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ADOLESCENT GAMBLING IN NEW ZEALAND:

AN EXPLORATION OF PROTECTIVE AND RISK

FACTORS

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**A thesis submitted in fulfilment of the requirements for the
degree of Doctor of Philosophy in Behavioural Science,
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ABSTRACT

Despite a growing appreciation in New Zealand of the harms arising from gambling, there remains a lack of knowledge and awareness of the dangers associated with participation in gambling by young people. Although international research has demonstrated that young people are a high-risk group with regard to problem gambling, research in New Zealand has only investigated the gambling behaviour of those aged 18 and over.

This thesis explores a topic that has been largely neglected within New Zealand: the relevance of gambling and problem gambling for New Zealand adolescents. A questionnaire consisting of both standardised and non-standardised items, was administered to a random sample of more than 2000 secondary school students in the Upper North Island. The role of gambling in adolescent life, the prevalence of adolescent problem gambling, and associated risk factors were investigated. This research also adopted a largely unique perspective within the youth gambling field, extending investigations to include the role of protective factors, particularly social connectedness. This investigation of protective factors supports strengths-based approaches to youth behavioural issues, with the potential to aid in the prevention or minimisation of harm, as opposed to approaches that focus upon responding to problems, as is encouraged by dysfunction-based models.

This research demonstrates that gambling is part of youth culture in New Zealand. It provides the first body of data detailing the practices, beliefs, and other factors associated with adolescent gambling behaviour within New Zealand. The findings indicate that choices around gambling are strongly influenced by contextual factors and that young New

Zealander's participate in a wide variety of gambling modes. While most gamble safely, approximately four percent were observed to satisfy the problem gambling criteria. Social connectedness was strongly correlated to problem gambling behaviour and the research points towards the investigation of protective factors, resiliency, and strengths-based strategies in the future. The continuing exploration of common denominators between gambling and other dangerous consumptions also offer promising avenues for future research within the gambling field.

This research demonstrates that youth gambling is an issue requiring the attention of families, communities, schools, researchers, government departments, and members of the gambling industries.

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1 INTRODUCTION AND OVERVIEW OF THESIS

“Gambling is good as well as bad. By gambling we waste money and sometimes we ruin our life and our family's. By gambling we can engage in some heinous crimes such as robbery and murder because they have got no money and they are addicted to gambling. The advantage of gambling is it can help increase a growth in economy if more and more people from outside the country gamble. The best example for this is the sky city in Auckland where majority gamble and are outsiders. There chances of winning is very less. So gambling also helps increase economy growth.” (17 year old, male)

This introductory chapter provides a brief rationale and background for, as well as a description of the objectives and layout of, the thesis. Despite a growing appreciation in New Zealand of the harms arising from gambling, there remains a lack of knowledge and awareness of the dangers associated with participation in gambling by our young people. The author's own awareness of gambling as a youth health issue stemmed from contact with colleagues in the problem gambling sector, the completion of a research project for her Honors degree in 1996 (see Clarke & Rossen, 2000), and subsequent employment in the gambling field as a researcher and telephone counsellor. Enrolment in a PhD research programme saw the author begin to recognise the dominance of dysfunction-based models within the youth gambling field. A desire to conduct research within a youth friendly framework (e.g. a strengths-based approach that recognises the importance of context) and to aid in the prevention and minimisation of gambling related harm amongst young people, instead

¹ It should be noted that, throughout this thesis, all quotes from research participants are presented as written by the participant, themselves. No editing of participant quotes has been undertaken.

of simply responding to problems as is typical for dysfunction-based models, saw the author explore the field of resiliency.

This approach is one that resonates with other youth-based initiatives in New Zealand, where young people (aged 12-25) account for approximately one-fifth of the population (Ministry of Health, 2002; Ministry of Youth Affairs, 2002). For instance, New Zealand's Ministry of Youth Affairs and Ministry of Health have both adopted strengths-based approaches with an emphasis upon young people being active participants in the determination of healthy outcomes (Ministry of Health, 2002; Ministry of Youth Affairs, 2002). It is notable that researchers involved in New Zealand's first national youth health and wellbeing survey (Youth2000) have also utilised a strengths-based philosophy (Adolescent Health Research Group, 2003).

Although the findings of this thesis may have implications for young people² in general, it is primarily concerned with adolescence (ages 12-18): a developmental period that offers distinct opportunities and challenges (McLaren, 2002; Ministry of Health, 2002; Ministry of Youth Affairs, 2002; Paterson, Field, & Pryor, 1994).

1.1 RESEARCH RATIONALE AND OBJECTIVES

As national prevalence surveys have only investigated gambling among those aged 18 and over (Abbott & Volberg, 1991, 2000), adolescent gambling is a topic that has been largely neglected within New Zealand. This research sets out to explore the relevance of gambling and problem gambling for a sample of New Zealand adolescents. The role of gambling in adolescent life, the prevalence of adolescent

² Literature makes use of a number of terms and definitions in reference to young people, including adolescents, children, minors, and youths. Where this thesis refers to young people in the context of other research, the terminology of the originating research is used.

problem gambling, including its potential to emerge as a public health issue in New Zealand, and the identification of factors associated with increased risk were all of interest.

Review of literature within the gambling and resiliency fields reveals a number of issues. Firstly, dysfunction-based models, with a focus upon risk factors, dominate the youth gambling literature. Secondly, resiliency theory provides the basis for an alternative to risk based models, where both risk **and** protective factors are theoretically significant. Thirdly, many risk and protective factors operate across multiple youth behavioural domains (e.g. alcohol and substance misuse). As gambling shares a number of risk factors with other behaviours, it can be expected that it may also have a number of protective factors in common with these behaviours. As such, this research aims to investigate the role of protective factors (particularly social connectedness) in adolescent gambling: a largely unique perspective within the youth gambling field.

The above observations, coupled with the paucity of research and information regarding youth gambling in New Zealand, directed this research towards several objectives. These can be summarised as the following set of four research questions:

1. How relevant is gambling to the young people of New Zealand?
2. What are the factors associated with youth gambling in New Zealand?
3. Is *problem* gambling an issue for the young people of New Zealand, and, if so, what are the factors associated with increased risk?
4. Are the protective factors that operate in other youth behavioural domains relevant to adolescent gambling?

These research questions are synergistic with New Zealand's recent adoption of a public health approach to gambling: those within the local problem gambling community (e.g. researchers, counsellors, public health workers, and governmental agencies) have begun to recognise the need for youth-appropriate research and programmes. A notable advantage of a strengths-based approach to youth gambling is its potential to aid in the prevention or minimisation of gambling related harm amongst young people, as opposed to approaches that focus upon responding to problems, as is encouraged by dysfunction-based models.

1.2 METHODOLOGY AND FINDINGS

Investigation of the above research questions was achieved through the administration of a survey to more than two thousand secondary school students. The research design entailed random sampling of secondary schools within New Zealand's upper North Island. Within consenting schools, randomly selected classes were sampled from within each year level (to ensure that the sample was representative, the number of randomly sampled classes from each school was proportional to the size of the school roll). The sample was drawn such that representation of all major demographic (gender, age, ethnicity, urban/rural) groups was ensured.

In addition to demographic information, data were gathered regarding issues such as personal gambling behaviour (including level of engagement with gambling, problematic gambling, patterns of use, and social context of gambling), exposure to gambling (e.g. parental and peer gambling, and advertising), attitudes and beliefs regarding gambling, and other behaviours potentially related to gambling (e.g. use of the internet and computer games, and alcohol use). With regard to connectedness and

protective factors, information was sought on sources of social support and level of integration within a variety of social contexts, including school, family, peers, and religion. Of particular focus, however, was the perceived nature of relationships with parents and peers.

This research has provided a large body of data on the practices, beliefs, and associated factors of adolescent gambling behaviour within New Zealand. Of the entire sample, approximately two-thirds indicated having gambled at least once within the previous year. New Zealand Lotteries Commission (NZ Lotteries) products (Instant Kiwi and Lotto), bets with friends, card/dice/board games, and non-casino EGMs were the most popular modes of gambling.

3.8% of the entire sample, and 6.1% of all participants who had gambled over the past year, satisfied the criteria for problem gambling. There was also evidence that the negative consequences of gambling extend much further than just to those who satisfy the problem criteria. Although not experiencing problems at clinically prescribed levels, a substantial proportion of participants were coping with varying degrees of negative effects in relation to their gambling (e.g. family and academic disruptions).

Although males were more likely to satisfy the problem gambling criteria than females, the most alarming demographic difference was observed in relation to ethnicity: Pacific participants³ were approximately 11.5 times more likely to satisfy the problem gambling criteria than their NZ European/Pakeha counterparts.

A large number of other variables were associated with an increased risk of gambling and problem gambling. Overall, as engagement with, exposure to, and acceptance of gambling increased so too did the likelihood of gambling and problem gambling.

³ Participants who self-identified as being of a Pacific Island ethnicity.

Numerous aspects of social connectedness (familial, peer, school) were found to be protective in relation to both gambling and problem gambling. Results of the final analytical procedures were particularly noteworthy: two indices of social connectedness (attachment to a maternal figure, or having a positive relationship with a school teacher) were found to be protective against problem gambling, even in the presence of major risk factors (parental problem gambling, non-NZ European/Pakeha ethnicity, poor school integration, or an early initiation into gambling).

In Summary, this research has shown that gambling is more than just an individual behaviour: young people's choices around gambling are influenced by factors such as their life experiences and circumstances, and the messages conveyed to them concerning gambling. Findings that demonstrate social connectedness as a relevant construct with regard to adolescent gambling are particularly important. There are strong indications that the investigation of protective factors and resiliency offers a promising avenue for future research within the gambling field. A focus upon strengths-based strategies and a continuing exploration of the common denominators of gambling and other dangerous consumptions for young people is likely to be of future benefit.

It is apparent that youth gambling is an issue requiring the attention of families, communities, schools, researchers, government departments, and members of the gambling industry in New Zealand.

1.3 THESIS STRUCTURE

As outlined above, this thesis is centred on one large study investigating adolescent gambling in New Zealand and the role of protective factors in gambling behaviour.

The next chapter of this thesis (*chapter two*) provides the reader with an overview of the history and role of gambling within New Zealand. In particular, the evolving nature of New Zealand's gambling industry and its role as a source of community funding are outlined. Information regarding the incidence of gambling and problem gambling within New Zealand and the recent adoption of a public health approach to gambling is also provided.

Chapter three provides an introduction to the existing literature relevant to young people's gambling behaviour. This includes consideration of the issues relating to the measurement of problem gambling behaviour and its correlates (demographic variables, socio-cultural aspects, attitudes and beliefs, other potentially hazardous behaviours, depression etc). *Chapter three* also reflects on previous research into youth gambling in New Zealand.

Chapter four aims to introduce, and familiarise the reader with, the other research domain that is of central importance to this thesis: resiliency theory. This includes a discussion of the key concepts, including risk factors, protective factors, and social connectedness. Although this chapter consists mostly of a discussion of resiliency-based research within other behavioural domains, it also outlines the potential for the incorporation of resiliency and/or protective factors into the domain of youth gambling. This discussion is central to the aims of the thesis, leading to a statement of the research questions.

Chapter five provides the reader with details on the adopted research design, methods (type of research, sampling, development of the research tool, instruments and measures) and procedures (ethics, recruitment, collection of data, and data analysis) employed in this thesis.

Chapter six contains an overview of the sample characteristics: the demographic composition of the sample is detailed and compared to the National school population, the school population of the sample region, and the surveyed school population.

Chapter seven, *chapter eight*, and *chapter nine* discuss aspects of the results that profile the gambling behaviour of New Zealand adolescents and its associated risk factors. *Chapter seven* ('The landscape of adolescent gambling in New Zealand: *what, when, where and why?*') provides descriptive details of the sample's gambling behaviour. The results of analyses according to gambling status (i.e. comparisons of those who gamble with those who do not) are detailed in *chapter eight* ('A portrait of adolescent gambling in New Zealand: *who?*'). Similarly, *chapter nine* ('A portrait of adolescent *problem* gambling in New Zealand: *who?*') provides an account of analyses according to problem gambling status (i.e. comparisons of those who gamble problematically with those who gamble but are not categorised as problem gamblers). The results in each of these chapters are organised into three sections: patterns of use, social context, and beliefs/perceptions. The *patterns of use* sections relate to factors such as demographics, participation according to gambling mode, money and time spent gambling, location and reasons for gambling, the presence of others when gambling, the use of computer games and the internet, and alcohol consumption. Gambling by household members and peers, parental and peer problem gambling, and awareness of gambling advertising are covered within the *social context* sections. Finally, the *beliefs/perceptions* section in each of these chapters provides details on the perceived ease of access and rights of access to gambling, the perceived roles of skill and luck in gambling, and other miscellaneous beliefs.

Chapter ten provides an account of the results that relate to resiliency oriented risk and protective factors. This chapter has two sections: the first presents findings from a series of questions that investigate factors such as connectedness with school and family, and overall happiness. The second section reports findings from a standardised instrument (the Inventory of Parent and Peer Attachment (IPPA)) and relates these findings to levels of connectedness with parents and peers. Each of the sections in this chapter is split into segments that address the findings with respect to either gambling or problem gambling status.

The culmination of the analytical process is described in *chapter eleven*. Although logistic regressions identify some variables as being protective against the development of problem gambling, they are not demonstrated as protective while in the presence of known risk factors by earlier analyses (it is possible that the impact of protective factors might be significantly reduced or even negated by the presence of risk factors). This chapter outlines the analysis and subsequent findings that verify the protective ability of selected variables in the presence of risk.

Chapter twelve provides an overall discussion of the research and relates the thesis' key findings to the relevant literature, as directed by the four research questions outlined earlier. A discussion of the research's limitations is also included within this chapter.

Chapter thirteen concludes the thesis and is split into two sections. The first, *Implications and Recommendations*, contains three segments (research, policy, and, prevention and intervention), each of which includes a discussion of the implications arising from this research and recommendations for future actions. The second

section, *Contribution to the Field and Conclusion*, provides a discussion of this thesis' contribution to the youth gambling field and puts forward final conclusions.

It is the author's hope that the findings presented in this thesis will contribute to the development of successful public health approaches to youth gambling, particularly within New Zealand.

2 THE ROLE OF GAMBLING IN NEW ZEALAND

Although Maori have inhabited New Zealand since approximately 1000 AD, there is a relatively short history of gambling in New Zealand. With no evidence of gambling prior to the appearance of European settlers more than 170 years ago (Dyall, 2003), it appears that gambling was first introduced to New Zealand by whalers and settlers in the early 19th century (Abbott & Volberg, 1999).

Horse racing was the most popular gambling activity (the first race meeting was held in the Bay of Islands in 1835), but bets on card games and athletic competitions were also common (Phillips, 2006). Opposition from Protestant churches at the end of the 19th century led to restrictions on gambling and legislation passed in 1881 made almost every form of gambling illegal. Race track betting through on-course totalisators and bookmakers was still permitted, although book makers were banned from race meetings in 1910 (Abbott & Volberg, 1999; Phillips, 2006). Further legislation was introduced to enable lotteries and raffles to be conducted, with the government running its own state lottery (and then introducing the Golden Kiwi lottery in 1961) and regulating union lotteries. In the 1950s, track racing also became a state run enterprise with the introduction of the Totalisator Agency Board (TAB). An interesting observation is that, with evolving societal values, the governmental focus had moved over time from attempting to prohibit and suppress most modes of gambling to ensuring that the revenue from gambling was non-commercial and contributed to public/community good (O'Sullivan and Christoffel, as cited in Abbott & Volberg, 1999).

The late 1980s saw the introduction of three new forms of gambling. Two of these resulted from the establishment of NZ Lotteries (a Crown entity), which introduced the national televised lottery known as Lotto (first drawn in July 1987), as well as Instant Kiwi scratch tickets (these were introduced in 1989 when the Golden Kiwi Lottery was phased out). The third, and perhaps most significant, change was the introduction of electronic gambling machines (EGMs⁴): chartered clubs, Returned Service Associations, sports clubs, and hotels were legally allowed to operate EGMs from 1988 (Phillips, 2006). Interestingly, it is estimated that at the time of this legislation, approximately 8000 EGMs were already in operation across New Zealand (generally for corporate or private profit) (Abbott & Volberg, 1999)⁵. Soon afterwards (in 1990), the Casino Control Act paved the way for commercial and private gain from gambling within New Zealand, and within the space of 13 years, six casinos were in operation: Auckland, Christchurch, Dunedin, Hamilton, and two in Queenstown.

In 2003, the introduction of the Gambling Act saw the emergence of another era of gambling and gambling related legislation for New Zealand. This most recent legislation incorporates a strong focus upon the prevention and minimisation of the harm caused by gambling, including problem gambling, while also aiming to control the growth of gambling (through provisions such as limitations on the number of EGMs per venue). Another important purpose of the Act is to ensure that profits from gambling benefit the community and also to ensure that communities are involved in

⁴ For brevity, the term electronic gambling machine (EGM) will be used throughout this document when discussing what other authors have referred to as fruit machines, pokie machines, video lottery terminals, video gambling machines, and gaming or gambling machines. It should be noted that, in some cases, characteristics of machines, such as maximum prize levels and payout schedules, do vary.

⁵ At present, it is estimated that there are 20571 non-casino EGMs operating in New Zealand (Department of Internal Affairs, 2006b), which equates to approximately one machine for every 200 people.

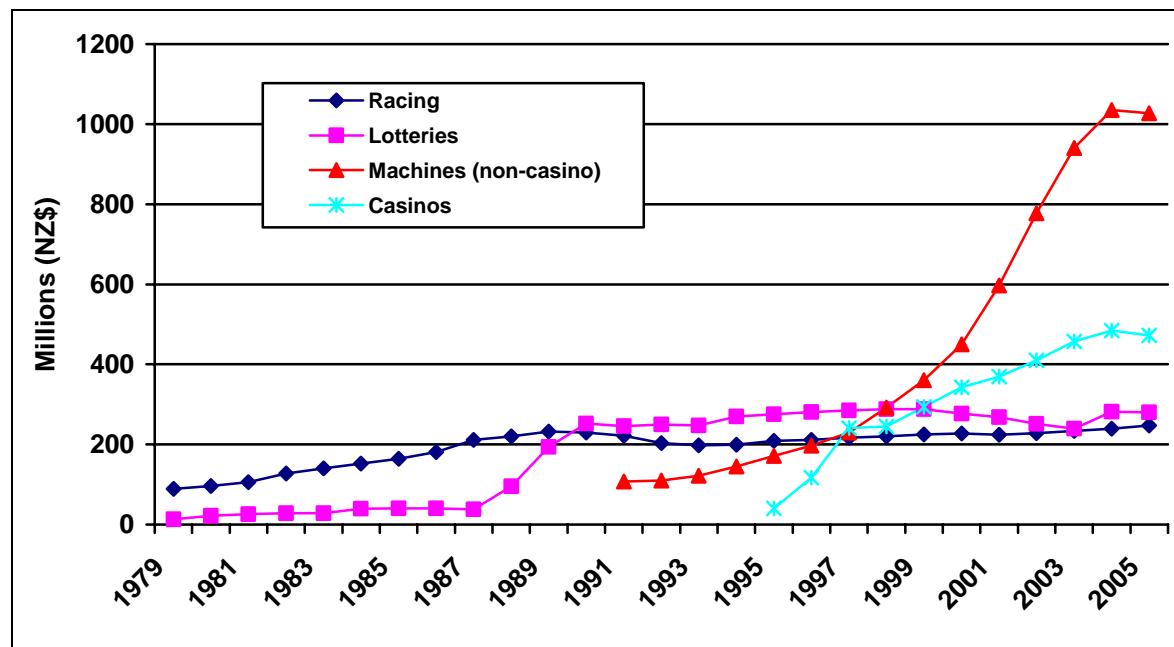
decisions relating to the availability of gambling activities within their district (Department of Internal Affairs, 2006a). The Act also partially addresses the inconsistencies regarding the age limits of gambling products: an issue that had been neglected by previous legislation. Although there was previously an age limit of 16 for Instant Kiwi, 18 for TAB, and 20 for casinos, there were **no** age limits for EGMs⁶, Lotto products, and Daily Keno. Following the introduction of the 2003 Act, the age limit of Instant Kiwi was raised to 18, and the rules surrounding EGMs were clarified to ensure that a consistent age limit of 18 applies (regardless of location or venue type). Inexplicably, there is still no age limit for Lotto products or for Daily Keno.

A number of agencies and researchers who were increasingly concerned by the rapid, and seemingly uncontrolled, expansion and growth of New Zealand's gambling industries have welcomed the Act. For instance, figures released by the Department of Internal Affairs (2006b) reveal that total gambling expenditure (amount lost⁷) had increased from approximately NZ\$0.1 billion in 1979 to NZ\$2.0 billion in 2005. The actual expenditure (unadjusted for inflation), since 1979, according to gambling mode is illustrated in Figure 1.

⁶ EGMs were generally available in venues that were licensed for alcohol (licensed premises), thus the default age of entry was 18. However, they were easily accessible by young people in venues such as supervised bars, sports clubs, family restaurants, and bowling alleys.

⁷ Expenditure is defined by the Department of Internal Affairs as being interchangeable with the term 'gross profit' and is the "gross amount wagered minus the amount paid out or credited as prizes or dividends. Expenditure is the amount lost or spent by players or the gross profit of the gaming operator" (Perese, Bellringer, & Abbott, 2005, p. 110).

Figure 1: Actual expenditure (non-inflation adjusted) for gambling by mode in New Zealand (Source: Department of Internal Affairs, 2006b)



It is apparent that the amount of money lost on EGMs and casinos now greatly exceeds that on track racing and NZ Lotteries products, with non-casino EGMs now accounting for more than half of the total gambling expenditure in New Zealand: NZ\$1027 million on EGMs in 2005. It is also apparent that there was a particularly rapid increase of gambling expenditure following the introduction of EGMs and casinos, a pattern that has also been observed in the Netherlands and in Australia (Adams et al., 2004). Both of these forms can be classified as continuous modes of gambling as they are characterised by a very short time frame between investment and outcome, therefore allowing rapid and repeated betting within a short period (Adams et al., 2004). Researchers in both Australia (Productivity Commission, 2000) and New Zealand (Adams et al., 2004) have linked increased availability of EGMs with an

increased incidence of problem gambling⁸, and have identified regular gambling on continuous modes as a risk factor for the development of problem gambling or probable pathological gambling (Abbott & Volberg, 2000).

The slight drop-off in expenditure over the 2004/2005 period, which is apparent for all modes except racing, has been attributed to the introduction of new regulatory environments for both gambling and smoking in public places. It is interesting to note, however, that despite this decline in expenditure, the rapid expansion of gambling in the 1980s and 1990s has not been reversed.

The diversification and expansion of gambling has seen gambling become a highly competitive business. There is now substantial competition for the consumer dollar, with some members of the gambling industry struggling to maintain their previous growth, particularly the TAB and NZ Lotteries. However, advertising/marketing, the introduction of new products, and the continuing modification of existing ones (particularly in the case of NZ Lotteries) have helped to preserve a fairly stable financial share of the market. For example, the TAB has initiated online and sports betting and NZ Lotteries has introduced additional draws/draw features, such as Lotto Strike, Daily Keno, Powerball, and Big Wednesday as well as the regular release of new versions of Instant Kiwi tickets.

Not surprisingly, expansion of the gambling industry has been accompanied by a proliferation of advertising campaigns for gambling products. For instance, within the gambling sector, NZ Lotteries has expended the largest amount on advertising each

⁸ Literature makes use of a number of terms and definitions in reference to problem gambling, including pathological gambling, probable pathological gambling, problematic gambling, and at-risk gambling. Where this thesis refers to problem gambling in the context of other research, the terminology of the originating research is used.

year since 2000, with the advertising expenditure for Lotto alone rising from \$13,297,594 (NZ\$) in 2000 to \$19,446,782 in 2004⁹ (Perese et al., 2005).

It is important to note, however, that although a large portion of the advertising for these products is delivered via mainstream media (e.g. television, print, etc), some members of the gambling industry also engage in more subtle marketing / public relations practices. As mentioned previously, one purpose of the Gambling Act 2003 is to ensure that money from gambling benefits the community (Department of Internal Affairs, 2006a). In New Zealand, community funding is generally acknowledged as one of the most significant benefits for community and general society from gambling (Adams et al., 2004). It is also well publicised, thus providing an effective public relations exercise and subtle advertising mechanism.

With this in mind, the distribution of EGM expenditure is interesting to examine. According to the calculations of GamblingWatch¹⁰ (2006), for every dollar lost on non-casino EGMs in 2003/2004, the operators and government received approximately two-thirds: \$0.41 goes to the EGM owners/bars, \$0.23 goes to the government (in taxation etc). The remaining third is distributed to the community via funding grants by the various industry gambling societies. Sports groups appear to gain the most benefit, receiving \$0.19 of every dollar. Given that education groups and other categories each received \$0.05 or less of every dollar, it is not surprising that there have been accusations of unfair or biased funding distribution strategies.

⁹ These are rate-card figures, which refer to the average cost for media advertising. The authors also state that “the figures represented are rate-card figures and are gross overestimates of the actual expenditure (possibly 40% higher) since they are ballpark figures only.” (Ministry of Health, 2006, p.1)

¹⁰ GamblingWatch is an organisation which aims to inform the public about current issues relating to gambling in New Zealand, and to provide information and help (mostly through their website) for communities facing gambling expansion.

Although the importance of this funding for many community groups is acknowledged, some researchers and gambling intervention agencies have expressed concern that there is an increasing reliance upon gambling as a source of community funding, particularly given the lack of government funding, and that this has the potential to lead to the disempowerment of individuals and communities with regard to gambling (Adams, 2004; Adams et al., 2003; Adams & Rossen, 2005, 2006; Adams et al., 2004). Concern around these issues has even led GamblingWatch to establish a ‘No Pokies Fund’ register, whereby voluntary sector community and sporting organisations can register their decision to not apply for or receive funds from EGM or casino trusts. Adams (2004) provides a thorough discussion of these and other related issues, stating that:

“The rising availability of proceeds from gambling engages more and more people in a web of benefits that in their minds and in the minds of others progressively compromises their ability to openly question the way gambling is being provided. Individuals fulfilling a wide range of roles find themselves caught between the duties of their position and their moral views of gambling. They respond to these dilemmas in a variety of ways, but a common response is to withdraw from the debate altogether and thereby effectively endorse the interests of gambling expansion. This degradation of their confidence to participate in democratic processes applies initially to gambling alone, but over time could arguably extend to their willingness to participate in democratic processes as a whole.” (pp. 2-3).

This debate is particularly interesting with regard to young people, as many sporting, youth, and school-based groups (e.g. school sports teams) in New Zealand now receive funding and/or sponsorship from the gambling industry. The messages conveyed to young people by such arrangements, by both direct and indirect means, are of concern and require examination.

It is also important to consider that gambling provides a substantial source of revenue for New Zealand’s government. This is made up from direct taxation, direct levies,

associated GST¹¹, and one third of non-casino EGM expenditure (Adams et al., 2004).

Although there are difficulties in quantifying the exact amount of revenue that government gains from gambling, Adams et al., (2004) state that in relation to revenue arising for the 2003 financial year:

“the Department of Internal Affairs (2003) acknowledges that of \$941 million expended nationally on EGMs outside casinos, approximately a third (around \$300 million) goes into taxation. Add in other sources and other forms of taxation, the revenue nationally could be in the \$800 million to \$1000 million range, making gambling a significant contributor to funding government spending. The majority of revenue from gambling is absorbed into the consolidated fund.” (pp. 37-38).

In summary, it is apparent that the past 200 years have seen gambling become well entrenched in New Zealand society. Due to the more recent funding opportunities resulting from gambling, it is apparent that many groups in our society (private, community, and government) have a vested interest in the continued availability and growth of the gambling industries.

2.1 ADULT PARTICIPATION IN GAMBLING - NEW ZEALAND

The main sources of data relating to adult gambling within New Zealand are the two National Prevalence Surveys that were conducted in 1991 and 1999 (Abbott & Volberg, 1991, 2000). Phase One of the 1999 study involved a telephone survey with a national sample of 6,452 adults (aged 18 years and over). Participants were randomly selected from households with telephone numbers listed in current directories and had a response rate of 75% (although this was lower for young adults and Pacific Peoples).

¹¹ Goods and Services Tax (GST) is a 12.5% Value Added Tax applied to all goods and services sold within New Zealand.

Inter alia, the findings of this survey suggest that gambling is a part of life for most adult New Zealanders. A lifetime participation rate of 94% was found, with 86% of those surveyed having gambled within the past six months, which is high in comparison to international standards, and 40% having done so on a weekly basis, most of which was accounted for by Lotto and other NZ Lotteries products. It was also estimated that although approximately one third of New Zealand adults gambled regularly (weekly or more frequently) on non-continuous modes, a substantial proportion, around ten percent, gambled regularly on continuous modes. Moreover, socio-demographic profiles varied according to gambling mode and whether or not modes were continuous. The authors found that males, those aged 55-64, Maori, those without formal educational qualifications, and people with lower status occupations were more likely to engage in regular gambling on continuous modes.

2.2 ADULT PROBLEM GAMBLING - NEW ZEALAND

Abbott and Volberg's (1991; 2000) research also investigated the incidence of problem and probable pathological gambling. These were measured via the SOGS-R (South Oaks Gambling Screen - Revised), a revised version of the SOGS, which was originally "based on the official psychiatric definition of pathological gambling as a chronic or chronically relapsing mental disorder" (Abbott & Volberg, 2000, p.12). Participants who acknowledged experiencing five or more of the 20 symptoms were classified as probable pathological gamblers, while those who experience three or four were classified as problem gamblers. This version of the SOGS-R and the adopted classification system has since been widely adopted internationally. Two measures of problem gambling were employed: *lifetime* and *current*. *Lifetime* problem and probable pathological gamblers were those who indicated that at some time in their

lives they had met the SOGS-R criteria for problem or probable pathological gambling. *Current* problem and probable pathological gamblers were those who satisfied the criteria in the six months prior to the survey being conducted.

The study estimated that the *lifetime* problem gambling rate for the New Zealand population (aged 18 years and older) was between 1.4% and 2.5%, with an additional *lifetime* probable pathological gambling rate of 0.7% to 1.4%. Moreover, it was estimated that the *current* problem gambling rate was between 0.6% and 1.1% with an additional *current* probable pathological gambling rate of 0.3% to 0.7%.

The following socio-demographic factors were associated with an increased risk of *lifetime* gambling problems: gender, ethnicity, age, and household size. Specifically, Maori and Pacific Peoples, males, younger adults (25-34), and those living in a household with five or more people were all more likely to gamble at problem or pathological levels. The risk factors for *current* gambling problems were somewhat similar: Maori and Pacific Peoples, those who are employed, and those without formal educational qualifications were at greater risk than their counterparts. In addition to the above socio-demographic factors, it was also found that those who gamble alone, gamble as a hobby or habit, have someone in their life with a gambling problem, or regularly gamble on continuous forms, were at greater risk for both lifetime and current problem gambling.

Although the above research provides valuable information regarding patterns of gambling behaviour and the incidence and prevalence of problem gambling in New Zealand adults, it has been criticised on several grounds. For instance, it has been proposed that results may be conservative due to the method of data collection: it is thought that a telephone survey where the interviewer is a representative of the state

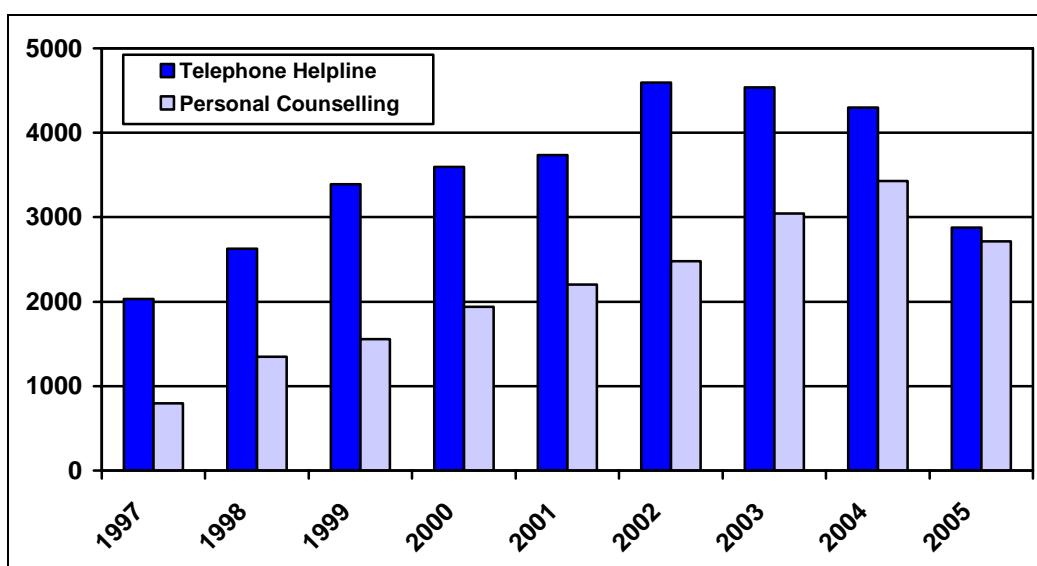
(Department of Internal Affairs) may not encourage disclosure of a gambling problem, particularly as gambling problems are frequently associated with issues such as tax avoidance, crime, and theft (Brown & Raeburn, 2001). It is also apparent that the research design will have resulted in the exclusion of several population groups (e.g. those living in households with an unlisted number or without telephones, those who were incarcerated or in hospital, etc). Such issues are alluded to by the authors, who acknowledge that these rates are likely to be conservative for a number of reasons and thus “under-estimate the number of people with serious gambling-related problems” (Abbott & Volberg, 2000, p. 14). Some members of New Zealand’s research community have also questioned the accuracy of these research findings due to their inconsistency with public health assumptions: there is no evidence of an increase in the prevalence of problem or probable pathological gambling rates despite substantial increases in consumption (Brown & Raeburn, 2001).

The second source of information regarding problem gambling in New Zealand is data gathered on those seeking help for gambling related issues¹². As almost all services addressing problem gambling in New Zealand are funded by one source (currently the Ministry of Health), this database is uniquely comprehensive. Figure 2 illustrates the number of new clients accessing problem gambling intervention services between 1997 and 2005. It is apparent that client numbers for both telephone and personal counselling services steadily increased between 1997 and 2002. Although this trend continued for personal counselling services until 2004, when a decline in numbers was observed, numbers accessing the telephone helpline began to

¹² Historically (prior to 1 July 2004), data were gathered by the Problem Gambling Committee (PGC), “which was established in 1996 and was made up of equal numbers of gambling industry and service provider representatives. The PGC, which wound up as a trust in 2005, funded problem gambling counselling, helpline services and a number of public health programmes, and was funded by negotiated contributions from the gambling industry” (2000). As of 1 July 2004, these roles, along with responsibility for preventing and minimising gambling harm, were assumed by the Ministry of Health.

slowly decrease in 2002. Although there has been no formal research on the cause of this trend, there is anecdotal evidence that the introduction of the Gambling Act (2003) has had a positive impact, decreasing the incidence of problem gambling. It is also possible that amendments made in 2003 to the Smoke-free Environments Act (1990) has had a substantial impact upon gambling behaviour. In particular, it is thought that the interruption of a gambling session in order to smoke may curb gambling tendencies in some people.

Figure 2: Number of new clients utilising problem gambling intervention services in New Zealand (Source: Ministry of Health, 2006)



The intervention statistics also provide evidence that significant numbers of young people are negatively affected by gambling (Ministry of Health, 2006). For example, in 2005 young people (aged 25 or less) comprised more than ten percent of those accessing services for assistance with their own gambling problems:

- *Gambling Helpline:*
 - 2.3% of new gambler clients were aged 19 or under; and,
 - 9.6% of new gambler clients were aged 20-24.

- *Face-to-face services:*

- o 4.0% of new gambler clients were aged 19 or under; and,
 - o 9.7% of new gambler clients were aged 20-24.

With a substantial proportion of significant others (those accessing intervention services due to the effects of another person's problem gambling) falling within these age categories, there is evidence that many young people are experiencing the negative effects of another person's gambling. In 2005, the proportions of young significant others accessing intervention services were as follows:

- *Gambling Helpline:*

- o 1.4% of new significant other clients were aged 19 or under; and,
 - o 6.1% of new significant other clients were aged 20-24.

- *Face-to-face services:*

- o 5.9% of new significant other clients were aged 19 or under; and,
 - o 7.5% of new significant other clients were aged 20-24.

It is also apparent from the intervention data that, regardless of age group, EGMs are the mode primarily associated with gambling problems in New Zealand. The majority of clients presenting for help with their own gambling problems cited *non-casino* EGMs as their primary problem mode: helpline (78.6%) and face-to-face (72.4%). The proportion accounted for by EGMs becomes even greater when the second most frequently cited mode, *casino* EGMs, is considered: helpline 9.0%; and face-to-face 8.9%. It is interesting to note, however, that in contrast to older age groups, gambling on *other* modes was the second most cited problem mode by face-to-face clients who were aged less than 20.

It should also be noted, however, that this data includes only those who sought assistance from problem gambling services, and, as such, may not be representative of those experiencing gambling related problems.

2.3 A PUBLIC HEALTH APPROACH TO GAMBLING

Although New Zealand's research and intervention statistics are disturbing in their own right, it is necessary to acknowledge that they only directly demonstrate a small proportion of the harm arising from gambling. For instance, it is generally estimated that between five and seven people are negatively affected by each problem gambler (Adams et al., 2004). Moreover, it should be noted that the intervention statistics only refer to the small proportion of the public who choose to seek professional assistance when experiencing gambling related problems. The wider effects of gambling are alluded to by John Raeburn (Brown & Raeburn, 2001) in a recent paper addressing health promotion approaches to gambling in New Zealand. He states that:

“Both the international and New Zealand literature show that gambling has far reaching negative effects on the health, wellbeing, and quality of life of individuals, families and communities...Gambling is especially associated with distress of family and parents, child neglect, depression and suicide, marital breakup and divorce, job loss, financial loss, theft, and violence. There are direct effects on physical health, such as increased smoking, high alcohol intake, and a variety of somatic disorders, including hypertension and back problems. The social cohesion of communities is being affected.” (pp. 42-43).

It is also important to consider that the harms from gambling are not equitably distributed. There is evidence that expenditure on gambling is regressive, in that it is disproportionately high among poor or disadvantaged groups (Adams et al., 2004; Brown & Raeburn, 2001; Dyall, 2003; Productivity Commission, 2000). Research in New Zealand and Australia has found that the concentrations of EGMs and EGM venues are greatest in areas of lower income, greater levels of economic deprivation,

and higher rates of social problems (Adams et al., 2004; Productivity Commission, 2000). Additionally, the Productivity Commission (2000) found that there was a strong relationship between the number of machines in an area and the amount of money spent of them. In the context of New Zealand, there is concern that certain communities and population groups such as Maori, Pacific Peoples, young people, and the elderly, will be disproportionately affected by gambling and problem gambling (Bellringer et al., 2003; Brown & Raeburn, 2001; Dyall, 2003).

Despite the negative effects discussed above, it is apparent that gambling is a popular and socially acceptable behaviour that is endorsed by most members of society within New Zealand (Amey, 2001). In line with most western societies, it is an activity that is sanctioned by New Zealand's government. As will be discussed in a later chapter, there is evidence that gambling is generally viewed as an innocuous activity for young people: the majority of parents are aware of their children's gambling behaviour and do not object (Hardoon & Derevensky, 2001). Further evidence for the importance of socialisation processes can be found in research that shows that children are generally initiated into gambling through parents and/or family members and tend to begin gambling within the home (Fisher, 1993a; Griffiths, 1990a, 1990b; Gupta & Derevensky, 1998a; Hardoon, Derevensky, & Gupta, 2002; Ladouceur & Mireault, 1988; Wiebe, 1999). Therefore, prevailing societal attitudes and norms are important contextual factors to consider when examining complex behaviours such as gambling, particularly when research involves young people.

