2.69), at a statistically significant level ($F(1,1577)= 20.90$; $p<.001$, partial eta squared = .01), although the effect size was small. Males gambled more than females ($F(1, 1576) =95.57$, $p<.001$, partial eta squared = .06; Mean gambling frequency: Males= 4.61; Females = 2.63). There was no interaction between student status and gender on gambling frequency.

Popularity and frequency of gambling activities: Qualitative Data

The qualitative interviews also showed that card and table games at the casino were strongly favoured by all groups. Sports betting was often enjoyed by the males. EGMs were very unlikely to be played by any groups among those we interviewed.

> *"I like the um card game in the casino … I like poker and then one is the table, the Roulette"* (Male, 23 years old, Indonesian).

> *"We mostly bet on cricket, that is our favourite game and because we have a keen interest in that. Usually you know we bet on the TV, and like how many runs he scored in an over … who will make a century. Like if for example, ah if a player from my own country is playing and he is on like 80 or 90 runs I will say like 'he will make a century', and if he does I win this I win $20 or $100 so if he makes it. So this is how we play and we usually play at friends (houses) over here"* (Male, 25 years old, Pakistan).

Interestingly, although the survey data showed that internet-based gambling options were quite popular with international students, a short exchange within a group of international students (age and gender unspecified) from Western-cultural backgrounds showed some did not trust this source of gambling:

> *"I don't trust it if I can't see the cash…"*

> *"I don't put my money on the internet…"*

"If you can't see it, it's not really there…"

and

"The thing with that is that you don't know who your competitors are, there's a big unknown market out there, people are doing it professionally and know every detail of it"

3.1.2 Changes in gambling since arrival in Australia

Only 23.4% (N=151) of international students said they had gambled prior to commencing their university studies in Australia, however currently, while in Australia, 67.7% (N=434) gambled at least once in the previous 12 months on one or more of the 12 activities listed in Table 1. Among those who were non-gamblers in their home country, over half had tried gambling in Australia. The percent who changed from non-gambler to gambler was 45.1% of the total group of international students. Those who had gambled at home mostly continued to do so in Australia, with only 4.0% no longer gambling here. The trend for international students to change from non-gambler to gambler was statistically significant ($\chi^2(1)= 70.32$, $p < .001$; see Table 2). This change occurred not only for gambling in general, but at a statistically significant level for each of the 12 types of gambling surveyed. It was strongest for sports betting, lottery/scratch-it tickets and betting on gaming tables at the casino.

Table 2

Gambling behaviour in home country and Australia, among international students

			Did not gamble in last year	Gambled at least once in last year	Total
Gamble prior to commencing university studies in Australia?	no	Count	201	289	490
		Expected Count	158	332	
	yes	Count	6	145	151
		Expected Count	49	102	
Total		Count	207	434	641

Despite the above figures, when asked directly whether they gambled more since beginning their university studies in Australia, only 17% (N=127) agreed that they did (in comparison with 45.1% using the methodology described above as the basis for data in Table 2). This suggests that a large number of those who said they were non-gamblers in their home country, but also acknowledged gambling at least once in Australia may be viewing their gambling as minimal, or 'not really counting'. They may be either underestimating their gambling in Australia, or alternatively, they may have discounted or underestimated how much gambling they did in their home country. Whatever the reason for these discrepant results, they underscore the point that self-report data is likely to be highly dependent on the way the question is asked. Having said that, it is important to acknowledge that both ways of analysing the data point to increases in gambling for some international students after they arrive in Australia. It is the magnitude of this increase that is in question.

Changes in gambling since arrival in Australia: Qualitative Data

The qualitative data also provided strong indications that many students who had rarely or never gambled at home now gambled on a fairly regular basis in Australia: *"Basically I never gambled before I came to Australia and earlier one of my friends introduced me to (the Casino)"* (Male, 25 years old, Indian).

> *"Back home in Germany, I would like gamble if you would like go to a friend's place and they would play poker… or in Germany I went twice to the casino, once with my family and it was kind of like… I don't know… it wasn't for fun… and like I didn't even want to go there, so we would just go to the casino… But here it's like go to the pub and OK let's gamble or it's like you go to the casino and everyone is gambling, it's more like common to do it here."* (German student).

The casino was a strong draw card for many Melbourne-based international students. Students had often heard about the casino before they arrived. It was also the only venue in the state to offer cards and table games, games which were popular with many international students. Further, it is open 24 hours a day and can be incorporated into a night out in the city.

3.1.3 Gambling expenditure

Those who had ever gambled in the last 12 months were asked to indicate the largest amount spent on gambling in any one week. International and domestic students were compared with respect to spending category. In general, amounts spent were small for both domestic and international students, with less than 20% of students spending more than $100 on gambling in a week (see Table 3). International students were more likely than domestics to say they had spent nothing on gambling and domestic students more likely to admit to spending between $1 and $99. In higher spending categories, domestic and international students showed few differences. An ANCOVA comparing domestic and international students on the highest amount they had spent in a week (coded from 0-5) and controlling for age (covariate) and gender (independent variable) showed that domestic students spent significantly more gambling on average than international students, but the effect was relatively weak (Mean domestic students = .94 (.86); Mean international students =.71 (.89); $F(1,1574) = 44.83$, $p<.001$, partial eta squared =.03).

Table 3

Amount spent by domestic and international student (gamblers only) on gambling

		Domestic students %	International students %	All %
In the last year, what is the largest amount of money you gambled in one week?	$0 or never gambled	9.2	25.8	16.5
	$1-$99	73.2	54.6	65.1
	$100-$499	12.2	13.3	12.7
	$500-$999	2.3	3.5	2.8
	$1000-$4999	1.8	2.2	2.0
	$5000+	1.2	0.6	0.9

As in the previous section, an anomaly in assessing who had ever gambled was revealed. Although all the students in the sub-sample in Table 3 said they had gambled for money on at least one of the 12 activities listed, a surprisingly large number (16.5%) said the largest amount they had spent in any week over the previous year was zero. Some may have misinterpreted the question as referring to 'last week'. Some may have interpreted

'amount spent', as 'amount lost'. On the other hand, when rating the 12 activities some may have ignored the instruction to only check games on which they had bet money. Thus frequency of gambling may be over-estimated by the frequency measure we used, or amount spent may be underestimated through misinterpretation of the 'how much' question.

Exploring this anomaly further for international students only, Table 4 shows that of those who indicated having gambled at least once in the past year, 135 said the amount gambled was zero. Also, of those who said they HAD NOT gambled in the last year, six said they had spent between $1 and $99, and two said they had spent $100-$400. Clearly there is a lack of consistency in these answers, suggesting a degree of measurement error that cautions against drawing very specific conclusions from these data. However in support of the validity of these measures it is important to note that gambling frequency and amount spent were significantly correlated (r= .62, p<.001).

Table 4

International student gambling by amount spent

		Did not gamble in last year	Gambled at least once in last year	Total
In the last year, what is the largest amount of money you gambled in one week?	$0 or never gambled	229	135	364
	$1-$99	6	279	285
	$100-$499	2	68	70
	$500-$999	0	18	18
	$1000-$4999	0	11	11
	$5000+	0	3	3
Total		237	514	751

3.1.4 Risky and Problem Gambling

The PGSI, part of the Canadian Problem Gambling Index (CPGI) was used to measure severity of gambling problems. It can be used as a continuous measure or individuals can be categorised at risk levels according to their score. Using the latter methodology, Table 5 shows the proportion of students at each gambling risk level by gender and student status.

Data in the table indicates that the majority of both international and domestic students were no risk or low risk gamblers and that in both cases males were more likely to display problematic gambling compared to females. The overall rate of 5.4% of the student sample scoring above the PGSI threshold for problem gambling was high in comparison with general population estimates.

Table 5

Level of gambling risk by student status and gender

	International Students				Domestic Students			
	Males		Females		Males		Females	
Level of Risk	*n*	*%*	*n*	*%*	*n*	*%*	*n*	*%*
Non-problem Gambler	207	57.3	317	81.5	155	55.0	433	79.9
Low risk Gambler	73	20.2	37	9.5	63	22.3	71	13.1
Moderate risk Gambler	46	12.7	20	5.1	42	14.9	25	4.6
Problem Gambler	35	9.7	15	3.9	22	7.8	13	2.4

In total there were 50 international students (6.7%) and 35 domestic students (4.2%) categorised as problem gamblers A Chi-square test indicated this to be a statistically significant difference, with international students more likely to be problem gamblers ($\chi^2(1) = 4.55$, $p<.05$). The majority of these problem gamblers (67%) were males.

Among those students who had ever gambled in the last 12 months, the rates of problem gambling and at-risk gambling were, of course, even higher than in the full sample population. Seven percent of student gamblers fell in the problem gambler category and

another 11.2% in the moderate risk category. For international students these percentages were 9.4 and 12.5, and for domestic students 5.2 and 10.2 respectively.

Table 6 shows problem gambling status by gender separately for domestic and international students. For both groups of students, males were significantly more likely to be problem gamblers than females (Domestic students: $\chi^2(1) = 13.31$, $p<.001$; International students: $\chi^2(1) = 10.26$, $p=.001$).

Table 6

Problem gambler status by gender for domestic and international students

		Non problem gambler	Problem gambler	Total
Domestic students	male	260	22	282
	female	529	13	542
		789	35	824
International students	male	326	35	361
	female	374	15	389
		700	50	750

Several demographic variables were examined to assess their relationship with problem gambling. Table 7 shows living arrangements of students by problem gambling status (note 23 participants were missing data for living arrangements). A Chi-square test indicated that problem and non-problem gamblers had significantly different living arrangements ($\chi^2(3) = 14.24$, $p<.01$). Across the total sample, problem gamblers were significantly more likely to live alone and less likely to live with a family. These trends were also significant for international students only ($\chi^2(3) = 8.05$, $p<.05$), but were less strong (and non-significant) for domestic students.

Table 7

Problem gamblers by living arrangements (all students)

Living arrangements	Non problem gambler	Problem gambler	Total
Alone	104	15	119
With peers	656	33	689
With a family	717	36	753
Other	16	0	16
Total	1493	84	1577

Problem and non-problem gamblers did not differ with respect to marital status or whether they were post-graduate or undergraduate students. Number of years in Australia or years at an Australian university also showed no relationship to problem gambling. Religion and age were not significantly related to problem gambling status either for the whole sample or for internationals only.

Problem gambling intensity (score on PGSI) was significantly correlated with gambling frequency ($r=.64$, $p<.001$) and amount spent ($r=.54$, $p<.001$).

Risky and problem gambling: Qualitative data

Only two students taking part in the focus group interviews self-reported having problems controlling their gambling, however, our measure of problem gambling indicated seven participants were probable problem gamblers and a further 13 were at-risk. Many international students were gambling substantial amounts in a sitting:

> ***"$100 is the maximum that you would spend?" (*Facilitator)**
>
> "*Yeah a hundred" (*Female, 22, Hong Kong)
>
> ***"For the night? Yep, so that's your limit on how much you would spend for the night. But some of the boys that you play with would have …?" (*Facilitator)**
>
> *"They are terrible. They play like a five hundred (dollars) or sometimes more than that (in a night)"* (Female, 22, Hong Kong)

We also asked students about their awareness of gambling problems within the international student community. In order to respect privacy and confidentiality, we asked students about their knowledge of gambling problems in general rather than about personal gambling issues, and no individual names were used. The majority of students participating in the focus groups had heard about gambling problems within the international student community, with many reporting personal encounters. One participant discussed a fellow Chinese student spending all the money his parents had sent him. He then managed to access additional money for gambling through a credit card his parents were also paying:

> *"He play like ah always play like a thousand (dollars) like just only one day … and then he spend all his money from his parents in his account. He, and then he also have to like go um pay the school fee as well ... he ask can I help you to buy something and then like ah use his credit card and then I give him the real money, then he can go for – he can go to the casino. Cause casino you can't pay, they accept a real money, they don't accept the credit card"* (Female, 22 years old, Hong Kong).

Sometimes the consequences extended beyond the individual and his or her family.

> *"Yeah so he lose a game $4,000 and $5,000 a night and he can't afford to pay it so he ask money from friends and his (home stay host) … pay the credit card because he used the credit card. So four thousand to five thousand but unfortunately he can't afford that money so he ran away"* (Female participant, 24 years old, Indonesian).

However, students said it was rare for another student to directly admit to problems. While a fellow student may talk about their wins, they were unlikely to talk about losses. "*They never tell you what they lost…… I don't believe that you win all the time and they never say that they lose something…"* (age and gender unspecified, Western cultural background).

3.1.5 Summary: Gambling Behaviour

International students' preferred gambling games are cards, lotteries and casino based games. Most do not gamble very often, but there is a small core of frequent gamblers for most of the gambling activities.

Domestic students on average gamble more frequently than international students, however international students are significantly more likely than their domestic counterparts to gamble on the internet.

Males are more frequent gamblers than females in both domestic and international student populations.

There is a strong trend for international students to change their gambling habits to more frequent gambling when they come to Australia.

On the whole, most domestic and international students do not spend large amounts of money on gambling, but around 6% have spent more than $500 in a week.

Problem gambling rates are relatively high (5.4%) in the student sample in comparison with Australian population data.

International students are significantly more likely to be problem gamblers than domestic students (6.7% versus 4.2%).

Males, those living alone, and those who gamble more frequently are more likely to be problem gamblers.

Data from interviews supported the general findings above.

3.2 Psychosocial risk factors

3.2.1 Stressors, gambling cognitions, negative affect and alcohol consumption among International Students

Stressors: Table 8 shows the extent to which male and female international students indicated that they experienced academic, relationship and financial stresses. Their most intensely felt pressures were to succeed academically, with more than 70% of students putting pressure on themselves but also feeling pressure from family expectations. Not progressing well enough with studies, along with a range of financial stresses, were experienced by a quarter to a third of international students. Fewer students experienced

Table 8

Academic, relationship and financial stresses of international students (% agree[1])

Stressor	males *n*=368	females *n*=396	total *n*=764
Academic stresses			
Important to family that I succeed academically	82.8	76.8	79.7
Put pressure on self to succeed academically[2]	64.9	77.0	71.2
Not progressing well enough with studies[2]	26.1	33.6	30.0
Difficulties with studies	19.8	23.0	21.4
Relationship stresses			
Feel lonely	25.0	26.6	25.8
Feel homesick[2]	21.2	29.8	25.7
Having problems with romantic relationships	18.5	17.9	18.2
Family worries about my safety due to race/colour[3]	25.2	12.1	18.4
Afraid of abuse/attack due to race/colour[3]	20.7	15.9	18.2
Experiencing racism and/or sexism	15.0	16.7	15.8
Pressure from peers to do things I don't want to	11.1	14.4	12.3
Having problems/conflict with others	8.4	12.4	10.5
Having problems with family relationships	6.2	7.6	6.9
Being bullied at university	2.2	5.3	3.8
Being bullied outside university	4.8	4.0	4.4
Financial stresses			
Not enough money to meet unexpected expenses	41.6	39.1	40.3
Constant pressure to pay regular bills	31.3	30.0	30.6
Worry about paying tuition fees	24.2	27.2	25.8
Not enough money for suitable accommodation	18.2	15.9	17.0

Notes: [1] agree or strongly agree; [2] females significantly >males; [3] males significantly > females.

relationship stresses or pressures associated with racism and bullying, although one quarter were homesick and lonely. Males and females differed significantly on only five of the 19 items, as shown in Table 8.