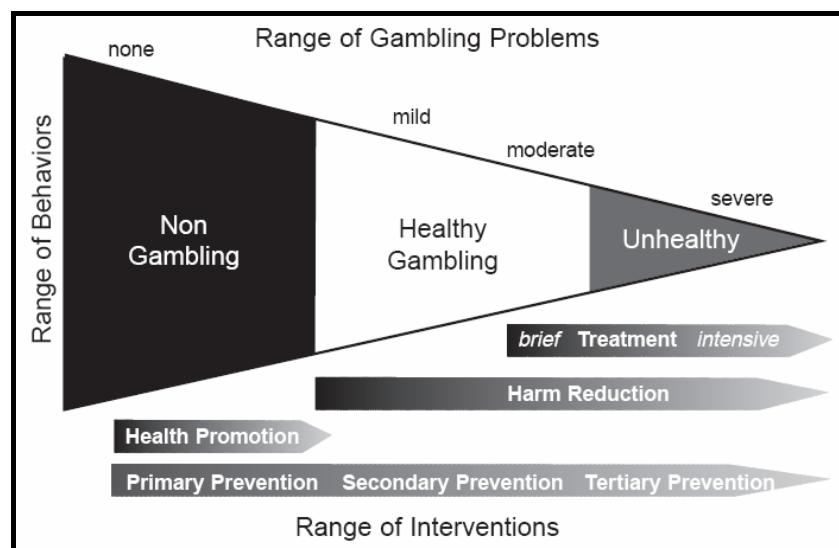
The important role of socio-cultural factors, such as those outlined above, in gambling behaviour is often overlooked. The gambling field, particularly the research arm, could be criticised for its almost exclusive focus upon the individual-based

contributors to problem and pathological gambling. In particular, models with a strong grounding in a dysfunction-based paradigm have been hegemonic. In essence, medical models adopt a black and white approach, whereby a gambler is either pathological or not (Raylu & Oei, 2002). These models tend to focus upon individual contributing factors to the exclusion of contextual and environmental influences. A relatively recent contrasting approach is that of public health, which also considers the broader determinants and impacts of gambling (Korn, 2002; Shaffer, 2003). Korn (2002) argues for the adoption of a public health perspective to gambling and states that:

“The value of a public health viewpoint is that it examines the broad impact of gambling rather than focusing solely on problem and pathological gambling behavior in individuals. It takes into consideration the wider health, social and economic costs and benefits; it gives priority to the needs of vulnerable and disadvantaged people; and it emphasizes prevention and harm reduction.” (pp. 1-2).

As illustrated in Figure 3, a public health framework conceptualises gambling behaviour and problems as lying upon a continuum, whereby individuals may move along the continuum in either direction at any point of time. Opportunities are provided for multi-level interventions such as primary, secondary, and tertiary prevention, health promotion, and various intensities of treatment (Shaffer, 2003).

Figure 3: A public health framework for gambling (Source: Shaffer, 2003, p. 3)



Another important facet of public health approaches is the examination of incidence and prevalence. Shaffer (2003) argues that it is necessary to consider the:

“distribution and determinants of gambling and gambling-related health concerns across a population; this approach pays particular attention to vulnerable and resilient segments of that population.” (p. 7).

In recent years, a public health approach to gambling has been adopted within New Zealand: the Gambling Act (2003) defines problem gambling as a public health issue, and the Ministry of Health has developed a problem gambling strategy, based on Shaffer's (2003) public health model, that incorporates primary public health prevention, health promotion, and harm minimisation activities (Ministry of Health, 2005). In line with a public health approach, there is a strong emphasis upon prevention and the determinants of health, with the strategy outlining several principles of particular relevance to at-risk groups, including the need for cultural relevance, and the adoption of a population health approach.

2.4 THE ROLE OF GAMBLING IN NEW ZEALAND - SUMMARY

Despite being introduced relatively recently (post-colonisation), gambling is firmly embedded in the culture of New Zealand. Many changes have occurred since the first introduction of gambling legislation in 1881, with a shift in focus to community benefits and more recently to provision for corporate and personal gain. The most recent legislative change, the 2003 Gambling Act, has seen a focus placed upon the prevention and minimisation of the harm caused by gambling, including problem gambling, while also aiming to control the growth of gambling. It has also placed emphasis upon the role of community funding and community input into decisions regarding local gambling. Although the Act has remedied some of the inconsistencies relating to age restrictions, there is still a lack of consistent legislation for a number of NZ Lotteries products.

New Zealand's gambling industry has undergone a rapid expansion over the past few decades, particularly the introduction of casinos and EGMs: two of the more dangerous forms of continuous gambling (i.e. those that have been associated with disproportionate levels of harm). However, the introduction of the 2003 Act and anti-smoking legislation has seen a slight drop-off in gambling expenditure. The growth of gambling coupled with a lack of government funding has seen an increasing reliance upon gambling grants as a source of financial support for community groups and organisations. This dependence and subsequent potential for the degradation of democratic processes for community members has been a cause of concern for a number of researchers and agencies. Both communities and government have vested interests in the provision of gambling in New Zealand.

As with many other countries, there is evidence that a substantial proportion of the population gambles at problem levels. It has also been demonstrated that the harm from gambling is not equitably distributed. In the New Zealand context, there is concern that certain communities and population groups such as Maori, Pacific Peoples, young people, and the elderly are being disproportionately affected by gambling and problem gambling. It is concerning, and of particular relevance to this thesis, that substantial proportions of those seeking help in relation to gambling problems fall within youth age categories (i.e. are aged less than 25).

There is currently a tendency for gambling to be conceptualised within a medical or dysfunction-based paradigm. This can be limiting due to a focus upon those who experience pathological gambling and the individual-based factors associated with problems (to the exclusion of contextual or environmental factors). A public health approach to gambling, as recently adopted by New Zealand's Ministry of Health, offers an alternative overarching conceptualisation. It views gambling as lying on a continuum and thereby offers a wider perspective with multiple options for intervention, while still addressing those who lie at the problem end of the continuum.

The next chapters review the literature from both the youth gambling and resiliency fields and demonstrate that the examination of protective and ecological factors in relation to youth gambling would be complementary to a public health paradigm. This is particularly relevant in New Zealand where there is a paucity of information and research regarding a group especially vulnerable to the harms of gambling: our young people.

3 YOUNG PEOPLE AND GAMBLING

This section of the thesis contextualises the phenomenon of gambling behaviour amongst young people and provides background information regarding the current state of knowledge on the subject of youth gambling behaviour. This chapter reviews the youth gambling literature that is pertinent to the thesis and begins with a discussion of gambling and problem gambling estimates and the issues pertaining to their measurement. Variables associated with problem gambling in young people are then examined within the following categories: demographics, socio-cultural aspects, attitudes and beliefs, other dangerous consumptions, and issues such as depression. The chapter concludes with a discussion of youth gambling research in New Zealand.

Interest in adolescent gambling has steadily increased over the past two decades, with researchers conducting prevalence studies in many countries including most western nations. It is important to note, however, that although prevalence rates have been well documented, there is still a lack of consensus between existing research methods (Griffiths, 1995; McGowan, Droege, Nixon, & Grimshaw, 2000). For instance, Griffiths (1995) has discussed such issues with regard to EGMs, and argues that comparing and evaluating existing studies is difficult given the wide “variety of methods, sampling procedures and population sizes” (p.54). One could contend that this assessment is applicable to all research within the gambling field, regardless of the mode of gambling that is under investigation. In essence, after considering differences in age, location, and sample size, and measurement issues, it can be

difficult to directly compare studies and, further, to identify temporal trends for gambling prevalence rates.

Despite these issues, and the degree of disparity between reported rates of involvement, it is apparent that gambling is a widespread activity amongst young people (Browne & Brown, 1994; Carlson & Moore, 1998; Fisher, 1993a; Govoni, Rupcich, & Frisch, 1996; Gupta & Derevensky, 1998a; Hardoon et al., 2002; Lesieur et al., 1991; Lesieur & Klein, 1987; Poulin, 2000; Stinchfield, 2000; Volberg, 1993; Volberg & Moore, 1999; Wallisch, 1996; Waterman & Atkin, 1985; Wiebe, 1999; Winters, Stinchfield, & Fulkerson, 1993a, 1993b). In a review of the socio-cultural gambling literature published between 1990 and 2000, McGowan, Droessler, Nixon, & Grimshaw (2000) observed that lifetime gambling rates for children and young people ranged between 54% and 91%. Moreover, some researchers have found that substantial proportions (20% or more) of young people report gambling on a regular basis (i.e. weekly or more frequently) (Fisher, 1993a; Gupta & Derevensky, 1998a; Hardoon et al., 2002; Huxley & Carroll, 1992; Ladouceur, Dube, & Bujold, 1994a, 1994b; Ladouceur & Mireault, 1988; Lesieur & Klein, 1987; Mayne & Tyreman-Wilde, 1993; Oster & Knapp, 1998; Walton, 1990).

Although informal modes of gambling (e.g. bets with friends) are among the most popular, they are not the only types of gambling attractive to young people. It is important to note that forms of gambling that are theoretically unavailable due to age restrictions (e.g. lottery products), are accessible to, and popular with, many young people (Hardoon et al., 2002; Poulin, 2000). For example, Poulin (2000) conducted an anonymous cross-sectional survey of 13549 Canadian students (drawn from 719 classes, grades seven, nine, ten, and 12) and found that 70.3% of students had

gambled over the previous 12 months. Popular gambling activities included scratch-tabs¹³ (55.9% of students), card games (35.1%), lotteries (33%), sports activities (26.4%), bingo (26.2%), EGMs (14.8%), and Sport Select (14.6%). Although some changes to regulations were being implemented at the time of this research, it was generally the case that lottery tickets, EGMs, and sports betting were not legally available to those aged 18 or under (Poulin, 2000).

It is apparent that gambling preferences change with age. Various longitudinal studies have shown that informal activities such as coin flipping, skill games, and sports betting become less attractive with increasing age, and that lotteries, ‘scratchie-cards’, and EGMs all become more popular with age (Stinchfield, 2000; Stinchfield, Cassuto, Winters, & Latimer, 1997; Wallisch, 1993, 1996; Winters & Stinchfield, 1993; Winters, Stinchfield, & Kim, 1995). It is possible that this trend is due to an increase in the accessibility of these gambling products as young people approach the legal age for participation.

3.1 ESTIMATES OF ADOLESCENT PROBLEM GAMBLING

The vast majority of prevalence studies have been strongly grounded within a dysfunction-based paradigm. There has been a focus upon pathology and the incidence of gambling related problems, with researchers consistently finding that a substantial proportion of young people experience gambling at problem levels (Ashworth & Doyle, 2000; Canadian Foundation on Compulsive Gambling, 1994; Carlson & Moore, 1998; Delfabbro & Thrupp, 2003; Fisher, 1993a, 1998, 1999;

¹³ Scratch-tabs are also known as scratchies, pull-tabs and instant lottery tickets. They are lottery-type tickets which require the consumer to scratch or tear off a surface to reveal whether or not they have won. Where this thesis refers to such products in the context of other research, the terminology of the originating research is used. Instant Kiwi tickets are the most prevalent and popular example of a scratch-tab in New Zealand.

Govoni et al., 1996; Griffiths, 2000; Gupta & Derevensky, 1998a; Hardoon, Gupta, & Derevensky, 2004; Johansson & Gotestam, 2003; Ladouceur & Mireault, 1988; Lesieur & Klein, 1987; Oster & Knapp, 1998; Poulin, 2000; Vitaro, Ferland, Jacques, & Ladouceur, 1998; Volberg, 1993; Volberg & Moore, 1999; Wallisch, 1993, 1996; Wiebe, 1999; Winters et al., 1993a; Zitzow, 1996). This is of even greater concern when contrasted with adult gambling: adolescent problem rates tend to be more than double those of adults (Hardoon & Derevensky, 2002; Raylu & Oei, 2002; Shaffer & Hall, 2001). Young people appear to be a particularly high-risk population for the development of gambling problems.

As with rates of participation in gambling, there is substantial variation in estimates of adolescent problem gambling and the language/definitions that are employed: pathological gambling rates have been found to range between 1.7% (Ladouceur & Mireault, 1988) and 11.2% (Oster & Knapp, 1998), and rates of problem gambling have been found to range between 0.9% (Volberg & Moore, 1999) and 9.6% (Zitzow, 1996). Cross-study comparisons of problem gambling rates are difficult for a number of reasons. One set of complications relates to the wide variety of problem gambling screening or diagnostic tools used. For example, some researchers have employed the South Oaks Gambling Screen – Revised for Adolescents (SOGS-RA), the Diagnostic Statistical Manual – IV – Multiple Response – Adapted for Juveniles (DSM-IV-MR-J), or the Massachusetts Adolescent Gambling Screen (MAGS), while others have used non-standardised screens. The utilisation of a number of marking schedules for each screen has also resulted in a variety of classifications (as illustrated above examples include: at-risk, in-transition, potential pathological, probable pathological, problem, and pathological). Moreover, these terms have sometimes been used inconsistently: for instance the terms ‘at-risk’ and ‘in-transition’ may well be applied

by different researchers for the same criteria on the same screen, or for different criteria on a different screen. Discrepancies also exist in the timeframes that are utilised: some researchers look at lifetime problem rates while others observe past year problem rates, which would seem to be more informative with regard to measuring problem gambling in adolescents. Comparisons are further complicated by discrepancies between variables such as sample size or location, sampling methods (telephone interviews vs. classroom questionnaires), and demographics (e.g. the age group examined). For instance, some prevalence studies such as that by Stinchfield et al. (1997) can be commended for employing extremely large samples (122,700): in effect, surveying the entire school based population of Minnesota (for grades six, nine, and 12). However, a standardised questionnaire was not employed, thus the ability to compare findings with other research is limited.

It is also important to note that with regard to gambling research (with both adult and youth populations) there is often a lack of distinction between contributing factors and outcomes. As such, gambling research is often co-varying in nature: some of the associated behaviours are also criteria for problem gambling. Delinquent acts (stealing, etc) are one example of this phenomenon: they are often cited as both a negative side-effect (i.e. an outcome) of problem gambling (Arcuri, Lester, & Smith, 1985; Fisher, 1993a, 1999; Gupta & Derevensky, 1998a; Hardoon et al., 2002; Ladouceur & Mireault, 1988; Lesieur et al., 1991; Oster & Knapp, 1998; Steinberg, 1988; Stinchfield, 2000; Stinchfield et al., 1997; Vitaro, Ladouceur, & Bujold, 1996; Wallisch, 1996; Wiebe, 1999; Winters et al., 1993a), while also being included within many of the problem gambling screens, and as such contributing towards a ‘diagnosis’ of problem gambling.

Two research projects that have sought to overcome some of these issues are Shaffer and Hall's (1999; 2001) meta-analyses of the American and Canadian literature (as pertaining to adult and adolescent populations). Their most recent meta-analysis included a total of 146 studies, resulting in a total of 180 distinct prevalence estimates. In order "to integrate the extant research on disordered gambling prevalence" (p. 168), the authors found it necessary to employ a three-level classification system capable of overcoming discrepancies in the taxonomies of the gambling research field. *Level 1* denoted those who do not experience gambling problems (including non-gamblers). *Level 2* represented those who experienced sub-clinical levels of gambling problems (e.g. problem, at-risk, in-transition, and potential pathological), and *Level 3* described those with a clinical gambling problem or the most severe levels of disordered gambling (e.g. pathological). *Inter alia*, the findings confirmed that estimates for *Level 2* (sub-clinical) and *Level 3* (clinical) gambling were significantly higher for adolescents than for adults (both $p < 0.05$). As shown in Table 1 this was found for both lifetime and past year time measures.

Table 1: Mean gambling prevalence estimates and 95% confidence intervals for adult and adolescent populations (Source: Shaffer & Hall, 2001, p. 169)

	<i>Adult</i>	<i>Adolescent</i>
<i>Level 3 Lifetime</i>	1.92 (1.52 – 2.33)	3.38 (1.79 – 4.98)
<i>Level 2 Lifetime</i>	4.15 (3.11 – 5.18)	8.40 (5.61 – 11.18)
<i>Level 1 Lifetime</i>	93.92 (92.79 – 95.06)	90.38 (86.49 – 94.29)
<i>Level 3 Past Year</i>	1.46 (0.92 – 2.01)	4.80 (3.21 – 6.40)
<i>Level 2 Past Year</i>	2.54 (1.72 – 3.37)	14.60 (8.32 – 20.89)
<i>Level 1 Past Year</i>	96.04 (94.82 – 97.25)	82.68 (76.12 – 89.17)

As with much longitudinal research (Stinchfield, 2000; Stinchfield et al., 1997; Winters & Stinchfield, 1993; Winters et al., 1995), Shaffer and Hall's (1999; 2001) meta-analyses both found that although estimates of *Level 3* disordered gambling have increased amongst adults over time, adolescent estimates have remained relatively stable. They theorise that this may be because the majority of adults are abiding of societal standards, making them less likely to engage in illicit behaviours. Therefore, the introduction and social acceptance of legal gambling has been accompanied by increases in adult participation. Adolescents, on the other hand, are less likely to avoid gambling because it is illicit (in fact, it may be more attractive because of this). However, gambling is generally illegal for adolescent populations due to their age, so that even when laws change making it more socially acceptable for adults to gamble, it remains illegal for adolescents.

3.2 VARIABLES ASSOCIATED WITH PROBLEM GAMBLING

In addition to a focus upon the prevalence of problem gambling, much effort has been expended on identifying associated variables. However, it is necessary to note that the majority of information concerning variables connected with gambling has arisen from prevalence studies, such as those previously discussed, which are strongly grounded within a pathology oriented paradigm. As such, it follows that our knowledge base is centred around those variables associated with an increased risk of problem gambling.

3.2.1 DEMOGRAPHIC VARIABLES

Gender, age, and ethnicity have all been associated with an increased risk of problem gambling. However, findings are sometimes contradictory and the relationships

between these variables and problem gambling behaviour are not always well understood. Findings relating to each demographic variable are discussed in the following sections.

3.2.1.1 GENDER

Of the investigated demographic variables, gender is most regularly associated with gambling. Although there are still some inconsistencies, researchers have generally found that adolescent males are more involved in gambling than females, in terms of both frequency and expenditure, and that they experience more gambling related problems than females (Buchta, 1995; Canadian Foundation on Compulsive Gambling, 1994; Carlson & Moore, 1998; S. Fisher & J. Balding, 1996; Griffiths, 1991; Gupta & Derevensky, 1998a; Hardoon & Derevensky, 2002; Ide-Smith & Lea, 1988; Rosenstein & Reutter, 1980; Stinchfield, 2000; Stinchfield et al., 1997; Volberg, 1993; Volberg & Moore, 1999; Winters & Stinchfield, 1993).

A previously mentioned population study with a particularly large sample is that of Stinchfield et al. (1997). Data were gathered in 1992 and 1995 describing gambling behaviour via the Minnesota Student Survey (a multiple domain questionnaire administered to public school students in grades six, nine, and 12) and analysis found clear evidence for gender effects. Overall, males were found to be significantly more involved in gambling: boys gambled more often than girls; between three and four times as many boys as girls gamble on a weekly/daily basis; and boys played a wider variety of games on a weekly/daily basis than did girls. Boys also exhibited higher rates of gambling problems than girls, although it should be noted that problem gambling was assessed through two customised questions rather than a standardised screen.

Although often inconsistent and sometimes contradictory, further gender related differences have been found with regard to choice of gambling activities. Males, for example, tend to prefer informal modes, with preferences found for gambling on card and skill games, and betting with friends (Fisher, 1993a; Govoni et al., 1996; Stinchfield, 2000; Wallisch, 1996), while females have been found to favour lotteries, card games, EGMs, bingo and horse racing (Gupta & Derevensky, 1998a; Stinchfield, 2000; Wallisch, 1996). Conversely, some researchers have found insignificant gender differences, particularly in relation to lottery and EGM gambling (Browne & Brown, 1994; Fisher, 1993a; Govoni et al., 1996). For example, in her survey of nearly 500 United Kingdom students, Fisher (1993a) found little evidence for gender bias and argued that there was increasing evidence for a levelling out of gender differences: males and females were found to be relatively equal with regard to gambling frequency, extent of participation, expenditure, and choice of gambling activity. Similarly, in the 1998 administration of the Minnesota Student Survey, Stinchfield (2000) found evidence for a decrease in gender differences with increasing age. In the ninth grade, males were found to prefer gambling on cards, skill games, and sports, while girls preferred card games. However, by the 12th grade, both boys and girls strongly preferred lottery games.

Although gambling has historically been considered a male dominated behaviour, and there is substantial evidence that adolescent males are generally more involved in gambling, contradictory findings such as those outlined above indicate that further research is needed to enable an understanding of the those mechanisms operating in relation to gender and gambling.

3.2.1.2 AGE

Both chronological age and age of initial involvement in gambling have been of interest to problem gambling researchers. Although most studies have found no relationship between age and problem gambling (Carlson & Moore, 1998; Fisher, 1999; Gupta & Derevensky, 1998a; Wiebe, 1999), a small number have found that younger participants were significantly more likely to experience pathological (Gupta & Derevensky, 1998a), at-risk, or problem (Wallisch, 1996) gambling. Some researchers theorise that these age differences are evidence of a natural recovery process (i.e. that the problem behaviour is ‘grown out of’) (Gupta & Derevensky, 1998a), however, without longitudinal data this process cannot be confirmed: it is possible that the outcome could result from other issues, such as cohort effects.

A number of authors have also observed that young problem gamblers initially became involved in gambling at an earlier age than do other young people (Fisher, 1993a; Gupta & Derevensky, 1998a; Huxley & Carroll, 1992; Jacobs, 1989; Wallisch, 1993, 1996). For example, Griffiths (1990) found a significant relationship between the age of first gambling and problem gambling status for young slot machine gamblers in the United Kingdom: the mean initial age for problem gamblers was 9.2 years, compared with 11.3 years for non-problem gamblers (as cited in National Research Council, 1999). Although not statistically significant, Gupta and Derevensky (1998a) also observed age differences in their survey of 817 high school students. The overall mean initial age of gambling was 11.5 years; however, those students identified as pathological gamblers had a mean age of onset of 10.9 years. Further support for this association has been gained through retrospective research with adult problem gamblers, where they frequently recalled that their gambling

addiction began when they were ten to 19 years of age (Dell et al., 1981, cited in National Research Council, 1999).

3.2.1.3 ETHNICITY

To date, the role of ethnicity in gambling behaviour has been unclear. Although some studies have found no relationship between ethnicity and youth problem gambling (Carlson & Moore, 1998; Fisher, 1999), a substantial number have found that, as with adults, adolescents from non-majority ethnic groups are significantly more likely to gamble and to exhibit problem gambling behaviour (Lesieur et al., 1991; Wallisch, 1996; Zitzow, 1996). Wallisch (1996) also found that ethnic groups differed in their preferred mode of gambling: African American adolescents preferred gambling on slot machines and flipping coins, Anglos favoured lotteries and horse racing, and Hispanics participated in bingo more frequently than other young people. Wallisch argued that these ethnic differences are dynamic in nature, with both likelihood of involvement in gambling and activity preferences changing with time.

Despite these findings, the roles of ethnicity and culture in relation to adolescent gambling have been inadequately researched and therefore require further attention. As stated by Raylu and Oei: “Psychological literature has shown that cultural variables such as cultural values and beliefs, effects of acculturation and culturally related help-seeking behaviors are often associated with increased rates of psychological problems among certain cultural groups (Raylu & Oei, 2001). Currently there is a major gap in the gambling literature on cultural factors that may play a role in the development and maintenance of problem gambling” (2002, p. 1015). There is also a need for the relationship between socio-economic status and ethnicity to be acknowledged in this type of analysis, as members of non-majority ethnic groups are

often disproportionately represented in lower socio-economic status (SES) brackets. This is of particular relevance to New Zealand, where there are growing numbers of Maori, Pacific, and Asian young people: research indicates increased problem gambling rates amongst adults from these cultures.

From the above discussion, it is evident that demographic factors play a role in the gambling behaviour of young people: males are involved in gambling to a greater extent than females, an early initial age of gambling is associated with an increased risk of developing later problems, and those from non-majority ethnic groups may exhibit different gambling practices and be at greater risk of gambling problems than their counterparts. However, it is essential to note that most of the findings regarding these factors resulted from population-based studies. Although this type of research is able to demonstrate correlations, it cannot provide any further understanding or explanation regarding underlying mechanisms. As such, it is not well understood how gender, age, and ethnicity actually operate and interact to contribute to the observed outcomes. This lack may be better addressed through qualitative research methodologies.

3.2.2 SOCIO-CULTURAL ASPECTS OF ADOLESCENT GAMBLING

Although population research tends to view gambling as an individual behaviour, a number of researchers have begun to recognise the importance of contextual factors. Of particular interest has been the role of family and friends in gambling behaviour. It appears that the majority of parents are aware of, and indeed condone, any gambling by their children: “Between 80% and 90% of parents readily acknowledge that their children gamble, 84% do not object (Arcuri et al., 1985; Ladouceur & Mireault,

1988)" (Hardoon & Derevensky, 2001, p. 193). Further evidence for parental acceptance has been found in young people's reports of their companions when gambling and the location of their gambling. For example, pre-teens tend to gamble with family members, particularly parents and siblings, although increases in age have been associated with a shift in preference to gambling with friends or peers, and many have gambled in their own, or their friends', homes (Fisher, 1993a; Griffiths, 1990a, 1990b; Gupta & Derevensky, 1998a; Hardoon et al., 2002; Ladouceur & Mireault, 1988; Wiebe, 1999). If problem gambling status is considered when looking at parents' awareness of their children's gambling, the findings are less clear. Some researchers have found that problem and at-risk gamblers are significantly more likely than other adolescents to state that their parents are unaware of their gambling (Wallisch, 1996). Moreover, adolescent at-risk or problem gamblers have also been reported as being less likely than other children to gamble with their parents (Fisher, 1998; Volberg & Moore, 1999). Conversely, Fisher (1998; 1999) found that adolescent problem gamblers in the United Kingdom were significantly more likely to report that their parents approved of, or did not mind, them gambling.

In addition to parental approval, perceived parental gambling practices and attitudes towards gambling have been strongly linked to adolescent gambling behaviour (Browne & Brown, 1994; Buchta, 1995; Carlson & Moore, 1998; Delfabbro & Thrupp, 2003; Fisher, 1993a, 1998, 1999; Griffiths, 2000; Volberg & Moore, 1999; Wiebe, 1999). For instance, in the United States, Carlson and Moore (1998) found that children whose parents gambled were significantly more likely than other children to gamble, gamble more frequently, or to begin gambling at a younger age. It seems that a parent's choice of gambling mode is also relevant: Browne and Brown

(1994) found that students in the United States whose parents gambled on lotteries were significantly more likely to buy lottery tickets themselves.

Given the above findings it is not surprising that problem gambling in parents is one of the most reliable predictors of problem gambling for young people (Carlson & Moore, 1998; Dickson, Derevensky, & Gupta, 2002; Fisher, 1999; Hardoon & Derevensky, 2001; Jacobs, 1987; Lesieur et al., 1991; Lesieur & Klein, 1987; Wiebe, 1999; Winters et al., 1993a). In the United Kingdom, Fisher (1999) found that problem gamblers were three times more likely than other adolescents to report thinking that their parents gamble too much. Despite the apparent robustness of this correlation, it is worth noting that it has arisen from population research with young people and is therefore reliant upon young people's perceptions of their parents' gambling behaviour. Given the secrecy that typically surrounds problem gambling, it is possible that they will have poor awareness of the excessive nature of their parents' gambling, particularly in the early stages when children may have been sheltered from any negative impacts. Triangulation of adolescent data with that of parents could be beneficial, although very difficult logically.

Relationships with peers and peer attitudes towards gambling have also been shown to be important influences on the gambling behaviour of young people (Delfabbro & Thrupp, 2003; Fisher, 1993a, 1993b; Griffiths, 1990a, 1995). Mark Griffiths conducted interviews with young EGM gamblers in the United Kingdom, revealing that peer pressure fulfils distinct roles, according to gambling intensity (Griffiths, 1990a, 1995). For those gambling at non-problem levels, peer pressure was a mechanism employed in the maintenance of social gambling: the group looked after other players and tried to stop those who were considered to be gambling too heavily.

Conversely, within the social group of problem gamblers, pressure was exerted upon one another to continue gambling. It is relevant to note here that in addition to their influence upon gambling behaviour (through modelling and monitoring, etc), parents and peers are also in the position to form the basis of an essential support network in the event of the development of gambling problems. Unfortunately, the disruption or breakdown of familial and peer relationships due to problem gambling is frequently observed: in her survey of the secondary school population of a small seaside town (460 students), Fisher (1993a) observed that 10% of those who had gambled on fruit machines had fallen out with close friends and family as a direct consequence of their gambling. This degradation of support systems is likely to have severe implications for any recovery from gambling problems.

Fisher (1993b) conducted a comprehensive ethnographic study of adolescent EGM gambling in the United Kingdom to examine the various social rewards, such as ego enhancement, that can potentially arise from gambling; an aspect that she argues has been greatly neglected due to a dominant social problem oriented approach, even within sociological frameworks. Fisher obtained observational data while volunteering as a part-time cashier in the ‘change-box’ of an amusement arcade over a period of 14 months. This position provided “a prolonged immersion in the subculture of young EGM gamblers, a knowledge of the argot and a longitudinal perspective of arcade culture and the playing behaviours of different players” (Fisher, 1993b, p. 454). In-depth interviews with ten young EGM gamblers, and four group interviews with young people from locales where arcade EGMs were easily accessible, were also conducted. Two main points emerged from her observational research. Firstly, gambling is a multi-dimensional behaviour with distinct typologies of (EGM) gamblers: gamblers do not form a homogeneous group in that different factors,

including gender, motivate and maintain gambling behaviour in different individuals. Similar themes have also emerged from more conventional research (Blaszczynski, 1999; Griffiths, 1990a, 1990b; Gupta & Derevensky, 1998a; Volberg, 1993; Wiebe, 1999). Secondly, there are numerous social rewards to be gained from gambling, for example, social status among peers. Fisher's unique research recognises the social rewards, processes, and context of young people's gambling and acknowledges the role of gambling in adolescent development. Her examination of adolescent gambling within its social context has given an indication of the complex social subculture surrounding gambling behaviour; an aspect of gambling that remains predominantly neglected by researchers, and warrants further investigation.

Socio-economic status is another contextual measure that has been investigated with regard to adolescent gambling. However, as SES is reliant upon factors such as familial income, it is difficult to measure within adolescent populations. A frequently employed substitute measure of SES is an adolescent's personal disposable income, which researchers have shown to be positively correlated with increased levels of gambling involvement (Canadian Foundation on Compulsive Gambling, 1994; Fisher, 1998, 1999; S. Fisher & J Balding, 1996; Ide-Smith & Lea, 1988; Volberg, 1993; Wallisch, 1996; Wiebe, 1999). Given these findings, it is not surprising that employment has also been related to gambling involvement: gamblers work significantly more hours per week than non-gamblers (Canadian Foundation on Compulsive Gambling, 1994; Wiebe, 1999).

In summary, survey based research has demonstrated associations between a number of socio-cultural variables and adolescent gambling behaviour. As well as a young person's disposable income, the attitudes and gambling behaviour of their parents and

peers are important with regard to the initiation and maintenance of gambling and problem gambling. Ethnographic research has also highlighted some of the underlying social processes and rewards of gambling, as opposed to the overwhelming focus of other research methods upon costs, or negative outcomes. These findings resonate with social learning perspectives of behaviour, and are refreshing in that they begin to acknowledge the importance of contextual factors in the development of gambling behaviour.

3.2.3 THE IMPORTANCE OF ATTITUDES AND BELIEFS

It is interesting to note that despite most adolescents taking part in gambling, they do not seem to perceive it as a particularly important activity in their life (AADAC, 1996; Wallisch, 1996; Wiebe, 1999). In her telephone survey of 1000 Manitoba (Canada) young people (12-17 year olds), Wiebe (1999) asked participants to rate the importance of gambling as an activity compared to other leisure options (the four possible responses were: *very important*; *somewhat important*; *not very important*; and *not important at all*). Most (98%) indicated that gambling was *not very important*, or *not important at all*. As might be expected, significant differences in attitudes were found in relation to gambling behaviour: at-risk and problem gamblers were significantly more likely to agree that gambling was an important activity in their life. Of the problem gamblers, 16% responded *somewhat important*, compared to 7% of at-risk gamblers, and 1% of non-problem gamblers. Remarkably few participants indicated that gambling was *very important* to them: only 1% of both at-risk and problem gamblers and none of the non-problem gamblers. As with all telephone surveys, it is worth noting that sample bias may occur due to the exclusion of those without access to a telephone. Responses may also be censored or influenced by factors such as a lack of anonymity (e.g. having a parent in the same room while

completing the survey). Focus groups with young people from Alberta (Canada) revealed similar attitudes: although the groups were well aware of available gambling activities and possible consequences of gambling behaviour, it was not perceived to be a relevant issue or problem among teenagers (this contrasts with attitudes to alcohol and drug issues) (AADAC, 1996). Most participants felt that youth involvement in gambling activities was unusual, and that young people rarely thought about gambling. However, this was contrary to other findings from the focus group participants: 80% reported having gambled in the previous six months; 70% reported gambling once a week or less; and, 25% reported gambling twice or more per week. Perhaps these findings indicate a distinction by participants between modes of gambling: it is possible that those informal or more socially acceptable modes of gambling (e.g. bets with friends or lottery type products) are not actually viewed as gambling, unlike other modes such as EGMs or casino tables.

Despite the lack of importance attributed by the majority of adolescents to gambling, most approve of gambling and feel that they should be allowed to gamble if they wish. Rosenstein and Reutter (1980) found that a high proportion (78%) of their sample approved of legalised gambling (as cited in Griffiths, 1995), while Wallisch (1996) found that 55% of the surveyed Texan students agreed with the statement: "If teenagers want to bet money, they should be able to" (p.74). Wallisch (1996) also found evidence that attitudes regarding gambling are related to an individuals gambling behaviour: at-risk and problem gamblers were more likely than other teenagers to agree that they should be allowed to gamble if they want to. However, problem gamblers were less positive regarding gambling than those categorised as at-risk: a finding that the authors attribute to an increased awareness of the potential risks.

Despite a lack of qualitative research, there is increasing evidence from population studies that young people view gambling as a fun, exciting activity and that reasons for gambling differ according to gambling status (Griffiths, 1990a, 1990b, 1993a; Gupta & Derevensky, 1998a; Volberg, 1993; Wiebe, 1999). When Wiebe (1999) presented young people with a list of ten reasons why people might gamble and asked them to select those considered personally relevant, the most frequently cited reason was for fun or entertainment, regardless of gambling category. Other popular reasons included: to win money, to do things with friends, and because it's exciting and challenging. Not surprisingly, reasons for gambling have been found to differ significantly according to gambling status (Griffiths, 1993a, 1995; Gupta & Derevensky, 1998a; Wiebe, 1999). Although there appears to be little difference in the acquisitional motivators of gambling for problem and non-problem gamblers, those with problems are more likely to place emphasis upon aspects such as the 'high', excitement, arousal, and escapism as reasons for the maintenance of their gambling behaviour (Griffiths, 1993a, 1995). Young problem gamblers are also more likely to state that they gamble because it's:

- something to do with friends;
- challenging and exciting;
- something they think they are lucky or good at;
- a way to win money;
- a way to forget problems;
- a way to alleviate depression;
- enjoyable; and,
- a way to feel older.

(Gupta & Derevensky, 1998a; Wiebe, 1999)

It is possible that informal gambling may be an incidental activity and may actually just be a method to fulfil some other important social function / behaviour (e.g. the focus may be more upon doing something with friends).

Young people tend to rate themselves as being slightly above average at gambling (males and problem gamblers have also been found to give themselves higher ratings) (Derevensky, Gupta, & Cioppa, 1996; Gupta & Derevensky, 1998a), and tend to believe that skill is important with regard to gambling outcomes (Carroll & Huxley, 1994; Griffiths, 1995; Gupta & Derevensky, 1998a; Jackson et al., 2000; Wiebe, 1999). For instance, Wiebe (1999) asked Manitoba adolescents how much skill they felt was needed to win at gambling (a lot, a little, or none), and found that beliefs were significantly related to gambling category, with non-gamblers being the least likely to endorse the role of skill. On further examination, the relationship was found to be more complex than just gambling status: participation in games of skill¹⁴ was significantly associated with perception of skill involvement. Thus, those with the greatest participation in games of skill were most likely to endorse the belief that skill plays a role in winning at gambling. Contrary to Gupta and Derevensky's (1998a) findings, males were also more likely than females to endorse this belief: a finding consistent with greater male participation in games of skill.

A cognitive phenomenon that is particularly relevant to perceptions of skill in gambling is the illusion of control. Several authors have noted that, with regard to young people, EGMs optimally facilitate an illusion of control (Carroll & Huxley, 1994; Griffiths, 1995). Griffiths argues that the introduction of specialist features such as nudge, hold, and gamble buttons are particularly instrumental in stimulating an

¹⁴ The phrase ‘games of skill’ generally refers to activities such as bowling, pool, and golf. Some researchers (e.g. Wallisch, 1996) have also included video arcade/computer games in this category. It should be noted that chance is still a crucial factor in games of skill.

illusion of control. These features facilitate a sense of personal involvement and familiarity with particular machines: to optimise their use appears to necessitate extensive knowledge of the reels. As such, they're perceived as skilful functions, particularly by those who are gambling on such EGMs at problem levels (Griffiths, 1990a, 1990b, 1995). Interviews with young pathological EGM gamblers revealed that they believed skill could be used to make money last longer, although chance could still be an overriding factor, and that skilful playing involved good tactile, auditory, and visual perception, good coordination, and knowledge of reel positions. To investigate whether these reported EGM skills were actual, or simply perceived, Griffiths (1994; 1995) conducted observational research in an amusement arcade to compare the success of regular and non-regular young EGM gamblers. It was hypothesised that if skill is actual, rather than perceived, regular gamblers should be more successful at positively affecting the outcome of a gambling session (i.e. gaining more gambles and/or more winnings). Although regular gamblers did manage to stay on machines longer than non-regular gamblers, the difference was not statistically significant.

In summary, as well as an indication of society's acceptance of gambling, the above findings illustrate the importance of many specific beliefs and perceptions relating to gambling behaviour. Surveys have indicated that although most young people view gambling as exciting, fun, entertaining, and a way to win money, they do not see it as an important part of their life, although it gains importance with increased involvement. Similarly, focus groups have shown that most young people do not feel that gambling is something that people in their age group are, or should be, concerned about. Despite gambling's apparent lack of importance to young people, most believe that, if they want to, they should be allowed to gamble. Research, both quantitative

and qualitative, has also demonstrated associations between gambling and perceptions concerning the roles of skill and luck, including an illusion of control. These lines of enquiry appear to be grounded in cognitive-behavioural theory with an eye towards preventative and therapeutic applications for gambling.

It is apparent that messages regarding gambling are conveyed to young people at numerous levels with varying degrees of directness (e.g. through community, family/whanau, peers, and advertising/marketing by the industry). As such, it is reasonable to expect that young people's beliefs regarding gambling are at least partially attributable to societal influences. If information relating to beliefs and perceptions is to be optimally utilised in problem prevention efforts, it will be essential to recognise that these are not inherent or given traits: they are learned and driven at a societal level.

3.2.4 GAMBLING AND OTHER 'DANGEROUS CONSUMPTIONS' - ALCOHOL, DRUGS, AND SMOKING

Population studies of young people in North America and the United Kingdom have consistently documented positive correlations between gambling, including problem gambling, and the use of tobacco, alcohol, and illicit drugs (Carlson & Moore, 1998; Fisher, 1998, 1999; Gupta & Derevensky, 1998a; Hardoon et al., 2002; Poulin, 2000; Stinchfield et al., 1997; Vitaro et al., 1998; Volberg, 1993; Volberg & Moore, 1999; Wallisch, 1996; Wiebe, 1999; Winters & Stinchfield, 1993). As such, gambling has increasingly been conceptualised as just one of a number of related risky behaviours, with Nower, Gupta, and Derevensky (2002, as cited in Dickson et al., 2002) proposing that "severity in one addiction likely increases the severity in others" (p. 103).

When comparing rates of adolescent participation in these behaviours, gambling appears to have higher rates of involvement than alcohol and drugs. For example, in their survey of 817 high school students, Gupta and Derevensky (1998a) observed that overall rates of regular (weekly) involvement were highest for gambling (28.2%), as compared to cigarette smoking (17.4%), illicit drug use (13.8%), and alcohol use (13.5%). Gambling was also the activity with the highest rates of involvement for each age cohort, for both weekly and previous year measures, and, not surprisingly, involvement in all these behaviours was found to increase along with school grade. However, as illustrated in Table 2, the observed increases with age were substantially smaller for gambling than for other behaviours (from Gupta & Derevensky, 1998a). Significant differences in regular alcohol, drug, and cigarette use were also found between pathological and non-pathological gamblers: pathological gamblers were found to engage in the other behaviours to a greater extent (Gupta & Derevensky, 1998a).