Acculturation Stress: Table 9 shows acculturation stressors, with male and female data combined as the sexes were very similar (the one significant difference was that males found following rules and regulations more difficult than females). Coping with academic work, expressing ideas in class, going to social events and dealing with unpleasant people

Table 9

Adaptation stresses of international students

Adaptation Stress	% had difficulty
Dealing with someone unpleasant/ aggressive	44.8
Coping with academic work	35.7
Expressing your ideas in class	35.2
Going to social events	33.5
Making friends	29.2
Understanding jokes and humour	27.5
Communicating with people of a different ethnic group	26.4
Talking about yourself with others	25.8
Dealing with the bureaucracy	23.7
Living away from home	24.1
Making self understood	23.6
Understanding what is required at university	22.8
Getting used to the food	21.7
Using the transport system	21.6
Dealing with university staff	19.9
Getting use to the pace of life	19.6
Finding your way around	17.7
Following rules and regulations[1]	12.7

N=764; Note: shortened version of items used in table; [1]males found this significantly more difficult than females (the only gender difference on these items).

were difficult for more than one-third of international students, and most of the other acculturation challenges proved difficult to around one-fifth to one quarter of students.

Cognitions about gambling: International students who had ever gambled were asked to record their agreement or disagreement with 23 gambling cognitions in the Gambling Related Cognitions Scale (see Table 10). The scale has five subscales (Interpretative Control Bias, Illusion of Control, Predictive Control, Gambling-related Expectancies, Perceived Inability to Stop Gambling), scores on which will be discussed later in relation to specific cultural groups. However in this section it is instructive to consider percent agreement (those who mildly, moderately or strongly agree) with each of the items, which reflect expectations about gambling, desire to gamble and irrational cognitions about gambling, among other beliefs. Although male and female data have been combined here, males agreed with every one of the gambling cognition statements to a significantly greater extent than females.

Although percentage agreement with these items was not high, it was nevertheless high enough to be of interest. Up to 10% of international student gamblers had superstitious and erroneous beliefs about winning, e.g., beliefs about control over winning, beliefs about lucky objects, colours and rituals, and ideas that a win would invariably follow a string of losses. Additionally, nearly 10% believed that gambling helped reduce stress, and a greater number found gambling made them happier. A small core of around 4% to 5% indicated strong urges to gamble and concerns about not being able to stop.

Table 10

Gambling cognitions of international students

	% Agree
Gambling makes me happier	14.4
I can't function without gambling	2.0
Praying helps me win	6.7
Losses when gambling, are bound to be followed by a series of wins	6.3
Relating my winnings to my skill and ability makes me continue gambling	10.2
Gambling makes things seem better	4.7
It is difficult to stop gambling as I am so out of control	3.7
Specific numbers and colours can help increase my chances of winning	7.8
A series of losses will provide me with a learning experience that will help me win later	10.7
Relating my losses to bad luck and bad circumstances makes me continue gambling	6.9
Gambling makes the future brighter	3.0
My desire to gamble is so overpowering	3.0
I collect specific objects that help increase my chances of winning	4.3
When I have a win once, I will definitely win again	9.0
Relating my losses to probability makes me continue gambling	8.2
Having a gamble helps reduce tension and stress	9.1
I'm not strong enough to stop gambling	5.1
I have specific rituals and behaviours that increase my chances of winning	6.1
There are times that I feel lucky and thus, gamble those times only	14.8
Remembering how much money I won last time makes me continue gambling	11.5
I will never be able to stop gambling	3.5
I have some control over predicting my gambling wins	9.3
If I keep changing my numbers, I have less chance of winning than if I keep the same numbers every time	6.9

Negative affect: Data in Table 11 shows the mood states of the international students in comparison with adult population norms. Much larger percentages than expected of these international students were moderately, severely and extremely anxious, depressed and stressed, with anxiety levels appearing to be particularly high for this group.

Table 11

Depression, anxiety and stress among international students (% in each of the DASS-21 categories) in comparison with population norms

	Anxiety	Depression	Stress	Population norms[1]
Normal	52.0	55.2	65.4	78
Mild	7.7	11.3	11.4	9
Moderate	16.1	19.4	11.7	8
Severe	9.8	7.2	9.4	3
Extremely severe	14.3	6.9	2.1	2

[1] Lovibond & Lovibond (1995)

Alcohol use: Level of alcohol consumption among international students was examined. A minority of international students (34.4%) reported drinking more alcohol since beginning university studies in Australia. International students were generally not frequent or heavy drinkers, although a substantial minority did drink at potentially risky levels. The level of alcohol consumption over the past 12 months is shown in Table 12 to Table 14 below.

Table 12

Frequency of alcohol consumption over the previous 12 months by international students

Consumption	*n*	*%*
Never	151	19.9
Monthly or less	282	37.1
2-4 times a month	179	23.6
2-3 times a week	108	14.2
4+ times a week	40	5.3

N=1593

The majority of international students reported only infrequent drinking (monthly or less), however, 20% reported drinking more than once a week.

Table 13

Number of alcoholic drinks consumed on a typical day of drinking[1] by international students

Typical number of drinks consumed	*n*	*%*
0-2 drinks	470	62.7
3-4 drinks	129	17.2
5-6 drinks	85	11.3
7-9 drinks	39	5.2
10+ drinks	27	3.6

N=1553, [1] Relates to drinking over the previous 12 months

Most international students reported drinking less than three alcoholic drinks on a typical day in which they consumed alcohol, but 2% drank five or more drinks on a typical occasion which is regarded as binge drinking.

Table 14

Frequency of heavy drinking (6 or more alcoholic drinks) among international students

Frequency of drinking six+ alcoholic drinks[1]	*n*	*%*
Never	394	51.8
Less than monthly	188	24.7
Monthly	110	14.5
Weekly	65	8.6
Daily or almost daily	3	0.4

N=1594,[1] Relates to drinking over the previous 12 months

International students were unlikely to report drinking heavily, with the majority saying they never drank heavily, although just under a quarter of international students did report that they drank heavily on a regular basis (monthly or more).

3.2.2 Comparing international and domestic students on psychosocial risk factors

International and domestic students were compared on stressors and negative affect using MANCOVA (student status by gender) controlling for age (covariate). The main effect for student status was significant ($F(7, 1564)= 29.72$, $p<.001$, partial eta squared = .12) as was gender ($F(7,1564)= 10.44$, $p<.001$, partial eta square = .04) but the gender by student status interaction was not significant. Females reported experiencing significantly more academic, financial and overall (DASS-21) stress than males. Domestic students scored significantly lower than international students on academic stress, relationship stress, adaptation/ acculturation stress, anxiety and depression (but not financial stress or DASS-21 stress). Table 15 shows mean scores and F values for these student status differences.

Table 15

Mean scores of domestic and international students on stressors and negative affect

	Domestic student	International student	F (1,1570)	Partial eta square
Academic stress	12.77	13.11	6.03*	.004
Relationship stress	18.30	21.22	81.43***	.049
Financial stress	10.30	10.68	3.09	.002
Adaptation stress	30.02	34.86	90.26***	.054
DASS-21 - anxiety	3.38	4.51	29.90***	.019
DASS-21-depression	4.34	5.13	11.37**	.007
DASS-21 - stress	6.18	6.12	.07	.000

*p<.05; p<.01; ***p<.001

Comparing domestic and international students on gambling cognitions using a gender by student status MANCOVA with age as a covariate resulted in significant main effects for student status (F(5,1176)= 6.51, p<.001, partial eta square= .027) and gender (F(5,1176) = 23.30, p<.001, partial eta square = .09). Again the gender by student status interaction was not significant. Univariate Fs and the means show that the international students were higher on all the cognitions than the domestic students (Table 16), and males were consistently higher than females on all measures.

International and domestic students were also compared on alcohol consumption using the AUDIT-C which combines the three alcohol consumption questions. A gender by student status ANCOVA with age as a covariate showed that domestic students (*M*=4.65) consumed significantly more alcohol on average than international students (*M*=3.01) (F(1, 1543)= 162.58, p<.001, partial eta squared = .10) and males (*M*=4.37) consumed significantly more alcohol than females (*M*=3.50) (F(1, 1543)= 66.22, p<.001, partial eta squared = .04). The gender by student status interaction was not significant.

Further, using recommended cut-off points on the AUDIT we find that 45% of male international students and 71% of domestic male students should be considered to be “at–

risk" drinkers, while 28% international female students and 62% of domestic female students are similarly at-risk drinkers. These figures appear high for both groups, but are particularly so for domestic students. Chi-square difference tests showed that for both genders, domestic students were significantly more likely to be at-risk drinkers than were international students (males $\chi^2(1) = 45.48$, $p < .001$; females $\chi^2(1) = 103.98$, $p < .001$).

Table 16

Mean scores of domestic and international students on gambling cognitions

Gambling cognitions	Domestic students	International students	F (1,1180)	Partial eta square
Gambling expectations	1.67	1.92	6.32*	.005
Illusion of control	1.41	1.71	22.62***	.019
Predictive control	1.62	1.94	14.38***	.012
Inability to stop gambling	1.28	1.53	15.00***	.013
Interpretive control bias	1.68	1.91	3.79*	.003

*p<.05; ***p<.001

3.2.3 Predicting gambling behaviour in international and domestic students using psychosocial risk factors

The relationships between both frequency of gambling and severity of gambling problems (PGSI measure) and each of academic, relationship and financial stresses, acculturation difficulties, negative affect (depression, anxiety, stress), the five irrational gambling cognition subscales and alcohol consumption were assessed separately for international and domestic students and are shown below in Table 17.

Table 17

Correlations between measures of psycho-social risk and measures of gambling behaviour among international students and domestic students

	International students		Domestic students	
Variable	Frequency of Gambling	Severity of Gambling Problems	Frequency of Gambling	Severity of Gambling Problems
Academic Stress[1]	.07	.12**	-.05	.03
Relationship Stress	.09*	.20**	.18**	.16**
Financial Stress	.08*	.16**	.11**	.11**
Adaptation Stress	.12**	.18**	.18**	.23**
Depression	.23**	.30**	.14**	.18**
Anxiety	.21**	.28**	.13**	.17**
Stress	.19**	.25**	.07*	.12**
Gambling expectations	.34**	.42**	.54**	.54**
Illusion of control	.32**	.41**	.46**	.48**
Predictive Control	.39**	.44**	.50**	.52**
Inability to stop gambling	.40**	.55**	.46**	.61**
Interpretative Bias	.40**	.51**	.53**	.55**
Alcohol Consumption	.28**	.14**	.34**	.22**

*p<.05, **p<.01, [1] Note: This subscale had a fairly low level of internal consistency which may have weakened relationships with this variable

As can be seen there were generally weak, positive relationships between the measures of stress, measures of negative affect, and both gambling frequency and severity of problems. These small correlations were present for both international and domestic students, possibly a little stronger for international students but the differences are unlikely to be significant. The relationships between measures of irrational cognitions, a measure of alcohol consumption and measures of gambling behaviour were similarly positive and weak, but this time they tended to be slightly stronger for domestic students compared to

international students. Again, these differences between student groups are unlikely to be important. The strongest relationships were between irrational cognitions and gambling problems.

Finally we tested whether there was any difference in the degree to which international and domestic students had increased their drinking since commencing university studies in Australia (see Table 18).

Table 18

The extent to which consuming alcohol increased after commencement at university in Australia by student status

	International students		Domestic students	
Extent to which drinking increased	n	%	n	%
Does not apply to me (no increase)	498	65.5	487	58.3
Applies to some degree/some of the time	138	18.2	176	21.1
Applies to a considerable degree/good part of the time	65	8.6	84	10.0
Applies very much or most of the time	59	7.8	89	10.6

Table 18 showed a fairly similar pattern for both student groups, with the majority in both cases reporting no increase in drinking since commencement at university. However, domestic students were slightly more likely than internationals students to say that their drinking had increased to a considerable or large degree, and this relationship was found to be significant $\chi^2(3) = 9.63$, $p<.05$.

Irrational gambling cognitions: Qualitative data

The focus group data showed that many of the international students had irrational cognitions around gambling, including attributing too much power to personal skill or knowledge, thinking they could predict the outcome of a chance game based on prior non-related games and gambling in relation to superstitious beliefs: *" I know what's happening, what horse is going to come in next, which horse is going to win"* (Indian Male, 25 years of age, problem gambler)

> *"I learn from ah some experts that um you can try to predict what the dealer will um, like I say I play Black Jack (yep) so if you were like gambling quite often and you know the trick, you can win a lot of cash.* (Indonesian Male 25 years old, low risk gambler)

> *"While you are having a birthday or something, kind of like special event or, or special day. Then you believe that you're 'specially lucky … so maybe you go to maybe buy some ah like lottery (ticket) or something"* (Chinese female, 20 years of age, no risk gambler)

Discussions that included reference to irrational cognitions around gambling were common and seen across different cultures and genders.

Gambling as stress relief: Qualitative data

There was also some discussion within the focus groups that gambling could be a response to boredom or academic stress.

> *"If I fail something in the university and um there is a tough for me for starting one unit or two, I will prefer to go there (casino) to relax myself"* (Chinese male, 26 years old, moderate risk gambler)

> *"Because ah like when we feel too many (sic) stress during the weekday and then (we) like to get some fun on the weekend (at the casino)"* (Indonesian Male, 23 years old, low risk gambler).

Discussions about gambling as a stress or boredom reliever were much less common than talk related to erroneous beliefs about gambling. This supports the quantitative findings that also showed a pattern of stronger relationship between irrational cognitions and gambling behaviour than was the case for stressors or negative emotions. The combined data suggests irrational cognitions are much more widespread among international students than is gambling as a means of escape or avoidance.