Table 2: Reported Involvement in Addictive Behaviours, by Grade and Gender (Source: Gupta & Derevensky, 1998a, p. 328)

Activity	Total Reported Use* N = 817			Weekly Use** N = 817		
	Grade 7	Grade 9	Grade 11	Grade 7	Grade 9	Grade 11
Alcohol	36.8%	62.2%	79.8%	7.4%	14.0%	20.2%
Drugs	3.5%	13.4%	26.5%	1.6%	2.1%	7.6%
Cigarettes	18.2%	34.5%	48.4%	7.0%	16.1%	31.4%
Gambling	79.1%	78.9%	83.4%	30.4%	37.4%	37.1%
	Males N = 417	Females N = 400		Males N = 417	Females N = 400	
Alcohol	61.6%	56.3%		18.9%	8.0%	
Drugs	15.6%	12.0%		4.1%	2.8%	
Cigarettes	29.7%	36.8%		16.3%	18.5%	
Gambling	81.5%	78.8%		38.1%	17.8%	

* Percentage of those who reported engaging in this activity within the previous 12 months

** Percentage of those who reported engaging in this activity a minimum of once per week

Although this research provides evidence that young people are more often involved in gambling than in alcohol, drugs, or cigarettes, it is important to consider the contextual environment and note that the researchers have treated gambling as a homogenous behaviour: popular modes such as playing cards with friends (non-legislated) and EGMs (legislated) both contribute towards gambling status. Although modes such as playing cards for money undoubtedly qualify as gambling, they are qualitatively different to modes such as EGMs, in that they are more socially acceptable for, and therefore widely accessible to, young people¹⁵. It is likely that societal values and norms play a significant role in determining adolescent behavioural patterns, in the very least with regard to the availability of certain products. It is therefore not overly surprising that a gap exists between rates of involvement in gambling and other behaviours, and that rates of involvement in gambling do not increase substantially with school grade. Although it has not been thoroughly researched to date, it seems likely that if gambling was examined according to individual activities, involvement would increase substantially for modes such as EGMs, which are not easily accessible, but stay relatively stable for modes such as card games. While acknowledging that gambling is a potentially dangerous activity, it is important to bear in mind that comparisons are being made between adolescent behaviours that are largely sanctioned or even encouraged from a young age by adults/society (as for some modes of gambling) and those that are sanctioned to a lesser extent, if at all (alcohol, tobacco, drugs).

Fisher (1998; 1999) made similar comparisons in her survey of 9774 United Kingdom adolescents. She found that *problem* gamblers were at least twice as likely to use

¹⁵ They also differ in a number of ways which are not pertinent to the immediate discussion, e.g. EGMs are considered to be a continuous form of gambling (rapid feedback etc) and are a less social activity than playing cards with friends

alcohol, cigarettes, or illegal drugs frequently, with alcohol being the most popular choice:

- *Alcohol*: 73% of problem gamblers, 46% of non-problem gamblers;
- *Cigarettes*: 47% of problem gamblers, 22% of non-problem gamblers; and,
- *Illegal Drugs*: 28% of problem gamblers, 9% of non-problem gamblers.

It is interesting to note that a large proportion of students also reported feeling bad regarding these behaviours, particularly in regard to alcohol and EGM gambling:

- 23% felt bad about the amount of alcohol they consumed;
- 22% felt bad about the amount they had gambled on EGMs;
- 19% felt bad about the amount of cigarettes they smoked;
- 12% felt bad about the amount they had played National Lottery Scratchcards;
and,
- 8% felt bad about the amount of illegal drugs they had used.

Moreover, those adolescents classified as problem gamblers were significantly more likely to be concerned about each of the above behaviours. Their concerns were ranked in the same order, except that gambling on EGMs became the primary concern: of the 549 young people identified as problem gamblers:

- 58% felt bad about the amount they had gambled on EGMs;
- 41% felt bad about the amount of alcohol they consumed;
- 37% felt bad about the amount of cigarettes they smoked;
- 35% felt bad about the amount they had played National Lottery Scratchcards;
and,
- 21% felt bad about the amount of illegal drugs they had used.

It is interesting to note that regardless of gambling status, substantially more students felt bad about gambling on EGMs (58% problem gamblers, 22% non-problem gamblers) than National Lottery Scratchcards (35% problem gamblers, 12% non-problem gamblers). It is possible that these findings are indicative of lottery type products being more socially acceptable, to the extent that they are often not considered to be gambling at all, or are considered to be less dangerous than EGMs.

As illustrated above, there is a substantial body of evidence that adolescent problem gamblers are significantly more likely to experience alcohol and/or drug related problems, to feel bad about their consumption, and to report having sought assistance for these problems (Fisher, 1998, 1999; Gupta & Derevensky, 1998a; Hardoon et al., 2002; Volberg, 1993; Volberg & Moore, 1999; Wallisch, 1993, 1996). However, it is necessary to note that these relationships have been identified through population studies. As such, issues surrounding causality and the nature of their co-existence, including underlying mechanisms, are not well understood and therefore require further research.

3.2.5 DEPRESSION, AROUSAL, AND SENSATION SEEKING

A number of psycho-physiological states (depression, arousal, sensation seeking, and dissociative states) have been investigated in relation to gambling. In particular, depression and suicide attempts have been found to co-exist with adult (Blaszczynski & Farrell, 1998; Blaszczynski & McConaghay, 1988; Blaszczynski, McConaghay, & Frankova, 1990; Linden, as cited in Griffiths, 1995; Gupta & Derevensky, 1998b; Lesieur & Blume, 1990; Livingston, 1974; Lorenz & Yaffee, 1986; McCormick, Russo, Ramirez, & Taber, 1984; Murray, 1993; Wiebe, 1999), and adolescent (Gupta

& Derevensky, 1998b; Ladouceur et al., 1994b; Lesieur et al., 1991; Wallisch, 1993, 1996; Wiebe, 1999) pathological gambling: those with gambling problems are more likely to experience depression and to report having been unhappy in preceding months. It is relevant to note that depressive status has generally been assessed via stand-alone questions (e.g. Wallisch, 1993, 1996; Wiebe, 1999) rather than standardised screens (e.g. Gupta & Derevensky, 1998b). Moreover, the directional nature of the relationship between gambling and depression is not well understood, and with an issue as complex as suicidal ideation, particularly for adolescent populations, it is likely that numerous factors are operating.

Both Griffiths (1993b; 1995) and Carroll and Huxley (1994) have conducted investigations of psychophysiological correlates of gambling with young males. Cardiovascular activity was measured, via blood pressure or heart monitors, prior to, during, and after *in situ* EGM gambling sessions (in amusement parlours). Increases in cardiovascular activity while gambling were documented for all participants (Carroll & Huxley, 1994; Griffiths, 1993b, 1995), with Griffiths finding a mean increase of 22 beats per minute regardless of gambling status (i.e. there were no significant differences between dependent/non-dependent and regular/non-regular gamblers). As lower basal levels of cardiovascular activity were documented for dependent gamblers, it is possible that conventional levels of arousal, rather than levels induced by gambling, may have discriminatory power between dependent and non-dependent gamblers (Carroll & Huxley, 1994). Moreover, Griffiths (1993b; 1995) has documented significant group differences in the time taken for heart rates to resume normal levels after a gambling session: regular gamblers were found to return to basal levels significantly more rapidly than non-regular gamblers. Griffiths (1995)

proposes that these findings support an addiction model for gambling that explains why regulars gamble faster and more often:

“both regular and non-regular gamblers get a ‘high’ physiologically when playing, but the non-regular gamblers stay higher for longer meaning they do not have to play as fast or as often to induce the arousal peaks. Regular gamblers, in contrast, could be seen as becoming more tolerant to the gambling ‘highs’, meaning they have to gamble either faster or more often to experience the initially desired effect.” (p. 167).

It would be useful for Griffiths’ research to be extended to include those with gambling problems.

A number of quantitative and quasi-experimental research endeavours have demonstrated significant associations between gambling problems, depression, and arousal, however, further research is needed to elucidate the roles of these variables in gambling behaviour.

3.3 ADOLESCENT GAMBLING RESEARCH IN NEW ZEALAND

To date, there has been very little investigation of adolescent gambling in New Zealand: as mentioned previously, nationwide prevalence surveys have only assessed samples aged 18 and above (Abbott & Volberg, 1996, 2000). The first and only research into the gambling behaviour of New Zealand adolescents to be published in a peer reviewed journal, was conducted by the author of this thesis as partial fulfilment of her Honours degree (Clarke & Rossen, 2000). This exploratory, and largely descriptive, research entailed a survey of 68 first year psychology students (aged between 15 and 24 years) and was retrospective in nature: students were asked to recall their involvement in gambling activities before the age of 20. The entire sample had gambled for money at least once, and 18% had done so regularly (at least once a

week). In accordance with international research, the most popular activities were lottery products: Instant Kiwi scratch tickets (82%), Lotto (69%), and lotteries/raffles (62%). Betting on events (52%) and EGMs (52%) were equally popular. It is concerning to note that, despite a casino age limit of 20 years, 24% of the sample had gambled while under the legal age in a New Zealand casino.

Corresponding to international research into youth gambling, the participants in this research most frequently cited fun, enjoyment and excitement (46%), to win money or prizes (30%), and a social event (21%) as the reasons for gambling. It is also interesting to note, however, that these reasons differ from those of New Zealand adults, who most frequently claim that they gamble to win prizes or money (Reid & Searle, 1996). It is concerning that nearly a fifth of the sample (17.8%) met the criteria for problem gambling, with an increase in SOGS scores being significantly associated with increased involvement in continuous forms of gambling (scratch tickets, EGMs, track betting, card games, and casinos), and gambling on a regular basis.

Although this exploratory study is limited by the small numbers of problem gamblers available for analysis, its retrospective nature, and its non-representative sample (69% of the sample were female, mostly of European descent, and University students), it significantly highlights the need for more youth gambling research in New Zealand.

3.4 YOUNG PEOPLE AND GAMBLING - SUMMARY

It is apparent that despite gambling being a potentially dangerous behaviour, it is a relatively normalised behaviour that is well entrenched in adolescent life. Moreover, meta-analyses of gambling research have clearly demonstrated that problem gambling

prevalence rates are significantly higher for youth than for adult populations. There is an abundance of data linking various socio-cultural factors with gambling behaviour (e.g. parental gambling practices, peer pressure) and suggesting that those with gambling problems are more likely to:

- Be male;
- Become involved in gambling at an early age;
- Belong to a non-majority ethnic group;
- Have parents who have gambling or other addiction issues;
- Have a high disposable income;
- Have more accepting attitudes towards gambling;
- Perceive a significant skill factor in gambling; and,
- Engage in other potentially hazardous behaviours.

It is necessary to note however, that these relationships have been identified via population-based research. As such, many of these associations are correlational in nature and are unable to determine causality or provide understanding of the underlying operational mechanisms. As the majority of research into youth gambling has been conducted in North America and the United Kingdom, it is also possible that the findings may be of limited application to New Zealand populations.

There is a paucity of research addressing youth gambling in New Zealand, despite exploratory research indicating that this is an area requiring further attention.

The next chapter introduces and discusses the theoretical concepts of resiliency, protective factors, and connectedness, and explores the potential for applying these concepts to youth gambling.

4 RESILIENCY, RISK AND PROTECTIVE FACTORS, AND CONNECTEDNESS

“I am a part of all that I have met.”

(Alfred Lord Tennyson, 1833)

This chapter provides the reader with an introduction to the concept of resiliency. It examines the emergence and development of resiliency from risk research to the currently understood resiliency models. A review and summary of the literature regarding risk and protective mechanisms, both concepts central to resiliency, is presented. The concept of social connectedness (strong social connections and access to social support) and its emerging importance as a protective factor is outlined and contextualised in relation to New Zealand’s social policy. A discussion of the issues pertaining to defining and measuring resiliency, and the potential limitations of resiliency theory, are also discussed, as is its relevance to youth gambling. This chapter completes the review of literature and concludes with a presentation of the four research questions that are central to this thesis.

4.1 THE EMERGENCE OF RESILIENCY

The concept of resiliency has stemmed from research into developmental risk and psychopathology. It has taken a fundamentally different approach to that of risk-based research: instead of examining cases that exhibit problematic outcomes, *it is*

concerned with those where successful outcomes occur despite the expectation of problems.

Both risk and resiliency research have progressed through a number of phases, each of which has exhibited distinct characteristics. The following paragraphs describe the progression of first risk, and then resiliency, research.

Progressive Phases of Risk Research

Rutter (as cited in Doll & Lyon, 1998) noted that the study of risk has progressed through three distinct phases.

The first phase aimed to demonstrate that certain risks (e.g. negative life experiences) were related to adverse outcomes (e.g. mental health issues). Research that demonstrated that lack of attachment in infancy was strongly related to social maladjustment is an example typical of this phase of risk related research.

The second phase of risk research was more detailed in its approach. The aim was to conceptualise how various risks influenced observed outcomes. It was progressive in that it was aiming to examine the underlying mechanisms and processes that determined various outcomes. However, studies in this phase were generally limited in that they examined single risk factors. Those that did examine more than one risk factor tended to regard them as being independent and thus did not acknowledge interactions between environmental, biological, sociological, and individual factors, nor the dynamic nature of these interactions (Carlson & Moore, 1998; Doll & Lyon, 1998; Egeland, Carlson, & Sroufe, 1993).

These bodies of risk literature can be criticised for a focus upon the contributions of stressful life events as opposed to resources (e.g. support) (Dubow, Tisak, Causey,

Hryshko, & Reid, 1991). The third phase of risk research stemmed from a sense of dissatisfaction with this focus upon the negative. Some researchers were motivated to move into an area that most closely resembles resiliency today, whereby a fundamentally different question began to be addressed:

“why do some individuals persevere in the face of adversity, with few if any detrimental effects in their psychosocial functioning, while serious mental health problems and other negative consequences accrue to others in similar circumstances?” (Doll & Lyon, 1998, p351).

Rutter (1987) proposed that these types of studies were further unique in that they investigated several factors simultaneously, subsequently allowing for interactions between factors and acknowledging the dynamic nature of these interactions.

Progressive Phases of Resiliency Research

Resiliency has taken a fundamentally different approach, as it does not examine those cases in which problem outcomes or psychopathology are observed, but rather *examines cases where such an outcome is expected, but does not eventuate*. It asks whether there are predictable and alterable characteristics, mechanisms, or processes that enable the attainment of successful outcomes (Doll & Lyon, 1998). Dubow et al. (1991) argue that this examination of available resources is necessary to enable understanding of those processes that facilitate positive development and subsequently prevent maladjustment. Similarly, Masten et al. (1999) suggest that studying successful adaptation is necessary to understanding the etiology, prevention, and treatment of developmental problems.

A number of researchers have proposed that, as with risk, resiliency research has progressed through a number of phases. Masten et al. (1995, as cited in Lambie, Seymour, Lee, & Adams, 2002) have classified studies of resiliency into three categories according to whether individuals have: experienced trauma and

successfully recovered; continued to function competently despite being exposed to chronic stress; and, successfully adapted despite their experience of high risk situations and subsequent classification as ‘at-risk’. More recently, Richardson (2002) proposed a *metatheory of resilience and resiliency*, and suggested that the resiliency literature has moved through three stages: resilient qualities; the resiliency process; and, innate resilience. The first phase, encompassing most of the literature, saw a paradigm shift from the investigation of risk factors to an exploration of strengths, particularly the identification of qualities, assets, or protective factors that help people to negotiate adversity. In essence, research in this phase was responding to the question “what characteristics mark people who will thrive in the face of risk factors or adversity as opposed to those who succumb to destructive behaviours?” (p. 308). Epidemiological research, such as Werner and Smith’s longitudinal study (as cited in Richardson, 2002) is typical of this stage of research.

The process, or processes, by which resilient qualities or characteristics were acquired was the focus of research within the second phase. The focus became much broader: in particular, the importance of factors that were not individual-based began to be recognised. Resiliency came to describe the process whereby coping with disruptions (adversity, change, opportunity) results in the identification or enhancement of resilient qualities or protective factors. Richardson (2002) argues that a third wave of research is beginning to emerge. He proposes that some form of motivational energy is required for the process of reintegration after disruptions in life and that identifying the source of this motivational energy is central to this phase of research. Although this may eventuate into an interesting line of enquiry, it is not a conceptual approach that appears to be gaining much support.

4.2 DEFINING AND MEASURING RESILIENCY

Although numerous definitions for resiliency exist, Doll and Lyon (1998) have defined the central tenet as being: “successfully coping with or overcoming risk and adversity or the development of competence in the face of severe stress and hardship” (p. 348).

Masten et al., (as cited in Lambie, 1998, p. 34) provide a more detailed definition of resilience:

“the process of, capacity for, or outcome of successful adaptation despite challenging or threatening circumstances. Psychological resilience is concerned with behavioural adaptation, usually defined in terms of internal states of well-being or effective functioning in the environment or both”

Although earlier research in the field promoted concepts such as the ‘golden’, ‘invincible’, and ‘invulnerable’ child, some researchers now warn against the use of such terms as they imply absolute stress-resistance. This places disproportionate emphasis upon innate individual characteristics, while also discounting environmental, or external, influences: an important aspect of resiliency (Beauvais & Oetting, 1999; Engle, Castle, & Menon, 1996; Huggard, 1999; Kinard, 1998). The ecological context of development is often emphasised within resiliency research (Blum, 1998; Fergus & Zimmerman, 2005) and it is now widely acknowledged that resiliency is a developmental process, rather than a given childhood trait. Resiliency is thought to be a dynamic construct that is contextually dependant: it is possible for it to be exhibited by an individual at certain points throughout their developmental path and not at others (Doll & Lyon, 1998; Fergus & Zimmerman, 2005; Huggard, 1999; Rutter, 1993).

4.3 PROTECTIVE AND RISK MECHANISMS

Unlike risk-based research, a key requirement of resiliency research is the inclusion of two categories of process: risk and protective. Although varying definitions exist for ‘risk’, in general it refers to “specific early predictors of such later unfavourable outcomes” (Rolf & Johnson, 1999, p. 36). The term ‘protective’ normally refers to “variables that mitigate the effects of risk factors or strengthen ameliorative effects” (Rolf & Johnson, 1999, p. 46).

While early resiliency research referred to risk and protective ‘factors’, the complex and interactive nature of variables has since been recognised as a central construct. Some authors have begun to refer to ‘processes’ or ‘mechanisms’ instead of ‘factors’. This is due to a belief that the term ‘factor’ implies something that is distinct, static and able to operate independently of others (Lambie, 1998; Masten, 1999).

Risk Mechanisms

While research has identified numerous risk processes specific to the issue(s) being investigated, Doll and Lyon (1998) have summarised those that occur across multiple domains as being:

- Childhood poverty;
- Poor parenting: ineffective or uncaring parenting;
- Maltreatment: physical and/or emotional abuse; and,
- A dysfunctional family environment: inter-parental conflict and family disorganisation.

A more comprehensive categorisation is that of Blum (1998) who as outlined below in Table 3, synthesised consistent research findings with regard to risk *and* protective factors.

Table 3: Summary of Components of Risk and Resiliency (Source: Blum, 1998, p. 369)

Factors	Risk	Resiliency
Dispositional (personal characteristics)	<ul style="list-style-type: none"> • Prenatal/perinatal stress • Poor expressive language • Physical impairment • Aggressive temperament • External locus of control • Lower intelligence • Learning problems • More traditional sex role • Changes of puberty 	<ul style="list-style-type: none"> • Spirituality • Positive social skills / orientation to other person • Internal locus of control • Higher intelligence (e.g., average) • Positive self-concept • More androgenous • Higher self-esteem
Family	<ul style="list-style-type: none"> • Low maternal education • Family discord • High maternal stress • Poverty • Family mental illness • Overcrowding • Lack of a positive mother-child relationship • Family chaos • Large family size 	<ul style="list-style-type: none"> • Connectedness with at least one parent • Family cohesion • Family structure • Sibling closeness
External	<ul style="list-style-type: none"> • Few, if any external supports (formal or informal) • More than four stressful life events 	<ul style="list-style-type: none"> • Caring adult other than parents • Involvement with school and/or community • Friendship network • Fewer negative life events • More caregivers during childhood

The importance of context and interactions between variables with regard to their overall contributory effects is often emphasised (Doll & Lyon, 1998; Rolf & Johnson, 1999). The effect of experiencing more than one risk process is generally thought to be multiplicative in nature rather than additive. For example, with regard to the Christchurch Longitudinal Study, Ferguson (1998) concluded that the “accumulative history of social, family and parental adversity” (p. 23) was more important than the presence or absence of particular risk factors. He argues that the combination of accumulated risk factors is critical:

“What these findings suggest, is that what distinguishes young people who develop serious maladjustment, is not the presence or absence of a single risk factor that determines their life course and behavioural directions, but rather the accumulations of risk factors that all combine to

increase the likelihood that the individual will develop significant and severe problems in later adolescence.” (p. 24).

Protective Mechanisms

Although protective mechanisms have been categorised numerous times (Rolf & Johnson, 1999), Blum’s (1998) categorisation again provides a useful synthesis of research findings (see Table 3). Doll and Lyon (1998) also contribute the following characteristics of resilient children:

- achievement orientation with high expectations;
- strong belief system / faith;
- higher rate of engagement in productive activities;
- connections with at least one or a variety of pro-social organisations; and,
- access to responsive, high quality schools.

As with the aforementioned conclusions regarding the multiplicative nature of risk mechanisms, children who are exposed to more than one risk, which is likely given the tendency of risks to cluster, are thought to require more support, in terms of both diversity and intensity, than children who experience only one risk. It is also thought that support that is consistent across providers is most beneficial (Doll & Lyon, 1998).

4.4 SOCIAL CONNECTEDNESS

As shown by Table 3, strong social connections and access to social support have been consistently identified as important contributors to wellbeing or resilient outcomes in children and young people (Baumeister & Leary, 1995; Doll & Lyon, 1998; DuBois, Felner, Brand, Adan, & Evans, 1992; Dubow et al., 1991; Dumont & Provost, 1999; Engle et al., 1996; Fergus & Zimmerman, 2005; Masten et al., 1999; Olsson, Bond, Burns, Vella-Brodrick, & Sawyer, 2003). Within the context of New

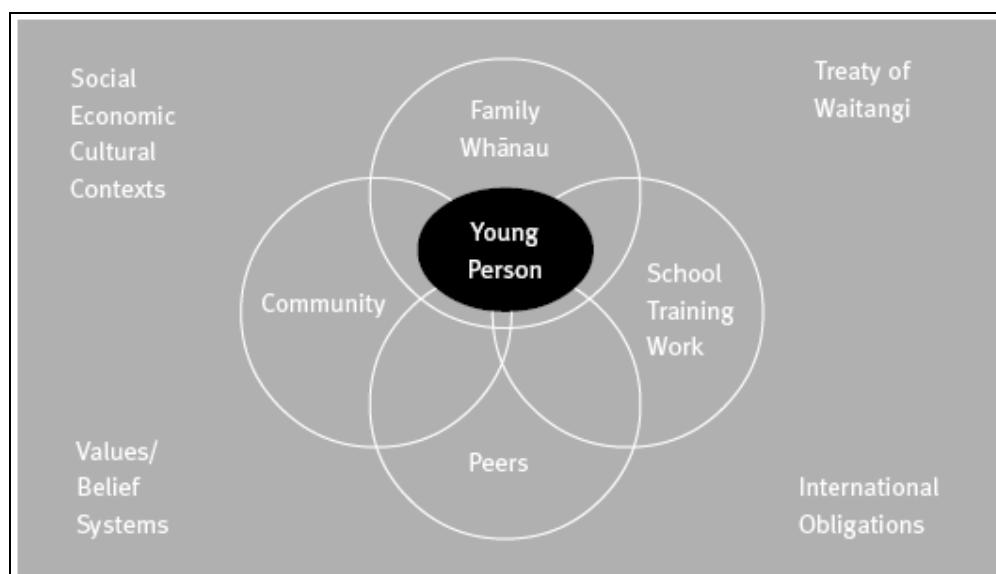
Zealand, the importance of connectedness has been recognised by the Ministry of Youth Affairs (2002). Two of the six key principles contained within their Youth Development Strategy address the connectedness of young people:

- “Youth development is about young people being connected.”
- “Youth development happens through quality relationships.”

(Ministry of Youth Affairs, 2002, p. 15)

Following a comprehensive review of the literature, the Ministry proposed that four main social environments contribute to the healthy development of young people. As illustrated in Figure 4, they include: family/whānau (the most significant), community, school (or university / training institution) or workplace, and peers. They suggest young people benefit from positive connections with many of these social environments.

Figure 4: Social environments that shape youth development (Source: Ministry of Youth Affairs, 2002, p. 18)



Research has shown that low satisfaction with levels of social support is associated with depressive or psychosomatic symptoms, anxiety, and interpersonal sensitivity in

adolescents, and a high probability of problems with anxiety, depression, and sleep in pre-adolescents (Dumont & Provost, 1999). Of key importance is how one defines social support. Various definitions have been proposed at various times. An early example is Cobb's (1976): "information leading the individual to perceive that he or she is cared for, esteemed, and valued by members of his or her social network" (as cited in Dubow et al., 1991, p. 584). There is supporting evidence that the quintessential aspect of social support is how much one feels cared for and accepted (Dubow et al., 1991). More recently, Dumont and Provost (1999) described social support as a multidimensional concept that includes both "the support actually received (informative, emotional, and instrumental) and the sources of the support (friends, family, strangers, and animals). It can be considered as structural (quantitative) or functional (qualitative)" (p. 345-346).

It has been demonstrated that children or young people who have been rejected or are without adequately stable support systems suffer from greater stress and higher rates of psychological, emotional and behavioural pathologies (Cohne and Wills, 1985, as cited in Baumeister & Leary, 1995). Cohne and Wills (1985) propose that social support enhances coping and can therefore act as a buffer against, or moderator of, the effects of stress. Furthermore, "simply being part of a supportive social network reduces stress, even if other people do not provide explicit emotional or practical assistance" (as cited in Baumeister & Leary, 1995, p. 508).

The Importance of Parental Connectedness

Parental support has consistently been linked with successful developmental outcomes in children and young people (Doll & Lyon, 1998; Egeland et al., 1993; Engle et al., 1996; Fergus & Zimmerman, 2005; Lambie et al., 2002; Luthar & Zigler, 1991;

Masten et al., 1999; McLaren, 2002; Olsson et al., 2003; Paterson et al., 1994; Raja, McGee, & Stanton, 1992; Rubin et al., 2004; Stronski, Ireland, Michaud, Narring, & Resnick, 2000).

Although access to parents is important with regard to adjustment, it is also thought that the nature or quality of parental relationships is even more critical (Doll & Lyon, 1998; Rubin et al., 2004). For example, Doll and Lyon (1998) state that:

“Early research tended to emphasize the responsiveness of the parent, but closer examination suggested that warmth and caring may be more important than simple responsiveness (Egeland & Erickson, 1990). This finding appears to highlight the central importance of the attachment system to the general well-being and development of children (see Masten & Coatsworth, 1998).” (p. 355).

On comprehensively reviewing attachment literature, Doyle and Moretti (2000) concluded that secure parental attachment is associated with several measures of positive adjustment in adolescence. For example, compared to their counterparts, securely attached adolescents are less likely to experience mental health problems (depression, anxiety, inattention, conduct problems, feelings of personal inadequacy), substance abuse, risky sexual activity, and antisocial and aggressive behaviour. Furthermore, they are likely to be less concerned about issues such as loneliness and social rejection, and demonstrate more adaptive coping strategies. Not surprisingly, well-attached young people experience relationships with peers and family members that are more positive, and progress to high school more successfully.

Longitudinal research projects in a number of countries have contributed to understanding the importance of close parental relationships (Werner and Smith, 1992, as cited in Engle et al., 1996; Masten et al., 1999; Raja et al., 1992). For example, research in Dunedin, New Zealand, found that the perceived level of parental attachment was strongly associated with psychological well-being in

adolescence (Raja et al., 1992). The research (involving 935 15 year olds) found that although the majority of adolescents reported high parental attachment, low levels were associated with greater problems in relation to conduct, inattention, and depression.

Similarly, Werner and Smith's (1992) longitudinal study on children who grew up with adversity (poverty and a family that was unstable and experiencing discord), found that those children who developed into healthy adults "had experienced a close relationship with at least one caregiver who provided unrestricted positive attention" (as cited in Engle et al., 1996, p. 622).

More recently, Masten et al. (1999) found that both parenting resources and intellectual functioning were associated with good outcomes across a number of measured competence domains, and also performed specific protective functions with regard to antisocial behaviour. The authors concluded that "good parents and cognitive skills are general advantages for development that may be particularly important for overcoming serious chronic adversity" (p. 162).

The Importance of Peer Connectedness

The amount of time spent with peers generally increases throughout adolescence, and although some cultural differences exist, research has shown that amongst other things, this developmental phase is associated with friendships becoming more important and a source of increased emotional support (McLaren, 2002; Nickerson & Nagle, 2005; Paterson et al., 1994; Rubin et al., 2004).

During the adolescent period, friendships are thought to fulfil many functions, including intimacy, security, trust, instrumental aid and norm teaching (Rubin et al., 2004). It is therefore not surprising that peer relationships are important with regard to

resilient adolescent development (Blum, 1998). Supportive friendships have been correlated with a wide range of positive developmental outcomes, particularly for girls, including: school achievement, self-esteem, psychosocial adjustment, and relationships later in life (Nickerson & Nagle, 2005). Conversely, poor relationships with peers have been associated with developmental issues such as delinquency and aggression (leading to the increased likelihood of further rejection) (McLaren, 2002), school problems, loneliness, depression (Nickerson & Nagle, 2005), lower self-esteem, and increased rates of psychopathological symptoms in adulthood (Rubin et al., 2004).

New Zealand research found that children with severe difficulties relating to other children were more likely to be involved in delinquent behaviours (crime and drug use). It appears that although young people with delinquent friends were more likely to be involved in such behaviours themselves, having friends who were not involved in such behaviours was a protective factor, even when family life was less than ideal (as cited in McLaren, 2002).

The Importance of Connectedness to Other Figures

Although parents and peers are typically the most dominant sources of support in an adolescent's life, positive relationships with non-parental or non-familial adults have also been linked to positive developmental outcomes (Doll & Lyon, 1998; DuBois et al., 1992; Dubow et al., 1991; Lambie, 1998; Lambie et al., 2002; Masten, 1999; McLaren, 2002; Olsson et al., 2003; Rolf & Johnson, 1999).

Research on non-parental support has often focused upon the effects of relationships between adults and students within a school setting. Supportive relationships with teachers or other adults at school have been associated with less delinquency, better

mental health, and higher motivation and academic achievement (Doll & Lyon, 1998; DuBois et al., 1992; Dubow et al., 1991; McLaren, 2002; Olsson et al., 2003). For example, in their two year longitudinal study, DuBois et al. (1992) found that support from adults at school made an independent contribution towards predicting later psychological distress. The authors theorise that this source of support may have had a buffering or compensatory role with regard to adverse effects within the home or other non-school contexts. Olsson et al. (2003) argue that the protective nature of school experiences for students is worthy of recognition, particularly given the large proportion of waking hours that adolescents spend at school.

Is One Source of Support More Important than Another?

Although it has been clearly established that adolescents may gain support from many different sources, the relative importance of each source is less evident. Raja et al., (1992) summarised differing views on the importance of peer and parent relationships in adolescence and argued that there are effectively three viewpoints. The first is that during striving for autonomy in adolescence there is a shift away from parental attachment to peer attachment. Thus there is an inverse relationship between the two: as parent attachment lessens, peer attachment strengthens. The second argues that family and peers form independent social worlds. As such, strong attachment to peers may be able to compensate for poor parental attachment in adverse or stressful circumstances. The relative importance of each of these ‘independent worlds’ depends upon context. Finally, the third perspective is that attachment to parents is positively correlated with attachment to peers. Although attachment to peers increases during adolescence, attachment to parents also increases in importance.

Research findings are inconsistent with regard to the potential for friendships to buffer the negative effects of poor parent-child relationships. Some researchers have found no buffering effect, although others have observed that friendships may buffer or moderate the effects of family adversity or poor family functioning (Rubin et al., 2004).

When Laible, Carlo, and Raffaelli (as cited in Rubin et al., 2004) investigated the interactivity between perceived relationships with parents and peers and adjustment in adolescence, they found that parental and peer attachment perform similar functions with regard to adjustment and that each can moderate the effects of adverse circumstances in the other. Adolescents with the most secure relationships to both parents and peers were the best adjusted and those with the least secure relationships to both were the least well adjusted. Those who had secure attachment with peers but not parents were significantly better adjusted than those with secure attachments to parents but not to peers. The authors, therefore, suggest that peer attachment may be more important than parental attachment in adolescence.

Similarly, in their cross-sectional survey of 279 students, Nickerson and Nagle (2005) found evidence for the importance of both parent and peer support in early adolescence. They observed a decrease in the level of young peoples trust and communication with their parents, and an increase in their utilisation of peers for proximity seeking and support. Parents, however, continued to provide a secure base for exploring other relationships.

A conflicting result, based upon research in New Zealand by Raja et al., (1992) concluded that familial support is generally more important than peer support. Good

attachment to peers did not compensate for poor parental relationships, at least with regard to mental health issues.

It appears that the context of support-seeking is also important: adolescents are more likely to seek parental advice on matters relating to future decision making and stressful situations, but instead seek the advice of peers in social situations (Paterson et al., 1994). Similarly, Nickerson and Nagle's (2005) findings highlighted the “important and complementary roles of peers and parents” (p.242). Friendships were found to be more important for intimacy and emotional disclosure, and parents more important for approval and guidance with regard to significant life issues.

It is therefore possible that young people may gain qualitatively different support from parents and peers and that good relationships with both are important for positive outcomes (Dubow et al., 1991; Nickerson & Nagle, 2005; Paterson et al., 1994; Raja et al., 1992; Rubin et al., 2004). It is also apparent that adolescence is a period when relationships with parents are renegotiated: they become more mutual than during childhood years (Paterson et al., 1994). It is interesting to note that research with New Zealand adolescents has suggested that this renegotiation phase may occur at a later age than for adolescents in other Western countries (Paterson et al., 1994).

4.5 MODELS OF RESILIENCY

Various models have been proposed to explain the relationship between stress (risk mechanisms), assets (protective mechanisms), and developmental outcomes. The three most frequently cited are the *compensatory*, *challenge*, and *protective versus vulnerability* models, as proposed by Garmezy et al., (1984).

The *compensatory model* adopts an additive mechanism: “it is defined when a promotive factor counteracts or operates in an opposite direction of a risk factor” (Fergus & Zimmerman, 2005, p. 401). Stressors tend to lower levels of competence and protective factors tend to increase competence. As the promotive factor acts directly upon the outcome, its effect is independent of that of the risk factor.

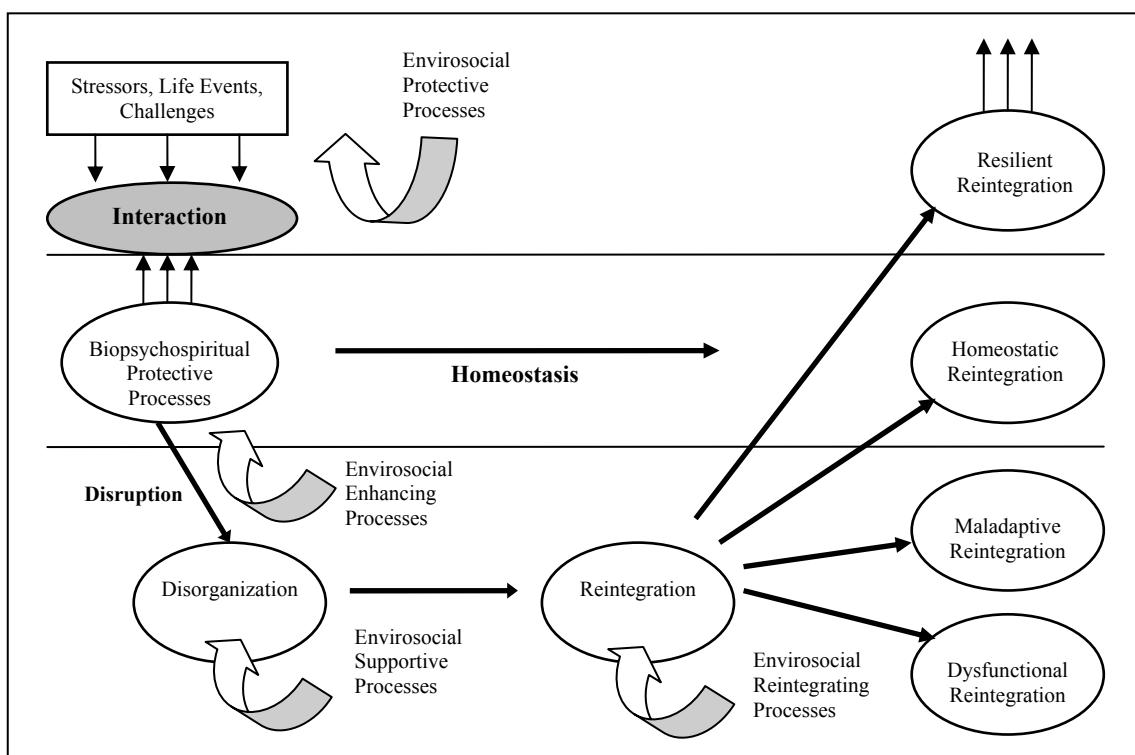
Secondly, the *challenge model* hypothesises a curvilinear relationship between stress and adjustment. Both low and high levels of stress are associated with negative outcomes: low levels of stress will not elicit a coping response and high levels may well be immobilising. However, it is thought that mid-level stress can facilitate a constructive process that results in increased competence. In essence, stress at this level provides an opportunity to practice coping skills and/or employ resources (Fergus & Zimmerman, 2005). It is worth noting that within this model, risk and protective factors may actually be the same variable: whether a risk or protective function is fulfilled will depend upon the level of exposure.

Thirdly, the *protective versus vulnerability model* proposes that there is an “interactive relationship between stress and personal attributes in predicting adjustment” (Luthar & Zigler, 1991, p. 13). Protective factors (both internal and external) “moderate or reduce the effects of a risk on a negative outcome” (Fergus & Zimmerman, 2005, p. 401)

A more comprehensive model, the *resiliency process model*, has recently been proposed (as cited in Masten, 1999; Richardson, 2002). This preventative and clinically oriented model (see Figure 5) proposes that if stressors, live events, or challenges are not balanced by biopsychospiritual (internal) and/or envirosocial (external) protective processes, disruption to an individual’s homeostasis may occur.

It is argued that these disruptions will result in the individual passing through a stage of disorganisation. If envirosocial supportive processes occur, disorganisation will be followed by reintegration. Four levels of reintegration are proposed: resilient, homeostatic, maladaptive or dysfunctional. Resiliency is used to describe an outcome whereby successful adaptation has occurred resulting in a higher state of resiliency or strength.

Figure 5: The Resiliency Process Model (Source: Masten, 1999, p. 212)



A number of characteristics make the *resiliency process model* particularly attractive. One strength is its allowance for multiple developmental outcomes. Unlike the models discussed previously (e.g. the *compensatory model*), which only allow for two outcomes (i.e. resilient or non-resilient), the *resiliency process model* specifies four levels of developmental outcome (or reintegration). This accounts for a much wider range of circumstances and would seem more realistic with regard to developmental outcomes. As alluded to in the model's name, an appreciation of resiliency being

process driven rather than outcome or trait driven is also demonstrated. The recurring nature of those processes required to attain resiliency (i.e. that challenges will continue to occur and require processing throughout life) is also a merit of this model. It is worth noting, however, that although the *resiliency process model* provides more thorough scenarios in relation to processes and their associated outcomes, it is relatively recent and would benefit from further exploration and validation through research.

4.6 LIMITATIONS OF RESILIENCY

A frequently acknowledged challenge of research within the domain of resiliency is the lack of a universal definition (Blum, 1998; Kinard, 1998; Masten, 1999; Rolf & Johnson, 1999). As with research in other fields, how one defines and measures each construct will significantly influence the resulting outcomes and subsequent conclusions (Blum, 1998; Olsson et al., 2003).

It is also inevitable that definitions of resilient outcomes are dependent upon normative judgements (Fergus & Zimmerman, 2005; Kaplan, 1999; Kinard, 1998; Masten, 1999). For example, an outcome reached in the face of risk will only be judged resilient if it is considered to be socially desirable, particularly by those conducting the research. As such, outcomes are value-laden and dependent upon culture and context. Kumpfer (1999) further argues that “Resilience research generally begins with a search for resilient children who are successful despite the odds. Conducting research outside of one’s culture is fraught with differences in [the] definition of success across cultures.” (p. 212).

As with many other areas, researchers of resiliency can be criticised on a methodological basis for their tendency to focus upon single, or small numbers of, variables (risk and protective) (Fergus & Zimmerman, 2005; Masten, 1999). However, young people are exposed to multiple risk and protective processes that interact and are dynamic in nature (Fergus & Zimmerman, 2005; Kinard, 1998; Masten, 1999). Analytic processes need to focus upon ways of disentangling the complex interactions between multiple risk and protective factors and outcomes (Kinard, 1998).