3.2.4 Summary: Psychosocial Risk Factors

Many international students are experiencing stress in relation to their academic studies and their finances. Acculturation problems are evident for a significant proportion of the sample. To a lesser extent they are experiencing relationship stresses such as loneliness, homesickness and worries about racism.

A small but noteworthy group of international students express irrational cognitions about gambling. For example, up to 10% of international student gamblers believe they can influence their luck through particular objects, colours and rituals, and that a win will invariably follow a string of losses.

International students show depression, anxiety and stress levels much higher than population norms.

International students show relatively low levels of alcohol consumption although there are a few frequent, heavy drinkers in the sample (about 9%).

International students demonstrate significantly higher levels of academic stress, relationship stress, acculturation stress, anxiety and depression compared to domestic students.

International students show significantly higher levels of irrational cognitions about gambling compared to domestic students.

Domestic students are heavier consumers of alcohol than international students.
For both international and domestic students, gambling frequency and problem gambling are related to stressors, negative affect, gambling cognitions and alcohol consumption. The strongest relationships are with irrational gambling cognitions.

Qualitative data showed support for the survey findings that gambling behaviour is associated with both irrational cognitions and attempts to reduce stress.

3.3 Cultural group comparisons

3.3.1 Cultural group comparisons of gambling behaviours

Home countries of international were amalgamated into six groups large enough for meaningful comparisons (China, other Asian countries, India, Western Europe, English-speaking countries and 'other'). While meaningful conclusions cannot be readily drawn about the 'other' group, comprising as it does a wide mix of nations and cultural groups, the other five groups each reflect a degree of homogeneity of culture. Table 19 below shows the proportion of international students from each cultural group who gambled on different activities over the last year, as well as the proportion who gambled regularly on each form (defined as at least monthly). As can be seen there are some interesting similarities and differences. Face to face and internet card games as well as sports betting were clearly popular across all groups, both in terms of any play and regular play. Within this pattern though, it is also clear that people from English speaking western countries were much more likely to play face to face card games regularly than any other group. Lottery/scratch-it tickets were also popular with each group except those from India. Gaming tables at the casino were popular with regular gamblers from Asia (including China), India and English-speaking western countries. The other interesting finding was that students from India were quite likely to play EGMs at the casino regularly, while those from English-speaking western countries were quite likely to play EGMs outside the casino regularly.

Table 19

Proportion of international students from each culture who participated in different gambling activities

	China		Western Europe		English-speaking western countries		India		Other Asian countries		Other countries	
Activity	% who played game	% frequent gamblers	% who played game	% frequent gamblers	% who played game	% frequent gamblers	% who played game	% frequent gamblers	% who played game	% frequent gamblers	% who played game	% frequent gamblers
Cards (face to face)	46.7	7.0	38.0	7.0	47.9	17.6	25.7	11.4	43.2	6.5	35.0	8.3
Horses/dogs	13.4	2.7	21.1	2.8	17.6	3.4	6.7	1.0	8.9	0.5	6.7	0
Sports betting	16.1	5.4	12.7	7.0	31.1	8.4	19.0	9.6	18.8	5.1	15.0	6.7
Lottery/scratch it tickets	32.3	5.4	40.8	2.8	51.3	17.6	13.3	2.0	34.7	8.9	33.3	8.3
Gaming tables (casino)	16.1	5.4	18.3	2.8	27.7	7.6	13.1	6.7	20.2	5.6	16.7	3.3
EGMs at casino	18.8	3.8	11.3	1.4	25.2	2.5	22.9	7.7	24.9	3.2	16.7	1.7
EGMs outside casino	11.3	3.2	9.9	1.4	20.2	5.9	11.4	0	10.3	1.4	5.0	1.7
Bingo	12.9	3.2	2.8	0	11.8	0.8	8.6	3.8	12.2	2.3	6.7	0
Pool or similar (& bet on results)	16.1	4.3	9.9	2.8	11.8	4.2	16.2	2.0	14.4	5.2	8.3	3.4
Internet – casino type games	15.1	4.8	5.6	2.8	5.9	2.5	12.4	3.8	12.2	1.4	8.3	1.7
Internet – EGM type games	19.4	4.8	5.6	1.4	7.6	3.4	11.4	3.9	12.7	2.8	6.7	1.7
Internet – Card games	28.0	8.6	15.5	5.6	10.1	5.9	26.7	9.6	20.2	7.9	20.0	5.0

The 50 problem gamblers identified among international students came from a range of home countries including Vietnam, USA, Taiwan, Thailand, South Korea, Singapore, Pakistan, Malaysia, Indonesia, Hong Kong, China, Canada, and India,

The mean frequency of overall gambling for the six cultural groups can be seen in Table 20 below. This table also displays the number of problem and non-problem gamblers, the percentage of problem gamblers and the mean problem gambling score for each cultural group.

Table 20

Comparison of cultural groups on problem gambling and gambling frequency

	Non-problem gambler N	Problem gambler N	Problem gambler %	Mean pg score	Mean gambling frequency
China	168	18	9.7	1.67	3.39
Western Europe	71	0	0.0	0.51	3.00
English-speaking western nations	108	10	8.5	1.72	3.90
India	100	4	3.8	1.24	2.51
Other Asian countries	195	15	7.1	1.60	3.06
Other	58	3	4.9	0.93	2.46
Total	705	50	6.6		

The proportion of problem gamblers was highest among the Chinese group, closely followed by international students from English-speaking western nations. Lowest levels of problem gambling were amongst students from Western Europe and India. However, these differences were not statistically significant ($\chi^2(5) = 10.11$, p=.07).

Another way of assessing problem gambling is to consider scores (rather than categories) on the PGSI, i.e., problem gambling intensity. Table 20 shows the mean scores for the six cultural groups on problem gambling intensity and frequency of gambling. Using MANCOVA

with the two gambling measures as dependent variables, gender and home country as independent variables and co-varying for age, we find significant multivariate effects for gender, home country and their interaction (Gender: F(2,732)= 20.44, p<.001, partial eta square = .05; Home Country: F(10,1466)= 1.85, p<.05, partial eta square = .01; Interaction: F(10, 1466)= 2.25, p=.01, partial; eta square =.02).

Univariate tests indicated gender differences on both variables (male>females) (already discussed in earlier sections). Home country ANOVAS were not independently significant and effects need to be viewed in the light of the significant home country by gender interactions (Problem Gambling Intensity: F(5,733)= 2.70, p=.02, partial eta square= .02; Frequency of Gambling: F(5,733)= 3.49, p<.01, partial eta square = .02).

Figure 1 shows problem gambling scores were much higher for males than for females in each case but that problem gambling scores were highest for males from English speaking western countries, China and other Asian countries.

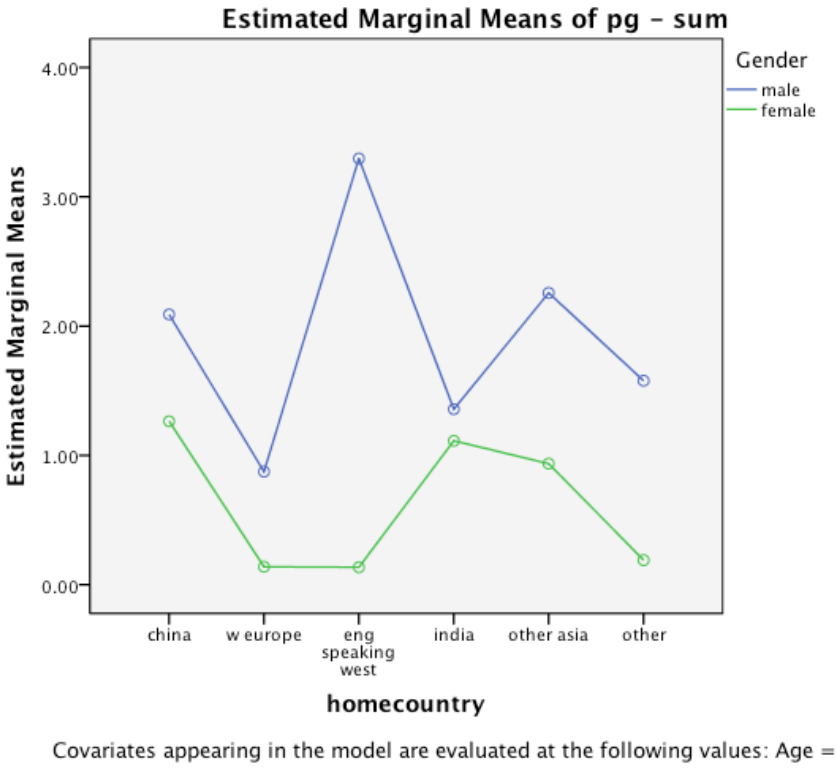

Figure 1: *Problem gambling intensity scores (pg-sum) of male and female international students from six cultural groups.*

The problem gambling scores were lowest for females from English speaking Western countries and Western Europe.

Figure 2 shows a similar pattern for gambling frequency, with males from English-speaking western countries, Western Europe and Asian countries other than China gambling the most frequently. Interestingly, females from China gambled more frequently than females from other countries, and close to the rate of males from China. Thus although those from China have the highest rates of problem gambling (as categorized by scores over 8 on the PGSI), when male and female rates were compared on problem gambling intensity and gambling frequency, it was male international students from English speaking western countries who appeared to be the most at-risk group.

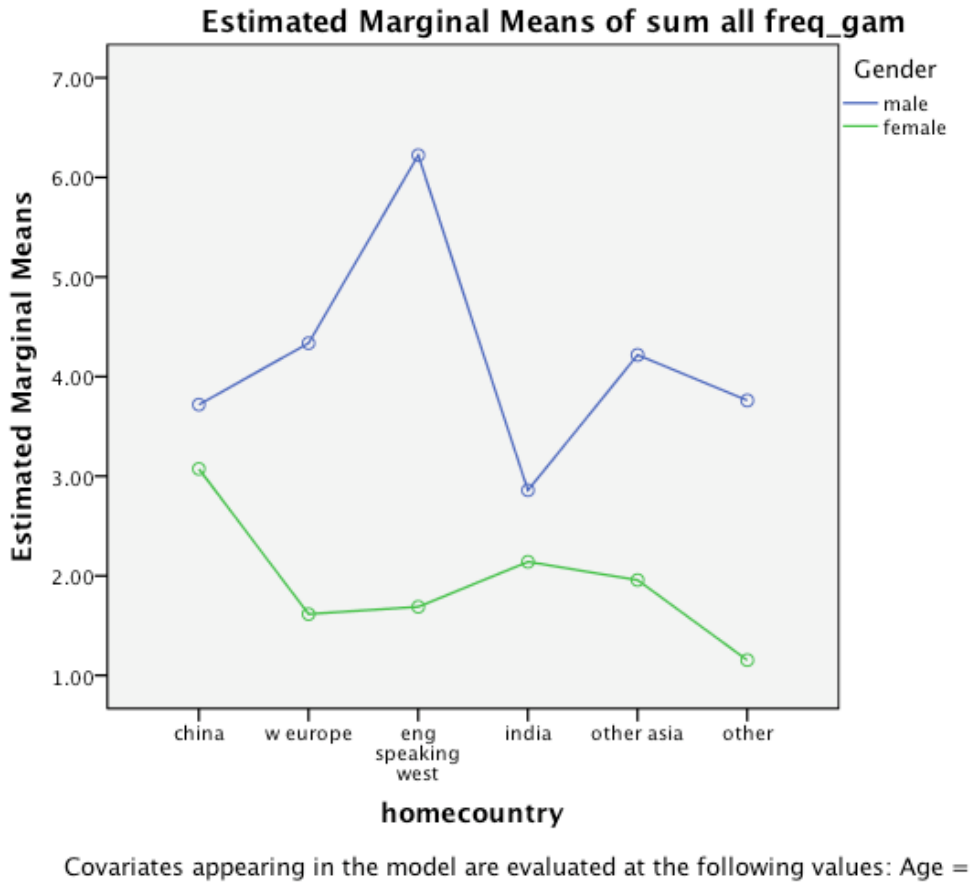

Figure 2: *Frequency of gambling (sum all freq-gam) of male and female international students from six cultural groups*

3.3.2 Comparing cultural groups on psychosocial risk factors

The cultural groups were then compared in terms of their experience of stressors, negative affect and gambling cognitions, using three separate gender by home country MANCOVAs covarying for age (see Tables 21-23 for mean scores, F statistics and measures of relationship strength).

Table 21

Mean scores for home country groups on stressors (international students only)

	Academic stress	Relationship stress	Financial stress	Adaptation stress
China	13.49	22.74	10.64	37.41
Western Europe	11.78	16.14	8.68	32.74
English speaking western countries	13.15	18.54	9.83	31.52
India	12.83	23.01	12.18	33.07
Other Asian countries	13.45	22.82	11.30	36.71
Other countries	12.61	18.02	10.13	32.31
Univariate F (5,750)	4.88*	22.26*	7.73*	7.56*
Partial eta square	.03	.13	.05	.05

*p<.001

Stressors: Table 21 shows differences in terms of stressors. The MANCOVA for stressors was significant for home country ($F(20,3000) = 7.40$, $p<.001$, partial eta sq=.047) and gender ($F(4,747)=3.05$, $p<.05$, differences discussed in a previous section) but not for the interaction between gender and home country. Home country differences were however significant for all four stressors. Students from China and other Asian countries experienced greater academic stress than most of the other groups, with those from Western Europe experiencing the least. For relationship stress, highest scores were obtained by students from China, other Asian countries and India. Financial stress was greatest among Indian

students, followed by other Asian countries and China, while Chinese and other Asian students experienced the most adaptation (or acculturative) stress. The least stressed groups over all were those from Western Europe and English-speaking western countries.

English language fluency: Low fluency in English can be considered a potential added stressor for international students in Australia. We therefore compared self-rated English fluency of international students from different home country groups, using ANCOVA. Independent variables were gender and home country; the covariate was age. Home country was the only significant main effect ($F(5,748) = 87.66$, $p < .001$, partial eta square= .37), and there was no significant interaction between gender and home country. Post hoc tests (LSD) showed that Chinese students rated their fluency significantly lower than all other groups (M=9.17). The 'other Asian' group was also significantly different from all other groups, rating themselves second lowest in English fluency (M=11.42). Those from English-speaking western countries, not surprisingly, rated themselves significantly higher (M=14.16) than all other groups. Indian (M=12.29), and European (M=12.35) students were similarly middle ranked.

Table 22

Mean scores for home country groups on negative affect (international students only)

	Anxiety	Depression	Stress
China	6.49	5.94	7.33
Western Europe	2.45	3.95	5.18
English speaking western countries	2.88	4.19	5.54
India	4.16	5.49	5.68
Other Asian countries	5.13	5.77	6.53
Other countries	2.69	3.56	4.75
Univariate F (5,749)	18.98*	5.32*	4.86*
Partial eta square	.11	.03	.03

*p<.001

Negative Affect: Table 22 shows differences in negative affect (anxiety, depression and stress) of students from different home countries. A gender by home country MANCOVA for negative affect (age as covariate) showed a significant multivariate gender effect ($F(3,747)= 4.30$, $p<.01$, partial eta square = .02, differences discussed previously). The multivariate interaction term was non-significant. The home country effect was significant ($F(15,2247)= 8.91$, $p<.001$, partial eta square = .06), with significant univariate effects on all three variables. Students from China and other Asian countries were more anxious, depressed and stressed than the other international student groups, with Indian students also showing quite high anxiety and depression scores.

Cognitions about gambling: Table 23 shows the mean scores and significant effects on gambling cognition subscales for the home country groups. The multivariate effect for home country was significant ($F(25,2360)= 2.78$, $p<.001$, partial eta square =.03) as was the effect for gender ($F(5,468)= 6.71$, $p<.001$, partial eta square = .07), but the gender by home country interaction was not significant. As discussed previously, univariate tests showed males scored significantly higher than females on all of the gambling cognitions (means not shown).

Table 23

Mean scores for home country groups on gambling cognitions

	Gambling expectations	Illusion of control	Predictive control	Inability to stop gambling	Interpretive control bias
China	2.15	1.97	2.15	1.89	2.00
Western Europe	1.44	1.20	1.48	1.22	1.38
English speaking western countries	1.93	1.52	1.72	1.37	1.82
India	1.78	1.97	2.01	1.55	1.95
Other Asian countries	2.06	1.84	2.17	1.56	2.12
Other countries	1.60	1.41	1.58	1.37	1.58
Univariate F (5,472)	3.78*	5.44**	4.74**	4.00*	3.47*
Partial eta square	.04	.06	.05	.04	.04

*p<.01; **p<.001

Consistently, individuals from Western Europe and 'other' countries had the lowest levels of each of the gambling cognitions, that is, they were less prone to irrational beliefs about gambling, high expectations of winning and difficult to control urges to gamble. Those from China, India and other Asian countries were higher scorers on these beliefs, with those from English speaking western countries in between on the whole.

Alcohol use: To examine the differences between international students from different country groups on alcohol consumption, a gender by home country ANCOVA with age as a covariate was conducted on the AUDIT-C. Males were significantly higher alcohol users than females ($F(1,736) = 57.14$, $p < .001$, partial eta squared = .07) but there were no significant gender by home country interactions. Alcohol use differed significantly across home countries ($F(5,736) = 57.45$, $p < .001$, partial eta squared = .28). Post hoc tests indicated that international students from Western Europe and English-speaking Western countries had significantly higher mean scores on the AUDIT-C (5.01, 5.67 respectively) than international students from the other country groups (Mean AUDIT-C China 1.93; India 1.49; Other Asian countries 2.40; Other countries 3.43). Chinese and Indian students scored significantly lower than the other groups on alcohol use. Using the recommended cut-off scores for at-risk drinking, we find that 74% of English speaking westerners and 66% of Western European students should be considered at-risk drinkers. In contrast, between 13% and 29% of students from Asia and India are risky drinkers (China 13.2%; India 22.9%; Other Asia 29%).

3.3.3 Summary: Cultural group comparisons

Patterns of gambling preferences are somewhat different for international students from different cultural backgrounds/home countries.

In our sample, the percentage of problem gamblers is higher among international students from China and English-speaking western nations. When gender is factored in, male international students from English speaking western nations have the highest rates of problem gambling.

Chinese students and those from other Asian countries reported the most stress, negative affect and the highest levels of irrational cognitions about gambling. They also showed the lowest levels of English fluency. Indian students were also high on stress (particularly financial) and irrational cognitions. International students from Western Europe and English speaking western countries had the lowest levels of irrational gambling cognitions, stresses and negative affect, but the highest levels of alcohol consumption.

Differences between cultural groups in terms of gambling behaviour and associated risk factors suggest a need for some tailoring of gambling education/support services to suit specific group profiles.

3.4 Help seeking and gambling supports for international students

3.4.1 Help seeking among international students

We asked international students whether they had experienced any issues or difficulties over the past 12 months that they felt required some kind of help. The percentages of males and females who agreed they had experienced different types of issues are shown in Table 24 below.

The most common issues identified by both genders were academic, emotional or relational issues. Chi square tests showed that females were significantly more likely to report emotional issues $\chi^2(1)=17.08$, $p<.001$. Only small percentages identified either drug/alcohol or gambling problems but males were significantly more likely to report both drug or alcohol $\chi^2(1)=12.67$, $p=.001$ and gambling problems $\chi^2(1)=12.50$, $p<.001$.

Table 24

Issues Experienced by International Students (% who selected)

Issue	males *n*=368 %	females *n*=396 %	total *n*=764 %
Academic Issues	50.5	57.6	54.2
Emotional Issues	38.9	53.8	46.6
Relationship Issues	34.8	38.6	36.8
Drug or alcohol problems	6.5	1.5	3.9
Gambling Issues	3.8	0.3	2.0
Other Issues (financial, cultural, medical)	4.1	2.0	3.0

We then asked those who had reported any difficulties over the last 12 months to tell us about the type of help options they had used to assist them. The percentage of males and females who reported using each type of help options is shown in Table 25 below. Chi square tests showed few differences between genders. The only significant difference between genders was that females were slightly more likely to turn to family for help than males $\chi^2(1)=5.92$, p=.017. However, this and friends were clearly very popular choices for both males and females. University-based help options were also quite popular with both groups.

We then examined help seeking within the group of international students who were at moderate or high risk of gambling problems. This showed that 38% had sought help from informal source (e.g., family or friends), while just over 50% had sought a mix of informal and formal help. Ten percent reported no help-seeking activity of any kind.

Table 25

Percentage of International Students who used different Help Options

Help Option	males *n*=281 %	females *n*=304 %	total *n*=585 %
Friends	76.5	83.2	80.0
Family	66.5	75.7	71.3
University-based Help Option[1]	35.2	41.1	38.3
Community Elders	20.3	18.1	19.1
Other Professional Services	13.9	20.1	17.1
Community-based Support Groups[2]	11.7	10.2	10.9
Other help option	6.0	5.6	5.8

[1]University-based services included counselling and health services
[2]Community Elders included priest/pastor/spiritual advisor or community leader,

Where students had responded positively to using a help option, we asked them to rate the perceived usefulness of that help option. The number and percentage of male and female students who found the service useful/very useful compared to the percentage who found it not useful are shown in Table 26 below. Family, friends and university services were seen as useful or very useful by a strong majority of those who had used them. In contrast, alternative community-based sources of help such as community elders and community-based support groups were less likely to have been helpful. Chi square tests showed few gender differences in perceived usefulness of help options. Females were more likely to rate friends and other professional help services as useful or very useful sources of help compared to males (friends $\chi^2(2)=15.12$, p=.001; other professional help services $\chi^2(1)=9.53$, p=.009).

Table 26

Proportion of International Students Using Help Options who found the service Useful

	Males				Females			
	Not Useful		Useful/ Very Useful		Not Useful		Useful/ Very Useful	
Help option	n	%	n	%	n	%	n	%
Family (N=404)	14	7.7	167	92.3	22	9.9	201	90.1
Friends (N=454)	29	13.8	181	86.2	13	5.3	231	94.7
University-based Help (N=237)	31	29.0	76	71.0	28	21.5	102	78.5
Community Elders (N=155)	26	33.3	52	66.6	34	44.2	43	55.9
Other Prof. Services (N=140)	34	54.0	29	46.0	22	28.6	55	71.4
Comm.-based Spt. Grps. (N=109)	30	54.5	25	45.4	28	51.9	26	48.2
Other Help Option (N=86)	28	62.2	17	37.8	26	63.4	15	36.6

Prof.=Professional; Comm.= Community; Spt. Grps. = Support Groups

Finally, to provide some insight into why students do not use professional services, we asked those who **did not** seek any type of professional help (i.e., university-based counselling/health service, gambling/alcohol specialist services) why they did not use these services. We provided a selection of options as well as a free choice option. Participants could choose as many options as they wished. The percentage of males and females who selected each option is shown below in Table 27.

Males and females were very similar in their reasons for not seeking professional help. The most common reason was that the individual felt they had got all the help they needed. Other common reasons for not seeking help were both information-based (e.g., did not know free services were available), and comfort-based (e.g., felt they would not understand me).

Table 27

Reasons given for International Students NOT using Professional Help Services (% agreement)

Reason for not using Professional Service	males *n*=283 %	females *n*=314 %	total *n*=597 %
I got all the help I needed/did not think necessary	38.5	43.6	41.2
Did not know free services were available	29.3	29.3	29.3
Did not know how to find services	21.2	19.1	20.1
Did not know services were available	21.9	17.8	19.8
Felt they would not understand me	33.2	26.4	29.6
Felt uncomfortable asking for help	23.3	23.9	23.6
Thought my problem was not important enough	20.1	22.6	21.4
I thought they would not be able to help me	22.6	17.2	19.8
Other reasons (not got around to it, choosing not to)	1.8	2.5	2.2

Help Seeking: Qualitative Data

We asked students to discuss hypothetically who they or their friends may turn to for problems, in general and specifically related to gambling. In terms of help seeking, participants from Asian countries were most likely to discuss turning to their parents and friends for help. Parents were likely to be the primary source of assistance for general problems, but in terms of gambling problems, the focus was almost exclusively on gaining assistance to recover financially and participants said they would be more likely to ask friends or possibly a sibling or cousin for assistance. Many participants said they would be unlikely to ask their parents for assistance with gambling issues as in most cases it was parents who were funding their study in Australia. Parents were also unlikely to be aware their children were gambling in Australia, and the students were concerned about parental disapproval.

> *"The first time I would go to my friends. Even if I needed money I would go to my friends, it would be like even two or three times maximum, after that you can't go and ask them for money. The next thing I would do is maybe I would... my family, I would ask my brother, maybe if possible. Then I would ask my parents. That's the last option".* (Male, 25 years old, Indian).

Family or friends were seen as a better option for assistance than counselling because these people knew you well.

> *"I think mostly they listen to their friends instead of going to the counsellor because they feel like um they feel ashamed of going to the counsellor. And then they are close to their friends to talk about issue and deal with issue"* (Female, 25 years old, Malaysian)

Participants from Western backgrounds were also likely to seek help from parents, but less likely to see friends as a useful option.

Similar to the quantitative findings, focus group data showed many international students were unaware of available services, or unaware of specialist services such as gambling counselling services: *"Yeah I heard but I never heard about gambling problem, where we can get the help from"* (Male, 26 years old, Vietnamese).

A few students saw benefits in seeking expert help for serious problems including gambling:

> *"If you have a personal problem you can talk to your girlfriend or if your gambling problem, you go to a professional doctor who knows gambling … it depends on the situation which you are facing, if you are facing an academic problem you go to your student advisor, you go to a professional who knows that, who has had experience with that"* (Male, 24 years old, Indian).

However, students were often reluctant to access counselling. It was generally seen as culturally inappropriate for Asian students: *"In our traditional culture we … just go among our family discussing things, we really don't need any counsellors or a third party to come and help us."* (Male, 22 years old, Indian)

Some students were also worried that contact with a counsellor may be recorded in an official log despite being told that counselling was confidential: *"I believe that if a person goes to a counsellor it becomes official and it goes on record ah yeah even if they have privacy laws there is a chance that things might go wrong."* (Male, 25 years old, Indian).

Students from Western backgrounds were also reluctant to seek counselling within the university due to confidentiality concerns. External counselling options were seen as more anonymous:

> *"No because churches have all sorts of therapies or whatever that you have no record, you just go… like a lot of people would go to counselling at church too- just go to church because there's no record of you ever being there."* (age and gender unspecified, Western cultural background).

Internet chat rooms or online search engines such as Google were also seen as good initial places to find information and advice as these were both familiar to students and anonymous.

3.4.2 Gambling supports for international students

The last part of each focus group was spent discussing informational supports for international students. We asked students whether they had received any formal or informal information about gambling and its related risks in Australia. We then asked students what information they thought universities could or should provide to international students about gambling. This proved to be a very productive extension to the study as it provided clear directions forward in terms of what students wanted.

What advice/information have international students received?

None of the international students could recall being given any formal advice about the risks associated with gambling (i.e., through seminars or leaflets). A few had had received informal advice from friends to be careful in terms of certain games.

"People go for fun, nobody told me that you'd be getting into trouble from playing gambling, not like that, not exactly, nobody told me about that, anyway I probably not in trouble" (Male, 28 years old, Indian).

"When at first I went to crown at the first time itself I lost $20 and I had a $10 note with me and I just thought I would literally go and get change and ahh, I just thought that I might go and get a bit of money with this, I just thought I would give it a shot. And my friend said 'Don't do it, you already lost $20' so he told me, he literally shouted at me, 'You are not going to do that, you have another $10 note, you need to keep it, you are not going to do that'" (Male, 21 years old, Indian).

Some students suggested that it was up to individuals to learn to self-regulate their gambling. Indeed, many discussed slowly learning strategies to control their losses such as taking only set amounts of money with them, not using credit, not borrowing money, or only going to gambling venues on an occasional basis.

*"I used spend it at (names a casino) so I used to (spend) $1000 or so but also, but I told you because I guess I say like 500" (*Male, problem gambler, 25 years old)

***"So now you'll say ok I am going to take $500 and that is what I am prepared to lose?" (*Interviewer)**

*"Yep" (*Male, problem gambler, 25 years old)

***"And you just take that and leave your credit card at home?" (*Interviewer)**

*"Ahh yep – leave everything at home, so like you know when you play you just have temptations of playing more so I just want to control my temptations, because ahh it brought me a lot of problems and I have no money and have to pay all of my bills" (*Male, problem gambler, 25 years old)

Gambling advice/information international students believed would be useful

Some students argued that it was not the university or government's responsibility to regulate or provide education around gambling. They favoured self regulation and individual responsibility. Most, however, felt that it would be useful for international students to be given some information or education about gambling in their new environment.

Participants suggested information/education provided to international students could cover areas such as:

- Responsible gambling practices (e.g., limiting spending, that gambling is not a good way to solve financial difficulties) and risks associated with gambling (heavy losses, chasing losses)

  "For new international ah student coming I think we should have a presentation about the gambling and what the impact of the gambling (is) on the financial (situation) yeah" (Male, 26 years old, Vietnamese).