It is also notable that most resiliency research utilises only one data source (i.e. self-report) (Kinard, 1998) and focuses mostly upon individual or family-based resources, thus neglecting other aspects of adolescent life (school, community etc) (Fergus & Zimmerman, 2005). A general lack of detail regarding investigated models of resiliency has resulted in limited ability to further test and replicate findings (Fergus & Zimmerman, 2005; Masten, 1999).

Although resiliency research has added to the knowledge base with regard to the protective nature of some variables, the underlying mechanisms of these relationships are still unclear. For instance, although having a supportive relationship with a parent is protective against a number of negative outcomes, exactly how a successful outcome is achieved is still unclear. Qualitative research methodologies may be useful in exploring and clarifying the operational qualities of protective relationships.

Some authors have noted a lack of distinction between the outcomes cited as defining resiliency and the variables that contribute to resilient outcomes. Unless there are clear distinctions between resilient outcomes (definitions) and their contributory mechanisms (risk and protective), there is a risk of resiliency research being almost

tautological in nature. As Kinard (1998) illustrates, issues such as higher cognitive ability and positive self-esteem have been cited by researchers as both contributors to resilience and descriptors of resilient children. He argues that: i) investigators must present a clear rationale regarding their choice for components of resiliency, and ii) “greater conceptual clarity is needed concerning the distinction between what defines resilience and what is associated with resilience” (p. 671).

4.7 THE ROLE OF RESILIENCY IN YOUTH GAMBLING

As illustrated within *Chapter 3 Young People and Gambling*, researchers have already identified and confirmed a substantial number of risk factors in relation to youth gambling (see summary in Section 3.4). It is important to note, however, that the majority of research has adopted an epidemiological approach, and has been conducted within a dysfunction-based paradigm. The focus has, almost exclusively, been upon problems associated with gambling and those factors that increase the risk of problems occurring. Gambling and consequent, related, problems have been conceptualised as an individual-based behaviour, which has made it difficult to integrate environmental and contextual factors.

In any field of research, it can be argued that the exclusive utilisation of one perspective, theoretical approach, or paradigm will eventually limit the advancement of knowledge. It is the author’s argument that this has begun to be the case within the youth gambling field. Although invaluable knowledge has been, and will continue to be, gained from the currently dominant medical research perspective, the adoption of an alternative view would also provide considerable opportunities for advancing knowledge. Resiliency theory’s strengths-based philosophy would seem particularly

appropriate for use with young people as it presents an alternative to dysfunction-based (risk-based) approaches, and is promising with regard to preventative strategies (Blum, 1998).

Within the resiliency field, researchers have demonstrated that a number of risk (e.g. low intelligence) and protective (e.g. secure parental attachment) factors operate across a number of maladaptive behavioural domains, including alcohol, drug and tobacco use (Doyle & Moretti, 2000). Although gambling has not been considered by researchers in the resiliency field, gambling researchers have found that it often co-exists with other risky behaviours, and is increasingly being conceptualised as one of a number of related risky behaviours (Dickson et al., 2002; Gupta & Derevensky, 1998a; Hardoon et al., 2002).

Moreover, it is important to note that gambling shares many of the risk factors identified within the resiliency literature for other risky behaviours. As Hardoon et al., (2002) summarise, risk factors shared by drug abuse and problem gambling include:

“low self-esteem, depression, suicidality, being a victim of abuse (physical or sexual), poor school performance, history of delinquency, poor impulse control, being male, early onset, parental history of respective problems, and community and family norms that promote accessibility to the respective activity” (p. 9).

It could then be theorised that those protective factors known to operate across multiple domains, may operate with regard to gambling as well. The role of protective factors in gambling behaviour has historically been a neglected aspect of gambling research. However, in parallel with the author’s current research, a small number of researchers (Dickson et al., 2002; Dickson, Derevensky, & Gupta, 2003; Hardoon et al., 2002) have begun to investigate and theorise about the potential role of resiliency and protective factors for gambling.

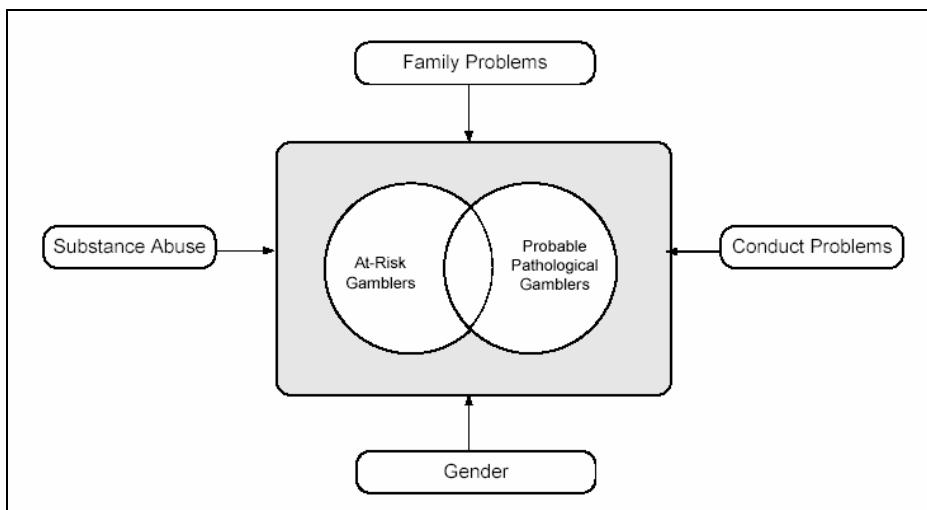
Dickson et al., (2002) reviewed the literature relating to youth prevention initiatives in the addiction domain, specifically with regard to tobacco, alcohol and drug abuse. They established the existence of common elements between these risky behaviours, and point to the benefits of utilising knowledge previously gained in other fields:

“theoretical and empirical research which point[s] to commonalities between problem adolescent gambling and other addictions suggests that prevention efforts arrived at [for] other addictions are rich sources of information to those working towards the prevention of youth problem gambling” (pp. 102-103).

Relationships between adolescent gambling and several hypothesised risk and protective factors were investigated with a range of standardised screens and tools by Hardoon et al. (2002). Data were gathered from 2336 adolescents and although causality cannot be determined, it was observed that problem gamblers were experiencing a number of issues, including academic difficulties, psychological distress, emotional problems, abuse, cognitive problems, chemical dependency, conduct problems, family problems, and ADHD (or related subtypes). Low levels of perceived familial and peer social support were also associated with an increased risk of problem gambling. The authors also found that probable pathological, and, to a lesser extent, at-risk, gamblers were likely to perceive their parents and other family members as “uncaring, harsh, or overly critical, and they may feel emotionally detached or distant from family members” (p. 61)

The conceptual model depicted in Figure 6 (Hardoon et al., 2002, p. 64), arose from logistic regression analyses which revealed that family problems, conduct problems, substance abuse (alcohol and drug), and male gender all acted as predictors for problem gambling.

Figure 6: A conceptual model for at-risk and problem gambling



It is interesting to note, however, that although claiming to investigate both risk and protective factors, the researchers have continued to focus upon problems (e.g. family *problems*, conduct *problems* etc), and as such have conceptualised these predictor variables as being risk factors. Although risk and protective factors are often not opposite extremes of a variable, the authors appear to still be operating with an underlying problem focused paradigm and language base.

The most recent and pertinent research is that of Dickson et al., (2003), who set out to investigate risk and protective factors for gambling. They gathered quantitative data from 2179 students (aged 12-19) through a school-based survey and identified the following set of predictor risk variables: trait anxiety, greater disposition of risk propensity, experiencing school problems, having a sibling and/or friend with gambling problems, and being male. Two factors were found to be protective with regard to adolescent gambling when examined with the predictor risk variables: family cohesion and school connectedness.

Probable pathological gamblers reported significantly greater disengagement from their families and were more likely to be classified as disengaged than were other

adolescents: 11.1% of probable pathological gamblers reported being connected to families, compared with 21.8% of at-risk gamblers, 28.7% of social gamblers, and 34.2% of non-gamblers. Increased levels of family cohesion significantly predicted decreases in the odds of probable pathological gambling, even in the presence of risk (anxiety, school problems, risk propensity, sibling and friend gambling problems).

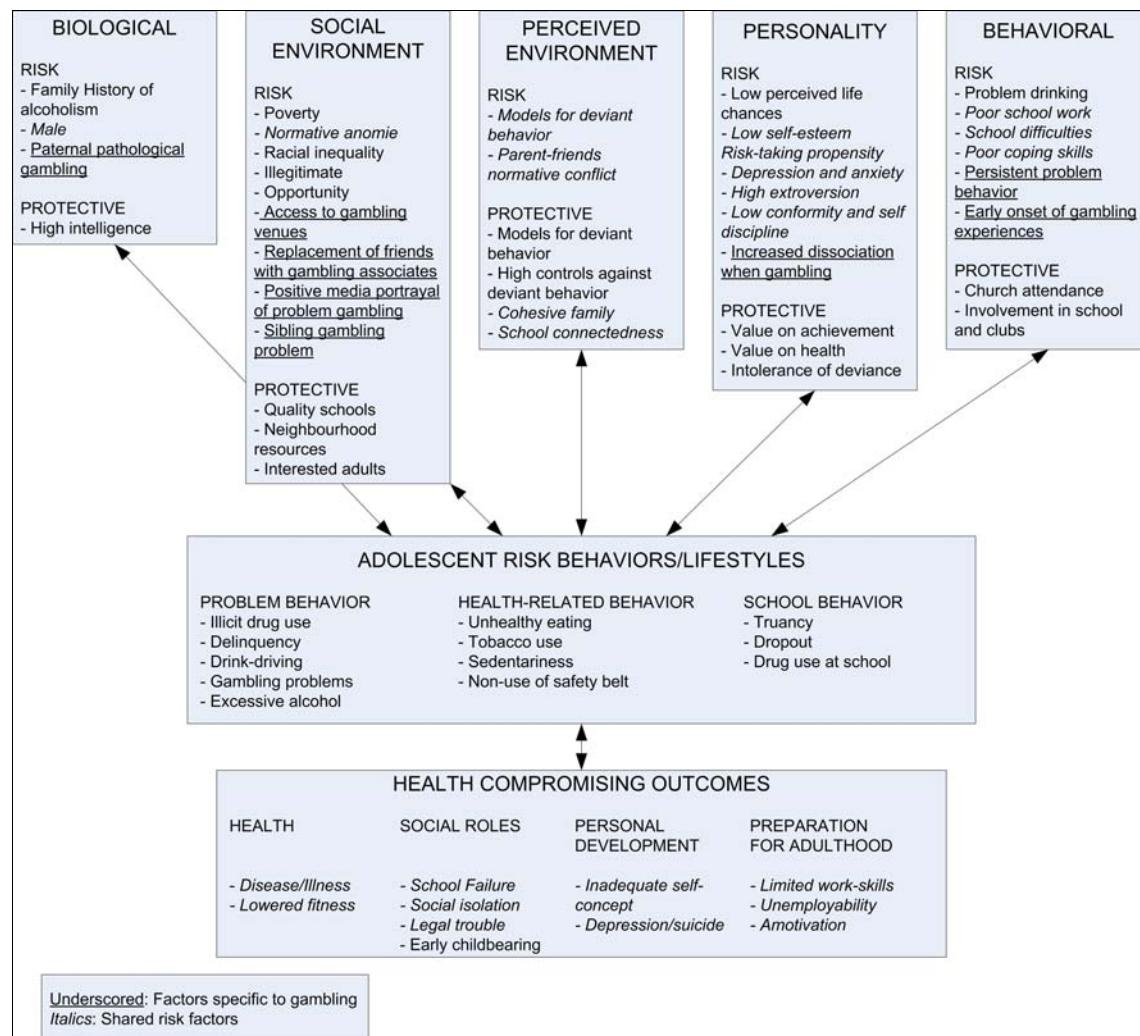
Low school connectedness was more frequently reported by at-risk (39.8%) and probable pathological gamblers (39.4%) than social (23.0%) and non-gamblers (20.9%). Moreover, as with family cohesion, increases in school cohesion were associated with decreases in the odds of a student developing pathological gambling behaviour while accounting for risk factors.

It is interesting to note that for both of these measures, scores for at-risk and probable pathological gamblers did not differ significantly: the authors suggest that perhaps this is indicative of similarities between these groups. This seems likely as the problem gambling screen that was utilised (the DSM-IV-MRJ), was only designed to distinguish between problem and non-problem gamblers.

All three of these publications have argued that there is sufficient reason to believe that gambling could be incorporated into general prevention efforts for adolescents, and propose Jessor's (as cited in Dickson et al., 2002) *General Conceptual Model for High-Risk Behaviors* as a suitable theoretical basis to view gambling alongside other adolescent risk behaviours (Dickson et al., 2003; Hardoon et al., 2002). The model (as shown in Figure 7) was adjusted to incorporate findings from gambling research. As illustrated, there are a number of risk factors that are unique to gambling (underscored) and some that are shared (in italics) with other behaviours. The two protective factors that were identified by Dickson et al., (2003) (cohesive family and

school connectedness) have also been included in the model. Factors listed in plain font have either not been investigated, or have not demonstrated increased risk with regard to gambling.

Figure 7: The adolescent General Conceptual Model for High-Risk Behaviours with incorporated youth problem gambling findings (Source: Dickson et al., 2003, p. 94)



4.8 RESILIENCY, RISK AND PROTECTIVE FACTORS, AND CONNECTEDNESS – SUMMARY

Although the concept of resiliency has stemmed from the study of developmental risk and psychopathology, it has taken a fundamentally different approach to that of risk-based research. Instead of examining cases that exhibit problematic outcomes, it is

concerned with those where successful outcomes occur despite the expectation of problems. Although numerous definitions for resiliency exist, the central tenet can be surmised as: “successfully coping with or overcoming risk and adversity or the development of competence in the face of severe stress and hardship” (Doll & Lyon, 1998, p.348). Unlike risk-based research, a key requirement of resiliency research is the inclusion of two categories of process: risk and protective. Research from a variety of domains has resulted in the identification of a number of risk and protective factors, and some authors have provided comprehensive syntheses of these research findings. Although a number of models have been proposed to explain the relationship between stress, assets, and developmental outcomes, the most frequently cited are the *compensatory*, *challenge*, and *protective versus vulnerability* models, however, Richardson’s (2002) *resiliency process model* is particularly promising.

Social connectedness (strong social connections and access to social support) has consistently been identified as an important contributor to the wellbeing or resilience of young people (i.e. it is a protective factor). Although there are conflicting reports on the comparative importance of support from parents, peers and others, it seems that young people gain qualitatively different support from different sources and that high-quality relationships within each of these social contexts contribute to positive outcomes.

There are a number of criticisms of resiliency-based research. Perhaps the most common is that there remains a lack of a universal definition for resilient outcomes: positive outcomes are defined according to criteria such as researchers’ goals and societal judgements/values. As with other relatively young fields of research, there is a need to progress towards consideration of underlying mechanisms and complex

interactions between multiple factors (e.g. risk and protective mechanisms). As is the case with research into youth gambling, there is sometimes a lack of distinction between the outcomes cited as defining resiliency and the variables that contribute to resilient outcomes. Unless clear distinctions are made between resilient outcomes (definitions) and their contributory mechanisms (risk and protective), there is a risk of resiliency research becoming somewhat tautological in nature.

Finally, in the youth gambling field, recent research has begun to explore similarities between gambling and other behavioural domains: it has been observed that gambling shares many risk factors with other domains and that protective factors may also be shared. Jessor's *General Conceptual Model for High-Risk Behaviors* (as cited in Dickson et al., 2002), has been put forward as a suitable theoretical basis to view gambling alongside other adolescent risk behaviours.

4.9 RESEARCH OBJECTIVES

A number of issues become apparent on examination of gambling's role in New Zealand and the literature on youth gambling and resiliency (as per the previous three chapters). Despite the rapid expansion of New Zealand's gambling industries, and a growing recognition of the associated harms, very little is known about the impacts of gambling upon young people in New Zealand. Although national surveys have shown that most New Zealanders gamble, and that a substantial proportion of the population gamble at problem levels, findings are confined to those aged 18 and over. Although it is likely that rates of gambling and problem gambling are similar to those documented internationally (i.e. most young people / adolescents will have gambled and the problem gambling rate will be two to three times that of adults), the role of

gambling in young people's lives and its potential as an emerging public health issue for young New Zealanders is unknown. Moreover, the risk factors associated with problem gambling in New Zealand's young people are unknown: although international research has compiled a list of consistent risk factors for youth gambling they are yet to be verified within the New Zealand context. It is apparent that the youth gambling literature is dominated by dysfunction-based models: problem gambling is conceptualised as an individual-based disorder and there has been a focus upon the identification and elucidation of those factors associated with its increased risk.

The field of resiliency, in which risk and protective factors are pivotal, provides an attractive alternative to models that are solely based on risk. As noted, a number of risk and protective factors are known to operate across multiple behavioural domains (e.g. alcohol and substance use, delinquency), and gambling shares a number of these risk factors (Dickson et al., 2002; Doyle & Moretti, 2000; Hardoon et al., 2002). It seems probable that gambling will also share a number of protective factors. The pioneering nature of this thesis means that a focus upon the role of protective factors rather than applied resiliency theory is more appropriate. Although this research is grounded within resiliency theory, the exploration of protective factors is a necessary precursor to the conduction of applied resiliency based research in new fields.

The above observations lead to a number of research objectives for this thesis. These can be summarised as the following set of four research questions:

1. How relevant is gambling to the young people of New Zealand?
2. What are the factors associated with youth gambling in New Zealand?

3. Is problem gambling an issue for the young people of New Zealand, and, if so, what are the factors associated with increased risk?
4. Are the protective factors that operate in other youth behavioural domains relevant to adolescent gambling?

It is the author's view that knowledge gained through this research, regarding these issues, will significantly contribute to both the development of a successful public health approach to gambling in New Zealand, and the international body of knowledge on youth gambling, particularly with regard to the pursuit of resiliency based research into youth gambling. The remainder of this thesis is organised around, and aims to address, the above research questions.

5 METHODOLOGY

This chapter provides the reader with a description of the methodology adopted for this thesis. The chapter begins by discussing issues relating to the type of research (large-scale quantitative) and then presents information regarding the methods (the sampling frame, and the development and piloting of the research instrument). Finally, research procedures, data collection and analytical procedures are outlined.

Some authors propose that in areas requiring public health knowledge or that are new and being developed for research, systematic description is a particularly appropriate research objective (Babbie, 1983; Punch, 2000; Shaffer, 2003). In light of the research questions outlined at the end of the previous chapter, the early stage of gambling research in New Zealand, and the paucity of information relating to youth gambling in New Zealand, it was concluded that maximum benefit would be gained through the gathering of high-level quantitative information. As such, it was anticipated that a systematic large-scale quantitative approach would enable this research to provide accurate descriptive data regarding, and preliminary explanations of (including the applicability of protective factors to), young people's gambling behaviour.

However, in recognition, that quantitative research methods tend to be researcher driven and not particularly conducive to enabling or developing the 'voices' of participants, in this case young people, the author originally intended to conduct a two-phase study. The first phase (which forms the basis of the current piece of research), was conceptualised as a large-scale quantitative survey. In a pioneering

field of research, this approach allows the accurate identification of pertinent issues/factors that are worthy of further explanatory or confirmatory research (Punch, 2000). The second phase was conceptualised as a qualitative piece of research which would probe further into those issues/factors identified in the first phase as important to understanding youth gambling behaviour and allow young people to fully express their views on and self-identify relevant gambling related issues. However, whilst the first research phase was being carried out, its full extent and scale became clear to the researcher and her supervisors. Upon evaluating the feasibility of a follow-up qualitative research phase, it became apparent that it could not be conducted without reducing or limiting the scope of the first phase. As such, it was decided to limit the research to a large-scale quantitative study, thus ensuring that the information gained was accurate and robust.

5.1 METHOD

Given the above considerations, large-scale quantitative research was pursued: this study has adopted a survey method in order to gather descriptive data on the gambling practices of, and potential resiliency factors associated with, secondary school students. Secondary school students were chosen as the sample population for two reasons. Firstly, they represent the vast majority of young people within the relevant age bracket, and secondly, they are relatively easy to access in a systematic, randomised manner.

The following sections outline the sampling frame, the development and piloting of the research tool, and the final instruments and measures.

5.1.1 SAMPLING

The sampling frame was developed in consultation with a University of Auckland bio-statistician and aimed to ensure that each student in the sample population had an equal chance of being invited, notwithstanding representativeness requirements, to participate in the research.

The sample population consisted of all secondary school students (years nine to 13), currently enrolled in schools that: i) had a minimum of 50 students enrolled in years nine to 13; and, ii) were located within the designated sampling area: parts of Northland Region (Kaipara District, Whangarei District); the entire Auckland Region (Auckland City, Manukau City, North Shore City, Papakura District, Rodney District, and Waitakere City); and part of the Waikato Region (Franklin District).

The above criteria were applied to a database of schools obtained from the Ministry of Education, which contained the most comprehensive and up-to-date information regarding schools in New Zealand. Data regarding each schools location, decile ranking, number of enrolled students, and demographic information (students' age, gender and ethnicity) were available. During the recruitment phase for this research, the most recent version of the database contained enrolment data pertaining to the 2002 academic year.

This resulted in a sample pool of 106 schools, which were randomly selected then consecutively approached for consent until an adequate sample size was achieved (it was envisaged that approximately 2000 participants would be involved in the study, so as to provide adequate analytical power). Response rates are discussed later in section 5.2.2 *Recruitment*. Within consenting schools, randomly selected classes from within every year level were sampled (due to resource and temporal constraints

sampling was restricted to classes of students rather than individuals). To ensure that the sample was representative, the number of randomly sampled classes from each school was proportional to the size of the school roll. For example, while a school with a roll of 100 would only have one class participate, a school with a roll of 500 might have a class from each year level take part.

Several sampling criteria were influenced by the financial and temporal constraints relating to this research project (inclusion of only schools that had more than 50 students and were within the set geographical boundaries, and the sampling of classes not individuals). However, it should be noted that, despite these limitations, the sample was drawn from a population such that the representation of all major demographic (gender, age, and ethnicity) and regional (urban/rural) groups was ensured. Furthermore, analytical procedures entailed weighting the sample according to participants' school (thus ensuring that data from any one school were not overly influential in the analysis) and accounting for school clustering effects (i.e. correlation of data within schools).

5.1.2 DEVELOPMENT AND PILOTING OF THE RESEARCH TOOL

As illustrated in Figure 8 (page 108), development of the final research tool entailed three phases. First, the identification of key research questions/factors of interest was informed by a systematic literature review (via electronic and university library databases, and the internet). This entailed the identification and examination of relevant existing research tools.

The second phase of development entailed the formation of a preliminary questionnaire designed to address the research questions.

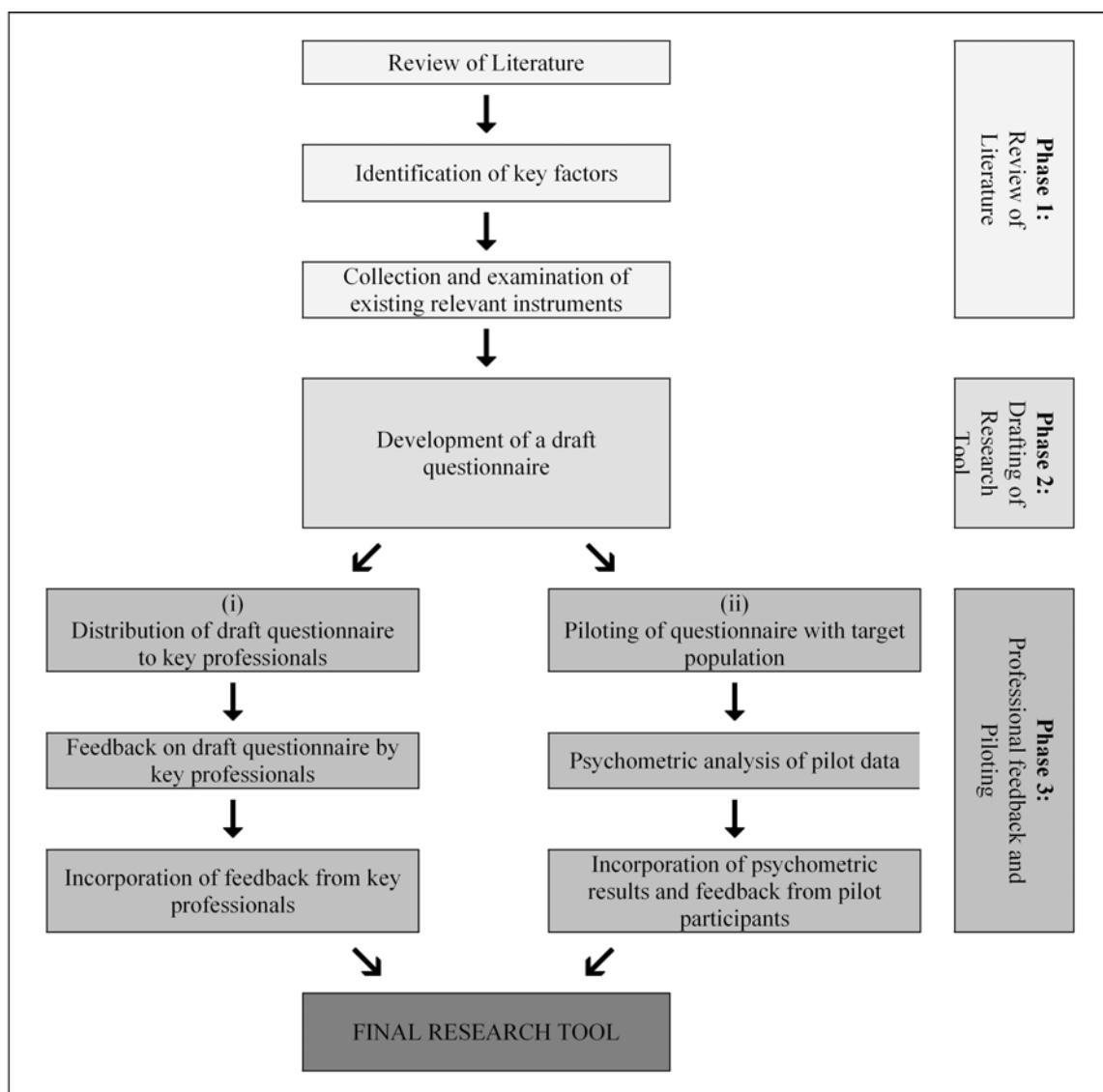
Finally, the third phase comprised two stages: i) circulation of the questionnaire to key professionals within the field for consultation (regarding issues such as question topics and wording, response options, content and layout). Feedback regarding ethnic appropriateness was also sought from representatives, within the gambling field, of Maori, Pacific Peoples, and Asian populations; and, ii) piloting of the questionnaire with a number of adolescents ($N=32$) who were known to the researcher or her associates. Revisions based on feedback from both of these stages were undertaken.

A number of issues were raised as a result of the third phase. Some participants queried the need for items of a personal nature (referring to the resiliency based items) in a questionnaire introduced as aiming to investigate gambling behaviour. This issue was addressed by expanding introductory/explanatory paragraphs within the questionnaire, explicitly explaining the relationships of interest, as well as an expansion of the verbal introduction provided to participants.

Some participants from the pilot also felt that the questionnaire was too long and repetitive. These issues were addressed following psychometric analysis of the pilot data: when questions appeared to address the same issue and demonstrated extremely high inter-item correlations, all but one were removed. Some reordering of items also took place as a result of inter-item reliability analyses. Unless the flow of the questionnaire would be impeded, items were grouped together in correlated clusters.

Despite no issues regarding layout/format being raised by participants in phase three, a number of small changes were made in order to simplify or improve the flow of questions. Overall, feedback from participants was positive and the research tool was assessed as being appropriate for use with the target population.

Figure 8: Schematic representation of the development of the research tool



5.1.3 INSTRUMENTS AND MEASURES

As well as information relating to demographics, the final questionnaire consisted of items aimed at obtaining information relating to the two main constructs of interest: gambling and resiliency. Whenever possible, standardised scales and measures were utilised. However, due to the exploratory nature of this research, the lack of relevant standard resiliency research measures, and the subjective nature of resiliency (i.e. that a resilient outcome is defined according to the researcher's and societal values), a

substantial proportion of the questionnaire consisted of non-standardised items that were either developed by the researcher or adapted from relevant existing tools. In the following discussion, unless otherwise stated, items were developed or adapted by the researcher.

Table 4 illustrates the three overall information categories assessed via the questionnaire, including their subsets, the order of appearance for items, and whether or not standardised instruments were utilised. The following section discusses each information category in detail. The final version of the questionnaire can be viewed in Appendix A.

Table 4: Categorisation, standardisation, and ordering of questionnaire items

<i>Information Category</i>	<i>Question Subset</i>	<i>Question Number(s)</i>	<i>Standardised Measure</i>
<i>Demographics</i>	Age	1	No
	Gender	2	No
	Ethnicity	3	No
	Length of residency in New Zealand	4	No
	Monetary income	5	No
<i>Gambling</i>	Personal gambling behaviour	6 – 17	No
	Problem gambling behaviour	18 – 26	Yes: DSM-IV-MR-J
	Exposure to gambling	27 – 36	No
	Attitudes and beliefs regarding gambling	37 – 58	No
	Use of the internet and computer games	59 – 66	No
<i>Resiliency</i>	Connectedness		
	- Non-parental adult support	67	No
	- Relationship with family members	68 – 70	No
	- Relationship with school	71 – 80	No
	- Spiritual beliefs	84 – 89	No
	Level of happiness	81 – 83	No
	Use of alcohol	90 – 94	No
	Relationship with Mother	95 – 119	Yes: IPPA
	Relationship with Father	120 – 124	Yes: IPPA
<i>Other: Participant Driven Comments</i>	Relationships with Peers	125 – 149	Yes: IPPA
	Open-ended question whereby participants can provide free-form comments relating to gambling and/or the questionnaire itself	N/A	No

5.1.3.1 DEMOGRAPHICS: QUESTIONS 1-5

Five questions addressing demographic information were included. These were situated at the beginning of the questionnaire and gathered information on age, gender, ethnicity, personal disposable income, and residency status. The first four of these variables were deemed appropriate for inclusion due to previous associations with gambling behaviour within the literature. The fifth item was included due to concern regarding the potential for low connectedness of foreign fee-paying students, due to integration issues within a new society.

5.1.3.2 GAMBLING

The overall aim of questions within this category was to gain a comprehensive and detailed picture of gambling related issues for each participant. The following section describes in detail each question subset: personal gambling behaviour; problem gambling behaviour; exposure to gambling; and attitudes and beliefs regarding gambling. Although not strictly part of this sub-topic, the use of computer games and the internet have also been investigated within this section.

It should be noted that those participants who had not engaged in any modes of gambling over the last year (as ascertained in question six) were not required to complete the sections on personal or problem gambling behaviour.

5.1.3.2.1 PERSONAL GAMBLING BEHAVIOUR: QUESTIONS 6-17

To gather detailed information regarding individual modes of gambling and the frequency with which they were undertaken, *Question One* from the widely accepted South Oaks Gambling Screen – Revised for Adolescents (SOGS-RA) was included. This question does not contribute to a problem gambling score, but provides useful descriptive information on gambling practices. It consists of a list of gambling modes,

which were adjusted and expanded to reflect those modes currently available within New Zealand, and allows participants to indicate how often in the past year they have engaged in each one. Four response categories were available: *Never*, *Less than once a week*, *Once a week or more often*, and, *Daily*. Participants were also asked to indicate which one of the listed modes was their favourite activity.

A number of questions were also developed to gather detailed information on: the amount of money and time spent on gambling activities (in both the previous and an average week), age of initial gambling, gambling locations, gambling companions, motivations for gambling, and the participant's opinion of how good they were at gambling.

These questions were based around those previously used within the adolescent gambling field. The categorical response options for the questions addressing money and time spent on gambling were informed by open-ended scoping versions in the pilot study.

5.1.3.2.2 PROBLEM GAMBLING BEHAVIOUR: QUESTIONS 18-26

Following consideration of the tools available for measuring problem gambling behaviour, the DSM-IV-MR-J (Diagnostic Statistical Manual – IV – Multiple Response – Adapted for Juveniles) was deemed the most appropriate tool for this research. This screen is based upon the adult diagnostic criteria for pathological gambling, as defined by the American Psychological Association (American Psychiatric Association, 1994). It was specifically developed to measure past year gambling behaviour amongst 11-16 year olds via questionnaire format within a classroom setting (Fisher, 2000).

This revised 12-item version evaluates nine *dimensions* of gambling: progression and preoccupation; tolerance; withdrawal; loss of control; escapism; chasing; lies and deception; family and academic disruption; and, illegal acts. Affirmative responses to four of the measured *dimensions* results in a classification of problem gambling. One advantage of the DSM-IV-MR-J over other problem gambling screens is its multiple response options (11 of the 12 items have at least four response options). This format was adopted to specifically address the unsuitability of dichotomous responses in a non-clinical setting (where there is a lack of opportunity for probing/clarification of issues) (Fisher, 2000). As compensation for a lack of probing has not yet been addressed by other youth gambling screens (such as the widely used SOGS-RA), the DSM-IV-MR-J is the most suitable screen for use in quantitative non-clinical research.

The screen has been widely used within the adolescent gambling field and has been shown to have good construct validity. Its internal consistency reliability statistics are comparable to other screens (Cronbach's alpha = 0.75 (Fisher, 2000), as compared to .76-.81 for the SOGS-RA (Poulin, 2002)). Results from the current study demonstrated comparable internal consistency reliability (Cronbach's alpha = 0.82).

5.1.3.2.3 EXPOSURE TO GAMBLING: QUESTIONS 27-36

This ten item section briefly investigated the perceived gambling practices of the participants' household members and friends; whether or not participants believe that their mother, father, or any of their friends may have a gambling problem; and, participants awareness of, or exposure to, advertising for gambling (via television, newspapers, magazines, billboards, and the internet). The response options for all of these items were *yes*, *no*, and *don't know*. Although it is acknowledged that these

items are ‘forced choice’ and sometimes rely upon participants’ perceptions and knowledge of others’ gambling practices, they were the only viable option for gaining this type of information.

5.1.3.2.4 ATTITUDES AND BELIEFS TOWARDS GAMBLING: QUESTIONS 37-58

Twenty-two items were included to assess participants’ attitudes and beliefs in relation to gambling. Fourteen items utilised a five-point Likert frequency scale, allowing responses from: 1, *Strongly disagree*; to 3, *Not sure*; to 5, *Strongly agree*. These items were mostly concerned with participants’ perceptions regarding ease of access, and their views regarding rights of access, to gambling. There were also items relating to participants’ perceptions of the relationship between gambling machines and computer games; their understanding of the role of skill with regards to gambling machines; the addictive nature of gambling; and, the comparative likelihood of young people and adults developing gambling problems.

Seven items addressed perceptions regarding the proportions of skill and luck required to win at various forms of gambling. Each item consisted of two separate five-point Likert frequency scales: the perceived level of skill (1, *No skill*; 3, *Some*; 5, *A lot of skill*); and, the perceived level of luck (1, *No luck*; 3, *Some*; 5, *A lot of luck*). The remaining question adopted the same format but enquired about the proportions of skill and luck needed to be good at computer games. Some of these questions were based around those previously used within the adolescent gambling field (e.g. research conducted by McGill University’s International Centre for Youth Gambling Problems and High-Risk Behaviors).

5.1.3.2.5 USE OF THE INTERNET AND COMPUTER GAMES: QUESTIONS 59-66

Due to research demonstrating links between the use of computer games and gambling behaviour (Brown & Robertson, 1993; Gupta & Derevensky, 1996; Ladouceur, 1995), eight questions (in addition to the question mentioned in Section 5.1.3.2.4) were developed to provide information on participants' use of the internet and computer games (including PC and console-type games). Each of these questions utilised multiple response options that varied according to question content. Of particular interest with each of these behaviours was the frequency of participation, duration of sessions, patterns of use, and who was with them when they took part in these activities.

5.1.3.3 RESILIENCY

This part of the questionnaire aimed to investigate participants' level of social connectedness. Spiritual beliefs and relationships with adults (who fulfil non-parent roles), family members, peers and adults in the school environment, were all conceptualised as being sources of social connectedness. Information was also gathered with regard to perceived levels of happiness, suicidal ideation, and participants' use of alcohol. Each question subset is described in detail within the following sections.

5.1.3.3.1 CONNECTEDNESS AND LEVEL OF HAPPINESS: QUESTIONS 67-89

Twenty-three items were included to provide information on aspects of participant adjustment and connectedness. Eighteen of these items consisted of a five-point Likert frequency scale, either: 1, *Strongly disagree*; 3, *Not sure*; and 5, *Strongly agree*; or 1, *Hardly ever*; 3, *Sometimes*; and 5, *Very often* depending upon the question content. Four questions (addressing school detention/suspension and suicidal ideation)

required a yes or no response. The remaining question in this section had five response options and was concerned with frequency of attendance at a place of worship over the past year: *Never; Monthly or less; 2-4 times a month; 2-3 times a week; and, Every day.*

These questions were either developed by the author or based upon items from New Zealand's youth health survey, Youth2000. This survey was deemed an appropriate question guide as the Youth2000 study comprises the most comprehensive national investigation of health and well being for young New Zealanders (with a sample of 12934 students). The Youth2000 study looked at risk factors and problems encountered by young people, and is similar to the current research in that it adopted a resiliency framework and included investigation of protective factors (Adolescent Health Research Group, 2003).

5.1.3.3.2 USE OF ALCOHOL: QUESTIONS 90-94

An initial gateway question regarding alcohol use was included; those who had never used alcohol were redirected to the next section. Those who answered in the affirmative went on to complete the four questions relating to their use of alcohol. Information was sought on initial age of use, frequency of alcohol use over the past year, frequency of heavy alcohol use (five drinks or more in one session) over the past year, and context of drinking. Five response options were available for the questions regarding frequency of alcohol use over the past year and frequency of heavy alcohol use: *Never; Monthly or less; 2-4 times a month; 2-3 times a week; and, Every day.* To gather information regarding drinking context, eight locations were listed. Participants indicated how often they had consumed alcohol at each location: *Never; Hardly ever; Sometimes; and, Often* were the available response options.

The above questions were based upon the Alcohol Use Disorders Identification Test (AUDIT) and research that had been conducted with young people in New Zealand (Adolescent Health Research Group, 2003; Saunders, Aasland, Babor, de la Fuente, & Grant, 1993). The AUDIT has been validated and widely used within New Zealand. Although it has been shown to have high levels of sensitivity and specificity, it is not recommended for use with young people as they may have trouble relating to a number of the questions (National Health Committee, 1999). For these reasons, and because of the absence of a suitable tool, the Youth2000 and a smaller project (conducted by the University of Auckland's Centre for Child and Family Policy Research) addressing alcohol use in young people were used as guides for the construction of the set of questions.

5.1.3.3.3 INVENTORY OF PARENT AND PEER ATTACHMENT (IPPA): QUESTIONS 95-149

Questions 95-149 utilise Armsden and Greenberg's (1987) revised IPPA, a standardised questionnaire that provides detailed measures of the perceived quality of close relationships and level of connectedness with parents and close friends. This wider focus (i.e. not only being concerned with the family unit) made the IPPA more compatible with the aims of the research than some other tools.

The IPPA was initially developed in 1987 and is intended for use with young people (aged 10-20). It measures perceptions regarding relationships with parents and close friends, with a particular focus on the function of these relationships in psychological security. The instrument's framework is based upon Bowlby's attachment theory (Armsden & Greenberg, 1987) and is particularly well suited to this thesis' examination of the role of social connectedness.

The IPPA instrument consists of a self-report questionnaire with three sections: *mother*, *father* and *peer*. Each section consists of 25 items, all of which utilise a five-point Likert frequency scale: 1, *Almost never or never true*; 2, *Not very often true*; 3, *Sometimes true*; 4, *Often true*; and 5, *Almost always or always true*. For each section, an overall indication of attachment is gained. Further scores are obtained for three broad dimensions: degree of mutual trust; quality of communication; and, extent of anger and alienation.

The IPPA authors' assessment of its psychometric qualities demonstrated internal reliability (Cronbach's alpha) statistics of 0.87 for *mother* attachment, 0.89 for *father* attachment, and 0.92 for *peer* attachment (Armsden & Greenberg, 1987). The documented internal reliabilities of the IPPA were compared with those gained in the present this research. As Table 5 illustrates, the internal reliabilities gained in this research (range: 0.74 - 0.87) were acceptable and comparable (in magnitude and distribution) with those published by the authors of the IPPA (range: 0.87 - 0.92). The scale measuring maternal attachment demonstrated the largest alpha deviation (0.13) from that of the IPPA authors' findings.