  "Don't go out with your credit card, just go out with a certain amount of cash in your wallet" (female participant).

- Specific risks for international students (gambling-related scams within the international student community, requests from other international students to borrow large sums of money for gambling)

  "It's good to educate people still and International Student who just first come to Australia they don't know about that (gambling) so they could stop. And because I know one of one girl, one of my friend and I think um she lend money to one of my friend, the boy, about um could be five thousand (dollars) yeah ... she knew that that boy ah is – his family is rich and ah yeah has a lot of money so maybe he can return back, even he lost or whatever purpose he used for the money because, ah but she guessed that he gamble so but she still lend money to the guy" (Male, 24 years old, Vietnamese).

- How friends can assist others to regulate gambling or get help

  "maybe actually you can target their friends to bring their friends to see you and it will be help, rather than you ask the person who (to) come, cause I don't think they will come (to an informational seminar or counselling)" (Female, 22 years old,

Chinese)

- Information on where students can go for help with gambling problems (face to face, online and phone options in multiple languages).

Some students emphasised the need for the messages/information to be fun and youth oriented. Suggestions included incorporating visual stimuli, DVD's, role-plays and interactive sessions (e.g., a Roulette game which students could try which showed students the odds of winning).

> "*Yeah maybe my advice might (be to) do something like casino in the university and you give them a chance to bet on that. But it's not a real ah real money to give them some (type of) present when they lucky. And then you combine with them (sic) to have a presentation on gambling problem"* (Male, 26 years old, Vietnamese).

Some students advocated informal methods of providing information to students through university student mentors or buddies. That way more experienced international students could let new students know about the potential risks involved with gambling as part of a wider orientation to living in Australia. Mentors could also provide further information and referrals for those who want them.

One participant, for example, said peer mentor programs were a good option as they were a commonly used resource for new students: *"They use it as a second home so they can share everything about their problem like academic problem or financial, working um like finding a working, a job like that"* (Male, 25 years old, Indonesia).

Others thought that universities should provide information through more formal mechanisms. Seminar presentations were a popular suggestion as this additional information could easily be incorporated into existing seminars. Students provided informed

argument about the what, how and when the information could be presented. The most common suggestion was to integrate gambling related education into the orientation presentations that occur when students first arrive.

> *"when I first came here, during my orientation week, we had different, lecturers regarding safety, regarding, we had some police officials talking about our safety and we had some fire officials coming so I think for international students especially from India coming from India the university should have, should hold a seminar regarding ah a one hour lecture or something like that on gambling and regarding the trends … because people need to be made aware about of because like you see in India it is banned and when you come here there is no one to guide us … if we feel like spending money on gambling … regarding how to control yourself … when we first come here, we have a budget with us and we don't want to lose, we don't like losing our dollars on gambling so I think that should be included in the orientation ... especially for Indian students because well it is banned there"* (Male, 21 years old, Indian).

Some students, however, said this may not be the best timing for the presentation as many students would simply tune out the information because (a) students have information over-load during orientation and this is likely to be viewed as peripheral information, (b) some new students will have language difficulties so may not understand the message, (c) many students may not think the information is relevant to them because they have not yet been introduced to gambling at that very early stage. These students suggested that it would be better for the education to be incorporated into a voluntary seminar later in the first year. This would give students time to settle in and have some gambling-related experience.

Some students raised counter arguments saying a voluntary seminar later in semester may not attract people who need the information because (a) of a general reluctance within student populations to attend anything non-compulsory, (b) some students experiencing problems spend all spare time gambling so are not on campus, (b) students may not attend a non-compulsory session due to stigma or embarrassment, i.e., thinking that attendance

may indicate that you have a problem, or that you are gambling against religious doctrine (e.g., Muslim students).

> *"One of my friend who always go to casino, actually that kind of student they are, they don't usually go to class, they have really low attendance and then and then always fail their subjects and um if they're Chinese and also their communication skills not good enough so that's why they, I think for them they will not, they do not know where to go (for help or support)"* (Female, 22 years old, Chinese).

A student from a Muslim country explained that he and other Muslim students could not be seen to attend a voluntary seminar on gambling as it would indicate to others that they were doing something which is banned in their religion. If the information was provided in a 'compulsory' lecture, however, it would assist Muslim students like him to obtain information without anyone knowing that they were gambling:

> *"People from Pakistan … people from Saudi Arabia the middle eastern countries, people come from there they would never put themselves, they cannot (attend). If you arrange it, so if you arrange a (compulsory) lecture, then you will help them out... If you arrange a (voluntary) seminar ... it won't be benefit for people like me who come from (places) where these things are not allowed."* (Male, 25 years old, Muslim student, problem gambler).

This particular student said he would not access help services at the University for similar reasons, but may contact an external gambling help service.

Students also suggested written information and messages could be provided to students via handouts/brochures, information on notice boards and within university magazines or newsletters: *"When they enrol you just give them the piece of paper, information about gamble (sic)"* (Male, 24 years old, Vietnamese student), and *"flyers, posters that they put up on notice boards … new students here don't know what these kind of issues that they are facing"* (Male, 25 years old, Indian).

Another suggestion was to link information to university web pages, including some safe gambling messages as well as links to more formal help pages. This would provide an anonymous and confidential way for students to access information and assistance. Again this information needed to be youth oriented, as students had noticed much of the advertising was directed towards an older group. One student said having gambling information on the web would be particularly helpful for Muslim students as it would provide anonymity and security for them, which he felt was important given the religious ban on gambling:

> *"When they (students) research something they may go online and you know (find a) discussion. If they are Muslim you could have set of questions for them... I guess that is the most secure way"* (Male, 25 year old Muslim student).

A couple of students suggested the universities should send letters to parents of international students prior to arrival. These letters would alert parents about the likely exposure to gambling in Australia, warn about the risks and suggest ways parents could help protect students from the potential for excessive gambling (e.g., pay fees directly to the university, provide money in small instalments rather than large lump sums, send students prior to commencement of classes so students can attend full orientation).

3.4.3 Summary: Help seeking and gambling supports

International students most commonly experienced academic, emotional or relational issues. Very few students self-reported drug/alcohol or gambling problems.

Students of both genders were most likely to turn to family or friends for help with personal issues. University-based services were also commonly used.

Most international students we had identified as at moderate or high risk of gambling problems had sought informal or formal help for problems (not necessarily gambling problems) over the past 12 months.

International students who had sought help from family, friends or university services said this was useful. Students were less likely to find community elders and community-based support groups particularly useful.

The most common reasons for not seeking professional help for problems were because it was not needed, they did not know free services were available, or because they did not think professional services would understand them.

Qualitative data was supportive in finding that students were most likely to turn to family and friends for help. Parental assistance may be avoided for gambling issues as students' feared parental disapproval. Students often preferred family or friends over professional counselling services due to a lack of awareness of available services, they did not think professionals knew them well enough, or because services were culturally inappropriate and may lack confidentiality.

Students said they needed to learn self-regulation strategies to control their gambling and most thought it would be useful if new international students were given information about responsible gambling practices, gambling risks, how to help others regulate their gambling, and places to go for assistance with gambling problems.

Students said the messages needed to be youth oriented and interactive and delivered through a mix of formal and informal means including seminars, peer mentors, flyers, personal communications and web-links.

4. DISCUSSION

4.1 Gambling Behaviour: Is International student gambling a cause for concern?

The answer to this question is yes and no. International students were quite likely to have tried a variety of games; card games lotto/scratch-it tickets, casino games and sport betting being the most popular. However, only a small percentages (2-2.5%) reported gambling more than once a month, and in fact international students gambled less frequently and spent less money than local students, something which has been found in other research (Brown & Dowling, 2008; Spence-Thomas, et al., 2000).

On the other hand there was a notable trend for international students who had not gambled at home to take up gambling in Australia and/or to gamble more frequently here, again consistent with recent Australian studies (Rosenthal, 2008; Thomas & Thomas, 2002). This may be because Australia has arguably one of the highest levels of accessibility to gambling in the world. International students were particularly drawn to gambling in the casino, playing cards on the internet or face to face, sports betting, or lotto. Internet games have almost limitless accessibility, sports betting also is very easily accessed. Casinos are not particularly accessible in geographic terms but they provide many opportunities for gambling within their doors and have high time-based accessibility as they are open 24 hours a day, generally being one of the few city-based entertainment options that is open all night. Even though the percentage of international students playing these games frequently is quite small, these games are more closely associated with gambling-related risk than gambling activities such as lottery, scratch-it tickets and bingo (e.g., Dickerson, 2002; Petry, 2003).

As well as the constant exposure to gambling, some of the increase in student gambling in Australia may be due to an increase in available funds, with some students having access to lump sums to pay for fees and living expenses (Spence-Thomas, et al., 2000). Analysis of

expenditure showed while that it was relatively rare for students to gamble large amounts of money, a small proportion of international students (6%) said they had gambled over $500 in a week. Focus groups confirmed some international students were gambling large sums including money provided by parents for living and study expenses. In a few cases discussed, gambling of non-discretionary funds led to negative financial consequences, both for the student who was gambling and for other students around the gambler who were asked for loans or who had to carry additional financial loads.

Despite the relatively low frequency of gambling overall, international students had significantly higher rates of gambling problems than domestic students (6.7% versus 4.2%), supporting results of two other, fairly small, comparative studies of international and domestic students (Brown & Dowling, 2008; Spence-Thomas et al., 2000). For both student groups these figures are high in comparison with general population estimates (e.g., Productivity Commission, 2010; Wardle et al., 2007). Our research did not set out to be a prevalence study, and the sample could be biased towards gamblers, who may have been more attracted to the study than non-gamblers. However, the sample included a substantial proportion of non-gamblers as well as gamblers. Further, young people are known to experiment with gambling and do report more gambling problems than the general adult population. The current study's findings fit within recent prevalence study findings for youth gambling (3.4%-6.7% Delfabbro, et al., 2005; Derevensky, et al., 2003; Shaffer, et al., 1999).

An examination of the relationship between demographics and gambling problems revealed two key demographic markers for gambling risk were male gender and living alone. For both international and domestic student groups, males were significantly more likely to be problem or at-risk gamblers than females. Indeed, almost 10% of international male students fell into the problem gambler category. This gender bias is consistent with general gambling literature (e.g., Abbott, Volberg, & Ronnberg, 2004; Welte, Barnes, Tidwell, & Hoffman, 2008). Further, international students who were problem gamblers were significantly more likely to live alone and less likely to live with a family, a finding which is again consistent with general gambling literature (Biddle, Hawthorne, Forbes, & Coman, 2005; McBain & Ohtsuka, 2001). Problem and non-problem gamblers in this student population did not differ in terms of other demographics such as marital status, religion,

age, where they were studying, stage of academic studies, or number of years studying in Australia.

In summary, although gambling is not a cause for concern for most international students there appear to be a significant number who are problem gamblers. Additionally, a further 9% could be categorised as at-risk of gambling problems or experiencing some degree of difficulty controlling their gambling. This larger percentage makes the issue of student gambling in general, and international student gambling in particular, one that is difficult to ignore. Among international students, male students and those living alone may be at most risk.

4.2 Modifiable Psychosocial Risk Factors and Problem Gambling

So why do some international students have problems controlling their gambling? We considered a number of potential risk factors, concentrating on factors which have been identified in general gambling literature and which are potentially modifiable through education or treatment.

4.2.1 Stressors and Negative Affect

An examination of stressors experienced by international students showed that the most intensely felt pressures related to academic success, with more than 70% of students putting pressure on themselves to succeed academically and feeling pressure from family expectations. Further, 30% of students reported feeling that they were not progressing well enough with studies. International students have extensive university fees on top of living expenses. There is a heavy financial investment for families leading to high personal and family achievement expectations (Mori, 2000; Opropeza, et al., 1991). Related to this, a substantial minority of students reported financial stress relating to having insufficient funds to pay unexpected expenses or regular bills something which has been discussed before in international student literature (Khawaja & Dempsey, 2008; Mori, 2000). Interestingly, personal relationship stresses or pressures related to racism and bullying were not as

strongly acknowledged as academic and financial pressures, although up to a quarter of international students experienced some worries about these life domains, for example saying they were homesick or lonely.

We specifically measured acculturative stress, or stress associated with adapting to a new culture or environment. Our data suggested that international students were most likely to experience acculturative stress when managing inter-personal issues such as dealing with unpleasant people, expressing ideas in class, or going to social events. Coping with academic work was again quite likely to be reported as a concern. It can be hard for international students to adapt to the many different aspects of their new country and language can cause particular problems for international students, making it more difficult to socialise and communicate with local people (Mori, 2000; Rosenthal, et al., 2008; Spencer-Oatey & Xiong, 2006). A lack of communication skills will also have a contributory effect on academic success and adaptation (Berry, 1997; Mori, 2000).

On the basis that all new university students would be vulnerable to a degree of stress in adapting to this new environment, we deliberately used socio-cultural items that could be related to university life and asked all stress-related questions of both local and university students. In this way we could compare the degree of socio-cultural adaptation stress experienced by both student groups to see if international students experienced additional adaptive stress over and above that experienced by domestic students in their own country. Subscale comparisons showed that international students were significantly higher than domestic students on average endorsement of academic, relational and socio-cultural adaptation stressors. Examination of effect strength suggested these differences were small in terms of academic stress but more important in terms of relational and adaptation stresses.

An examination of negative emotions in the present study revealed that international students were much more likely to be moderately, severely and extremely anxious, depressed and stressed than the general adult Australian population, often at 2-3 times the rate of population norms. Additionally, international students were significantly more depressed and anxious than local students. The most striking finding was that over 14% of international students were experiencing anxiety at the ‘extreme-severe’ level and 7%

experiencing 'extreme-severe' levels of depression. Prior research suggests that negative affect in international students is high (Russell, et al., 2008) and linked to acculturative issues, with Dao et al. (2007) finding international students with low English fluency and limited social support were more vulnerable to depression. Thus many international students are suffering the double jeopardy of high levels of negative mood states as well as stresses associated with adapting to university life and a new culture.

How strongly do these potential risk factors relate to gambling behaviour among our student sample, particularly for international students? We compared the pattern of relationships between social and emotional risk factors and gambling behaviour for the two student groups to see whether international students as a group were more vulnerable to gambling in relation to these risk factors.