Table 5: Comparison of IPPA (Overall Attachment Scale) Internal Reliability Statistics (Cronbach's Alpha) for Published Scale and Current Research

	Internal Reliability		
	IPPA Authors Published α	Current Research α	Disparity in α
Mother attachment ($N=1931$)	0.87	0.74	0.13
Father attachment ($N=1864$)	0.89	0.83	0.06
Peer attachment ($N=1887$)	0.92	0.87	0.05

The instrument was also reported as having good convergent validity and has been employed in a substantial number of studies where it was found to have moderate to

high correlations with scores for attachment, the three measured dimensions, and other validated instruments (Armsden & Greenberg, 1987).

5.1.3.4 OTHER: PARTICIPANT DRIVEN COMMENTS

While the preliminary and novel context of the research within New Zealand meant that the questionnaire was predetermined by the researcher, this section at the end of the questionnaire was included to allow participants to clarify, expand, or comment, on any issues that had been covered within the questionnaire. This free-form section also aimed to enable participants to identify or expand on any other gambling or research related issues which they perceived to be important.

5.2 PROCEDURES

The following sections discuss procedures relating to research ethics, recruitment of participating schools, collection of data from schools, and analysis of the data.

5.2.1 ETHICS

As the safety of participants was paramount, approval for the research and all procedures was gained from the University of Auckland Human Subjects Ethics Committee (UAHSEC). See Appendix B for all documentation pertaining to UAHSEC approval (as outlined below).

As the research was being conducted within educational institutions, informed consent to conduct the study in the school was gained from each school principal, and, if deemed appropriate by the principal, consent was also sought from their Board of Trustees. Participant information sheets were also distributed to those teachers whose classes were included in the research.

All parents/guardians of pupils selected to participate in the research were provided with an information sheet. Written consent from the parents/guardians of all minors (participants aged 15 and under) was also obtained.

In addition to parental consent, informed consent was gained from all participants (assent for those aged 15 and under). In accordance with UAHSEC guidelines, each participant was provided with information (in both oral and written formats) regarding the researcher, the purpose of the research, its voluntary and anonymous nature, selection procedures, participant requirements, and a brief description of the nature of the questionnaire items.

To address any distress arising as a result of taking part in the research, all participants were supplied, upon completion of the survey, with information and contact details for sources of assistance (further copies of this information were supplied to school health/counselling services).

5.2.2 RECRUITMENT

On February the 17th 2003, introductory letters were sent to each Health Coordinator/Head of Health of the schools selected for inclusion in the study. A copy of this letter was also sent to the Principal of each school. This letter briefly introduced the researcher, outlined the aims and requirements of the research, and invited the school to participate (see Appendix B for a copy of this letter). A follow-up call was made to each Health Coordinator one week after posting the letters. The research timeframe, and difficulties encountered in achieving follow-up contact with Health Coordinators, resulted in the setting of a maximum timeframe (ten days) for establishing contact. Telephone was the preferred form of contact, however, in some cases, school administrative staff recommended e-mail as an appropriate and more

effective method of gaining follow-up contact with teachers. In these situations, e-mail was adopted as the contact method. When ten days had passed without achieving contact or a school had declined to take part in the research, the next randomly selected school was approached. This procedure was repeated until the full sample was obtained. Some schools requested copies of the instruments and/or meetings with the researcher prior to agreeing to take part. These options were available to all schools and were undertaken when requested.

Overall, 33 schools were invited to take part in the research. Follow up contact could not be made with three of the schools (9.1%) and a further 14 (42.4%) declined to take part. In total, 16 schools (48.5%) agreed to participate. However, due to time constraints associated with their school calendar, four of these schools were subsequently unable to participate. Thus, in total, 12 schools participated. No differences were observed between the schools that agreed to participate and those that declined with regard to school decile, gender breakdown (single sex/co-ed), or location (urban/rural).

5.2.3 COLLECTION OF DATA

Responses were collected between 9th June 2003 and 30th October 2003. The research dates were determined by each school's schedule and availability.

In the week prior to participation, the researcher introduced herself and the research project to those classes selected for participation, and distributed parental information and consent forms (when relevant) for delivery to parents. Participants were given an opportunity to address any queries regarding the survey to the researcher.

Responses were collected at each participating school during school hours. Generally, the questionnaire was administered by the researcher to single classes of participants in a classroom setting. However, some schools requested that, in an effort to minimise disruption, all data be collected within one school period. In these cases, participating classes were assembled within a larger school venue (typically an assembly or physical education hall).

On the day of the survey, those participants who chose to participate and had returned parental consent forms (when applicable) were provided with, and given time to read, their own information and consent sheets for the research. Following a verbal explanation of the information contained in the information and consent sheets, a further opportunity to ask questions of the researcher was provided and then questionnaires were distributed for completion. Students who declined to participate, or whose parents did not provide permission, remained in the classroom and were instructed by their teacher to continue with some schoolwork (e.g. homework, assignments, etc) while other students completed the questionnaire.

Teachers were present while questionnaires were administered. However, to ensure that the participants could complete the questionnaire in privacy, it was requested that teachers remain at the front of the research venue and not interact with the students, unless a student initiated contact or disciplinary action was required. For the same reasons, the importance of answering the questionnaire in an independent fashion (i.e. not conferring with others) was stressed.

Upon completion, the researcher collected the questionnaires and distributed information relating to sources of assistance for gambling issues (e.g. the Youth Gambling Helpline). Participants were thanked for their contribution and given the

opportunity to ask the researcher any further questions raised by the survey content or topic.

5.2.4 ANALYSIS OF DATA

The statistical techniques used in this study were adopted following consideration of the measures (and resulting data), the number of variables, and the sample size. All analyses were carried out using SAS software (version 9.1.2) (SAS Institute Inc., 2004), which was accessed through the University of Auckland computer network.

Three major sets of analyses were conducted.

1. The initial phase entailed the production of descriptive statistics: frequencies and measures of central tendencies (means and medians). These analyses were done through frequency and survey means procedures in SAS.
2. In the second phase, univariate analyses investigated associations between individual items (hypothesised to perform protective or risk functions) and demographic variables, gambling status, and problem gambling status.
3. The final phase of analysis involved the investigation of associations between problem gambling status and selected variables which had been identified as being protective in nature, while also accounting for selected identified risk factors.

This process of individually identifying risk and protective factors, and then pulling them together to verify their status in the presence of each other, has been identified as appropriate for research utilising this type of data set and adopting similar objectives (Collett, 2003). Moreover, there is precedence in New Zealand for these

analytical procedures: the Youth2000 study (Adolescent Health Research Group, 2003), the largest research project with New Zealand adolescents, adopted this strategy when analysing their data set on youth health issues.

Both the second and third phase of analysis were investigated through the logistic regression (logreg) procedure in SAS (odds ratios were calculated and comparisons of response frequencies were performed).

While a number of multivariate statistical procedures were considered, in particular, structural equation modelling (SEM) and factor analysis, multiple logistic regression procedures were chosen. The following issues were considered in this decision making process:

- *Units of analysis*: unlike SEM and factor analysis, logistic regressions are appropriate for use with dichotomous outcomes (e.g. gambler / non-gambler, problem / non-problem gambling status) and multiple explanatory variables. Moreover, both categorical and nominal data can be accommodated within logistic regression procedures (thus preventing any loss of detail from the conversion of continuous data to categorical data) (Tabachnick & Fidell, 1996);
- *Distribution of data*: unlike SEM and factor analysis, logistic regressions do not require data to be normally distributed for explanatory variables;
- *Independence of variables*: logistic regression procedures do not require variables to be independent of each other (Pagano & Gauvreau, 1993);
- *Controlling for variables*: at the time of data analysis, programmes enabling both SEM and factor analysis were unable to account for the effects of school clustering or weight the data set in relation to other variables (e.g. gender, age,

and ethnicity). Logistic regression procedures were capable of accounting for these issues; and,

- *Causality and model building:* both SEM and factor analysis are more appropriate when analysis is seeking to confirm causality and/or build a predictive model. Given the early stage of both youth gambling research in New Zealand and research into the role of protective factors in youth gambling, an attempt to define causality or to build a predictive model would be premature.

Standard multiple regressions were chosen over stepwise and hierarchical procedures as there was no theoretical or empirical basis for believing that one variable was more influential than another (Tabachnick & Fidell, 1996).

In all analytical procedures (excluding production of ‘raw data’ such as frequencies), data were weighted according to the proportion of participants recruited from each school, and the effects of ‘school clustering’ were controlled for (i.e. potential correlations of data within schools were accounted for). Except for those instances when demographic variables (gender, age, and ethnicity) were entered as independent variables, their effects were also controlled for.

A P-value of .05 was utilised as a measure of statistical significance for all statistical tests. Given the large number of significance tests to be conducted, due consideration was given to the issue of type-I errors. The researcher initially considered two standard approaches to this issue. The first of these entailed the adoption of a stricter P-value, for instance, .01. However, the danger of this approach is that it may unnecessarily exclude results which might be important in opening up a new and innovative area of research. The second approach involved the consideration of the

Bonferroni method of interpreting significance tests. However, recent debate within the field of medical and health research statistics indicate that the Bonferroni method may be inappropriately conservative for multiple tests, such as those performed in the current research (Bland & Altman, 1995). After considering the possible approaches and the exploratory nature of the research, particularly with regard to protective factors, the adoption of a .05 P-value, and the reporting of exact P-values in the relevant appendices was deemed the most appropriate approach.

This thesis frequently makes use of Odds Ratios (ORs), as is required for logistic regressions, in the presentation of results. Where relative likelihood of events is discussed, likelihood must be interpreted with an understanding of ORs. Specifically, discussions of likelihood should not be interpreted as discussions of Risk Ratios (RRs), although RRs can be a more intuitive interpretation of the concept of 'likelihood'.

Due to the exploratory nature of the current research and limitations to the sampling frame, it was deemed inappropriate to pursue an overall model of influences upon adolescent gambling behaviour.

Each phase of the analysis described above is presented within the relevant subsection of the following chapters according to topic. Although some figures and tables are presented within the chapters, most are located within the appendices.

6 RESULTS: SAMPLE CHARACTERISTICS

The next six chapters cover various aspects of the results and provide information with which the research questions can be addressed. They move from largely descriptive information of the sample and their gambling behaviour (*chapters six and seven*), to comparisons between those who do and do not gamble (*chapter eight*). The following two results chapters provide details on the differences between those who gamble safely and those who gamble problematically (*chapter nine*), and the initial identification of resiliency-based risk and protective factors (*chapter ten*). This leads to the final results chapter (*chapter eleven*), which brings together the risk and protective variables that have been significantly associated with problem gambling, resulting in the verification of selected protective factors while in the presence of known risk factors. Together, the results chapters are intended to provide the reader with both descriptive data and an account of the processes and results arising from the narrowing down of risk and protective factors to one final analysis.

This chapter aims to provide the reader with information relating to the demographic breakdown of the obtained sample: detailed information on the age, gender, ethnicity, and residency status of participants is presented. The demographic information from the sample is then contrasted with data from national and regional populations.

In total, 2005 participants were included in the final analyses (15 questionnaires were removed from the data set due to issues with legibility or an apparent lack of serious

intent). Table 6 provides a detailed breakdown of the sample by age, gender, ethnicity and residency status.

Table 6: Detailed composition of sample according to demographic characteristics (N=2005)

<i>Variable</i>	<i>N</i>	<i>%</i>
<i>Years of Age (N=1998)</i>		
11	7	.4
12	9	.5
13	213	10.7
14	454	22.7
15	488	24.4
16	431	21.6
17+	396	19.9
<i>Gender (N=1999)</i>		
Female	1075	53.8
Male	924	46.2
<i>Ethnicity ^T (N=2001)</i>		
NZ European/Pakeha	926	46.3
Asian	481	24.0
Pacific Peoples	321	16.0
Maori	220	11.0
Other	53	2.6
<i>Ethnicity * (N=2001)</i>		
NZ European/Pakeha Only	926	46.3
Asian Only	464	23.2
Pacific Peoples Only	285	14.2
Maori Only	95	4.7
Maori & NZ European/Pakeha	75	3.7
Other Only	53	2.6
Two or more groups not elsewhere defined	50	2.5
NZ European/Pakeha & Pacific Peoples	29	1.4
Maori & Pacific Peoples	24	1.2
<i>Residency Status (N=1993)</i>		
Born in NZ	1188	59.6
Has lived in NZ for one year or more	716	35.9
Has lived in NZ for less than one year	89	4.5

^T Categorised in accordance with Census 1996 criteria. Unless otherwise stated, this categorisation of ethnicity is used in analyses.

* Categorised in accordance with Census 2000 criteria and guidelines.

Gender and Age

The sample consisted of slightly more females (53.8%, N=1075) than males (46.2%, N=924), and ranged in age from 11 to 21 years (with a mean age of 15.21, SD 1.45). Due to the relatively small numbers of participants aged 11 and 12 (as illustrated in Table 6) and an interest in investigating developmental phases and processes, age was transformed into three categories for use with subsequent analyses: early adolescence (13 and under), mid adolescence (14 and 15), and late adolescence (16 and over). Table 7 presents a breakdown and comparison of gender and age according to the: national, sample region, surveyed school populations, and survey sample.

Table 7: Age and gender breakdown of national school population, sample region school population, surveyed school population and survey sample (as at 1 July 2003)

	National School Population		Sample Region School Population		Surveyed School Population		Sampled Students	
	N	%	N	%	N	%	N	%
<i>Gender</i>								
Female	140176	50.1	130832	48.7	8547	49.8	1075	53.8
Male	139684	49.9	137927	51.3	8607	50.2	924	46.2
TOTAL	279860	100	268759	100	17154	100	1999	100
<i>Years of Age</i>								
13	62388	22.3	21723	22.3	2973	17.3	*213	12.6
14	59991	21.4	20680	21.2	3615	21.1	454	26.9
15	56847	20.3	19488	20.0	3484	20.3	488	29.0
16	46821	16.7	16146	16.6	2984	17.4	134	8.0
17+	53813	19.2	19373	19.9	3229	18.8	396	23.5
TOTAL	279860	100	97410	100	17154	100	1685	100

*Although 16 of the sampled students were actually 11-12 years of age, they have been included within this (13 years of age) category.

It can be seen that the sample is generally in line with the national, regional and surveyed school populations. However, some discrepancies are noticeable: females are slightly over-represented, and those aged 13 and 16 are slightly under-represented.

Ethnicity

As illustrated in Table 6, the sample was made up of NZ European/Pakeha (46.3%), Asian (24.0%), Pacific (16.0%), Maori (11.0%), and Other (2.6%). Although the majority (91%) of participants self-identified with one ethnic group only, a substantial proportion (8.8%) identified with two or more ethnic groups¹⁶. Table 8 illustrates the ethnic distribution of the survey sample in relation to the national, sample region, and surveyed school populations. In comparison to the:

- *Surveyed school population*, the sample appears to have an under-representation of NZ European/Pakeha students while Pacific Island students are over-represented;
- *Sample region school population*, the sample appears to have an under-representation of Maori and Other students while Asian students are over-represented; and,
- *National school population*, the sample appears to have an under-representation of NZ European/Pakeha and Maori students while Pacific, Asian and Other students are over-represented.

Table 8: Ethnic breakdown of national school population, sample region school population, surveyed school population and survey sample (as at 1 July 2003)

	National School Population		Sample Region School Population		Surveyed School Population		Sampled Students	
	N	%	N	%	N	%	N	%
NZ European / Pakeha	156635	63.8	116264	44.8	9913	59.1	926	46.3
Maori	43442	17.7	42048	16.2	1527	9.1	220	11.0
Pacific Peoples	19416	7.9	45641	17.7	1483	8.8	321	16.0
Asian	21554	8.8	38978	15.0	3374	20.1	481	24.0
Other	4321	1.8	16319	6.3	486	2.9	53	2.6
TOTAL	245368	100	259250	100	16783	100	2001	100

¹⁶ To ensure consistency with other New Zealand research, students who identified with two or more ethnic groups were categorised in accordance with Census 2000 criteria and guidelines.

Although there appear to be some differences between the sample and the overall school statistics, it is necessary to note that the overall school data (shaded grey in Table 8) is compiled by the Ministry of Education (MOE) and is inaccurate due to their decision not to gather information on the ethnic breakdown of MFAT (Ministry of Foreign Affairs and Trade) and FFP (foreign fee paying) students. The fact that these students account for a substantial proportion of the school population (12101 high school students as at 1 July 2003), and are likely to mostly consist of students from Asian, Pacific and Other ethnic groups, contributes to the over-representation of these groups in the obtained sample. As details on MFAT and FFP students have been omitted from the MOE ethnicity data, it is difficult to accurately compare the survey sample with school populations. Therefore, this table is intended as a rough guide only.

Residency Status

Although the majority (59.6%) of participants were born in New Zealand, a substantial proportion were not, and had either been living in New Zealand for more than one year (35.9%), or had been living in New Zealand for less than one year (4.5%).

The above section demonstrates that although a number of small discrepancies do exist between the sample characteristics and national and regional school statistics (the most notable relating to the youngest age category and ethnicity), the demographic breakdown of the sample is effectively representative of all demographic groups. However, the magnitude of differences in ethnic distributions is difficult to estimate due to the Ministry of Education's failure to record details relating

to MFAT and FFP students. As mentioned previously, there were also no apparent differences between those schools that agreed to take part and those that declined (with regard to school decile, gender, ethnic breakdown, and locality).

7 RESULTS: THE LANDSCAPE OF ADOLESCENT GAMBLING IN NEW ZEALAND - *WHAT, WHEN, WHERE AND WHY?*

This chapter presents largely descriptive information regarding participants' gambling behaviour and will enable the first research question (*How relevant is gambling to the young people of New Zealand?*) to be addressed. It begins with data relating to patterns of use and is followed by a section that provides the reader with results relating to the social context of participants' gambling behaviour. The final section of this chapter presents findings that relate to participants' beliefs and perceptions with regard to gambling.

7.1 PATTERNS OF USE

The following section provides a description of youth gambling practices. With an overall focus upon patterns of use, it contains descriptive data pertaining to the following aspects of gambling: modes of gambling and potentially co-occurring behaviours (the use of internet and computer games); initial age of gambling; expenditure on gambling (in terms of money and time); location; motivating factors; and the presence of others when gambling.

7.1.1 PARTICIPATION IN GAMBLING

The majority of participants (N=1308, 65.4%) in this study indicated that they had gambled at least once within the previous year (on one or more modes of gambling on at least one occasion). Participants were able to provide free-form comments if they

wished at the end of the questionnaire. In contrast to the participation rate found, a number of these comments suggested that gambling was not viewed as a particularly relevant activity for people in their age group:

“Gambling not a very big deal, I doubt anyone actually does it much at my age” (15 year old, male)

“Yep, I don't think you will find many people my age will be gambling. Mostly because they are not able to get into casino's etc. I think if you survey people around 30 you would get a lot more people gambling.” (16 year old, male)

“students don't gamble” (17 year old, male)

“I think that there is no problem in nz with young people & gambling. Try ages 20-49. Young people dont have a high enough income to even start gambling. Let alone support the habit.” (16 year old, male)

“i don't think that gambling is as big an issue for younger people as we tend to be more satisfied and excited with day to day life where adults may be seeking some other form of happiness, luck or even some change in their routine.” (15 year old, female)

“I dont think gambling is a problem with teenagers.” (16 year old, male)

“teenagers don't care about it → only adults have the problems” (15 year old, female)

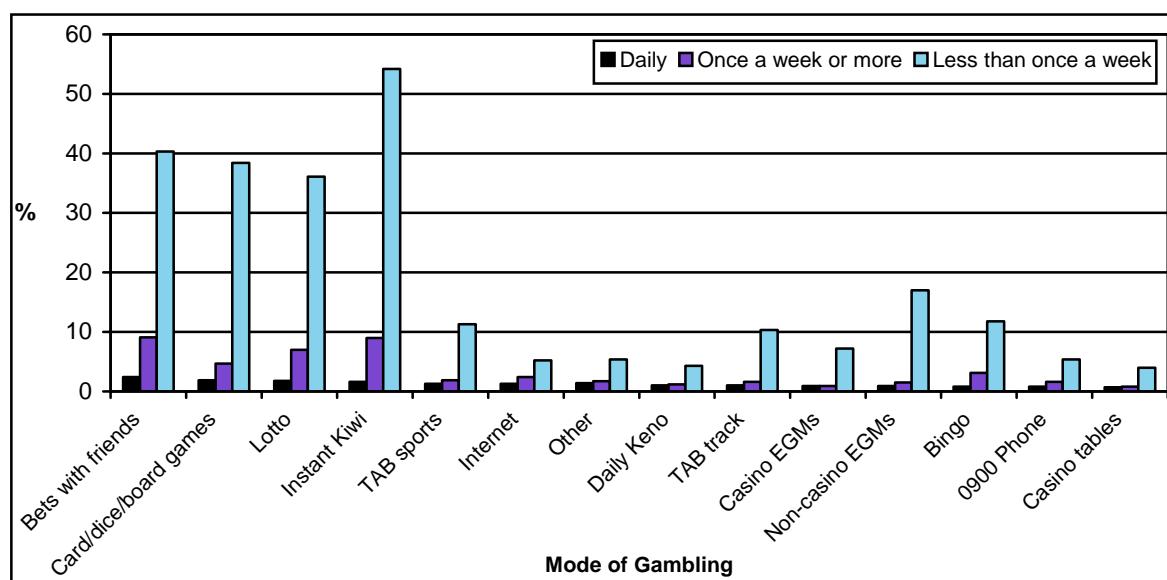
Unless otherwise stated, the following sections discuss results that relate to those participants who had gambled.

7.1.2 PARTICIPATION IN INDIVIDUAL MODES OF GAMBLING

Overall rates of participation (sum of *daily*, *once a week or more*, and *less than once a week*) for each mode of gambling were as follows: Instant Kiwi (64.8%), bets with friends (e.g. on sports or skill games) (51.8%), card/dice/board games (46.7%), Lotto (44.9%); non-casino EGMs (19.4%), bingo (15.6%), TAB sports betting (14.5%), TAB track betting (12.9%), casino EGMs (9.1%), internet gambling (8.8%), other form of gambling (8.5%), 0900 Phone games (7.8%), Daily Keno (6.5%) and casino tables (5.5%). A detailed breakdown of these participation rates according to gambling mode is illustrated in Figure 9 (*never* responses have been excluded from

this graph). It can be seen that for each gambling mode, the majority of young people gamble on a *less than weekly* basis and that bets with friends, card/dice/board games, Lotto, and Instant Kiwi, are clearly the modes most frequently engaged in, regardless of response category. Further details are provided in Appendix C.4.

Figure 9: Mode of gambling by frequency of participation – gamblers' only



7.1.2.1 INTERNET USAGE

Three questions gathered information on different aspects of participants' use of the internet: frequency of use, number of hours spent, and presence of others when using the internet. These items were included due to speculation regarding the increasing popularity of internet gambling and its potential as a socially isolating activity without social safeguards (i.e. limited social monitoring of internet use by young people).

Frequency of Internet Usage

The majority of participants used the internet on a weekly basis: 38.3% *every day* and 29.8% *2-3 times a week*. Of the remaining participants, 12.2% indicated *2-4 times a*

month, 9.9% monthly or less, and 9.8% never. Further data are available in Appendix C.45.

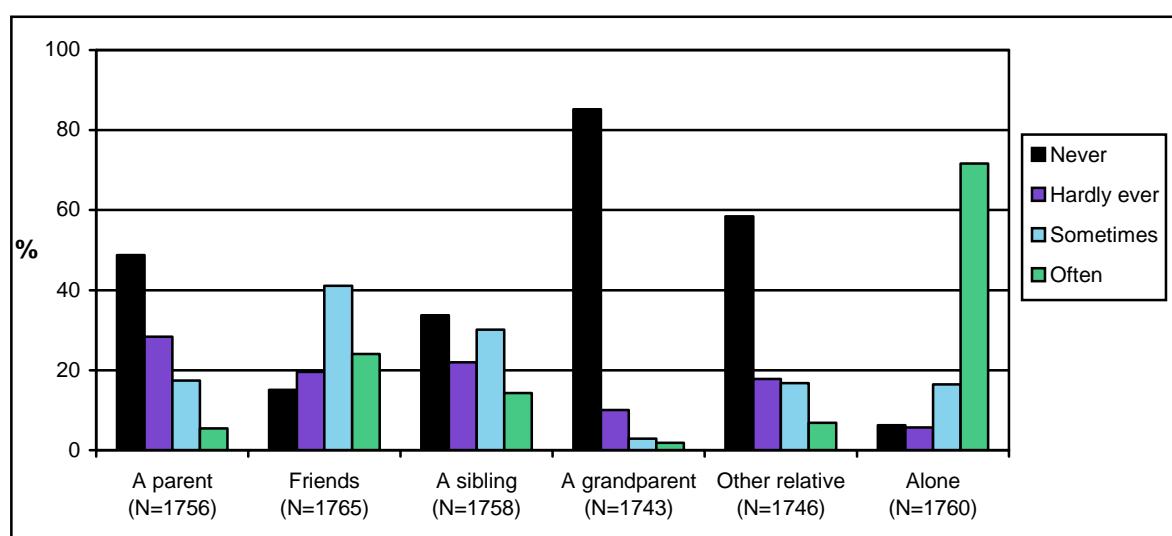
Number of Hours Spent Using the Internet

For both average weekdays and weekend days, most participants indicated that they spent either *less than 1 hour per day* (40.6% weekday and 31.7% weekend day) or *1-3 hours per day* (37.3% weekday and 28.4% weekend day). Further details can be viewed in Appendix C.46.

Presence of Others when Using the Internet

As illustrated in Figure 10, with regard to overall affirmative rates (i.e. sum of *hardly ever*, *sometimes* and *often*), participants frequently used the internet alone (93.8%), or with friends (84.9%). Siblings and parents were also frequently present (66.3% and 51.2% respectively), while other relatives (41.6%) and grandparents (14.8%) were less common. A particularly striking finding is that 71.6% of participants indicated that they *often* use the internet alone. Appendix C.47 provides further details.

Figure 10: Presence of others when using the internet (by frequency)



7.1.2.2 COMPUTER GAME USAGE

As with use of the internet, three questions on patterns of use were included for computer games. The gathered information related to frequency of use, number of hours spent playing, and presence of others when playing. These items were of interest due to the increasing similarities between computer games and some forms of gambling (i.e. some gambling has begun to emulate the characteristics of computer games; this inevitably makes them more attractive to young people). It is thought that young people who are more involved in computer games may be less likely to distinguish between them and gambling.

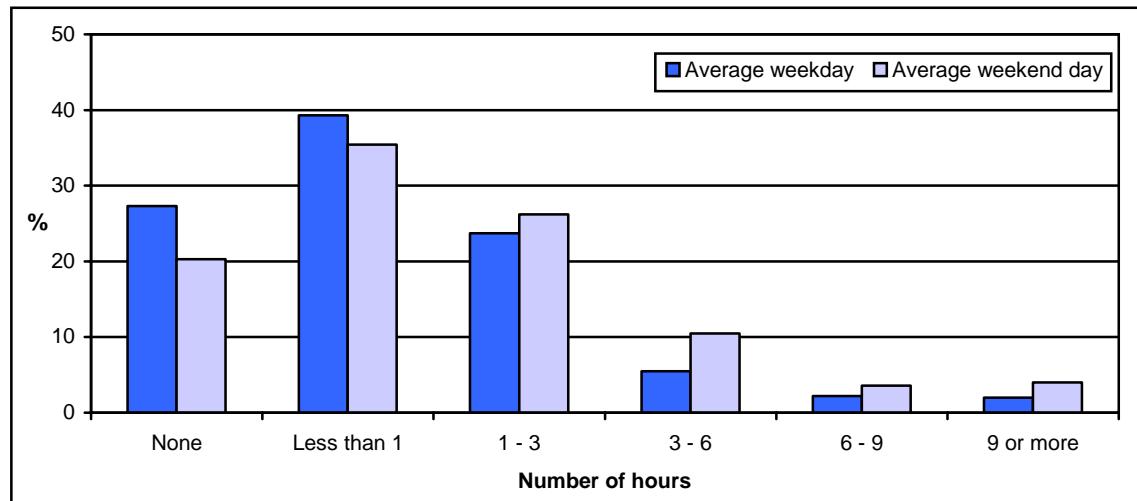
Frequency of Playing Computer Games

With approximately one fifth of participants citing each response category, results were fairly equally distributed in relation to this item: 22.9% indicated that they *never* play computer games, 22.5% played *monthly or less*, 16.7% *2-4 times a month*, 21.2% *2-3 times a week*, and 16.7% *every day*. Further information is available in Appendix C.50.

Number of Hours Spent Playing Computer Games

Figure 11 illustrates that participants generally spend more time playing computer games at the weekend than during the week, although a majority spend *none, less than 1 hour or 1-3 hours* per day (for both average week and weekend days). Details relating to these distributions can be viewed in Appendix C.51.

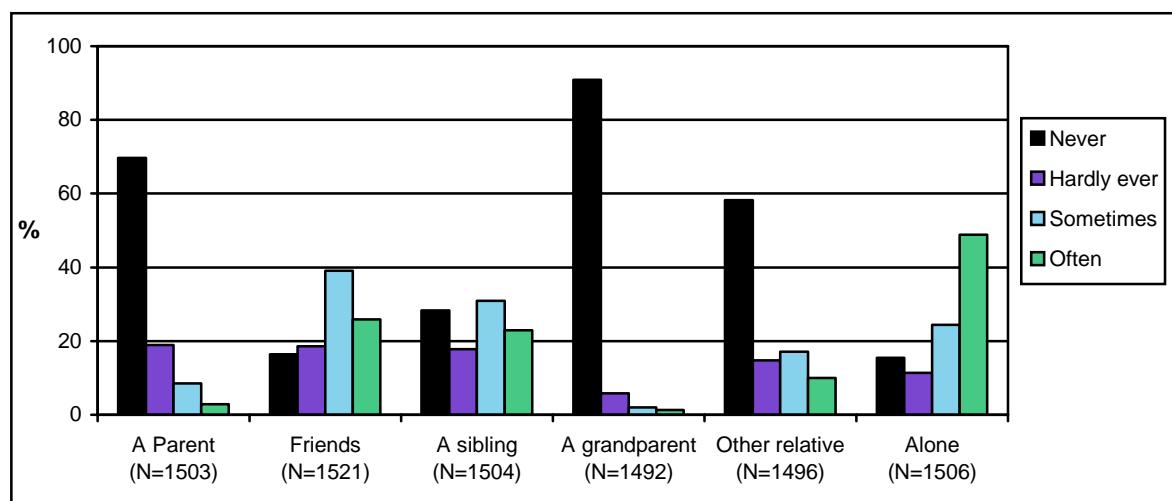
Figure 11: Average number of hours spent playing computer games by average weekday (N=1521) and weekend days (N=1518)



Presence of Others when Playing Computer Games

As illustrated in Figure 12, participants played computer games with friends and siblings more often than they did with grandparents, parents, or other relatives. It is interesting to note that many participants reported playing computer games alone, with a large proportion (48.8%) indicating that they do so *often*. Appendix C.52 provides further details.

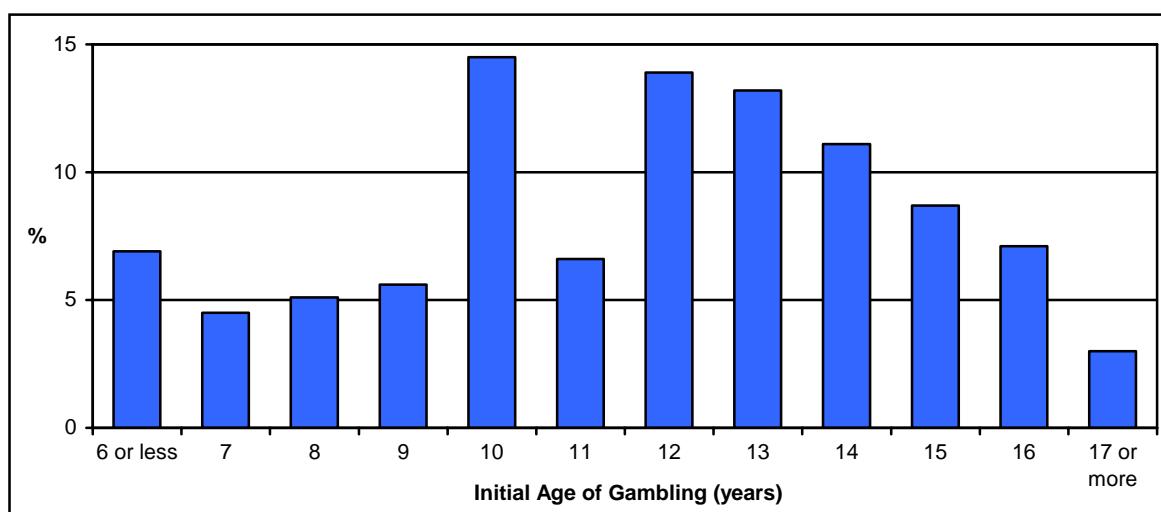
Figure 12: Presence of others when playing computer games (by frequency)



7.1.3 INITIAL AGE OF GAMBLING

Figure 13 shows the age at which participants first participated in gambling. A substantial proportion ($N=152$, 36.5%) had already gambled by the age of ten, with the mean initial age being 11.6 years (standard deviation of 3.2 years). It is also noticeable that there is a substantial discontinuity, age 11, coinciding with a change of school environment (i.e. progression from primary to intermediate school).

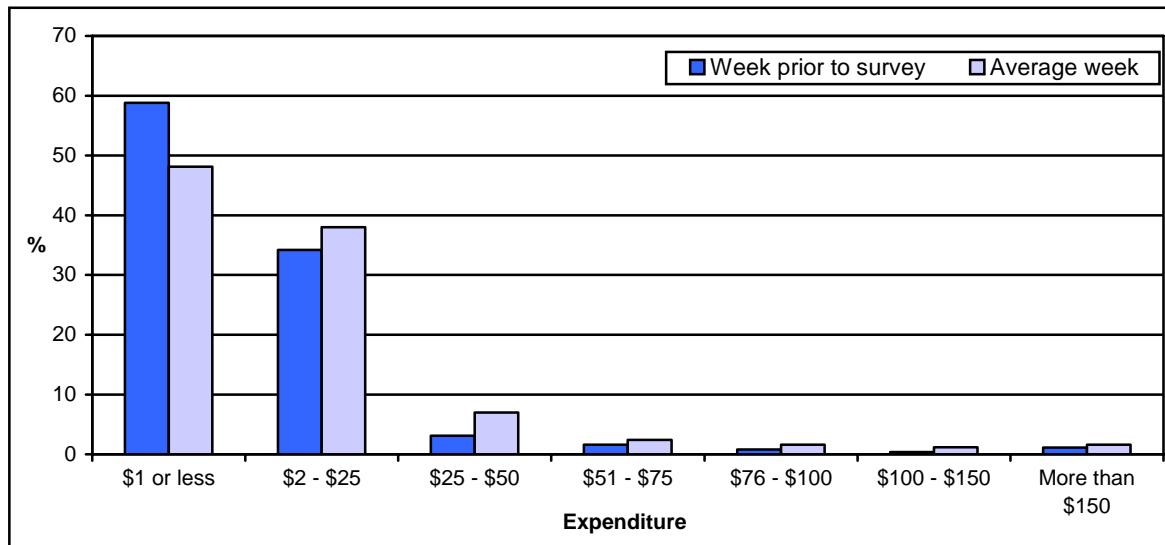
Figure 13: Initial age of gambling ($N=1049$)



7.1.4 MONEY SPENT ON GAMBLING

Participants were asked about two aspects of monetary expenditure on gambling to provide an indication of their level of engagement with gambling; questions related to the week prior to being surveyed and an average week. Figure 14 illustrates response distributions for both timeframes (with details being available in Appendix C.8). It can be seen that the vast majority of participants spent less than \$25 (either *\$1 or less* or *\$2-\$25*) on gambling activities in both the week prior to being surveyed ($N=1074$, 93%), and an average week ($N=993$, 86.1%).

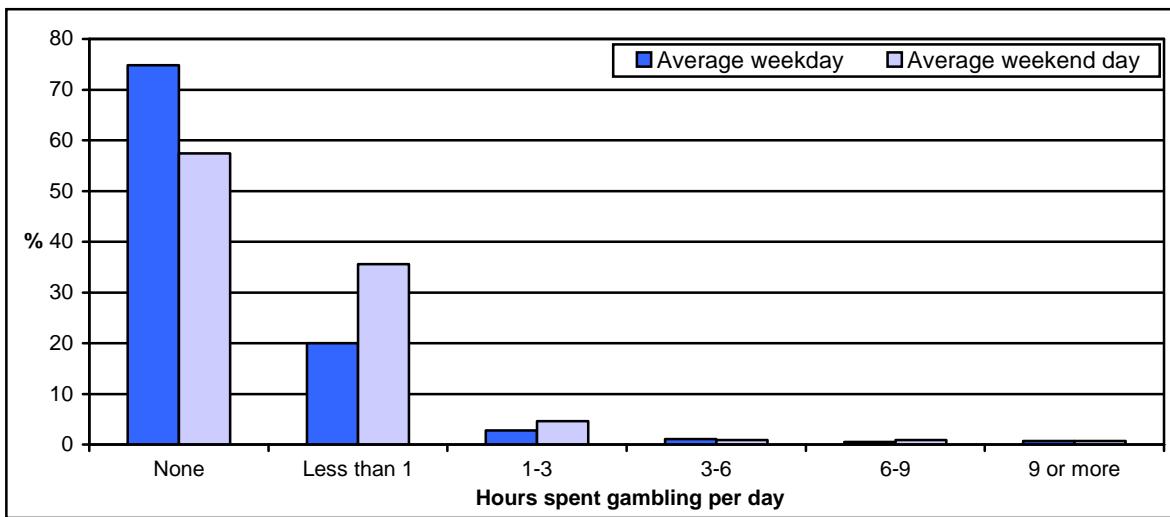
Figure 14: Monetary expenditure on gambling by *previous week* (N=1154) and *average week* (N=1153)



7.1.5 TIME SPENT ON GAMBLING ACTIVITIES

The amount of time spent gambling provided another indication of participants' level of engagement with gambling. Information on the amount of time spent gambling was gathered for two time frames: average weekday and average weekend day. Figure 15: Time spent gambling by average week (N=1165) and weekend (N=1163) illustrates response distributions for these items (further details can be found in Appendix C.12). A majority of participants indicated that they did not gamble on weekdays (N=872, 74.8%) and, to a lesser extent, on weekends (N=667, 57.4%). Conversely, other response categories were endorsed by greater proportions of participants for weekend rather than week days.

Figure 15: Time spent gambling by average week (N=1165) and weekend (N=1163) days



7.1.6 LOCATION OF GAMBLING ACTIVITY

It is interesting to note that of the locations listed as possible venues for engaging in gambling, the two most frequently cited were an individual's home (57.1%) and Lotto outlets (41.8%). A friend's home (28.6%), school (22%), and bar/club (10.4%) were also popular. All other options were selected by less than ten percent of participants. Further information can be found in Appendix C.16.

7.1.7 REASONS FOR PARTICIPATING IN GAMBLING ACTIVITIES

Of the 13 options listed as possible reasons for gambling, the five most frequently cited by those who gambled were: for enjoyment (60.8%), to win money (58.0%), for excitement (33.7%), to relieve boredom (26.9%), and for a challenge (23.5%). As can be seen in Appendix C.19, fewer than ten percent of participants endorsed the remaining options.

A number of participants identified reasons for gambling in their comments at the end of the questionnaire, with 'fun' being mentioned a number of times:

“I like gambling it is fun.” (15 year old, male)

“little gambling could be fun, relax, excitement. But big gambling could be trouble.” (15 year old, female)

“It's fun but can be addictive so I don't do it much.” (17 year old, male)

“Gambling is fun if you don't take it to a certain extent where you do it all the time.” (15 year old, male)

“gambling can be fun if you know what your doing and you don't get carried away” (13 year old, male)

A number of these comments also referred to reasons for not gambling:

“Gambling for losers who think they can win when they always lose and they are never winning” (13 year old, male)

“Gambling is just a waste of time and money, I rather go out and have fun with my friends rather than spending time in gambling.” (18 year old, male)

“Yes I think gambling is a very very dumb thing, it is really just so stupid if you want money go work for it or get a job so that is what I think of gambling.” (12 year old, female)

“That gambling is not good you waste your money easy.” (15 year old, male)

“Gambling is boring and I don't know why people gamble.” (13 year old, male)

I do not gamble. I think it's stupid and I don't know why people do it. Gamblers are very silly and I think they have a weak conscience. (15 year old, female)

“Gambling is stupid + boring” (15 year old, female)

“Gambling is a waste of time and money!” (16 year old, female)

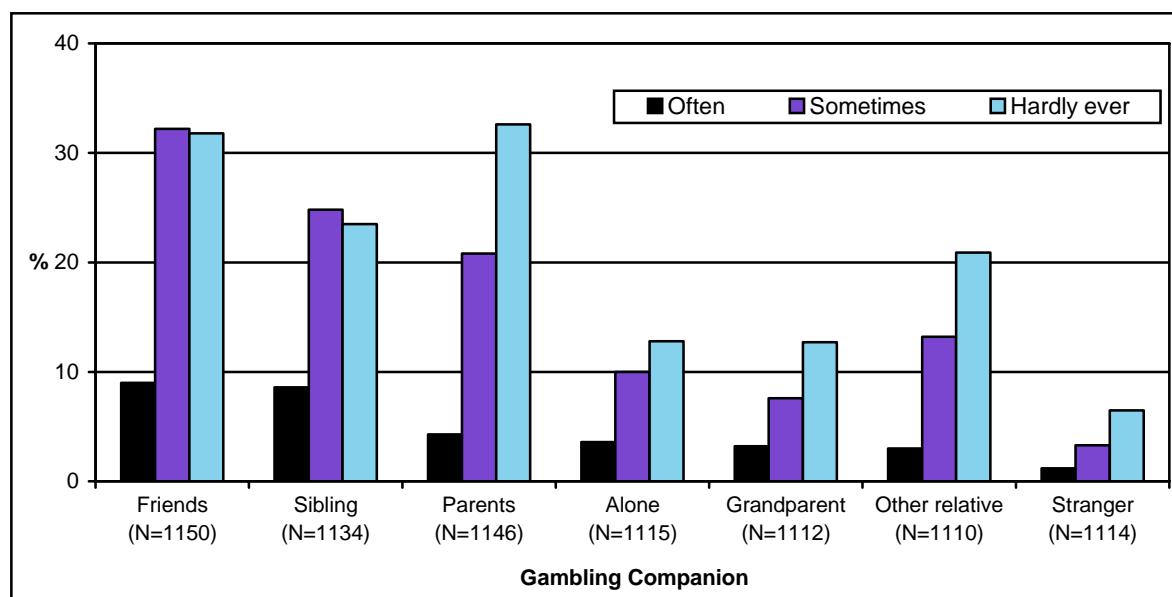
“I think gambling is a waste of time and it's for lazy people who can't be bothered doing a good job (buying a lotto ticket once a week is ok)!” (15 year old, female)

7.1.8 PRESENCE OF OTHERS WHEN GAMBLING

The results relating to who young people gamble with indicate that gambling tends to occur in the context of a young person's close social circle (friends and immediate family). Overall, 73% of participants indicated that they gamble with friends, 57.7%

with parents, 57% with siblings, 37% with another relative, 26.4% alone, 23.5% with grandparents, and 11% with a stranger. As illustrated in Figure 16, friends and siblings were the only companions with whom a substantial proportion of participants gambled on a frequent (*often*) basis (9.0% and 8.6% respectively). Details relating to these response distributions can be viewed in Appendix C.22.

Figure 16: Presence of others when gambling by frequency



7.2 SOCIAL CONTEXT OF GAMBLING

Information relating to three societal aspects of gambling was gathered: the gambling practices of household members and friends; perceived parental and peer problem gambling; and, advertising for gambling products. Each of these will be summarised in the following sections. Unlike the previous section, the results in this section relate to all participants, regardless of gambling status (i.e. whether or not they gamble themselves).

7.2.1 GAMBLING BY HOUSEHOLD MEMBERS AND FRIENDS

According to participants, lottery products were the most frequent regular (weekly) gambling mode for both household members and friends. More than half (56.3%) indicated that household members regularly gambled on Lotto/Daily Keno, and almost a quarter (22.5%) on Instant Kiwi. Gambling was less common among participants' friends, with Lotto/Daily Keno and Instant Kiwi being the most popular (19.0% and 19.1% respectively). It is concerning that 5.2% of participants indicated that their friend(s) gambled regularly at a casino (despite a legal age restriction of 20 years of age for casinos). It is possible that some of these responses were in relation to friends aged 20 years or over.

It is also interesting to note that participants seemed less sure of their friends gambling behaviour than they were of members of their household: rates of *don't know* responses centred around ten percent for household gambling (ranging between 7.7% and 12.6%) and around 30 percent for friends (ranging between 29.3% and 34.8%).

Table 9 provides the full response distributions and details for participants' perceptions of regular gambling by household members and friends.

Table 9: Perceived regular (weekly) gambling by mode for household members and friends

Gambling Mode	Yes		No		Don't Know	
	N	%	N	%	N	%
<i>Regular Gambling by Household Member</i>						
Instant Kiwi (N=1933)	434	22.5	1256	65	243	12.6
Casino (N=1920)	179	9.3	1554	80.9	187	9.7
Lotto or Daily Keno (N=1978)	1114	56.3	711	35.9	153	7.7
Gambling Machines (N=1927)	188	9.76	1559	80.9	180	9.3
Sports or Track Racing (N=1921)	246	12.8	1494	77.8	181	9.4
<i>Regular Gambling by Friend(s)</i>						
Instant Kiwi (N=1965)	375	19.1	906	46.1	684	34.8
Casino (N=1935)	100	5.2	1268	65.5	567	29.3
Lotto or Daily Keno (N=1957)	372	19	934	47.7	651	33.3
Gambling Machines (N=1940)	143	7.4	1204	62.1	593	30.6
Sports or Track Racing (N=1941)	182	9.4	1144	58.9	615	31.7

7.2.2 PERCEIVED PARENTAL AND PEER PROBLEM GAMBLING

The potential for problem gambling to negatively affect young people's quality of life, at familial and societal levels, should not be underestimated. The proportion of participants who indicated that they had been exposed to problem gambling through family or friends is of great concern. Slightly more participants believed that their father may have a gambling problem compared to their mother (5.4% and 4.0% respectively), with an even higher proportion believing a friend had a problem (8.8%). It is pertinent to note that the apparent level of confidence in answering this question was high in relation to parental gambling: very few participants indicated *don't know*:

only 6.3% for their mother, and 7.5% for their father. As with previous items regarding the gambling behaviour of friends, endorsement of the *don't know* response option (17.5%) was higher than that for parents. Appendix C.27 contains detailed response distributions relating to these items.

A number of the submitted comments highlighted the negative effects of gambling by parents and other family members on young people:

“My Grandad has a really bad problem with gambling where he had to sell the house and his car. I feel gambling is a really big problem in New Zealand and should be illegal.” (18 year old, female)

“My aunty has a gambling problem. She should spend that money on food and cloths not gambling.” (14 year old, female)

“I think my mum has a gambling problem. She always sneak out on us and when she comes back she always comes back with \$2 coins and she always tells me stuff and I keep it as a secret I ask her where is the money from and she says oh from the casino.” (13 year old, female)

“don't forget about your family when gambling because they need food and other things etc” (15 year old, female)

“Parent and caregivers should not gamble because young people of their family won't get money so they suffer” (15 year old, female)

“Parent should not do because the young members of their family will suffer” (15 year old, female)

“Its stupid it may cost relationships and houses and can break up families very easily.” (14 year old, male)

“Gambling is a problem that needs to be sorted, because it is destroying some families.” (14 year old, male)

“I just want to say gambling is not good, if one member of the family likes to gamble, it is not going to be good for the family.” (18 year old, female)

7.2.3 AWARENESS OF GAMBLING PRODUCT ADVERTISING

There was considerable awareness of gambling advertising, with between 26% and 95% of participants acknowledging specific product advertising. Regardless of advertising medium, Lotto/Daily Keno was the gambling activity for which

participants had most frequently viewed advertising: television 94.7%, newspaper 70.1%, billboard 49.1%, magazine 47.1%, and internet 36.3%. As detailed in Appendix C.30, awareness of advertising for casino, Instant Kiwi, and sports or track racing were approximately equal. It is also worth noting that substantial proportions of participants had seen internet advertising for each gambling mode: casinos, Lotto/Daily Keno, Instant Kiwi, and TAB sports/track racing (66.0%, 36.3%, 26.2% and 38.6% respectively).

7.3 BELIEFS AND PERCEPTIONS

Information was collected on participants' beliefs and perceptions about gambling. These items covered three broad topics: ease and rights of access to gambling, the roles of skill and luck in gambling, and miscellaneous (gambling beliefs not belonging to one specific category). Findings relating to each of these topics are discussed in the following sections. These results relate to all participants regardless of gambling status.

7.3.1 EASE AND RIGHTS OF ACCESS TO GAMBLING

Figure 17 illustrates the response distributions for those items addressing perceived ease of access to the five investigated modes of gambling. It can be seen that for each mode of gambling, substantial proportions of participants (between 23.8% and 40.3%) indicated they were *not sure* how easy access was. Moreover, in the case of Lottery products and the TAB, the most endorsed response was *not sure*. Although many participants agreed that it was easy to access both Lotto and Instant Kiwi, responses to casino, non-casino EGMS, and TAB gambling indicated that most participants thought that these modes of gambling were hard to access. However, as with NZ Lotteries

products, the most endorsed response for TAB was *not sure*. A detailed breakdown of responses by gambling mode can be seen in Appendix C.33.

Figure 17: Perceived ease of access by gambling mode

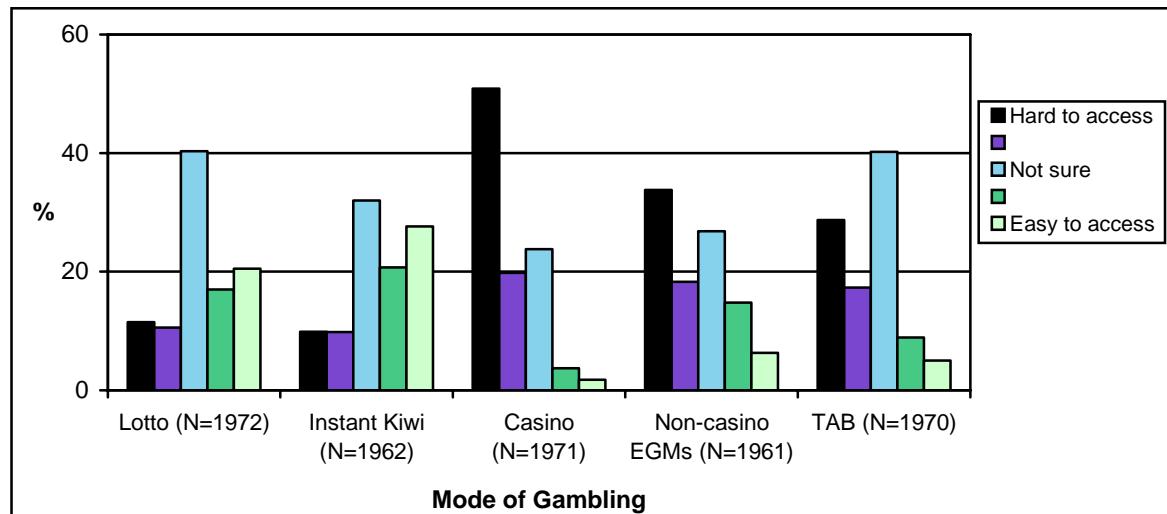
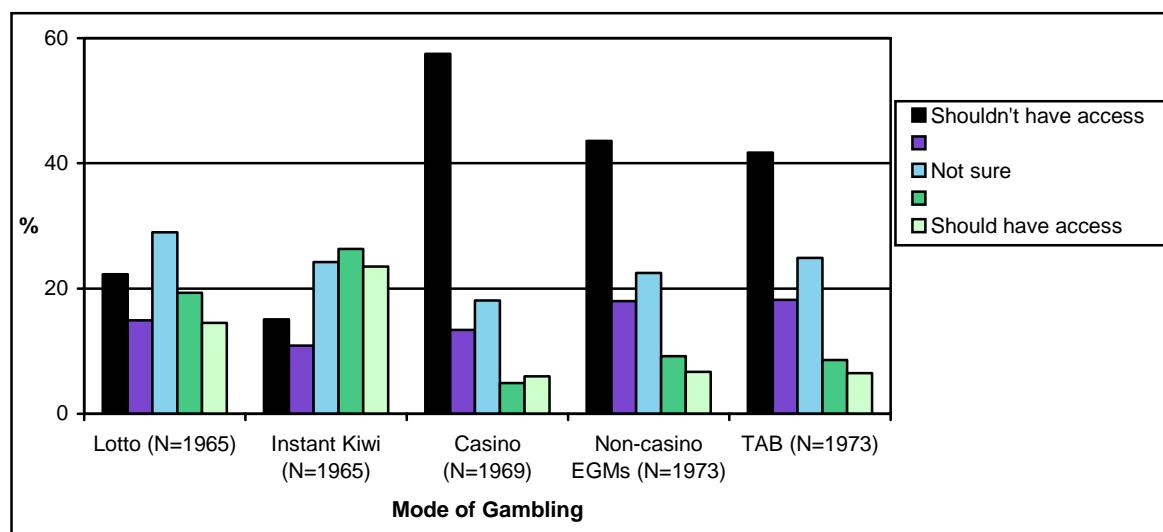


Figure 18 illustrates responses relating to participants' beliefs regarding their right of access to the various gambling modes; a detailed breakdown of responses can be seen in Appendix C.33. It can be seen that young people frequently believed that they should have access to NZ Lotteries products. Overall, approximately half (49.8%) and a third (33.8%) of all participants indicated that they should be allowed access to Instant Kiwi and Lotto/Daily Keno respectively. Participants were less convinced that they should be able to access EGMs, the TAB and, particularly, casinos.

Figure 18: Beliefs regarding rights of access by gambling mode



It is interesting that these response distributions (relating to both ease and rights of access) reflected the relevant age legislation: i.e. young people tended to think that they could and should be allowed to gamble on those modes that were legally available to them. At the time of research, age limits were: Lotto, none; Instant Kiwi, 16; Casinos, 20; EGMs, none (but must be located in licensed premises, which have an age limit of 18); and, TAB, 20.

A number of participants (mostly females) submitted comments relating to these issues. Although some expressed the opinion that they can and/or should be allowed to gamble, others commented on their inability to gamble due to their age:

“People my age CAN buy lotto tickets!” (16 year old, female)

“I dont do it, I think the age limit should be 20, reason is because people always gamble 1 or 2 years below limit eg 18 is limit, and 16, 17 year olds do it. If the age was 20 to gamble then at least the underage gambling would be at least higher therefore not as much damage to young teens.” (16 year old, male)

“They should let teenagers gamble because it's quite fun” (15 year old, female)

“We should be aloud to gamble. It is our decision to Gamble” (undisclosed age, female)

“I think that people our age should be able to gamble in casinos because it's our choice & if we lose all our money its our problem.” (16 year old, female)

“the kids at this school are under 18 they can't gamble anyway”. (15 year old, female)

“I don't think gambling is a problem with N.Z teenagers. It is too hard to gamble due to laws and a lot of us can not afford it at all.” (15 year old, female)

“I think young people like me shouldn't gamble because it's for adults only and adults shouldn't gamble too.” (13 year old, female)

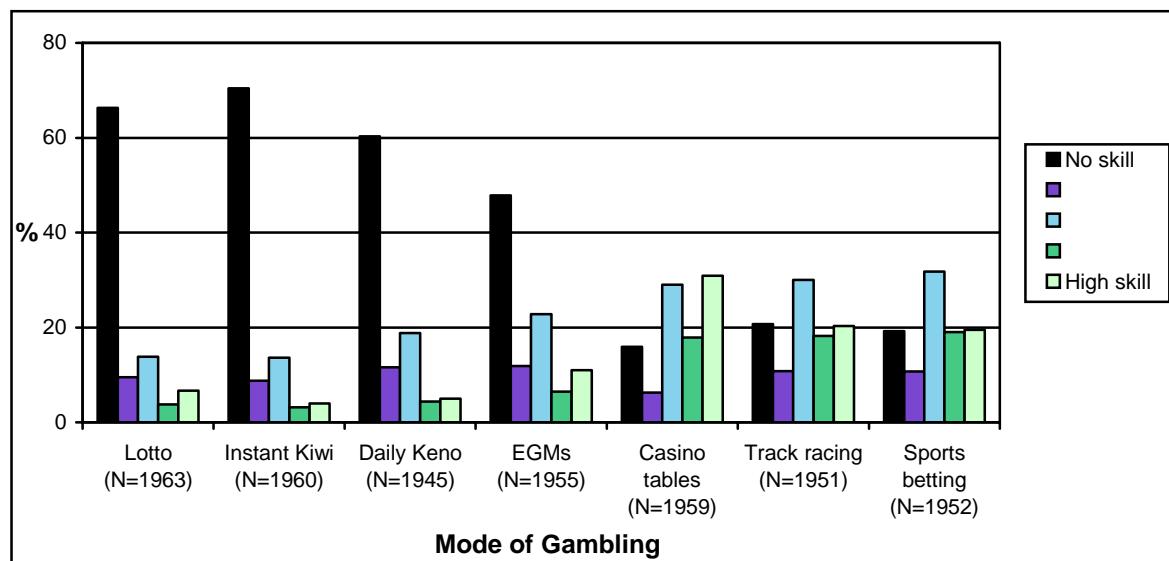
“People in my age are not allowed to gamble honestly. We can't go into casino or Tab, can we?” (15 year old, female)

“We can't go into casinos when we are not yet get on 18.” (15 year old, female)

7.3.2 THE ROLE OF SKILL IN GAMBLING

As illustrated in Figure 19, responses relating to the perceived level of skill required to win were heavily skewed for some modes, with a majority of participants indicating that no skill was required for Lotto (66.3%), Instant Kiwi (70.4%), or Daily Keno (60.3%). EGMs also neared a majority count (with 47.8%). With the exception of casino tables, which almost a third (30.9%) of participants thought required a high level of skill, response distributions were relatively evenly balanced in perceived level of skill required. Detailed response distributions (including measures of central tendency) can be found in Appendix C.39.

Figure 19: Perceived level of skill required to win by gambling mode



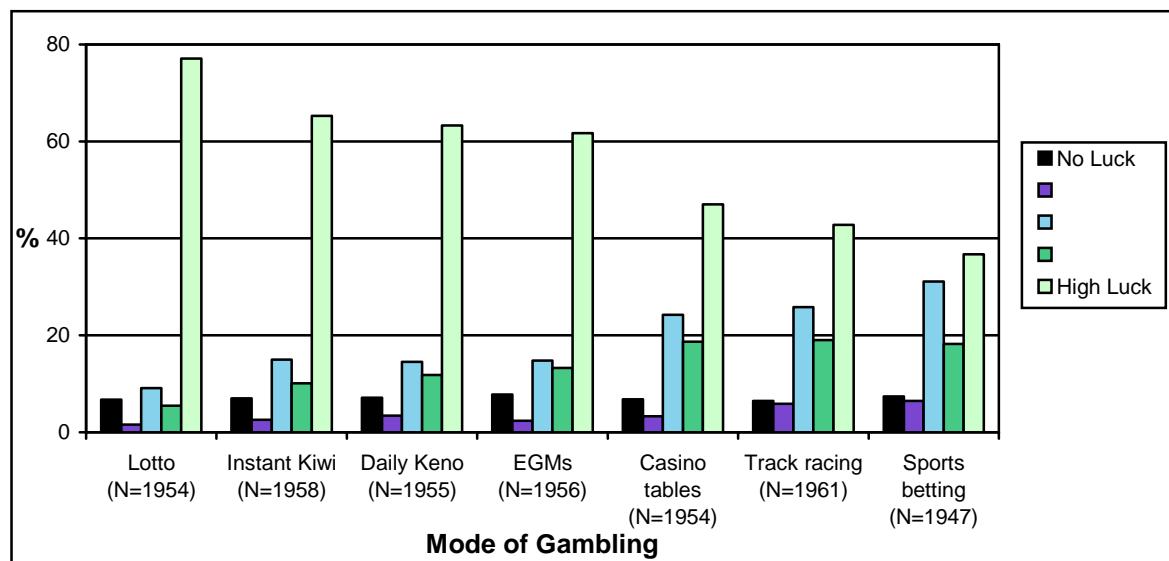
One student made the following comment on the role of skill in gambling:

“poker machines require no skill, and should be destroyed, other forms where you actually have a chance to win yourself eg; blackjack etc. those should be the only accepted forms of gambling.” (16 year old, male)

7.3.3 THE ROLE OF LUCK IN GAMBLING

As illustrated in Figure 20, most participants reporting thinking that luck plays an important role in gambling. Student responses were strongly skewed, with the highest required luck rating on the Likert scale exceeding 60% on four of the seven gambling modes: Lotto (77.1%), Instant Kiwi (65.3%), Daily Keno (63.3%), and EGMs (61.7%). Detailed response distributions (including measures of central tendency) can be viewed in Appendix C.42.

Figure 20: Perceived level of luck required to win by gambling mode



7.3.4 MISCELLANEOUS BELIEFS RELATING TO GAMBLING

A set of five items gathered information on miscellaneous beliefs and perceptions, four of which asked participants to indicate their level of agreement with a statement.

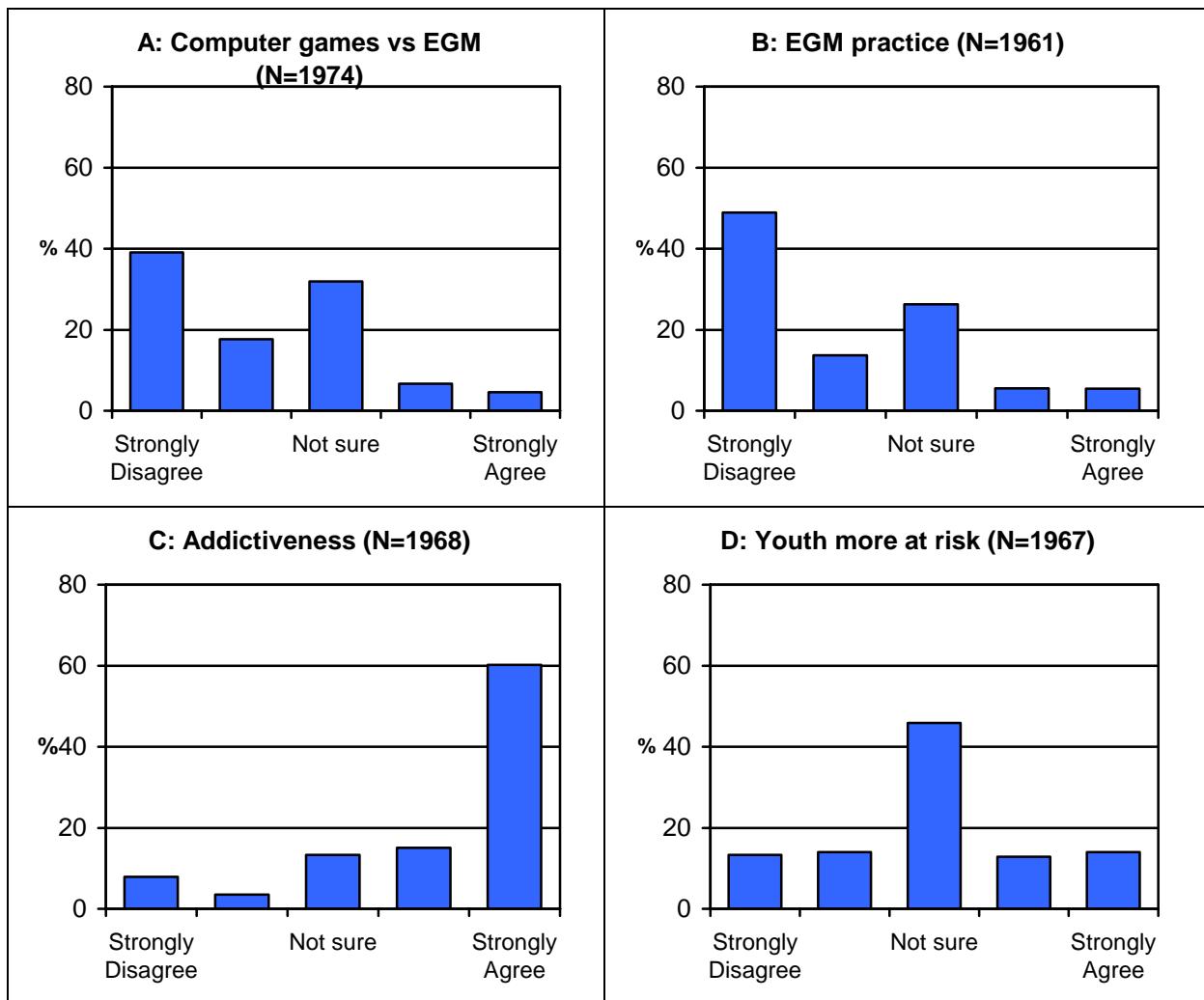
The response distributions for the following four items are illustrated below:

- Figure 21 A: Computer games vs. EGMs: “*people my age who are good at computer games will also be good at gambling on a pokie (gambling) machine*”;
- Figure 21 B: EGM practice: “*the more you practice gambling on a pokie (gambling) machine the better you get*”;
- Figure 21 C: Addictiveness: “*people can get hooked on (or addicted to) gambling just like they can on drugs or alcohol*”; and,
- Figure 21 D: Youth more at risk: “*people my age are more likely than adults to get hooked on gambling*”.

The first two statements were concerned with the potential crossover between skill on computer games and EGMs and the ability to improve performance on EGMs with

practice. It is apparent that the majority of participants either disagreed or were *not sure* about both of these statements.

Figure 21: Response distributions for statements addressing miscellaneous gambling beliefs



A majority (60.2%) of participants strongly agreed with the statement on addictiveness. However, participants were less certain about the likelihood of young people being more at risk for gambling related problems: 45.9% indicated *not sure*, with the remainder being fairly evenly split between agreeing and disagreeing. This set of findings was supported by a number of responses to the open-ended question:

“I think gambling is a dangerous addiction where more and more young people are becoming hooked on it. It is good to look into gambling research and hopefully gambling can reduce the people spending time on it.” (14 year old, male)

“I think gambling should be allowed for a suitable or certain age so young teenagers don't get addicted to it at a young age. We should learn how to use our money wisely and not gamble it and loose it over nothing.” (15 year old, male)

“I know someone that has a gambling problem and it doesn't seem like such a serious thing until he started loosing all his money, so maybe gambling is something you have to take in small portions or just not do it at all because it seems to be that you can become a gambling addict without knowing it.” (16 year old, female)

“Gambling is just as bad as drugs - it's an addiction and I don't think young children my age should get into it.” (14 year old, male)

“I would just like to say that I personally think that gambling can be addictive and I do not believe it is a good choice at all.” (15 year old, female)

“Gambling is highly addictive and should not be taken lightly.” (14 year old, male)

The final item in this set of questions (not illustrated within Figure 21) was concerned with participants' perceptions of how good they are at gambling. Unexpectedly only a minority of participants thought they were better than average: 5% indicated that they were *excellent* at gambling, 16.4% said they were *good*, 41.3% specified *average*, 21.6% selected *poor*, and 15.8% indicated *extremely poor*.

Further information on this set of questions can be found in Appendix C.36.

7.4 SUMMARY OF RESULTS - THE LANDSCAPE OF ADOLESCENT GAMBLING IN NEW ZEALAND: *WHAT, WHEN, WHERE AND WHY?*

The analyses detailed in this chapter are concerned with addressing this thesis' first research question (*how relevant is gambling to the young people of New Zealand?*).

While this question will be fully attended to in the final chapters of the thesis, these results have provided a first glimpse at the gambling patterns of young New Zealanders: information that has not previously been available for this population. A number of the findings are particularly revealing with regard to youth gambling activity and can be summarised as the following:

- More than one third of participants had gambled by the age of ten;
- The majority (65.4%) of participants had gambled within the previous year. In relation to these participants (those who gamble):
 - o Most reported gambling infrequently, spent less than one hour per day on gambling and less than \$25 per week on gambling;
 - o However, substantial proportions spent more than \$25 per week on gambling (7.0% in the week prior to the survey and 13.8% in an average week), and more than one hour per day gambling (5.1% weekday and 7.1% weekend day);
 - o Lottery type games (NZ Lotteries products), board/dice/card games and bets with friends were the most popular and frequently engaged in gambling modes;
 - o There was a tendency to gamble with members of their immediate social circle (friends, siblings, and parents);

- Participants' homes and their friends homes, Lotto outlets, and school, were among the most popular places to gamble; and,
- The most frequently cited reasons for gambling included enjoyment, winning money, excitement, relief of boredom, and for a challenge.
- In relation to the entire sample (including those who had not gambled):
 - Participants demonstrated a strong awareness of advertising for gambling products, particularly in relation to NZ Lotteries products;
 - A large proportion of participants were exposed to regular gambling through family and peers;
 - Substantial proportions of participants thought that their mother and/or father were currently experiencing problems with their gambling (4.0% and 5.4% respectively). Moreover, 8.8% of participants thought that at least one of their friends was gambling problematically;
 - Most participants thought that gambling could be addictive, although there was a high level of dissension (and uncertainty) on the question of whether or not young people were more at risk of problem gambling than adults;
 - Participants tended to think that they could and should have access to NZ Lotteries products (specifically Lotto and Instant Kiwi), but not to casinos, non-casino EGMS, and TABs;
 - Most participants thought that NZ Lotteries products and EGMS required low levels of skill, while luck was thought to play an important role in all gambling modes; and,

- Most participants understood that performance on EGMs cannot be improved with practice, and that being skilled with computer games would not equate to skilful use of EGMs.

In essence, this section of the results shows that although gambling is an activity that most young New Zealanders have taken part in, it is something in which most young people are not particularly interested. A substantial proportion do, however, engage fairly frequently in gambling. There appear to be strong social aspects to their gambling behaviour and high awareness of several contextual factors (parental/peer problem gambling, advertising etc).

The next chapter centres around the second research question (*what are the factors associated with youth gambling in New Zealand?*), and, as such, will provide an account of analyses comparing those who gamble with those who do not.

8 RESULTS: A PORTRAIT OF ADOLESCENT GAMBLING IN NEW ZEALAND – *WHO GAMBLES?*

Following on from the previous chapter, which provided an overall description of adolescent gambling practices in New Zealand (the what, when, where and why of adolescent gambling), this chapter provides an in-depth examination of the ‘who’ of adolescent gambling. As such, it is concerned with the characteristics of those who engage in adolescent gambling and aims to address the second research question, ‘*What are the factors associated with youth gambling in New Zealand?*’ As indicated in the previous chapter, the majority of participants had gambled at least once in the previous year and were classified as gamblers (N=1308, 65.4%). The analyses detailed within this chapter aim to determine which variables distinguish these participants (i.e. those who gamble) from those who do not gamble. These results provide the first source of information on this topic within a New Zealand context.

The chapter begins with an analysis of how gambling status relates to variables connected with patterns of use, followed by those related to social context, and then those related to beliefs and perceptions. As detailed in the chapter on methodology, logistic regressions were used to identify significant differences. Only the significant results, including odds ratios, are reported within each section (the reader is directed to the relevant appendices for further details).

8.1 PATTERNS OF USE

This section contains results relating to the exploration of demographics and a number of variables that provide information on patterns of use. These include gambling status, participation in individual gambling modes, the amount of money and time spent on gambling, location of gambling, reasons for gambling, the presence of others when gambling, internet and computer game usage, and consumption of alcohol.

8.1.1 GAMBLING STATUS AND DEMOGRAPHICS

Associations between gambling status (gambler vs. non-gambler), and demographic variables were investigated. Gender failed to reach significance and, although there was an overall significant association between age and gambling status, analysis did not identify any particular group as being of greater risk.

Ethnicity was also significantly associated with gambling status, with *Asian* (OR .485; .335-.702) and *Other* (OR .574; .332-.993) participants being less likely to gamble than their *NZ European/Pakeha* counterparts.

Further details can be viewed in Appendix C.1.

8.1.2 PARTICIPATION IN INDIVIDUAL GAMBLING MODES AND DEMOGRAPHICS

Associations between participation in individual modes of gambling and demographic variables were investigated. Due to small cell sizes, analyses required frequency categories for each mode to be collapsed to *have* and *have not* gambled, which also ensured confidentiality for participants. All participants were included in this set of analyses. Significant findings are outlined in the following sections; Appendix C.5 provides further details, including those findings that failed to reach significance.

Age and Participation in Individual Gambling Modes

Significant associations were observed between age and four of the 14 investigated modes of gambling: *Lotto*, *casino EGMS*, *casino tables*, and *0900 phone games*. Overall, the likelihood of participating in *Lotto*, *casino EGMS*, and *casino tables* increased with age (with the greatest age differences being observed for *casino EGMS*). Conversely, participants in early (≤ 13) and mid (14-15) adolescence were approximately five and three times more likely to have participated in *0900 phone games* than participants in late adolescence (OR 5.118; 1.878-13.946, OR 2.823; 1.372-5.808, and OR 1 respectively).

Gender and Participation in Individual Gambling Modes

Significant gender differences were found for seven of the 14 investigated gambling modes. Males were significantly *more* likely than females to gamble on *non-casino EGMS* (OR 1.54; 1.118-2.12), *casino EGMS* (OR 2.266; 1.147-4.478), *casino tables* (OR 3.029; 1.069-8.585), *bets with friends* (OR 1.830; 1.255-2.668), *TAB sports betting* (OR 3.575; 1.911-6.688) and *other* (OR 2.623; 1.802-3.818), and *less* likely to gamble on *Instant Kiwi* (OR .691; .537-.889).

Ethnicity and Participation in Individual Gambling Modes

With the exception of *card/dice/board games* and *other*, significant relationships were observed between ethnicity and participation in all modes of gambling (details can be found in Appendix C.5). Maori participants were significantly more likely to gamble on *bingo*, *Keno*, *non-casino EGMS*, and *casino tables* in comparison to their NZ European/Pakeha peers. *Bingo* and *Keno* were also more popular with Pacific Island participants, who were approximately four times more likely to gamble on these modes than NZ European/Pakeha. Although Asian participants were less likely than

their counterparts to engage in most modes of gambling, they were the most likely to have gambled via the internet (almost four times more likely than NZ European/Pakeha participants). Finally, there were two modes that NZ European/Pakeha participants were more likely to engage in than other participants, both of which were NZ Lotteries products: *Instant Kiwi* and *Lotto*.

8.1.3 MONEY SPENT ON GAMBLING ACTIVITIES AND DEMOGRAPHICS

Associations between monetary expenditure (for the previous week and an average week) and demographic variables (gender, age and ethnicity) were investigated for those participants classified as gamblers. Due to small cell sizes, this set of analyses required the seven response categories to be collapsed to two: *less than \$25* and *\$25 or more*. This also ensured the confidentiality of all participants. Detailed response distributions are available in Appendix C.8.

Money Spent in Previous Week

Significant differences were found for two of the three demographic variables: gender and ethnicity. Males were four times more likely than females (OR 4.093; 1.669-10.039) to have spent *\$25 or more* in the week prior to being surveyed. Differences were even more pronounced for ethnicity, with Maori being approximately ten (OR 10.095; 4.612-22.095), and Asian six (OR 6.349; 2.736-14.735) times more likely than NZ European/Pakeha to have spent *\$25 or more* on gambling in the previous week. Appendix C.9 provides further details regarding this analysis.

Money Spent in an Average Week

As with the measures for the previous week, gender and ethnicity were significantly associated with average weekly monetary expenditure on gambling. However, differences between groups were less pronounced than those for previous week measures: males were nearly twice as likely as females to spend *\$25 or more* in an average week (OR 1.795; 1.106-2.913). With regard to ethnicity, Maori were approximately three (OR 2.802; 1.578-4.976), and Asian two (OR 2.099; 1.253-3.516) times more likely than NZ European/Pakeha to spend *\$25 or more* in an average week. Further information can be viewed in Appendix C.10.

8.1.4 TIME SPENT ON GAMBLING ACTIVITIES AND DEMOGRAPHICS

Both measures of temporal expenditure (average week and weekend days) were analysed in relation to demographic variables and problem gambling status. Due to small cell sizes, responses were collapsed for analyses into two categories: *less than one hour* and *one hour or more*. Significant findings are outlined below; further details can be viewed in Appendix C.13 and C.14.

Time Spent on an Average Weekday

All three demographic variables (age, gender and ethnicity) were found to be significantly associated with the amount of time spent gambling on an average weekday. Although no trends could be identified according to age group, males were three times more likely than females to have spent *one hour or more* gambling (OR 3.035; 1.422-6.480). With regard to ethnicity, both Pacific (OR 3.203; 1.181-8.686) and Asian (OR 3.162; 1.325-7.547) participants were approximately three times more likely than NZ European/Pakeha to have spent *one hour or more* gambling.

Time Spent on an Average Weekend Day

Both gender and ethnicity were significantly associated with the amount of time spent gambling on an average weekend day. Males were approximately three times more likely than females (OR 2.995; 1.739-5.157) to have spent *one hour or more* on gambling activities per average weekend day. Similarly, compared with their NZ European/Pakeha counterparts, Asian participants were nearly three times more likely (OR 2.733; 1.213-6.161) to have spent *one hour or more* gambling on weekend days.

8.1.5 LOCATION OF GAMBLING ACTIVITY AND DEMOGRAPHICS

Due to small cell sizes, analyses of associations between demographic variables and location for engaging in gambling activities were limited to the five most commonly cited locations. The sections below discuss significant findings in relation to demographic variables and locations of gambling activities; Appendix C.17 provides further details.

Age and Location of Gambling Activity

Gambling at three of the five locations (home, a Lotto shop, and a bar/club) were found to be significantly related to age. Although the likelihood of gambling at home was found to steadily decrease with increasing age, the likelihood of gambling at a Lotto shop and a bar/club both increased with age.

Gender and Location of Gambling Activity

Gender differences were observed in relation to two locations: males were almost twice as likely as females to gamble at a friends home (OR 1.769; 1.138-2.748), and almost three times as likely to gamble at school (OR 2.776; 1.862-4.137).

Ethnicity and Location of Gambling Activity

Ethnicity was significantly associated with three of the five locations: home, Lotto shop, and bars/clubs. In essence:

- *Asian* and *Pacific* participants were approximately half as likely to gamble at a Lotto shop as *NZ European/Pakeha*; and,
- *Maori* were more likely than *NZ European/Pakeha* to gamble at a bar/club, while *Asian* and *Other* participants were less likely.

8.1.6 REASONS FOR PARTICIPATING IN GAMBLING ACTIVITIES AND DEMOGRAPHICS

Gambling to relieve boredom was the only reason significantly associated with age: participants in mid-adolescence were almost one and a half times more likely to gamble for this reason than those in late adolescence (OR 1.409; 1.134-1.750).

Similarly, a significant gender difference was found with only one reason: males were approximately 1.5 times more likely (OR 1.577; 1.3073-2.319) than females to cite gambling for enjoyment.

With regard to ethnicity, significant associations were observed for two motivations: to win money and for excitement. *Pacific* (OR .504; .301-.845), *Asian* (OR .382; .231-.631), and *Other* (OR .198; .052-.753) participants were all less likely than *NZ European/Pakeha* to cite winning money as a motivating reason for gambling, and *Pacific* participants were also less likely to cite gambling for excitement (OR .386; .151-.985).

Further details from these analyses can be viewed in Appendix C.20.

8.1.7 PRESENCE OF OTHERS WHEN GAMBLING AND DEMOGRAPHICS

This set of analyses required response categories to be collapsed, due to insufficient cell sizes: *often*, *sometimes*, and *hardly ever* were combined to form an affirmative response category, while *never* remained as the negative response category. Significant findings are discussed below; detailed results, such as frequencies, odds ratios, and significance levels, are available in Appendix C.23.

Age and the Presence of Others when Gambling

Significant relationships were observed between age group (early, mid, and late adolescence) and three of the seven gambling companions (parents, other relatives, and strangers). Overall, the likelihood of gambling with parents and other relatives decreased with increasing age.

Gender and the Presence of Others when Gambling

Although males were significantly less likely than females to have gambled with their parents (OR 701; .549-.894), they were more likely to have gambled alone (OR 1.536; 1.248-1.892), with friends (OR 2.494; 1.684-6.393), or with strangers (OR 2.919; 1.699-5.015). No significant gender differences were observed in relation to the other options (siblings, grandparents, and other relatives).

Ethnicity and Gambling Companions

Several differences were observed in relation to gambling companions and ethnicity. Although Asian participants were less likely than their NZ European/Pakeha peers to report having gambled with parents (OR .394; .243-.638), both they (OR 1.746;

1.127-2.706) and Maori (OR 2.517; 1.456-4.35) were more likely than NZ European/Pakeha to report gambling with other relatives.

8.1.8 GAMBLING STATUS AND INTERNET AND COMPUTER GAME USAGE

Associations between gambling status and items relating to use of the internet and computer games (frequency, and the amount of time spent on average week and weekend days) were investigated. Prior to performing the logistic regressions, a number of response categories were collapsed due to small cell sizes.