Prior research has found that situational stressors and negative emotions are both positively related to gambling problems (e.g., Bergevin, et al., 2006; Thomas & Moore, 2003; Turner, et al., 2006) as are loneliness and a lack of social support (Hardoon, et al., 2004; Treverrow & Moore, 1998). Gambling can be used as a way of avoiding problems and negative emotions which may lead to excessive or problem gambling (Blaszczynski & Nower, 2002; Thomas, Allen, et al., 2009; Thomas, Sullivan, et al., 2009). Similarly, Li's (2007) qualitative study of international students in New Zealand found that gambling problems were related to personal, academic and acculturative stresses and Spence-Thomas et al (2000) found significant positive relationships between negative affect and gambling measures for both domestic and international students. Brown and Dowling (2008) found negative mood was related to gambling problems in domestic but not international students. However, they had only a very small sample of international students and so may not have had sufficient statistical power to find the relationships.

In our study, the relationships between stressors, negative affect and gambling were very similar for international and domestic students. Students who were experiencing negative affect, relational, financial or adaptation stresses had a very slight tendency to gamble more frequently and experience more gambling problems. Although almost all relationships were statistically significant, in most cases the relationships were weak and only accounted for a very small percent of the variance of gambling behaviour. Among international students

emotional factors were more strongly related to gambling problems than stressors. These psychosocial risk factors of stress and negative affect are clearly important stressors in the lives of international students and potentially modifiable to change with appropriate interventions. These factors do not, however, appear to be important in explaining excessive or problematic gambling among international students as a whole. This does not mean that no students are influenced to gamble by these stressors; rather that this is a relatively unusual event.

4.2.2 Alcohol consumption

The latest National Health and Medical Research Council (NHMRC) guidelines recommend adults drink no more than two standard drinks on any day to reduce the risk of alcohol-related harm over a lifetime, and drink no more than four standard drinks on any occasion to minimise short term alcohol-related risk (National Health and Medical Research Council, 2011). Our study found domestic students consumed significantly more alcohol than international students but also found that a substantial minority of international students were drinking problematically. Significant proportions of both student groups could be considered at-risk drinkers according to the AUDIT-C. Further analysis within the international student group showed that the problematic drinking was largely confined to the students from western cultural backgrounds, who were found to be much heavier drinkers than international students from China, other Asian countries and India, and much more likely to be at-risk drinkers. This is consistent with other research showing international students often drink less than local students in western cultures (Snow, et al., 2002; Vivancos, Abubaker, & Hunter, 2009) and specifically that students from Asian backgrounds drink more moderately than Caucasians (Stanley, Zane, & Ito, 1979).

In terms of alcohol consumption and gambling behaviour, there were weak, positive relationships between alcohol consumption and frequency of gambling for both student groups, but only very weak relationships between drinking and severity of gambling problems. This is only partially supportive of other adult and youth research showing that alcohol use/abuse and gambling use/problems are often co-occurring (e.g., Hardoon, et al., 2004; Shead, Hodgins, & Schaf, 2008; Stevens & Young, 2009; Welte, et al., 2006) and

suggests that international students who drink heavily have a tendency to also gamble more, but that this factor has little predictive power in terms of the severity of their gambling problems.

4.2.3 Gambling Cognitions

An examination of gambling cognitions held by international students suggested that male international students were more likely to endorse irrational gambling-related cognitions than females, although overall endorsement of these cognitions was relatively low. Some of the most commonly endorsed items related to erroneous beliefs around *predictive control*, for example, gambling when you "feel lucky", or thinking that a series of losses will educate you about how to win in the future. The qualitative results similarly showed some international students erroneously believed they could predict outcomes to a simple card draw game with adequate research. Other common cognitions related to *interpretative bias*, such as making internalised attributions for a win or gambling after recalling previous wins.

While the general gambling literature suggests that irrational cognitions, gambling expectations and gambling urges can lead to persistent and excessive gambling (Blaszczynski & Nower, 2002; Ladouceur, 2004; Raylu & Oei, 2004a), research findings with international students have been somewhat inconsistent. Brown and Dowling (2008) and Thomas and Thomas (2002) found that erroneous cognitions were risk factors for gambling problems in international students (Brown & Dowling, 2008; Thomas & Thomas, 2002), with Brown and Dowling (2008) also finding erroneous cognitions were risk factors for domestic students. In contrast, Zheng et al. (2008) found erroneous gambling cognitions failed to predict severity of gambling problems in a sample of 172 Chinese International students. However, only 38% of Zheng et al.'s sample had gambled in the previous year and only five participants were found to be problem gamblers. This restricted variability in the sample may have reduced the ability to find differences in the wider population. While the sample of international students in Brown and Dowling's study was very small (N=34), that of Thomas and Thomas was quite large (N=280 international students).

In the present study, comparisons between student groups showed international students were slightly higher in average endorsement of all five gambling cognitions than domestic students. The pattern of correlations between gambling cognitions and gambling behaviour was very similar for domestic and international students. Overall, there were moderate strength relationships between cognitions and gambling behaviour. Students who strongly endorsed irrational cognitions about gambling, had positive expectancies about gambling or who felt unable to stop gambling tended to gamble more frequently and experience more severe gambling problems. The relative strength of these correlations further suggest that gambling cognitions are more important in explaining persistent and problematic gambling in international students than are negative affect, life stressors or alcohol consumption.

4.3 Cultural Group Differences on Gambling and Risk Factors

To explore the gambling experiences of international students in more detail we clustered students into five groups which had cultural similarity and which were large enough for meaningful comparisons (China, other Asian countries, India, Western Europe, English-speaking countries). We then compared these groups on their gambling behaviour and susceptibility to various psychosocial risk factors.

4.3.1 Gambling Behaviour: Are all international students equally at risk?

The answer is no. Comparisons showed that while card games and sports betting were popular across all cultural groups, students from English speaking western countries were much more likely to say they regularly played face to face card games than the other groups, while table games at the casino were popular with regular gamblers from students from Asian countries including China as well as students from India and English-speaking western countries.

An important finding was that while problem gamblers came from many different countries the highest prevalence rates were found among students from China, other Asian countries and English speaking western nations. An investigation of gender and home country

increased understanding showing that male international students gambled most frequently and problematically. Specifically, it was males from English speaking western nations, China and other Asian countries who had the highest problem gambling intensity scores, while males from English speaking western nations, Western Europe and Asian countries other than China gambled the most frequently. It was also clear that women from China gambled more frequently than women from other countries and had higher rates of gambling problems.

There has been a strong focus on gambling among the Chinese in both international student research (Li, 2007; Thomas & Thomas, 2002; Zheng, et al., 2008) and other culturally-based gambling research (Loo, et al., 2008; Oei, et al., 2008; Oei & Raylu, 2009, 2010; Papineau, 2005; Tang & Wu, 2010). The only study we could find examining intra-group gambling differences within international students found much higher rates of gambling problems in Chinese international students compared to non-Chinese international students (Thomas & Thomas, 2002). The focus on this particular student group may be due to the widespread acceptance of gambling within the Chinese community in Australia or because anecdotal reports have highlighted gambling among male Chinese international students (e.g., VCGA, 2000). Whatever the reason, these findings extend knowledge to show that that while Chinese males are certainly an at-risk group, males from other Asian countries and from English-speaking western countries are also at-risk groups in terms of gambling problems.

4.3.2 Modifiable Risk Factors: Are all international students the same?

Again the answer is no. Group comparisons on stressors and negative affect showed that students from Asian countries including China were at most risk of academic, relational, financial and adaptation stressors. They also reported significantly lower English fluency than the other student groups. Indian students were also at high risk of financial and relational stress, while students from Western Europe and English-speaking western countries appeared to be the least stressed. A similar pattern emerged in terms of negative affect, with students from China and other Asian countries being more anxious, depressed and stressed than other groups, while those from Western Europe and English-speaking western countries showed the lowest levels of negative affect.

International students can be at higher risk of negative outcomes when cultural and language differences between country of origin and host country are large (Dao, et al., 2007; Leung, 2001; Poyrazli, et al., 2004; Spencer-Oatey & Xiong, 2006; Yeh & Inose, 2003). Despite the relative geographical distance, students from English-speaking countries and Western Europe are likely to experience far fewer cultural and language differences compared to those from Asian countries (Poyrazli, et al., 2004; Yeh & Inose, 2003). The results of this study confirmed this, showing that students from Asian countries were experiencing a greater degree of stress and negative affect than were international students coming from Western cultures which were more similar to the host country. These student groups appear to be a particularly vulnerable group in terms of stressors which may lead to negative academic and emotional outcomes.

Contrasts across cultural groups in terms of gambling cognitions showed that students from China, India and other Asian countries generally had higher scores on gambling-related cognitions, including erroneous beliefs about gambling, expectations about winning and gambling urges. Those from Western Europe were less affected by gambling cognitions. This finding is consistent with other Australian research which has found Chinese-Australians were higher on illusions of control and more likely to incorrectly report winning than Caucasian-Australians (Oei, et al., 2008; Oei & Raylu, 2010). Gambling tends to be very tightly restricted in countries such as China, India and Indonesia so students coming from these countries may be lacking in knowledge about gambling odds and the chance of winning.

In contrast, the findings in term of alcohol consumption showed that it was international students coming from Western cultural backgrounds who drank heavily, with very high percentages of students from Western Europe and English speaking western countries drinking at risky levels. These high levels of quite risky drinking are more consistent with the drinking patterns of Australian and New Zealand university students (Kypri, et al., 2009; Snow, et al., 2002). A study with college students found that international students coming from the United States often increased their drinking when studying overseas, particularly where the host country was perceived to have a high tolerance for alcohol use (Pederson, et

al., 2009). Thus students coming from western cultures may see Australia as having a strong youth drinking culture and adapt their drinking patterns accordingly.

Overall, these findings suggest that international students should not be considered a homogenous group. Students from Asian countries including China are more susceptible to life stressors, negative affect and erroneous gambling-related cognitions than other student groups, while students from Western cultural backgrounds are more at risk of alcohol-related problems. Gambling problems, however, are more prevalent in international students who are male and those from Asian or English-speaking western countries.

4.4 Help Seeking and Gambling Supports for International Students

4.4.1 Help Seeking among International Students

Prior research has shown that international students can be reluctant to use university or community counselling services due to cultural differences (Loo, et al., 2008; Scull & Woolcock, 2005; Zheng, et al., 2008) or simply because they lack awareness about available services (Russell, et al., 2008). Therefore we wanted to examine the help seeking habits of the Australian international student population to gain a greater understanding, especially around help seeking in relation to gambling problems. We asked international students about problems they had experienced in the past 12 months and the help options they used to manage these issues.

International students most commonly identified issues to do with academic, emotional and relational concerns but were relatively unlikely to report drug, alcohol or gambling problems, particularly the female international students. Help seeking of some sort was common amongst those who reported experiencing problems, with informal helpseeking (e.g., asking family or friends for assistance) most common and most likely to be seen as helpful. Interestingly, almost 40% of students who had experienced some type of problem said that they had accessed a university-based service, which included counselling and health services. Within the sub-sample of international students who were identified to be

at-risk of gambling problems, 90% had sought either a mix of informal and formal help or just informal help, although this was not necessarily related to their gambling issues.

Finally, we investigated why students who reported experiencing some type of problem in the past 12 months chose not to seek any kind of **professional help** (i.e., university-based health or counselling services, community counselling or specialist services). Analyses showed that international students most commonly disregarded professional help options because they felt they had got all the help they needed. However, a lack of knowledge about available services/free services or a lack of comfort in seeking professional assistance were also commonly reported reasons for not seeking help (reported by 20%-30% of respondents). The focus group data showed that participants preferred to seek help from friends or family for problems, including gambling-related issues. The preference for informal help seeking was often because students though that counselling would not be a comfortable option for them or that counselling was only appropriate for someone with a major mental illness.

Research has suggested that some people from Asian cultures in particular can view counselling as shameful and embarrassing (Carr, Koyama & Thiagarajan, 2003; Volberg, Nysse-Carris & Gerstein, 2006). An emphasis on privacy may also prevent an individual from seeking help from outside the family network (Carr, Koyama & Thiagarajan, 2003) and students in focus groups admitted to this concern. However, students will sometimes present to medical services with physical rather than psychological symptoms such as stomach aches, headaches and sleeping problems (Carr et al., 2003; Mori, 2000; Russell et al., 2008). Further, admitting to gambling problems can be seen as a sign of weakness and result in a large 'loss of face' to people from some communities (Loo, et al., 2008; Scull & Woolcock, 2005). Findings from the current study are consistent with this, showing that students commonly used some kind of university service despite an overall lack of comfort with professional services. Thus students with gambling problems may be seeking assistance within universities for medical, financial or academic issues. Educating allied health staff within universities about the potential for students to be having issues with gambling, and/or screening for gambling as a regular event may assist in uncovering gambling problems at an earlier stage. Early identification provides the opportunity to advise, educate and assist students to find appropriate services.

Current university students are automatically eligible for free counselling services at universities and have access international student advisors. However, 20-30% of students said that they did not seek professional assistance for problems because they were unaware of the availability of services, did not know how to find them or did not know the services were free. These findings suggest that increasing information about available and free services within universities and better information about what these services can offer students may increase uptake within this vulnerable group. Further, students talked about counsellors not understanding them and research has shown that counsellors with different cultural backgrounds or language and a lack of available translators can create barriers to counselling (eg., Clarke, Abbott, DeSouza & Bellringer, 2007; Leong & Lau, 2001; Volberg, Nysse-Carris & Gerstein, 2006). Universities could reduce this barrier by actively recruiting counsellors from CALD backgrounds.

4.4.2 Gambling Supports for International Students

Despite the small amount of research available on overseas student gambling *per se*, some gambling safety information is already available for international students. During the course of this project, for example, researchers came across gambling fact sheets which listed ways in which gambling may become excessive or problematic such as having erroneous beliefs about luck and chance; the lure of increased opportunities to gamble; gambling due to boredom, loneliness, depression/anxiety, loss or grief; finding that gambling for fun has turned into a habit, remembering big wins; chasing losses; gambling in expectation of a treat or reward; and gambling under the influence of alcohol. During the latter part of the project, researchers also identified some Gambler's Help material that was aimed at international students, and the international division within one university was planning a seminar for international students around gambling. In the main, however, gambling appeared to be a hidden behaviour in universities, with little visible information for students.

The present study showed that many of the issues discussed in the currently available material are relevant to international students who are gambling. For example, a majority of international students in Australia come from countries with limited gambling opportunities,

and our analysis showed that many students were curious about gambling in Australia and will take up or increase their gambling after arriving in Australia. Further, around 10% of international student gamblers expressed irrational cognitions about luck and chances of winning at gambling. Some international students also had very positive expectations of gambling, thinking it would make them happy or reduce tension/stress. Problem gambling intensity and frequency of gambling were both positively related to irrational gambling cognitions in international students.