Overall significant relationships were observed between gambling status and the frequency of both internet and computer game usage. As frequency of these activities increased, so too did the likelihood of being a gambler:

- those who used the internet on a *daily* basis were approximately twice as likely to be a gambler as those in any of the other three categories: *never* (OR .494; .281-.871); *weekly or less* (OR .547; .350-.855); and, *twice a week or more* (OR .556; .431-.717); and,
- those who cited using computer games *twice a week or more* were approximately twice as likely to be gamblers as those who *never* used computer games (OR .513; .357-.737).

No significant relationships were observed between gambling status and the amount of time spent using the internet or computer games. Appendix C.48 contains further information regarding gambling status and internet use, Appendix C.53 provides details regarding the use of computer games.

8.1.9 CONSUMPTION OF ALCOHOL

A number of items gathered information relating to participants' use of alcohol. The following section provides some information on responses to these questions; further information is provided in Appendix C.57 through Appendix C.60.

Of the 1963 participants who responded to the question on lifetime alcohol use, 67.6% ($N=1327$) indicated that they had consumed alcohol at least once. These participants (who responded in the affirmative) were asked to complete four further questions relating to patterns of alcohol use (age of initial involvement, frequency of drinking and heavy drinking, and location of drinking). The mean initial age for consumption of an alcoholic beverage was 10.9 years. Only a small proportion (6.8%) of these participants had not consumed alcohol in the past year; of those who had consumed alcohol, 37% indicated doing so on a *monthly or less* basis, 36.3% *2-4 times a month*, 17.9% *2-3 times a week*, and 2% *every day*.

With regard to having consumed five or more drinks in one session, approximately one third (34.1%) of participants indicated that they had done so on a *monthly or less* basis, 22.8% *2-4 times a month*, 9% *2-3 times a week*, and 1.5% *daily*.

Of the locations listed as options for drinking alcohol, the most frequently cited was at a friend's home (80.2%), followed by their own home (77.1%), another place (66.5%), an outdoor place (65.4%), in a car (37%), a pub or bar (31.3%), a sports club (24.1%), and school (10%)¹⁷.

¹⁷ These rates are inclusive of affirmative responses: *hardly ever*, *sometimes* and *often*.

8.1.9.1 GAMBLING STATUS AND ALCOHOL CONSUMPTION

Associations between gambling status and three of the items relating to patterns of drinking behaviour were investigated: lifetime alcohol use (i.e. having consumed alcohol at least once), frequency of drinking, and frequency of heavy drinking (i.e. five or more drinks in one session). Due to small cell sizes, a number of response categories were collapsed prior to analysis for the items addressing frequency of drinking and heavy drinking:

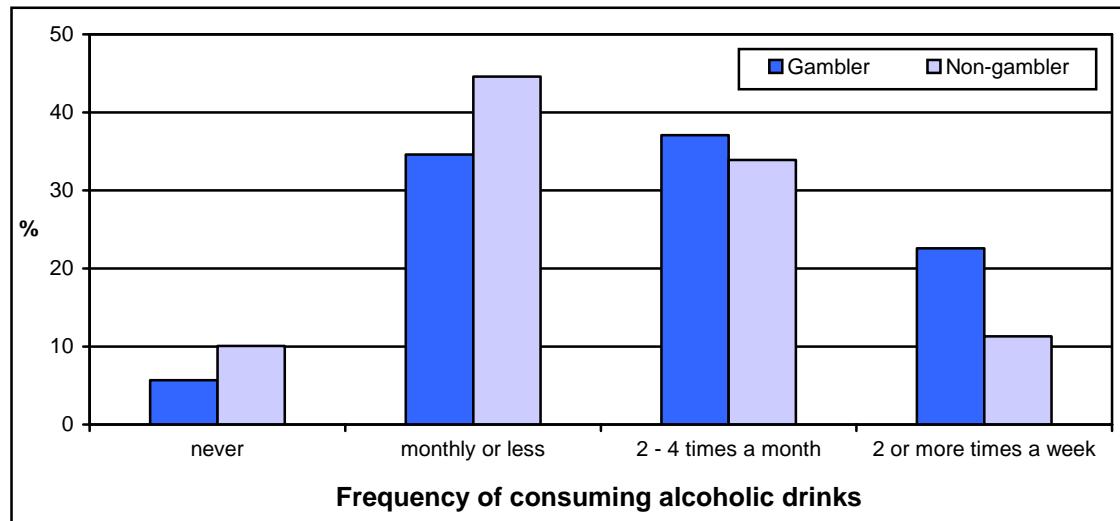
- The original five response categories were collapsed to form four categories: *never, monthly or less; 2-4 times a month; and, twice a week or more* (merging of *2-3 times a week* and *every day*).

Significant relationships were observed between all three measures of alcohol consumption and gambling status: ever having consumed alcohol; frequency of drinking alcohol; and, frequency of drinking five or more drinks in one session.

As expected, with regard to lifetime drinking status, those who had not consumed alcohol were less likely (OR .351; .184-.670) to gamble than their peers.

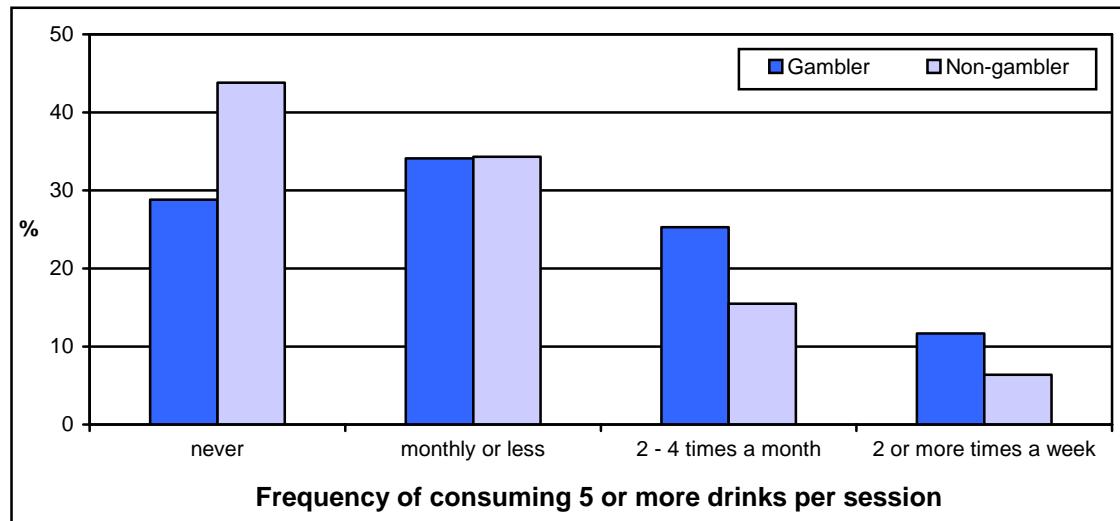
Moreover, as illustrated in Figure 22, the likelihood of being a gambler steadily increased along with the frequency of drinking alcohol. In comparison to participants who drank *2 or more times a week* (OR 1), those who *never* drank were approximately one tenth as likely to gamble (OR .131; .045-.377), those who indicated *monthly or less* (OR .295; .197-.443) were one third as likely, and individuals who cited *2-4 times a month* were half as likely to be gamblers (OR .515; .356-.744).

Figure 22: Frequency of consuming alcoholic drinks (over the past year) according to gambling status (N=1220)



A similar relationship was observed in relation to heavy drinking: as the frequency of drinking five or more drinks in one session increased, so too did the likelihood of being a gambler. Those who indicated drinking heavily *2 or more times a week* were the most likely to be gamblers (OR 1) followed by those who indicated *monthly or less* (OR .531; .325-.869), and *never* (OR .234; .139-.394). Figure 23 illustrates the response distributions for frequency of heavy drinking behaviour according to gambling status.

Figure 23: Consumption of five or more alcoholic drinks in one session (over the past year) according to problem gambling status (N=1312)



Appendix C.61 provides further information on this set of analyses.

8.2 SOCIAL CONTEXT AND GAMBLING STATUS

A number of contextual factors were examined in relation to young people's gambling. The following section outlines findings on participants' gambling status in relation to their family and friends' gambling behaviour, including problem gambling, and exposure to gambling via advertising.

8.2.1 GAMBLING STATUS AND GAMBLING BY HOUSEHOLD MEMBERS AND FRIENDS

As detailed in Appendix C.25, significant relationships were observed between participants' gambling status and eight of the ten items addressing gambling by household members and friends. Participants with family members and friends who regularly gambled on Instant Kiwi, Lotto/Daily Keno, EGMs, or TAB sports or track racing, were more likely to be classified as gamblers than their counterparts.

Although these findings demonstrate associations between a participant's own gambling behaviour and the gambling behaviour, on a range of activities, both continuous and non-continuous, of those within a participant's social circle, it is interesting to note that casino gambling by both household members and friends was not significantly associated with gambling status.

8.2.2 GAMBLING STATUS AND PERCEIVED PARENTAL AND PEER PROBLEM GAMBLING

Significant relationships were observed between participants' gambling status and all three questions addressing perceived gambling problems in their mother, father, and friends. Highlights are discussed below; further details can be viewed in Appendix C.28.

Of this set of questions, maternal gambling problems yielded the response associated with the greatest likelihood of student gambling, interestingly, those who indicated *don't know* were three times more likely to be a gambler than those who responded in the negative (OR 3.066; 1.502-6.258).

Participants who believed that their father had a gambling problem, or indicated that they weren't sure, were also more likely to gamble (OR 2.715; 1.908-3.863; and OR 2.546; 1.559-4.158 respectively).

This pattern (greatest likelihood for an affirmative response (OR 1.903; 1.169-3.097)) was also observed in relation to friends.

8.2.3 GAMBLING STATUS AND AWARENESS OF GAMBLING PRODUCT ADVERTISING

As detailed in Appendix C.31, 16 of the 20 items addressing gambling product advertising were associated with gambling status.

Awareness of advertising via newspapers, magazines and the internet was associated with an increased likelihood of gambling for all four investigated modes of gambling (sports/track racing, Lotto/Daily Keno, Instant Kiwi, and casino). Similarly, billboard advertising was significantly associated with gambling status for three of the gambling modes: participants who had seen billboards for sports/track racing, Instant Kiwi, and casino gambling were more likely to gamble themselves.

Sports/track racing was the only mode of television advertising to be significantly related to gambling status: again, participants who recalled seeing this type of advertisement were more likely to be gamblers than were their peers.

8.3 BELIEFS / PERCEPTIONS AND GAMBLING STATUS

The following sections present findings with regard to associations between gambling status and those items relating to beliefs and perceptions about gambling (perceived ease and rights of access, the roles of skill and luck, and miscellaneous beliefs).

8.3.1 GAMBLING STATUS AND PERCEIVED EASE OF ACCESS TO GAMBLING

Gambling status was significantly related to participants' beliefs on four of the five items addressing perceived ease of access: Lotto/Daily Keno, Instant Kiwi, non-casino EGMs, and TAB. In each case, the likelihood of gambling increased along with perceived ease of access.

8.3.2 GAMBLING STATUS AND PERCEIVED RIGHTS OF ACCESS TO GAMBLING

All five items relating to whether or not participants felt they should be allowed to gamble on individual gambling modes (Lotto/Daily Keno, Instant Kiwi, casinos, non-casino EGMs, and TAB) revealed significant associations with gambling status. As with perceived ease of access, the likelihood of gambling increased along with perceived rights of access: Lotto/Daily Keno (OR 1.553; 1.376-1.752), Instant Kiwi (OR 1.729; 1.501-1.990), Casinos (OR 1.493; 1.300-1.714), Non-casino EGMs (OR 1.441; 1.305-1.591), and TAB (OR 1.535; 1.384-1.703).

Appendix C.34 provides further details on analyses of gambling status as a function of perceived ease and rights of access to gambling.

8.3.3 GAMBLING STATUS AND THE ROLE OF SKILL IN GAMBLING

As detailed in Appendix C.40, perceptions regarding level of skill were associated with gambling status for four modes of gambling (Lotto, EGMs, track racing and sports betting). In each case, as the perceived level of skill increased, so too did the likelihood of being a gambler.

8.3.4 GAMBLING STATUS AND THE ROLE OF LUCK IN GAMBLING

Unlike skill, there were no significant associations between gambling status and perceived level of luck for gambling modes. However, the likelihood of gambling increased along with the perceived level of luck required to be good at computer games (OR 1.182; 1.026-1.632). Further information is available in Appendix C.43.

8.3.5 GAMBLING STATUS AND MISCELLANEOUS BELIEFS

As detailed in Appendix C.37, there were no significant associations between gambling status and the variables relating to miscellaneous beliefs (the potential crossover between skill on computer games and EGMs, the ability to improve performance on EGMs with practice, the addictiveness of gambling, and the likelihood of young people being more at risk than adults of developing gambling related problems).

8.4 OVERVIEW OF RESULTS - A PORTRAIT OF ADOLESCENT GAMBLING IN NEW ZEALAND: *WHO GAMBLES?*

This chapter documents the differences between those young people who choose to gamble and those who do not. This is the first time that information regarding these distinguishing variables has been produced for young people in New Zealand. A number of trends were observed, some of which were more expected than others. Significant findings are summarised below in relation to demographic differences, internet and computer game usage, use of alcohol, social context, and beliefs/perceptions.

- Gambling status and demographics:
 - o Ethnicity:
 - Participants who self-identified as *Asian* or *Other* were less likely than *NZ European/Pakeha* to gamble;
 - Participation in modes of gambling varied according to ethnic group;
 - *Maori* and *Asian* adolescents spent more money gambling than *NZ European/Pakeha*;
 - *Pacific* and *Asian* adolescents spent more time gambling than *NZ European/Pakeha*;
 - Location of gambling varied according to ethnicity;
 - *Pacific*, *Asian*, and *Other* participants were all less likely than *NZ European/Pakeha* to cite winning money as a motivating

reason for gambling. *Pacific* participants were also less likely to cite gambling for excitement; and,

- Although *Asian* participants were less likely than their *NZ European/Pakeha* peers to report having gambled with parents, both they and *Maori* were more likely than *NZ European/Pakeha* to report gambling with other relatives.

- Gender:

- Males spent more money and time gambling;
- Males were more likely to gamble on *non-casino EGMS, casino EGMS, casino tables, bets with friends, TAB sports betting, or other*;
- Females were more likely to gamble on *Instant Kiwi*;
- Males were more likely to gamble at a friend's home or at school;
- Males were more likely to cite gambling for enjoyment; and,
- Although males were significantly less likely than females to have gambled with their parents, they were more likely to have gambled alone, with friends, or with strangers.

- Age:

- The likelihood of participating in Lotto, casino EGMS, or casino tables increased with age, while the likelihood of gambling on 0900 phone games decreased with age;
- Older participants were less likely to gamble to relieve boredom;

- The likelihood of gambling at home decreased with age, while the likelihood of gambling at Lotto shops or bars/clubs increased with age; and,
 - The likelihood of gambling with parents or other relatives decreased with increasing age.
- Gambling status and internet and computer game usage:
 - As frequency of internet use increased, so too did the likelihood of gambling; and,
 - As frequency of computer game use increased, so too did the likelihood of gambling.
- Gambling status and use of alcohol:
 - The likelihood of gambling increased with affirmative lifetime drinking status, frequency of alcohol consumption, and frequency of heavy alcohol consumption.
 - In relation to consumption of alcohol:
 - 67.6% of participants responded affirmatively to the question on lifetime alcohol use;
 - The mean initial age for consumption of an alcoholic beverage was 10.9 years;
 - Of those who had consumed alcohol over the past year, 37% indicated doing so on a *monthly or less* basis, 36.3% *2-4 times a month*, 17.9% *2-3 times a week*, and 2% *every day*;
 - In relation to heavy drinking (five or more drinks in one session), approximately one third (34.1%) indicated that they

had done so on a *monthly or less* basis, 22.8% *2-4 times a month*, 9% *2-3 times a week*, and 1.5% *daily*; and,

- Of the locations listed as options for drinking alcohol, the most frequently cited was at a friend's home (80.2%), followed by their own home (77.1%), another place (66.5%), an outdoor place (65.4%), in a car (37%), a pub or bar (31.3%), a sports club (24.1%), and school (10%).
- Social context and gambling:
 - Participants with family members or friends who regularly gambled on Instant Kiwi, Lotto/Daily Keno, Gambling Machines, and TAB sports or track racing, were more likely to gamble themselves;
 - Maternal, paternal and peer problem gambling were all associated with an increased likelihood of gambling; and,
 - Participants who had gambled were more likely to recall having seen advertising (in a number of forms) for gambling.
- Beliefs / perceptions and gambling:
 - Participants with more liberal beliefs and attitudes towards gambling were more likely to engage in gambling activities;
 - The likelihood of gambling increased along with perceived ease of access;
 - The likelihood of gambling increased along with perceived rights of access; and,
 - As the perceived level of skill increased, so too did the likelihood of gambling.

This chapter provides an account of the analytical process and results pertaining to the second research question, '*what are the factors associated with youth gambling in New Zealand?*' The next chapter provides a similar account for the third research question: '*Is problem gambling an issue for the young people of New Zealand, and, if so, what are the factors associated with increased risk?*'

9 RESULTS: ADOLESCENT *PROBLEM GAMBLING* IN NEW ZEALAND

This chapter's investigation of problem gambling behaviour follows up the previous chapter's identification of gambling rates and the variables associated with gambling in young people. As such, this chapter aims to address the third research question, '*Is problem gambling an issue for the young people of New Zealand, and, if so, what are the factors associated with increased risk?*' It begins with a section addressing the extent of problem gambling within the sample (as measured by the DSM-IV-MR-J) and then reports on the analyses that compared problem and non-problem gamblers. These were conducted in a number of domains and are discussed in relation to patterns of use, social context, and beliefs / perceptions. It should be noted that these analyses relate only to those participants who had gambled at least once in the year prior to participating in this research.

9.1 DSM-IV-MR-J ITEM ENDORSEMENT

The DSM-IV-MR-J consists of 12 items, which evaluate nine dimensions of gambling: progression and preoccupation; tolerance; withdrawal; loss of control; escapism; chasing; lies and deception; family and academic disruption; and, illegal acts. The distributions for affirmative responses to individual DSM items are presented in Table 10 (ordered by decreasing frequency of affirmative responses). Aside from items 9a (16.9%: family and academic disruptions), 8a (15.7%: illegal acts), 8b (15.6%: illegal acts) and 7 (12.8%: lies and deception), fewer than 10% of

those participants classified as gamblers responded in the affirmative on any individual DSM item. It is interesting to note that individual-oriented items (e.g. loss of control, progression and preoccupation, escapism, chasing, and withdrawal) tended to be less frequently endorsed than those relating to social aspects of participants' lives (e.g. family and academic disruptions, illegal acts, lies and deception).

Table 10: Number and percentage of affirmative responses to individual DSM-IV-MR-J items

<i>Item number (Current research tool) and N</i>	<i>Item number: DSM-IV-MR-J</i>	<i>Item domain</i>	<i>Frequency of affirmative responses to item</i>		
			<i>N</i>	<i>% of gamblers</i>	<i>% of entire sample</i>
26a (<i>N=1167</i>)	Item 9a	Family and academic disruptions	197	16.9	9.8
25a (<i>N=1166</i>)	Item 8a	Illegal acts	183	15.7	9.1
25b (<i>N=1168</i>)	Item 8b	Illegal acts	182	15.6	9.1
24 (<i>N=1163</i>)	Item 7	Lies and deception	149	12.8	7.4
19 (<i>N=1163</i>)	Item 2	Tolerance	110	9.5	5.5
25c (<i>N=1165</i>)	Item 8c	Illegal acts	110	9.4	5.5
26b (<i>N=1165</i>)	Item 9b	Family and academic disruptions	64	5.5	3.2
21 (<i>N=1156</i>)	Item 4	Withdrawal	58	5.0	2.9
23 (<i>N=1162</i>)	Item 6	Chasing	61	5.2	3.0
22 (<i>N=1164</i>)	Item 5	Escapism	35	3.0	1.7
18 (<i>N=1169</i>)	Item 1	Progression and Preoccupation	27	2.3	1.3
20 (<i>N=1163</i>)	Item 3	Loss of control	22	1.9	1.1

9.2 PROBLEM GAMBLING STATUS

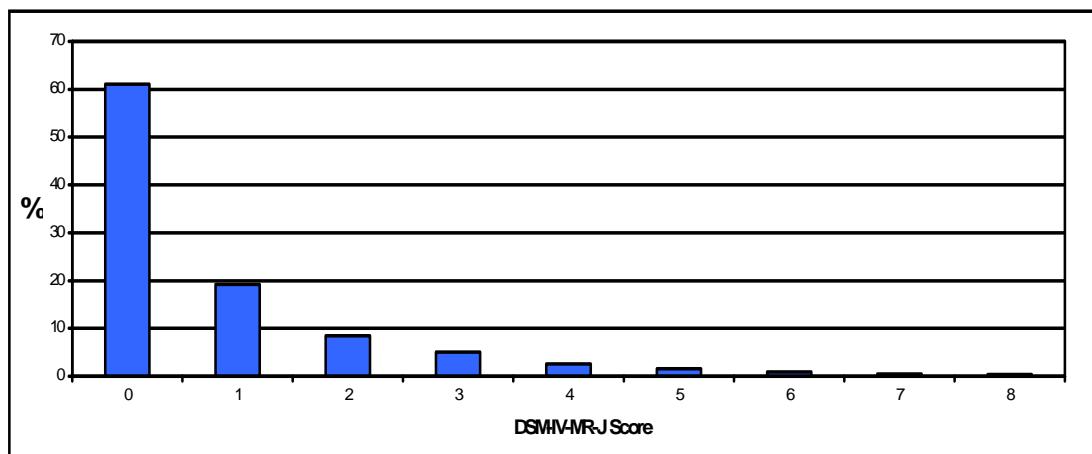
DSM scores were calculated and used in subsequent analyses for participants who had answered any of the DSM items. For example, if a student responded to only two of the DSM items and the responses to both items were positive, they would be allocated

a score of two. The decision to retain participants who may not have completed all the DSM items was made in recognition of the possibility of reaching problem status without having completed the entire screen. It is possible that this decision will have resulted in conservative overall problem gambling rates. Of those participants classified as gamblers, 137 failed to respond to some items in this section (non-gamblers were not required to complete these questions).

As illustrated in Figure 24, DSM scores ranged between zero and eight (with a mean of 0.83 (SD 1.41)). Seventy-one participants satisfied the criteria for problem gambling (positive responses to four of the nine dimensions measured by the DSM), accounting for 3.8% of the entire sample, and 6.1% of all participants who had gambled over the past year¹⁸.

¹⁸ There has historically been some confusion among researchers in relation to the marking schedule for the DSM-IV-MR-J. The screen consists of 12 items, which measure nine domains of gambling behaviour: the correct application of the marking schedule dictates that an affirmative response to four of the nine domains results in a classification of problem gambling. However, it has been noted that a number of researchers have misapplied these criteria and instead equated problem gambling with affirmative responses to four of the 12 items, thus potentially inflating problem gambling rates (Jacques & Ladouceur, 2003). Appendix C.2 profiles and compares the distributions of DSM scores resulting from the correct and from the faulty use of the marking schedule. It can be seen that misapplication of the marking schedule results in substantial changes to the distribution of scores, including increased counts of those above the problem cut-off rates, thus resulting in inflated proportions of participants satisfying the problem criteria. Instead of 71, 113 participants would be categorised as problem gamblers which would equate to 6.0% of all participants and 9.6% of those participants classified as gamblers.

Figure 24: Distribution of DSM-IV-MR-J scores (N=1171)



9.3 PATTERNS OF USE AND PROBLEM GAMBLING

This section presents results relating to associations between problem gambling status and demographic variables, gambling modes, internet and computer game usage, initial age of gambling, the amount of money and time spent on gambling, location of gambling, reasons for gambling, the presence of others when gambling, and alcohol consumption.

9.3.1 PROBLEM GAMBLING STATUS AND DEMOGRAPHIC VARIABLES

Gender demonstrated a significant association with problem gambling status, with males being approximately 2.5 times more likely than females to be classified as problem gamblers (OR 2.496; 1.104-5.642). Ethnicity was also significantly related: Pacific participants' were identified as being approximately 11.5 times more likely than NZ European/Pakeha participants to be classified as problem gamblers (OR 11.488; 3.404-38.504). Age was not significantly related to problem gambling status. Detailed results from this regression can be viewed in Appendix C.3.

9.3.2 PROBLEM GAMBLING STATUS AND PARTICIPATION IN INDIVIDUAL-ORIENTED MODES OF GAMBLING

Significant associations were observed between problem gambling status and participation in ten of the 14 modes of gambling: *card/dice/board games*; *bingo*; *non-casino EGMs*; *casino EGMs*; *casino tables*; *TAB sports betting*; *TAB track betting*; *internet*; *other*; and, *0900 phone games*. In general, participants who had not participated in these modes were approximately one-fifth as likely as those who had to experience problems with their gambling. However, *casino EGM* and *casino table* gambling were associated with the greatest risk of problem gambling: those who had not gambled on *casino tables* were less than one-tenth as likely to experience problem gambling as participants who had (OR .085; .022-.331), and were near one-fifth as likely for *casino EGMs* (OR .181; .050-.652).

It is interesting to note that, with the exception of *card/dice/board games*, the four modes that failed to reach significance were all particularly popular and socially acceptable: *bets with friends* and NZ Lotteries products (*Lotto*, *Instant Kiwi*, and *Keno*).

The detailed results from this set of analyses are presented in Appendix C.6.

9.3.2.1 PROBLEM GAMBLING STATUS AND INTERNET USAGE

Associations between problem gambling status and items relating to internet usage (frequency, and both measures of time spent on the internet (average weekday and weekend day)) were investigated. Prior to performing the logistic regressions, a number of response categories were collapsed due to small cell sizes:

- Frequency of internet usage: the original five response categories were collapsed to form four categories: *Never; Weekly or less* (merging of *monthly or less* and *2-4 times a month*); *2-3 times a week*; and, *Every Day*.
- Number of hours spent using the internet (average week and weekend day): the original six response categories were collapsed to form four categories: *None; Less than 1 hour per day; 1-3 hours per day*; and, *3 or more hours per day* (merging of *3-6 hours per day*, *6-9 hours per day*, and *9 or more hours per day*).

Although the item relating to frequency of internet usage failed to reach significance, both measures of the amount of time spent using the internet were significantly associated with problem gambling status. As the amount of time spent using the internet increased for both week and weekend days, so too did the likelihood of problem gambling. In relation to weekday use, those who indicated *less than 1 hour* or *1-3 hours* per day were less than half as likely (OR .356; .150-.844; and OR .370; .209-.655 respectively) to be classified as problem gamblers when compared to those who used the internet for *3 hours or more*. For weekend days, those who indicated *less than 1 hour* and *1-3 hours* per day, were approximately .2 (OR .188; .069-.514) and .4 (OR .409; .209-.803) times as likely as those who indicated *3 hours or more* to be classified as problem gamblers.

Further details regarding this set of analyses can be viewed in Appendix C.49.

9.3.2.2 PROBLEM GAMBLING STATUS AND COMPUTER GAME USAGE

Associations between problem gambling status and items relating to the frequency of computer game usage, and both measures of temporal expenditure (average weekday and weekend day) on computer games were investigated. Before performing the

logistic regressions, a number of response categories were collapsed due to small cell sizes:

- Frequency of playing computer games: the original five response categories were collapsed to form three categories: *Never*; *Weekly or less* (merging of *monthly or less* and *2-4 times a month*); and, *twice a week or more* (merging of *2-3 times a week* and *Every Day*).
- Number of hours spent using computer games (average week and weekend day): the original six response categories were collapsed to form three categories: *None*; *Less than 1 hour per day*; and, *1 or more hours per day* (merging of *1-3 hours per day*, *3-6 hours per day*, *6-9 hours per day*, and *9 or more hours per day*).

Significant associations were observed between problem gambling status and all three measures of computer game usage. As frequency of use increased, so too did the likelihood of problem gambling: those who used computers on a *weekly or less* basis were approximately half as likely (OR .462; .250-.855) as those who used them *twice a week or more* to be classified as problem gamblers.

The likelihood of problem gambling also increased along with the amount of time spent playing computer games on both week and weekend days. With regard to an average week day, those who indicated spending *none* and *less than 1 hour* per day on computer games were much less likely (OR .043; .009-.202, and OR .336; .178-.632 respectively), to be problem gamblers than those who indicated *1 or more hours per day* (OR 1). A similar trend was observed in relation to average weekend days, with odds ratios of: *none* (OR .114; .022-.602), *less than 1 hour per day* (OR .198; .075-

.529), and *1 or more hours per day* (OR 1). Further details regarding this set of analyses can be viewed in Appendix C.54.

9.3.3 PROBLEM GAMBLING STATUS AND INITIAL AGE OF PARTICIPATION IN GAMBLING

Initial age of gambling was significantly related to problem gambling, with earlier involvement associated with an increased likelihood of problems: 59.2% of those experiencing gambling problems had gambled before the age of ten compared to 42.3% of non-problem gamblers. Appendix C.7 presents complete details for this analysis.

9.3.4 PROBLEM GAMBLING STATUS AND MONEY SPENT ON GAMBLING

As with previous analyses on monetary expenditure, response categories were collapsed to *less than \$25* and *\$25 or more*. For both the week prior and an average week, increased expenditure was significantly associated with an increased likelihood of problem gambling. Those who spent *less than \$25* a week were substantially less likely to be classified as problem gamblers: previous week (OR .127; .032-.510); average week (OR .186; .103-.336). See Appendix C.11 for further details.

9.3.5 PROBLEM GAMBLING STATUS AND TIME SPENT ON GAMBLING ACTIVITIES

In line with previous analyses of these items, responses were collapsed into two categories: *less than one hour* and *one hour or more*. Both measures (average week and weekend day) relating to the amount of time spent gambling were significantly related to problem gambling status: as the amount of time spent gambling increased,

so too did the likelihood of satisfying the problem gambling criteria. Frequency distributions clearly illustrate these relationships:

- on weekdays, 36.2% of those with gambling problems had spent *one hour or more* gambling compared with 3.1% of non-problem gamblers; and,
- on weekend days 36.2% of those with gambling problems had spent *one hour or more* gambling compared with 5.1% of non-problem gamblers.

As detailed in Appendix C.15, non-problem gamblers were only one tenth as likely to spend an hour or more gambling as problem gamblers: average weekday (OR .083; .041-.170); average weekend day (OR .090; .028-.286).

9.3.6 PROBLEM GAMBLING STATUS AND LOCATION OF GAMBLING ACTIVITY

Of the five investigated locations, three were significantly associated with an increased likelihood of problem gambling: school, bar/club, and a friend's home. Participants who gambled at a friend's home were approximately twice as likely to be problem gamblers as those who had not (OR 2.268; 1.334-3.855), while gambling at school or in a bar/club was associated with approximately three times the likelihood: school (OR 2.778; 1.375-5.612); a bar/club (OR 3.116; 1.104-8.797). Specifics regarding this set of analyses are available in Appendix C.18.

9.3.7 PROBLEM GAMBLING STATUS AND REASONS FOR PARTICIPATING IN GAMBLING

Of the five investigated reasons, only *enjoyment* demonstrated a significant association with problem gambling status. It seems that despite the gambling related issues in their life, problem gamblers claim to enjoy gambling: those who cited enjoyment as a reason for gambling were 2.3 times more likely than those who did not

to be classified as problem gamblers (OR 2.308; 1.041-5.118). It is curious that these two groups did not differ significantly with regard to other reasons for gambling (such as the prospect of winning money and gambling for excitement). For further details regarding problem gambling status and other cited reasons, see Appendix C.21.

9.3.8 PROBLEM GAMBLING STATUS AND THE PRESENCE OF OTHERS WHEN GAMBLING

Problem gamblers were almost five and a half times more likely to have gambled with a person unknown to them than non-problem gamblers were (OR 5.350; 1.644-17.109): 39.4% of problem and 9.1% of non-problem gamblers responded affirmatively to this option. Of all the listed companions, this was the only option to reach significance in relation to problem gambling. Further information regarding this set of analyses can be found in Appendix C.24.

9.3.9 PROBLEM GAMBLING STATUS AND ALCOHOL CONSUMPTION

Associations between problem gambling status and three of the items relating to patterns of drinking behaviour were investigated: lifetime alcohol use (i.e. having consumed alcohol at least once), frequency of drinking, and frequency of heavy drinking (i.e. five or more drinks in one session). Due to small cell sizes, a number of response categories were collapsed prior to analysis for the items addressing frequency of drinking and heavy drinking:

- The original five response categories were collapsed to form four categories: *never, monthly or less; 2-4 times a month; and, twice a week or more* (merging of *2-3 times a week* and *every day*).

Although lifetime drinking status was not significantly correlated with problem gambling status, both frequency of drinking alcohol and frequency of drinking five or more drinks were.

As illustrated in Figure 25, the drinking habits of problem and non-problem gamblers clearly differ: although the proportions of both groups steadily increase along with the frequency of drinking, comparatively few non-problem gamblers had consumed alcohol on two or more occasions per week. These differences were shown to be significant, with the likelihood of problem gambling increasing along with frequency of drinking: those who drank *2 or more times a week* had the highest likelihood of problem gambling (OR 1) compared with those who indicated *2-4 times a month* (OR .246; .098-.619), *monthly or less* (OR .140; .051-.386), and *never* (OR .248; .087-.702).

Figure 25: Frequency of consuming alcoholic drinks (over the past year) according to problem gambling status (N=905)

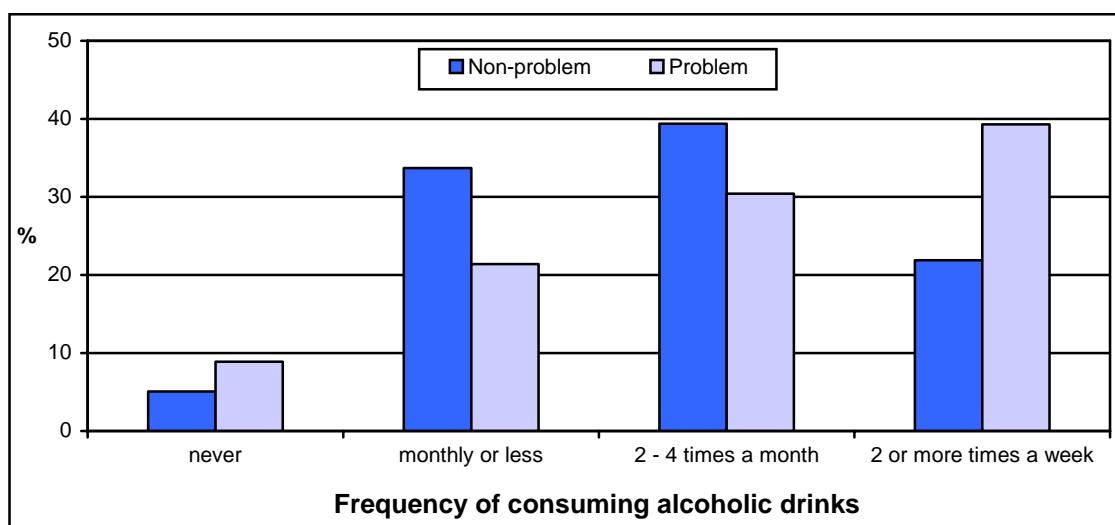
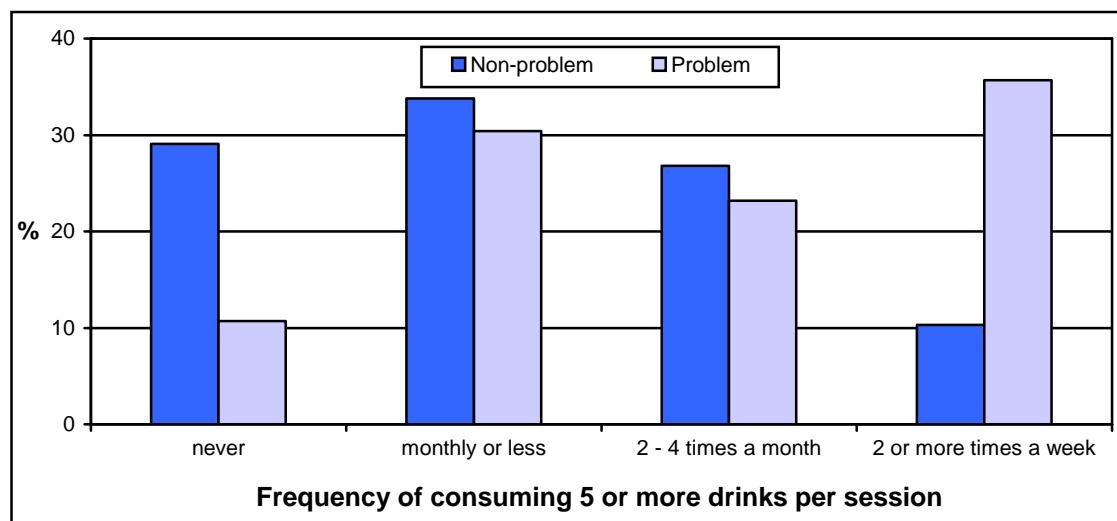


Figure 26 illustrates that the likelihood of problem gambling rapidly increased along with frequency of heavy drinking: *never* (OR .039; .009-.169), *monthly or less* (OR

.164; .068-.396), *2-4 times a month* (OR .321; .112-.914), and *2 or more times a week* (OR 1).

Figure 26: Consumption of five or more alcoholic drinks in one session (over the past year) according to problem gambling status (N=907)



Further information relating to this set of analyses can be viewed in Appendix C.62.

9.4 SOCIAL CONTEXT AND PROBLEM GAMBLING

A number of contextual factors for problem gambling behaviour were examined. The exposure of young people to gambling through their family and peers, including familial and peer problem gambling, and the advertising of gambling products were each investigated in relation to problem gambling.

9.4.1 PROBLEM GAMBLING STATUS AND GAMBLING BY HOUSEHOLD MEMBERS AND FRIENDS

All items addressing gambling by household members and friends were significantly associated with problem gambling status: for each mode of gambling (Instant Kiwi, Casino, Lotto/Daily Keno, EGMs, and TAB), participants whose household members

and friends regularly gambled were more likely to be classified as problem gamblers. Exposure to casinos, EGMs, and TAB sports/track racing (via both household members and friends), were the modes associated with substantially inflated risk. For instance, participants living with someone who regularly gambled at a casino were seven and a half times more likely to experience gambling problems themselves (OR 7.468; 3.152-17.696); this likelihood rose to a factor of approximately ten for those with friends that regularly gambled at a casino (OR 9.833; 4.651-21.001).

With respect to household gambling, the modes associated with the next greatest risk were TAB sports/track racing and then EGMs (OR 7.477; 2.942-19.007, and OR 6.392; 2.876-14.207 respectively). However, EGMs (OR 6.952; 3.049-15.853) were associated with a higher risk than TAB sports/track racing for friends' gambling (OR 4.945; 2.341-10.446). Further details can be found in Appendix C.26.

9.4.2 PROBLEM GAMBLING STATUS AND PERCEIVED PARENTAL AND PEER PROBLEM GAMBLING

As detailed in Appendix C.29, the current research found that the presence of paternal or maternal problem gambling, as perceived by participants, significantly increased the likelihood of gambling problems. Maternal problem gambling was associated with the highest risk. Participants who believed that their mother had a gambling problem were almost 11 times (OR 10.866; 3.847-30.695) more likely to be problem gamblers themselves. Moreover, even being unsure was positively associated, although to a lesser extent, with an increased risk: almost seven and a half times the likelihood (OR 7.351; 2.124-25.444). The results for paternal problem gambling differed in that there was a smaller disparity between the affirmative and *not sure* responses: being unsure was associated with a slightly higher risk (OR 7.573; 3.573-16.054) than actually

thinking that your father had a gambling problem (OR 6.412; 2.340-17.572), although confidence intervals for these results are large.

Surprisingly, no significant association was observed between problem gambling status and perceived problem gambling in friends.

9.4.3 PROBLEM GAMBLING STATUS AND AWARENESS OF GAMBLING PRODUCT ADVERTISING

Only two of the 20 gambling product advertising variables were significantly associated with problem gambling status, both of which related to NZ Lotteries products. Surprisingly, participants who were aware of television (OR .296; .109-.801) or newspaper (OR .412; .174-.976) advertising for Lotto/Daily Keno were significantly less likely to satisfy the criteria for problem gambling. Appendix C.32 provides further details of this set of analyses.

9.5 BELIEFS / PERCEPTIONS AND PROBLEM GAMBLING

A number of perceptions and beliefs, such as the ease of and rights of access to gambling, and the role of skill and luck were investigated in relation to problem gambling status.