Further, the present study found that substantial proportions of international students are exposed to many stressors, and feel depressed and anxious. This was particularly the case among Asian students. In addition, a significant percentage of international students, particularly those from western cultures, were drinking at risky levels. Stress, negative affect and alcohol consumption were all weakly correlated with problem gambling intensity and frequency of gambling in international students. Interventions to alleviate these conditions, of value in themselves, may also stave off maladaptive coping strategies such as gambling to relieve depression, loneliness or boredom in some students.

When asked about information provision from official sources, students who took part in the focus groups were unable to recall ever being told about gambling and gambling-related risks. A few had been warned about gambling by friends. This suggests that the small amount of targeted information produced by universities, gambling counselling services or other bodies is not getting through to international students. The vast majority of students in the focus groups thought that it would be a good idea for universities to give new international students information about safe gambling practices and places to go for help with gambling problems. Analysis of the data suggested that universities need to use a multi-pronged approach to best target information provision to students.

The primary method of information provision advocated by students was through existing seminars given to new international students. Students suggested that universities could provide gambling-related information firstly during compulsory induction sessions which would provide greatest reach in terms of student numbers. Information could again be presented within voluntary information sessions later in the year for students who either

did not attend orientation or who wanted additional information. Student said these sessions should cover:

(a) responsible gambling practices such as limiting the amount of money spent, not gambling to solve financial problems and not chasing losses,

(b) specific risks for international students including requests for loans from other students who are gambling and being alert for gambling-related scams,

(c) tips on how students can assist their friends to regulate their gambling,

(d) information on where students can go to obtain help with gambling issues.

Students also said the information needed to be stimulating, interactive and fun to hold students' attention.

In addition to these primary methods of providing information, students suggested using student mentor programs as these were popular with international students. Mentors could provide more informal information about gambling risks and refer students on to information or assistance options where needed. Information could also be made available in pamphlets or flyers handed to students as part of orientation or information displayed on notice boards and via links embedded in university web pages. A couple of students suggested that universities should pro-actively write to parents of new international in their own languages warning about potential gambling risks for students and suggesting ways parents could help protect students such as sending money for fees directly to the university and provide money for living expenses in regular small instalments rather than single large lump sums.

Student support findings suggest it would be of value to provide targeted information about responsible gambling and assistance for gambling problems proactively to international students. Universities are well placed to co-ordinate this. It is important to incorporate feedback from consumers when designing information and interventions to ensure they appeal to the group as a whole and also to specific cultural groups. The findings from the current study provided important information about the type of information students needed as well as how they would like to receive it.

4.5 Limitations

As with any study, there are some important limitations to the research which must be discussed.

Sample Bias

This study included the largest sample of international students in Australia ever sampled for such a detailed examination of gambling behaviour. The study extended over three universities in two states and sampled international students from a wide variety of countries. Thus it provides a good indication of the gambling habits of international students who come to Australia. However, the sampling was restricted to the Eastern seaboard of Australia so findings may not generalise to some other regions, although it is unlikely that there would be major differences between this sample and international students in other states except perhaps Western Australia where gambling accessibility is more restricted.

Further, this was not a prevalence study, rather the focus was on examining gambling behaviour and correlates in a large group of international students. The invitation to international students to participate was sent to all on-campus international students at each university. However, it was a self-selecting convenience sample and possibly biased towards gamblers, who may have been more attracted to the study than non-gamblers. Therefore, it is possible that the findings overestimate the frequency of gambling and rate of gambling problems within the wider international student population. However, the final sample did include a substantial proportion of non-gamblers and findings fit within recent prevalence rates for youth problem gambling (Delfabbro, et al., 2005; Derevensky, et al., 2003; Shaffer, et al., 1999).

In addition, the study included large samples of international students from the major groups of students coming to this country for their university education, but was only able to sample small numbers of students coming from other regions such as Africa, the Pacific Islands and the Middle East. Findings from the study, therefore, may not generalise as well to these groups.

Response bias

The measures of negative affect, stress, alcohol consumption and gambling behaviour were all developed within a Western cultural context. Therefore, it is possible that some of the differences found between domestic and international students and between the different sub-groups of international students are a reflection of cultural-based response bias. For example, it may be that students from Asians cultures interpreted certain items relating to negative affect or gambling cognitions differently to students from Western cultures (Bernardi, 2006; Keillor, Owens, & Pettijohn, 2001; Lau, Cummins, & Mcpherson, 2005).

Measurement Error

Analysis of the data revealed some minor discrepancies in responses when comparing two ways of analysing the data. This occurred firstly in terms of the size of the group of international students who took up gambling in Australia (i.e., 45% of non-gamblers in their home country reported gambling on one or more activities in the last 12 months, but only 17% of students said they gambled more frequently since arrival), and secondly in terms of gambling expenditure (i.e., some students reported specific gambling activities in the last 12 months but then said they had spent $0 gambling, while others did not report any gambling activities but indicated they had spent >$0 on gambling). These anomalies suggest that some students may have misunderstood an instruction. Responses also depend in part on the way a question is worded. In this case, for example, some students may have gambled on an activity during the last 12 months but not bet any money or only minimal amounts. Discrepancies such as these confirm that results must be taken with some caution until they have been established in multiple studies, and preferably with multiple methodologies. Despite the discrepancies noted here, these findings still concurred in the general sense. Both ways of analysing the data showed that a substantial subgroup of students take up gambling after arrival in Australia and gambling frequency was positively correlated with gambling expenditure. Further, the findings in relation to gambling uptake are consistent with other studies of international students (Rosenthal, et al., 2008; Thomas & Thomas, 2002).

It should also be noted that the internal consistency for the academic stressors scale was quite low, so results pertaining to this subscale should be taken with caution at this time. It may be that the scale is tapping two distinct areas of academic stress, finding academic studies to be difficult and feeling pressure to succeed academically. If this is the case using the items together in the one scale would likely reduce the strength of correlational analyses conducted with it. Factor analysis of the scale could establish its dimensions more clearly, and would be advised for further research using the measure.

5. CONCLUSIONS

It would appear that although international students gamble less frequently than domestic students, they are at greater risk of gambling problems. The results of this study extend understanding and suggest:

- Many international students are exposed to a much greater variety of gambling opportunities than they had at home (i.e., increased accessibility).
- They are curious about gambling in general, and the casinos in particular and many of their peers are gambling.
- They are attracted to games which are higher risk and high in terms of time-based and geographic accessibility (e.g., card games, casino games).
- They appear to be less knowledgeable about self-regulation of gambling strategies that assist in maintaining control of gambling as evidenced by their rates of erroneous gambling cognitions and their expressed desire (from focus group discussions) to learn more about control strategies.
- They have higher rates than local students of irrational and expectancy gambling cognitions and gambling urges. These cognitions are associated with gambling frequency and problems.
- They tend to score higher in stresses and negative affect than local students. The experience of stress and negative emotions is associated with gambling frequency and problems. Although the association is not strong, it points to at least some students taking up or persisting with gambling as a way of dealing with stress.
- Alcohol use is high among international students from western cultural backgrounds, and associated, albeit weakly, with gambling frequency and problems.
- Problem gamblers came from both genders and a variety of countries, but certain groups of international students appear to be particularly vulnerable to gambling problems. In our study, male gender, living alone, Chinese/Asian or English-speaking

western backgrounds were the key risk demographics. Therefore, educational information specifically targeting these groups may be worthwhile.

- International students are more likely to seek informal help for problems including gambling issues, but will regularly access other university-based services, so educating staff around student gambling may facilitate early identification of gambling problems.

- International students' reluctance to access professional help services is often related to a lack of awareness of available/free services and a lack of comfort seeking assistance, so increased information and explanations about free/low cost counselling and international student services may increase student uptake.

- International students appear receive little information about gambling and related risks when they arrive in Australia, so increased and targeted community education within the university system around responsible gambling, risks and ways to access help may be beneficial to new students.

6. REFERENCES

Aasved, M. (2002). *The psychodynamics and psychology of gambling* (Vol. 1). Springfield, Illinois: Charles C Thomas Publisher Ltd.

Abbott, M., Volberg, R., & Ronnberg, S. (2004). Comparing the New Zealand and Swedish National Surveys on Gambling and Problem Gambling. *Journal of Gambling Studies, 20*(3), 237-258.

Antony, M. M., Bieling, P. J., Cox, B. J., Enns, M. W., & Swinson, R. P. (1998). Psychometric properties of the 42-Item and 21-Item Versions of the Depression Anxiety Stress Scales in Clinical Groups and a Community Sample. *Psychological Assessment, 10*(176-181).

Atkinson, D. R., & Gim, R. H. (1989). Asian-American cultural identity and attitudes towards mental health services. *Journal of Counseling Psychology, 36*(2), 209-212.

Australian Government. (2010a). *Research snapshot, international student enrolments in higher education in 2009*. Canberra: Australian Education International.

Australian Government. (2010b). *Research snapshot, international student numbers 2009*. Canberra: Australian Education International.

Bergevin, T., Gupta, R., Derevensky, J. L., & Kaufman, F. (2006). Adolescent gambling: Understanding the role of stress and coping. *Journal of Gambling Studies, 22*, 195-208.

Bernardi, R. (2006). Associations between Hofstede's Cultural Constructs and Social Desirability Response Bias. *Journal of Business Ethics, 65*(1), 43-53.

Berry, J. W. (1997). Immigration, acculturation, and adaptation. *Applied Psychology: An International Review, 46*(1), 5-68.

Biddle, D., Hawthorne, G., Forbes, D., & Coman, G. (2005). Problem gambling in Australian PTSD treatment-seeking vetrans. *Journal of Traumatic Stress, 18*(6), 759-767.

Blaszczynski, A., & Nower, L. (2002). A pathways model of problem and pathological gambling. *Addiction, 97*, 487-499.

Bradley, K. A., DeBenedetti, A. F., Volk, R. J., Williams, E. C., Frank, D., & Kivlahan, D. R. (2007). AUDIT-C as a brief screen for alcohol misuse in primary care. *Alcoholism: Clinical and Experimental Research, 31*(7), 1208-1217.

Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology 3*, 77-101.

Brown, M., & Dowling, N. (2008). *A comparison of problem gambling in international and domestic university students in Australia*. Paper presented at the 18th National Association for Gambling Studies Conference, Adelaide.

Bush, K., Kivlahan, D. R., McDonell, M. B., Malone, T., & Fihn, S. D. (1998). The AUDIT alcohol consumption questions (AUDIT-C): An effective screening test for problem drinking. *Archives of Internal Medicine, 158*, 1789-1795.

Charmaz, K. (2006). *Constructing grounded theory a practical guide through qualitative analysis*. London: SAGE Publications.

Clarke, D. (2003). Gambling and the trait of addiction in a sample of New Zealand university students. *New Zealand Journal of Psychology, 32*(1), 39-48.

Dao, T. K., Lee, D., & Chang, H. L. (2007). Acculturation level, perceived English fluency, perceived social support level, and depression among Taiwanese international students. *College Student Journal, 41*(2), no pagination specified.

Dawson, D. A., Grant, B. F., & Stinson, F. S. (2005). The AUDIT-C: screening for alcohol use disorders and risk drinking in the presence of other psychiatric disorders. *Comprehensive psychiatry, 46*(6), 405-416.

Delfabbro, P. (2004). The stubborn logic of regular gamblers: obstacles and dilemmas in cognitive gambling research. *Journal of Gambling Studies, 20*(1), 1-21.
Delfabbro, P., Lahn, J., & Grabosky, P. (2005). Further evidence concerning the prevalence of adolescent gambling and problem gambling in Australia: A study of the ACT. *International Gambling Studies, 5*(2), 209-228.
Delfabbro, P., & Winefield, A. H. (1999). Poker-machine gambling: an analysis of within session characteristics. *British Journal of Psychology, 90*(3), 425-440.
Derevensky, J. L., Gupta, R., & Winters, K. C. (2003). Prevalence rates of youth gambling problems: Are teh current rates inflated? *Journal of Gambling Studies, 19*, 405-425.
Dickerson, M. (1996). Why 'slots' equals 'grind' in any language: the cross-cultural popularity of the slot machine. In J. McMillen (Ed.), *Gambling Cultures: Studies in history and interpretation* (pp. 152-166). London: Routledge.
Dickerson, M. (2002). *Analysis of clients presenting to problem gambling counselling services, July 2000 to June 2001, client and services analysis report No. 7*. Melbourne: Victorian Government, Department of Human Services.
DiClemente, R. J., Santelli, J. S. & Crosby, R. A. (Ed.). (2009). *Adolescent health: Understanding and preventing risk behaviors*. San Francisco, CA: Wiley.
Dowling, N., Clarke, D., Memery, L., & Corney, T. (2005). Australian apprentices and gambling. *Youth studies Australia, 24*(3), 17-23.
Ferris, J., & Wynne, H. J. (2001). The Canadian Problem Gambling Index: Final Report Retrieved from www.ccsa.ca/pdf/ccsa-00805-200.pdf
GAMECS Project. (1999). Gambling among members of the ethnic communities in Sydney: Report on 'Problem gambling and ethnic communities' (Part 3). Sydney: Ethnic Communities' Council of NSW.
Gausset, Q., & Jansbøl, K. (2009). "Tell me what you play and I will tell you who you are": values and gambling habits in two Danish universities. *International Gambling Studies, 9*(1), 67-78.
Griffiths, M., & Delfabbro, P. (2001). The biopsychosocial approach to gambling: Contextual factors in research and clinical interventions. *Electronic Journal of Gambling Issues: egambling, 5*, no pagination specified. Retrieved from http://www.camh.net/egambling/issue5/index.html
Gual, A., Segura, L., Contel, M., Heather, N., & Colom, J. (2002). Audit-3 and Audit-4: Effectivness of two short forms of the alcohol use disorders identification test. *Alcohol & Alcoholism, 37*(6), 591-596.
Gupta, R., & Derevensky, J. L. (1998). An empirical examination of Jacobs' general theory of addictions: do adolescent gamblers fit the theory? *Journal of Gambling Studies, 14*(1), 17-49.
Hamid, P. D., Simmonds, J. G., & Bowles, T. V. (2009). Asian Australian acculturation and attitudes towards seeking professional psychological help. *Australian Journal of Psychology, 61*(2), 69-76.
Hardoon, K. K., Gupta, R., & Derevensky, J. L. (2004). Psychosocial variables associated with adolescent gambling. *Psychology of Addictive Behaviors, 18*(2), 170-179.
Henry, J. D., & Crawford, J. R. (2005). The short-form version of the Depression Anxiety Stress Scales (DASS-21): Construct validity and normative data in a large non-clinical sample *British Journal of Clinical Psychology, 44*, 227-239.
Jacques, C., Ladouceur, R., & Ferland, F. (2000). Impact of Availability on Gambling: A Longitudinal Study. *Canadian Journal of Psychiatry, 45*(9), 810-816.
Joukhador, J., Blaszczynski, A., & MacCallum, F. (2004). Superstitious beliefs in gambling among problem and non-problem gamblers: preliminary data. *Journal of Gambling Studies, 20*(2), 171-180.
Keillor, B., Owens, D., & Pettijohn, C. (2001). A cross-cultural/cross-national study of influencing factors and socially desirable response biases. *International Journal of Market Research, 43*(1), 63-84.

Khawaja, N. G., & Dempsey, J. (2008). A comparison of international and domestic tertiary students in Australia. *Australian Journal of Guidance and Counselling, 18*, 30-46.

Kilinic, A., & Granello, P. F. (2003). Overall life satisfaction and help-seeking attitudes of Turkish college students in the United States: implications for college counsellors. *Journal of College Counseling, 6*, 56-68.

Kypri, K., Paschall, M. J., Langley, J., Baxter, J., Cashell-Smith, M., & Bourdeau. (2009). Drinking and alcohol-related harm among New Zealand university students: Findings from a national web-based survey. *Alcoholism: Clinical and Experimental Research, 33*(2), 307-314.

Ladouceur, R. (2004). Perceptions among pathological and nonpathological gamblers. *Addictive Behaviours, 29*(3), 555-565.

Lau, A., Cummins, R., & Mcpherson, W. (2005). An Investigation into the cross-cultural equivalence of the Personal Wellbeing Index. *Social Indicators Research, 72*(3), 403-430.

Lee, H., Chae, P. K., Lee, H., & Kim, Y. (2007). The five-factor gambling motivation model. *Psychiatry Research, 150*, 21-32.

Leung, C. (2001). The psychological adaptation of overseas and migrant students in Australia. *International Journal of Psychology, 36*(4), 251-259.

Li, W. W. (2007). *Understanding Chinese international students' gambling experiences in New Zealand.* Master of Social Sciences, University of Waikato.

Lin, C., & Fu, V. R. (1990). A comparison of child-rearing practices among Chinese, immigrant Chinese, and Caucasian-American parents. *Child Development, 61*(2), 429-433.

Loo, J. M. Y., Raylu, N., & Oei, T. (2008). Gambling among the Chinese: A comprehensive review. *Clinical Psychology Review, 28*, 1152-1166.

Lovibond, S., & Lovibond, P. (1995). *Manual for the depression, anxiety, stress scales* (2nd ed.). Sydney: Psychology Foundation.

McBain, N., & Ohtsuka, K. (2001). *Predicting problem gambling among poker machine players from coping styles and motivational factors.* Paper presented at the Culture and the gambling phenomenon: the proceedings of the 11th National conference for gambling studies, Sydney.

Moore, S., & Ohtsuka, K. (1997a). Gambling activities of young Australians: developing a model of behaviour. *Journal of Gambling Studies, 13*(3), 207-236.

Moore, S., & Ohtsuka, K. (2001). Youth gambling in Melbourne's west: Changes between 1996 and 1998 for Anglo-European background and Asian background school-based youth. *International Gambling Studies, 1*, 87-101.

Moore, S., Thomas, A. C., Kyrios, M., Bates, G., & Meredyth, D. (online first). Gambling accessibility: A scale to measure gambler preferences. *Journal of Gambling Studies*.

Moore, S. M., & Ohtsuka, K. (1997b). *Gambling behaviour and problem gambling: What is normal?* Paper presented at the Proceedings of National Association for Gambling Studies Conference, Glenelg, South Australia.

Mori, S. (2000). Addressing the mental health concerns of international students. *Journal of Counseling and Development, 78*, 137-144.

National Health and Medical Research Council. (2011). Alcohol guidelines: reducing the risk Retrieved 28 February 2011, from http://www.nhmrc.gov.au/your_health/healthy/alcohol/index.htm

Neighbours, C., Lostutter, T. W., Cronce, J. M., & Larimer, M. E. (2002). Exploring college student gambling motivation. *Journal of Gambling Studies, 18*(4), 316-369.

Oei, T., Lin, J., & Raylu, N. (2008). The relationship between gambling cognitions, psychological states, and gambling: A cross-cultural study of Chinese and Caucasians in Australia. *Journal of Cross Cultural Psychology, 39*, 147-161.

Oei, T., & Raylu, N. (2009). The relationship between cultural variables and gambling behavior among Chinese residents in Australia. *Journal of Gambling Studies, 25*(4), 433-445.

Oei, T., & Raylu, N. (2010). Gambling behaviors and motivations: A cross-cultural study of Chinese and Caucasians in Australia. *International Journal of Social Psychiatry, 56*(1), 23-34.
Opropeza, B. A. C., Fitzgibbon, M., & Baron, A. (1991). Managing mental health crises of foreign college students. *Journal of Counseling and Development, 69*, 280-284.
Papineau, E. (2005). Pathological gambling in Montreal's Chinese community: An anthropological perspective. *Journal of Gambling Studies, 21*(2), 157-178.
Pederson, E. R., Larimer, M. E., & Lee, C. M. (2009). When in Rome: Factors associated with changes in drinking behaviour among American college students studying abroad. *Psychology of Addictive Behaviors, 24*(3), 535-540.
Petry, N. (2003). A comparison of treatment-seeking pathological gamblers based on preferred gambling activity. *Addiction, 98*, 645-655.
Potenza, M., Maciejewski, P. K., & Mazure, C. M. (2005). A gender-based examination of past-year recreational gamblers. *Journal of Gambling Studies, 22*(1), 41-63.
Poyrazli, S., Kavanaugh, P. R., Baker, A., & Al-Timimi, N. (2004). Social support and demographic correlates of acculturative stress in international students. *Journal of College Counseling, 7*, 73-82.
Productivity Commission. (2010). Gambling. Report no. 50, Canberra.
Ramsay, S., Jones, E., & Barker, M. (2007). Relationship between adjustment and support types: Young and mature-aged local and international first year university students. *Higher Education, 54*(247-265).
Rastogi, M. (2007). coping with transitions in Asian Indian families: systematic clinical interventions with immigrants. *26, 2*, 55-67.
Raylu, N., & Oei, T. (2004a). The Gambling Related Cognitions Scale (GRCS): development, confirmatory factor validation and psychometric properties. *Addiction, 99*, 757-769.
Raylu, N., & Oei, T. (2004b). Role of culture in gambling and problem gambling. *Clinical Psychology Review, 23*, 1087-1114.
Rennie, D. L. (2006). The grounded theory method: Application of a variant of its procedure of constant comparative analysis to psychotherapy research. In C. Fisher (Ed.), *Qualitative research methods for psychologists introduction through empirical studies* (pp. 59-78). Burlington, MA: Elsevier.
Rosenthal, D. A., Russell, J., & Thomson, G. (2007). Social connectedness among international students at an Australian university. *Social Indicators Research, 84*, 71-84.
Rosenthal, D. A., Russell, J., & Thomson, G. (2008). The health and wellbeing of international students at an Australian University. *Higher Education, 55*, 51-67.
Russell, J., Thomson, G., & Rosenthal, D. A. (2008). International student use of university health and counselling services. *Higher Education, 56*, 59-75.
Scull, S., & Woolcock, G. (2005). Problem gambling in non-english speaking background communities in Queensland, Australia: A qualitative exploration. *International Gambling Studies, 5*(1), 29-44.
Shaffer, H. J., Hall, M. N., & Vander Bilt, J. (1999). Estimating the prevalence of disordered gambling in the United States and Canada: A research synthesis. *American Journal of Public Health, 89*(9), 1369-1376.
Sharpe, L. (2002). A reformulated cognitive-behavioural model of problem gambling a biopsychosocial perspective. *Clinical Psychology Review, 22*, 1-25.
Shead, N. W., Hodgins, D. C., & Schaf, D. (2008). Differences between poker players and non-poker-playing gamblers. *International Gambling Studies, 8*(2), 167-168.
Shields, P. O. (2009). Coming of age: The college market and the gaming entertainment industry. *Journal of Hospitality Marketing & Management, 18*, 68-88.
Smith, J. A., & Osborn, M. (2008). Interpretative phenomenological analysis. In S. J. (Ed.), *Qualitative psychology a practical guide to research methods* (2nd ed.). London: SAGE Publications.

Snow, P., Wallace, S., Staiger, P., & Stolz-Grobusch, B. (2002). "As long as it doesn't spill over into class": harms arising from students' alcohol use, and the role of policy in reducing them. *International Journal of Drug Policy, 14*, 5-16.

Spence-Thomas, R., Thomas, T., & Smith, D. (2000). *The gambling behaviour of international students in Australia.* Paper presented at the 10th National Association for Gambling Studies conference, Mildura.

Spencer-Oatey, H., & Xiong, Z. (2006). Chinese students' psychological and sociocultural adjustments to Britain: An empirical study. *Language, Culture and Curriculum, 19*(1), 37-53.

Stanley, S., Zane, N., & Ito, J. (1979). Alcohol drinking patterns among Asian and Caucasian Americans. *Journal of Cross Cultural Psychology, 10*(1), 41-56.

Stevens, M., & Young, M. (2009). Reported gambling problems in the Indigenous and total Australian populations. Melbourne: Office of Gaming and Racing, Department of Justice.

Storer, J., Abbott, M., & Stubbs, J. (2009). Access or adaptation? A meta-analysis of surveys of problem gambling prevalence in Australia and New Zealand with respect to concentration of electronic gaming machines. *International Gambling Studies, 9*(3), 225-244.

Tan, A. K. G., Yen, S. T., & Nayga, R. M. (2010). Socio-demographic determinants of gambling participation and expenditures: evidence from Malaysia. *International Journal of Consumer Studies, 34*, 316-325.

Tang, C. S., & Wu, A. M. S. (2010). Direct and indirect influences of fate control belief, gambling expectancy bias, and self-efficacy on prblem gambling and negative mood among Chinese college students: A muliple mediation analysis. *Journal of Gambling Studies, 26*(4), 533-543.

Thomas, A., & Moore, S. (2003). The interactive effects of avoidance coping and dysphoric mood on problem gambling for female and male gamblers. *Electronic Journal of Gambling Issues: egambling, 8*, no pagination specified. Retrieved from www.camh.net/egambling/issue8/

Thomas, A. C., Allen, F., & Phillips, J. (2009). Electronic gaming machine gambling: Measuring motivation. *Journal of Gambling Studies, 25*, 343-355.

Thomas, A. C., Moore, S., Kyrios, M., Bates, G., Meredyth, D., & Jessop, G. (2010). Problem gambling vulnerability: The interaction between access, individual cognitions and group beliefs/preferences. Melbourne: Swinburne University of Technology.

Thomas, A. C., Sullivan, G. B., & Allen, F. C. L. (2009). A theoretical model of EGM problem gambling: more than a cognitive escape. *International Journal of Mental Health and Addiction, 7*, 97-107.

Thomas, N. J., & Thomas, T. (2002). *Influence of cultural background, country of origin, and cognitive distortions on the gambling behaviour of international students*. Paper presented at the ISANA 2002 13th national conference, Launceston, Tas.

Toumbourou, J. W., Beyers, J. M., Catalano, R. F., Hawkins, J. D., Arthur, M. W., Evans-Whipp, T., et al. (2005). Youth alcohol and other drug use in the United States and Australia: a cross-national comparison of three state-wide samples. *Drug and Alcohol Review, 24*, 515-523.

Treverrow, K., & Moore, S. (1998). The association between loneliness, social isolation and women's electronic gaming machine gambling. *Journal of Gambling Studies, 14*(3), 263-284.

Turner, N., Zangeneh, M., & Littman-Sharp, N. (2006). The experience of gambling and its role in problem gambling. *International Gambling Studies, 6*(2), 237-266.

VCGA. (2000). The impact of gaming on specific cultural groups. Melbourne: Victorian Casino and Gaming Authority.

Victorian Multicultural Gambler's Help Program. (2006). Western region problem gambling in culturally and linguistically diverser communities. Melbourne: Victorian Multicultural Gambler's Help Program.

Vivancos, R., Abubaker, I., & Hunter, P. R. (2009). Sexual behaviour, drugs and alcohol use of international students at a British university: a cross-sectional study. *International journal of STD & AIDS, 20*, 619-622.

Ward, C., & Kennedy, A. (1999). The measurement of sociocultural adaptation. *International Journal of Intercultural Relations, 23*, 659-677.

Wardle, H., Sproston, K., Orford, J., Erens, B., Griffiths, M., Constantine, R., et al. (2007). British gambling prevalence survey 2007. In G. Commission (Ed.): Gambling Commission.

Welte, J., Wieczorek, W., Barnes, G., Tidwell, M., & Hoffman, J. (2004). The relationship of ecological and geographical factors to gambling behaviour and pathology. *Journal of Gambling Studies, 20*(4), 405-423.

Welte, J. W., Barnes, G. M., Tidwell, M. O., & Hoffman, J. H. (2008). The prevalence of problem gambling among U.S. adolescents and young adults: Results from a national survey. *Journal of Gambling Studies, 24*, 119-133.

Welte, J. W., Wieczorek, W. F., Barnes, G. M., & Tidwell, M. O. (2006). Multiple risk factors for frequent and problem gambling: individual, social, and ecological. *Journal of Applied Social Psychology, 36*(6), 1548-1568.

Wickwire, E. M., Whelan, J. P., West, R., Meyers, A., McCausland, C., & Leullen, J. (2007). Perceived availability, risks and benefits of gambling among college students. *Journal of Gambling Studies, 23*, 395-408.

Wood, R. T. A., & Griffiths, M. (2002). Adolescent perceptions of the national lottery and scratchcards: A qualitative study using group interviews. *Journal of Adolescence, 25*, 655-668.

Yeh, C. J., & Inose, M. (2003). International students' reported English fluency, social support satisfaction, and social connectedness as predictors acculturation stress. *Counselling Psychology Quarterly, 16*(1), 15-28.

Zang, N., & Dixon, D. N. (2003). Acculturation and attitudes of Asian international students toward seeking psychological help. *Journal of Multicultural Counseling and Development, 31*, 205-222.

Zheng, W. Y., Walker, M., & Blaszczynski, A. (2008). Mahjong gambling and Chinese international students in Sydney. *Journal of Psychology in Chinese societies, 9*, 242-269.