9.5.1 PROBLEM GAMBLING STATUS AND PERCEIVED EASE OF ACCESS TO GAMBLING

Of the five items relating to perceived ease of access, two were positively associated with problem gambling status: Lotto/Daily Keno and TAB. As perceived ease of access increased, so too did the likelihood of satisfying the criteria for problem gambling: Lotto/Daily Keno (OR 1.499; 1.048-2.142), TAB (OR 1.291; 1.029-1.620).

9.5.2 PROBLEM GAMBLING STATUS AND PERCEIVED RIGHTS OF ACCESS TO GAMBLING

Three of the five items relating to perceived rights of access were significantly associated with problem gambling status: casino, non-casino EGMs, and TAB. As with those items addressing ease of access, increases in perceived rights of access saw the likelihood of problem gambling increase: non-casino EGMs (OR 1.959; 1.418-2.708), casino gambling (OR 1.872; 1.214-2.887), and TAB gambling (1.572; 1.081-2.286).

Further details relating to the perceived ease and rights of access to gambling and the associated likelihood of problem gambling are presented in Appendix C.35.

9.5.3 PROBLEM GAMBLING STATUS AND THE ROLE OF SKILL IN GAMBLING

The likelihood of problem gambling significantly increased along with perceived level of skill on Instant Kiwi, Daily Keno, and EGMs. Each increment up the scale from *none* to a *lot of skill* was associated with an increased likelihood of being a problem gambler: Instant Kiwi (OR 1.438; 1.103-1.876), Daily Keno (OR 1.394; 1.085-1.792), and EGMs (OR 1.332; 1.047-1.695). Further details for this set of analyses can be found in Appendix C.41.

9.5.4 PROBLEM GAMBLING STATUS AND THE ROLE OF LUCK IN GAMBLING

As detailed in Appendix C.44, perceptions regarding the role of luck were significantly inversely related to problem gambling status for two modes of gambling, both of which were NZ Lotteries products. As the perceived level of luck increased for both Lotto and Instant Kiwi, the likelihood of problem gambling decreased. Each

increment along the scale (from no luck to a lot of luck) was associated with a likelihood decreased by a factor of approximately .7: Lotto (OR .671; .458-.984); and, Instant Kiwi (OR .747; .571-.977).

9.5.5 PROBLEM GAMBLING STATUS AND MISCELLANEOUS BELIEFS

As detailed in Appendix C.38, two beliefs from this category were significantly related to problem gambling status. The first revealed that as students' perceptions of how good they are at gambling increased, so too did the likelihood of satisfying the problem gambling criteria (OR 2.588; 1.445-4.637). The second significant association was related to the perception of being able to improve performance on an EGM with practice: the likelihood of problem gambling increased along with strengthened belief that practice could actually improve EGM performance (OR 1.307; 1.011-1.690).

9.6 OVERVIEW OF RESULTS - ADOLESCENT *PROBLEM GAMBLING* IN NEW ZEALAND

The results in this chapter provide the first glimpse of the shape and extent of problem gambling behaviour amongst young New Zealanders. In addition to demonstrating that substantial numbers of young people gamble at problematic levels in New Zealand, this comprehensive set of analyses has revealed associations between participants' problem gambling status and a number of variables. These significant associations are summarised below in relation to the measurement of problem gambling, patterns of use, social context, and beliefs and perceptions regarding gambling.

- Measurement of problem gambling:
 - o 3.8% of all survey participants were currently experiencing problems with their gambling;
 - o 6.1% of those participants who had gambled over the past year were currently experiencing problems with their gambling;
 - o There is evidence that the consequences of gambling stretch much further than just those who satisfy the problem criteria. Although not experiencing problems at clinically prescribed levels, substantial proportions of participants were coping with varying degrees of negative effects, particularly family and academic disruptions, related to their gambling; and,
 - o Items of the problem screen that related to social aspects of participants' lives (e.g. family and academic disruptions, illegal acts, lies and deception) were more frequently endorsed than those that were

individual-oriented (e.g. loss of control, progression and preoccupation, escapism, chasing, and withdrawal).

- Patterns of use and problem gambling:

- o Males were approximately two and a half times more likely to satisfy the problem gambling criteria;
 - o Pacific participants had an alarmingly high likelihood of problem gambling: they were approximately 11.5 times more likely to satisfy the problem gambling criteria than NZ European/Pakeha participants;
 - o Age was not significantly related to problem gambling status, however, the likelihood of problem gambling was inflated for those who began gambling at an early age (aged ten or under);
 - o As indices relating to participants' engagement with gambling increased (in terms of time and money) so too did the likelihood of developing problems;
 - o Although most modes of gambling were positively associated with problem gambling, casino tables and EGMs were found to have the greatest risk;
 - o As the use of both the internet and computer games increased so too did the likelihood of problem gambling;
 - o Alcohol use was positively correlated with problem gambling:
 - Greater proportions of those with gambling problems drank alcohol frequently; and,
 - Those with gambling problems were significantly more likely to frequently engage in heavy drinking sessions.

- Gambling at a bar/club, school, and a friend's home were the locations associated with the greatest risk of problem gambling; and,
 - Participants with gambling problems were more than twice as likely as their counterparts to cite enjoyment as a reason for gambling.
- Social context and problem gambling:
 - Those with gambling problems were almost five and a half times more likely to have gambled with a person unknown to them than their counterparts;
 - Participants had an increased risk of problem gambling if one or more of their parents gambled at problematic levels; problem gambling behaviour of mothers was associated with even greater risk than that of fathers;
 - Gambling by household members and friends on a regular basis increased a participant's odds of problem gambling, particularly with regard to casinos, EGMs, and TAB sports/track racing, which were all associated with substantially inflated levels of risk; and,
 - Participants who were aware of television and newspaper advertising for Lotto/Daily Keno were significantly less likely to satisfy the criteria for problem gambling.
- Beliefs / perceptions and problem gambling:
 - Participants who thought that various modes of gambling (lottery products and the TAB) were easy to access, or who had more lenient attitudes regarding rights of access (to casinos, EGMs and the TAB) had a greater risk of problem gambling;

- Participants with erroneous beliefs regarding the level of skill (lottery products and EGMs) and luck (lottery products) in gambling were more likely to fulfil the problem gambling criteria;
- Participants who thought that performance on EGMs could be improved with practice were more likely to fulfil the problem gambling criteria; and,
- As participants' self-rating of their competence at gambling increased, so too did the likelihood of their problem gambling.

These results assist with answering the third research question, '*Is problem gambling an issue for the young people of New Zealand, and, if so, what are the factors associated with increased risk?*' As such, a wealth of information is provided by this research in relation to the incidence of problem gambling, and associated variables, for young New Zealanders. The next chapter outlines the analyses that begin to address the concept of protective factors in adolescent gambling, as per the fourth research question: '*Are the protective factors that operate in other youth behavioural domains relevant to adolescent gambling?*'

10 RESULTS: RESILIENCY ORIENTED RISK AND PROTECTIVE FACTORS - APPLICABILITY TO GAMBLING

The following chapter explores the relevance of protective factors to youth gambling behaviour: an internationally unique approach to this behavioural domain. It seeks to address the fourth and final research question, '*Are the protective factors that operate in other youth behavioural domains relevant to adolescent gambling?*' The researcher hypothesised that participants with a strong sense of connection and support would be less likely to: i) engage in gambling behaviour; and, ii) experience gambling at problematic levels.

The questionnaire items with which this chapter is concerned are drawn from the body of knowledge in other youth behavioural domains. This chapter consists of two segments, the first of which addresses individual items that were not part of a standardised scale, and the second of which relates to participants' connectedness to parents and peers, as measured by a standardised instrument. Each of these was included in this research due to its potential to fulfil a protective or risk function with regard to gambling, and each is explored with respect to both gambling and problem gambling behaviour.

10.1 NON-STANDARDISED ITEMS

This section was comprised of 23 questions seeking information in a number of domains, including happiness and levels of connectedness / support (through avenues

such as family, school, friends, and religion). The following section outlines findings for these items with respect to both gambling and problem gambling status.

10.1.1 GAMBLING STATUS AND NON-STANDARDISED ITEMS

Only three of these 23 non-standardised items were significantly associated with gambling status. The three items that reached significance were related to: being required to complete household chores, importance of spiritual beliefs, and having received detention over the past year. Both household chores and the importance of spiritual beliefs, which were measured via five-point Likert scales, were found to be protective in nature with regard to gambling status: i.e. with increasing requirements for household chores, and increasing conviction that spiritual beliefs were important, the likelihood of being a gambler decreased (OR .905; .854-.960; and OR .883; .796-.980 respectively).

The importance of spiritual beliefs to some participants was emphasised through their comments:

“i don't like gambling. Its a sin.” (14 year old, male)

“My parents have brought me up well, so i have high standards & values, so i know that gambling etc. is bad! My church has also helped me to keep high standards, in our church we dont gamble, smoke, drink etc.” (15 year old, female)

“Well, to me and my own thoughts, some how gambling is half and half good or bad. For example, people go to church but then feel guilty in gambling for money instead of asking god for help. To me I have nothing against gambling + not on either side of this gambling or no gambling stake.” (13 year old, female)

Participants who had received school detention over the past year were approximately 1.5 times more likely to be a gambler than those who hadn't (OR 1.572; 1.139-2.169). Complete results for this set of analyses can be found in Appendix C.55.

10.1.2 PROBLEM GAMBLING STATUS AND NON-STANDARDISED ITEMS

Nine of the 23 non-standardised items were significantly associated with problem gambling. The items that reached significance are discussed below; a complete set of results for this set of analyses can be found in Appendix C.56.

Five of the items were measured via Likert scales and were shown to be protective in nature: as each measured domain increased the likelihood of problem gambling decreased:

- family like to know details when participant goes out: OR .681; .511-.909
- is getting on well with teachers: OR .450; .294-.688
- is getting on well with other students: OR .612; .380-.987
- has plans for the future: OR .530; .363-.773
- feels as happy as most people their age: OR .456; .296-.704

The other four items were categorical in nature and identified as significant risk factors. Responses that may be indicative of poor integration and connectedness within the school environment, i.e. having received detention and having received suspension, were associated with a much greater likelihood of problem gambling. In particular, participants who had received detention over the previous year were three and half times more likely to satisfy the problem gambling criteria than their counterparts (OR 3.578; 1.575-8.128). The likelihood of problem gambling was almost double this for participants who had received suspension, i.e. they were six times more likely to have satisfied the criteria for problem gambling than other participants (OR 5.993; 2.094-17.151).

The items addressing suicidal ideation were also concerning. Participants who had thought about suicide were two and a half times more likely to be gambling at problematic levels than those who hadn't (OR 2.530; 1.466-4.366), and in the case of participants who had made a suicide plan, the likelihood of problem gambling increased fourfold (OR 3.943; 1.788-8.695).

10.2 PARENTAL AND PEER ATTACHMENT

The Inventory of Parent and Peer Attachment (IPPA) was employed to measure the quality of relationships and level of connectedness with each parent and close friends. Each version (*mother, father, and peer*) results in an indication of overall attachment and levels of trust, communication, and alienation. The following sections detail issues relating to the utilisation of the scale, response distributions, and findings in relation to gambling and problem gambling status.

IPPA Scales and Missing Data

A difficulty arises when a few missing values are observed within responses to standardised scales, for example, when a participant responds to 22 out of 25 items. One possible approach is to exclude the entire record for that participant, however, a widely employed procedure that enables the maximum utilisation of participant responses is to replace missing values with item means (as calculated from available data). This procedure ensures a conservative approach as the mean remains unaffected, however, it does have the disadvantage of reducing the item's overall variance, subsequently reducing correlations with other variables (Tabachnick & Fidell, 1996).

With respect to the three IPPA versions (*mother*, *father*, and *peer*), the proportion of missing values observed within each were relatively equal. Of all participants:

- 79.6% (N=1596) completed all 25 items for the *Mother* scale;
- 79.0% (N=1584) completed all 25 items for the *Father* scale; and,
- 80.5% (N=1615) completed all 25 items for the *Peer* scale.

In order to prevent introducing bias, the technique of substituting mean values was limited to those participants with missing values for four or fewer items per scale (i.e. a participant with five or more missing values for the *peer* version would not be included in that set of analyses). This number was based upon an examination of the distribution and cumulative percent for number of missing items. Employing a cut-off of four missing items or less ensured that:

- 96.3% (N=1931) of the sample could be included in analyses for the *mother* scale;
- 93.0% (N=1864) of the sample could be included in analyses for the *father* scale; and,
- 94.1% (N=1887) of the sample could be included in analyses for the *peer* scale.

Response Distribution of IPPA Scores

Table 11 sets out statistics (mean, standard deviation and range) relating to scores for overall attachment, trust, communication and alienation as gained via the IPPA. For each scale, a higher score is indicative of a higher degree of the dimension being measured. As illustrated below, versions of the attachment scale demonstrated the greatest disparity with regard to mean scores (i.e. attachment varied by almost ten

percent, where other scales varied by three percent or less), while the other subscales were less variable.

It is noteworthy that the mean scores for the paternal version of each scale were the least positive i.e. the mean paternal scores for the attachment, trust and communication scales were the lowest, while the paternal alienation score was the highest.

Table 11: Descriptive statistics and measures of central tendency for IPPA scores (Mother N=1931, Father N=1864, Peer N=1887)[§]

IPPA SCALE		Scale Score			
		Mean	S.D.	Achieved Range	Possible Range
<i>Attachment</i>	Mother	90.6	18.2	28 – 125	25 – 125
	Father	84.8	19.3	25 – 125	
	Peer	93.3	16.8	33 – 125	
<i>Trust</i>	Mother	39.0	8.2	10 – 50	10 – 50
	Father	36.9	9.1	10 – 50	
	Peer	39.6	8.1	10 – 50	
<i>Communication</i>	Mother	30.6	7.5	9 – 45	9 – 45
	Father	27.6	8.0	9 – 45	
	Peer	29.4	7.4	8 – 40	
<i>Alienation</i>	Mother	15.0	5.2	6 – 30	6 – 30
	Father	15.7	5.5	6 – 30	
	Peer	17.7	5.5	7 – 35	

[§]Calculated from data which are un-weighted and un-adjusted for age, gender, ethnicity and school clustering effects.

10.2.1 GAMBLING STATUS AND ATTACHMENT, TRUST, COMMUNICATION, ALIENATION

Scores from each of the IPPA scales were investigated in relation to gambling status. It was expected that participants with high levels of attachment, trust, and communication with their parents and peers might be less likely to engage in gambling activities. Similarly, it was expected that higher levels of alienation would be associated with a greater likelihood of gambling. Findings from this set of analyses

are discussed in the following sections; further information and details are available in Appendix C.63.

Gambling Status and Overall Attachment

Significant associations were found between gambling status and measures of overall attachment to both parents, but not to peers. As attachment to parents increased, the likelihood of gambling decreased: maternal attachment (OR .990; .985-.996); paternal attachment (OR .989; .978-.999). Examination of median scores further illustrates this relationship: those who gambled had median attachment scores of 90 (maternal) and 83 (paternal), compared with scores of 95 (maternal) and 87 (paternal) for their non-gambling counterparts.

Gambling Status and Trust

Analyses revealed that as the level of trust in parental figures increased, participants were significantly less likely to engage in gambling: maternal (OR .982; .969-.996), and paternal (OR .979; .959-1). The score distributions for gamblers and non-gamblers were skewed towards higher scores for both parents: there was a greater proportion of non-gamblers than gamblers in the upper score ranges. Trust in peers did not reach significance in relation to gambling status.

Gambling Status and Communication

In line with attachment and trust, quality communication with parents, as signified by higher communication scores, was significantly related to a decrease in the likelihood of gambling. The odds ratios were almost identical for both parents: maternal (OR .979; .965-.994), and paternal (OR .976; .954-.999).

Gambling Status and Alienation

All three versions of the alienation subscale (*maternal*, *paternal*, and *peer*) were significantly related to gambling status: increasing levels of alienation were associated with an increased likelihood of gambling: *maternal* (OR 1.034; 1.009-1.059); *paternal* (OR 1.045; 1.018-1.072); and *peer* (OR 1.035; 1.011-1.060). It is interesting to note that the alienation subscale was the only *peer* scale to reach significance in relation to gambling status.

10.2.2 PROBLEM GAMBLING STATUS AND ATTACHMENT, TRUST, COMMUNICATION, ALIENATION

Relationships between problem gambling status and each version (*mother*, *father*, and *peer*) of the IPPA (consisting of the attachment scale and each subscale: trust, communication, alienation) were investigated. The results detailed in this section were extremely supportive of a link between social connectedness and problem gambling behaviour: as social connectedness increased, the likelihood of problem gambling was observed to significantly decrease. Extensive details are available in Appendix C.64; significant results are discussed in the following section according to each IPPA scale and version.

Problem Gambling Status and Overall Attachment

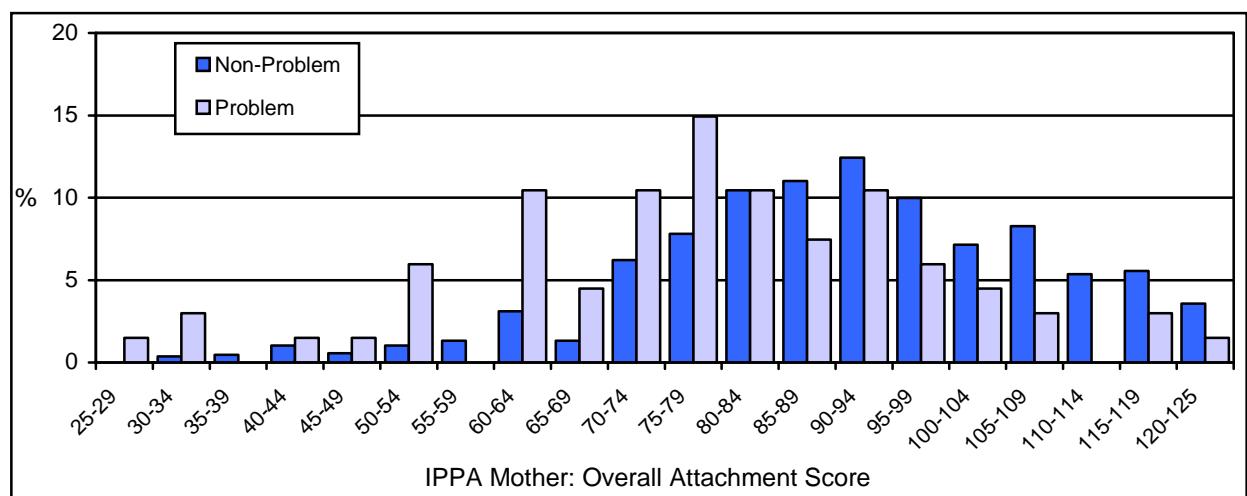
All three measures of attachment were very strongly related to problem gambling status: as participants' attachment to their mother, father, and peers increased, the likelihood of problem gambling significantly decreased. In essence, problem gamblers were less attached than were their counterparts: *maternal* (OR .951; .925-.979), *paternal* (OR .966; .940-.992), and *peer* (OR .964; .936-.994).

The next three figures illustrate the differences between problem and non-problem gamblers with regard to distributions of attachment scores for the *mother* (Figure 27), *father* (Figure 28), and *peer* (Figure 29) versions of the IPPA scale.

For the figures in this chapter to achieve an effective visual comparison, distributions for both populations (those who gamble safely and those who gamble problematically) have been converted to percentage values, rather than using frequency counts. This is due to the difficulties that arise when comparing populations that differ in size over a large number of response categories (in this case, the proportion of those who gamble problematically is relatively small).

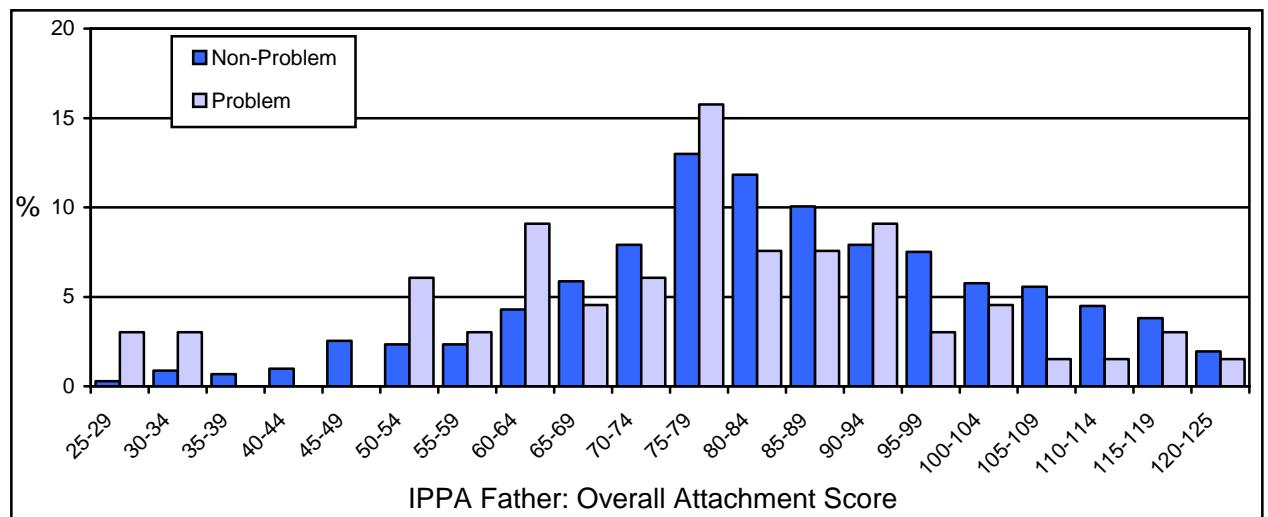
When viewing Figure 27, it is apparent that just over ten percent of problem gamblers and five percent of non-problem gamblers obtained a maternal attachment score of 70 to 74. Overall, the response distribution for those gambling at safe levels was skewed towards stronger attachment, while those gambling at problematic levels were biased towards lower attachment scores. A further indication of these differences can be found in the differing median scores: non-problem = 90, and problem = 79.

Figure 27: Distributions of attachment scores on the maternal IPPA by problem gambling status: non-problem and problem gamblers



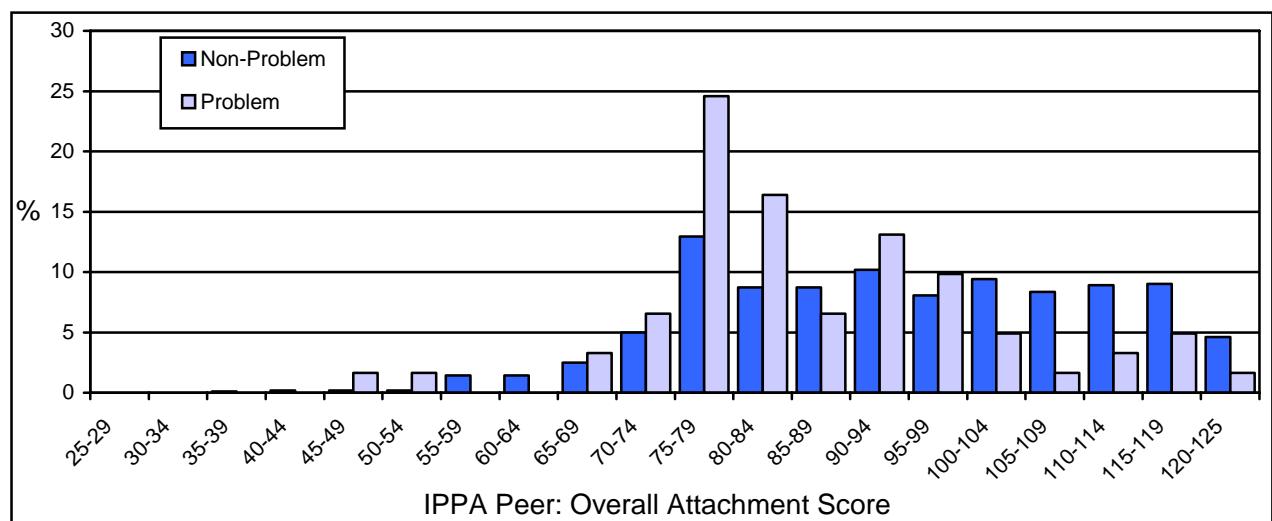
Similarly, as illustrated in Figure 28, the distribution of paternal attachment scores by gambling status shows that very few problem gamblers gained scores in the upper quartile, particularly in comparison to those who were gambling at safe levels. Although this significant relationship is not quite as strong as that for the maternal scale, there was still a substantial distance between the two groups' median scores: non-problem = 83, and problem = 78.

Figure 28: Distribution of attachment scores on the paternal IPPA by problem gambling status: non-problem and problem gamblers



As portrayed in Figure 29, the peer attachment distributions differed somewhat to those for parental figures: an extremely small proportion of participants obtained scores in the lower quartile, regardless of problem status. The distribution for non-problem gamblers was relatively uniform with the majority registering in the upper quartiles. Conversely, the distribution for problem gamblers concentrated around the central score range. The median scores for these groups differed greatly: non-problem = 94, and problem = 83.

Figure 29: Distribution of attachment scores on the peer IPPA by problem gambling status: non-problem and problem gamblers

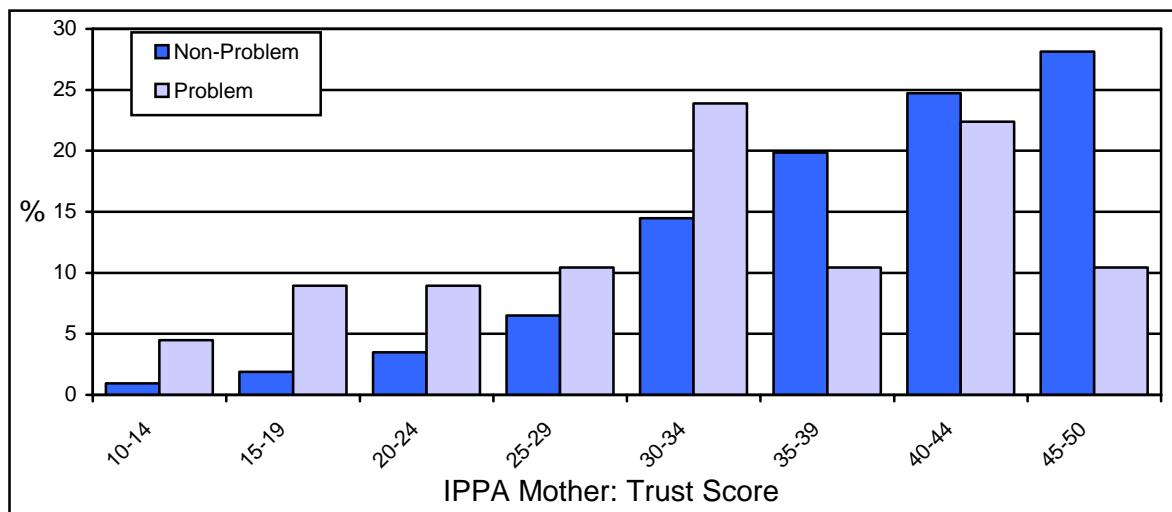


Problem Gambling Status and Trust

As with attachment, all three measures of trust (*mother*, *father*, and *peer*) were strongly linked with problem gambling status: participants with increased levels of trust in their parents and peers were significantly less likely to gamble at problematic levels: maternal (OR .899; .855-.945), paternal (OR .929; .886-.975), and peer (OR .924; .896-.989).

Figure 30 illustrates the distributions of maternal trust scores according to problem gambling status. Although the distribution of scores for non-problem gamblers uniformly increased, the distribution of scores for problem gamblers fluctuated greatly in the upper score ranges. Overall, problem gamblers were substantially over-represented in the lower quartiles and under-represented in the upper quartiles.

Figure 30: Distribution of trust scores on the maternal IPPA by problem gambling status: non-problem and problem gamblers



The response distributions for level of trust in fathers were somewhat similar to those outlined for mothers. As shown in Figure 31, those with gambling problems registered substantially more scores in the lower quartiles (i.e. registering low levels of trust in their fathers) and peaked at a substantially lower score than did their counterparts.

Figure 31: Distribution of trust scores on the paternal IPPA by problem gambling status: non-problem and problem gamblers

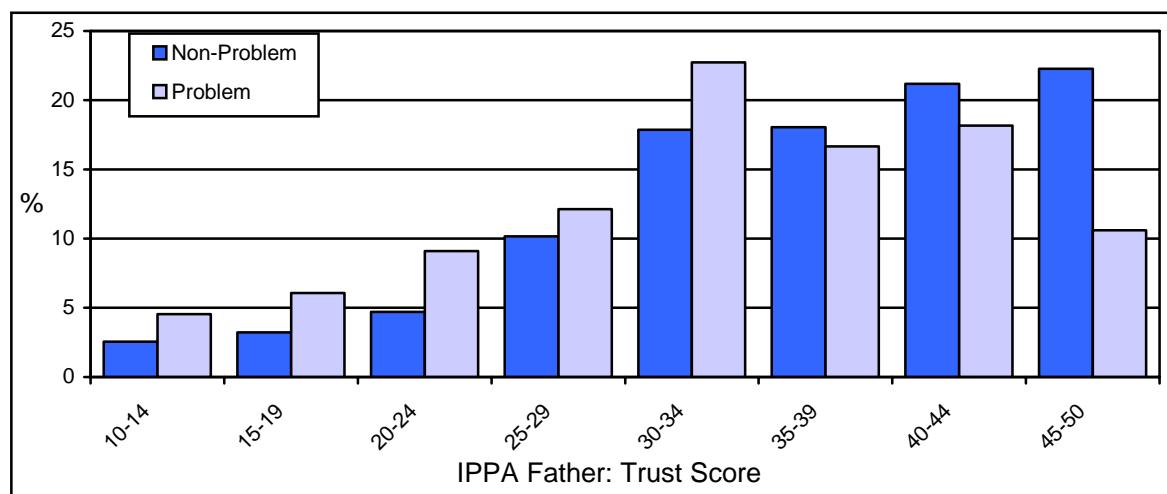
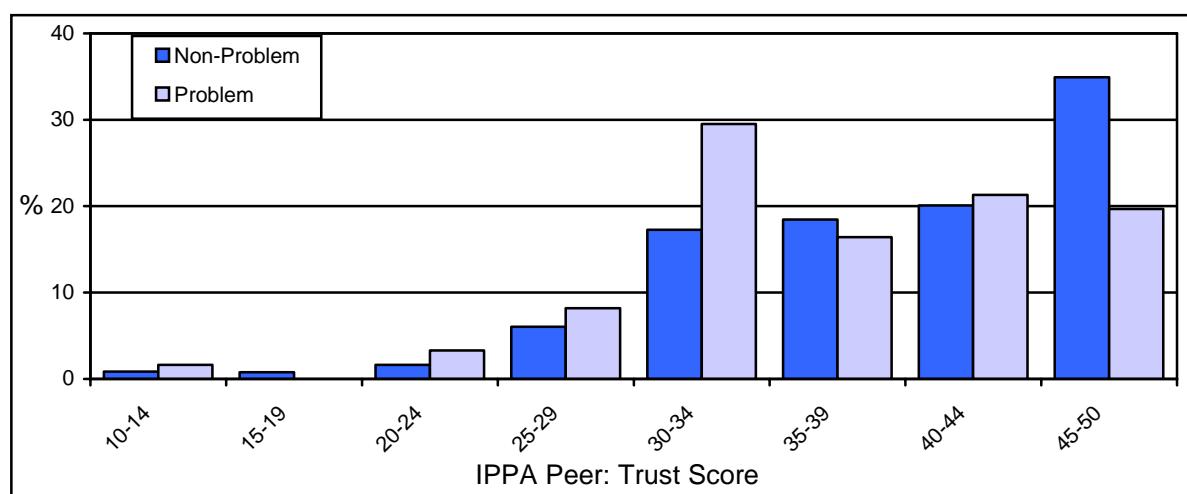


Figure 32 highlights the different distributions of *peer* trust scores for problem and non-problem gamblers. Although levels of trust were relatively equal for the two groups in the lower score ranges, they differed considerably in the mid and upper ranges. In particular, a comparatively small proportion of problem gamblers indicated having high levels of trust in their peers. Further details on this set of analyses can be found in Appendix C.64.

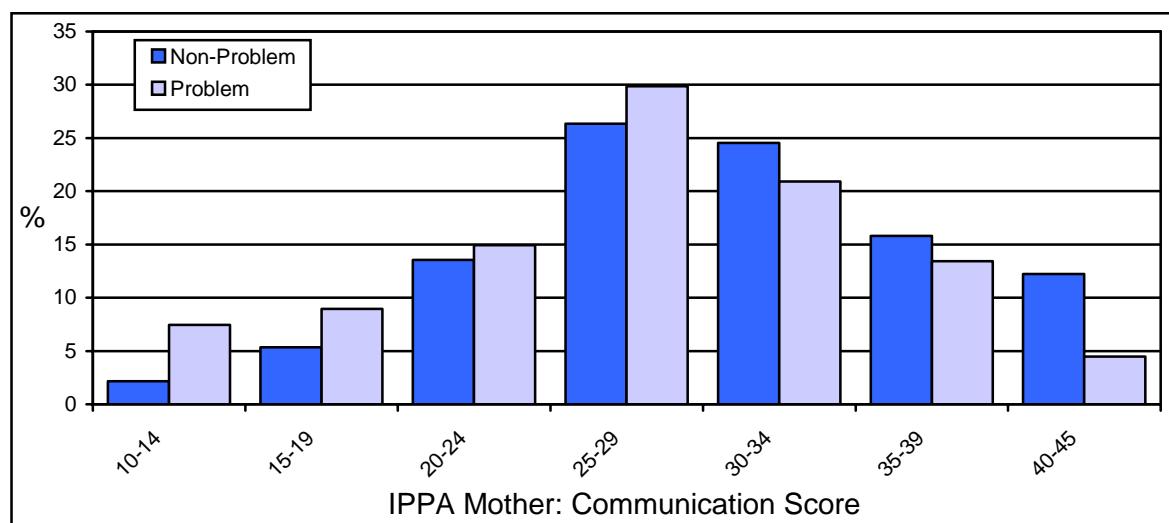
Figure 32: Distribution of trust scores on the peer IPPA by problem gambling status: non-problem and problem gamblers



Problem Gambling Status and Communication

Only one of the three communication measures achieved significance in relation to problem gambling: as perceived levels of communication between participants and their mothers increased, the likelihood of gambling at problematic levels decreased (OR .929; .869-.993). Figure 33 illustrates the communication score distributions for those gambling at problem and non-problematic levels (with median scores of 28 and 30 respectively). Although the distributions are relatively comparable, low communication scores were obtained by substantially greater proportions of those who were gambling problematically. Moreover, only a very small proportion (4.5%) of problem gamblers scored in the uppermost range of 40-45, compared with 12.2% of non-problem gamblers. Further details on this set of analyses can be found in Appendix C.64.

Figure 33: Distribution of communication scores on the maternal IPPA by problem gambling status: non-problem and problem gamblers



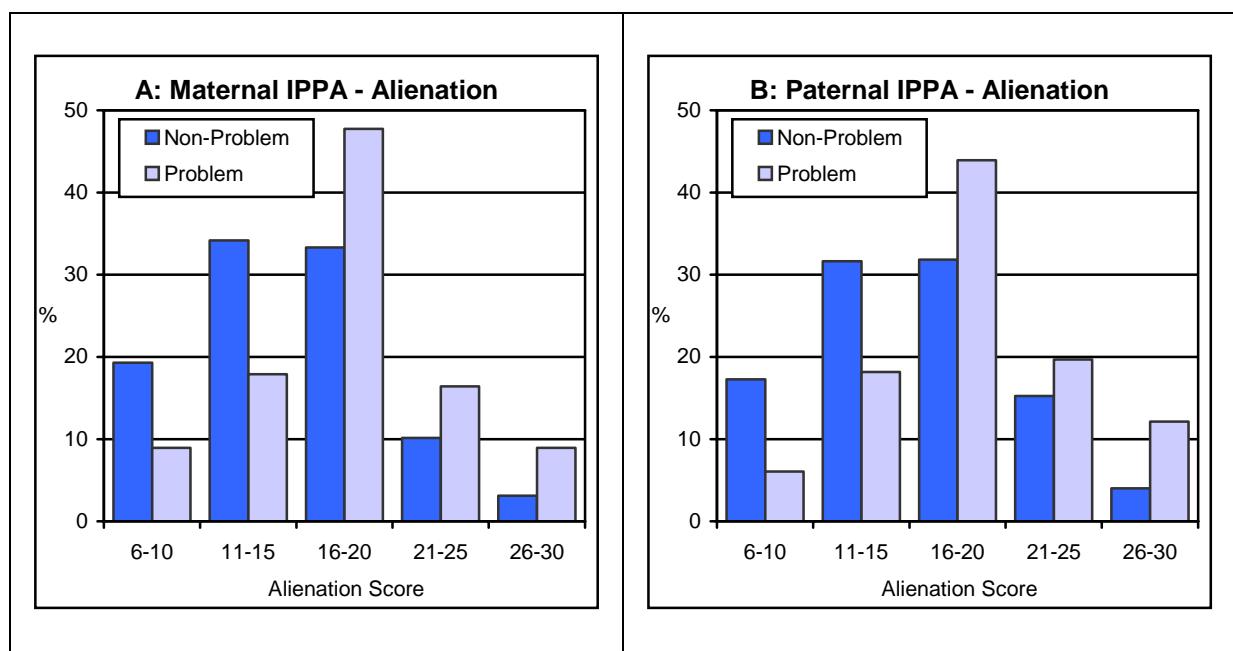
Problem Gambling Status and Alienation

There was strong evidence that feelings of alienation were related to problem gambling behaviour. All three versions of the alienation scale were positively related

to problem gambling status: in each case, the likelihood of problem gambling increased along with feelings of alienation: maternal (OR 1.150; 1.050-1.259), paternal (OR 1.154; 1.047-1.271), and peer (OR 1.104; 1.020-1.195).

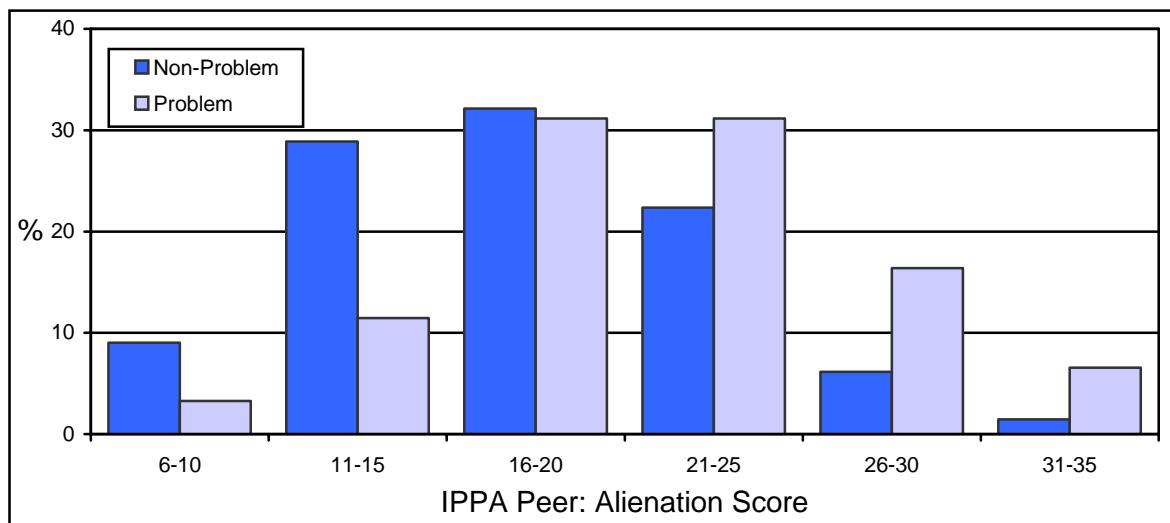
Figure 34 (A and B) portrays maternal and paternal alienation scores according to problem gambling status. The distributions depicted in both of these figures are very similar and show that the alienation scores of those who were gambling problematically were skewed towards higher levels of alienation than those who were gambling safely.

Figure 34: Distribution of alienation scores on the maternal and paternal IPPA by problem gambling status: non-problem and problem gamblers



Findings were similar with regard to alienation from peers. Figure 35 shows that a relatively small proportion of problem gamblers registered low alienation scores and that a substantially greater proportion of problem gamblers felt highly alienated from their peers. Further details on this set of analyses can be found in Appendix C.64.

Figure 35: Distribution of alienation scores on the peer IPPA by problem gambling status: non-problem and problem gamblers



10.3 OVERVIEW OF RESULTS - RESILIENCY ORIENTED RISK AND PROTECTIVE FACTORS AND THEIR APPLICABILITY TO GAMBLING

This chapter has provided a large amount of information on a previously neglected aspect of youth gambling: resiliency oriented risk and protective factors. This unique avenue of research has provided strong evidence that a large number of resiliency-based variables are influential with regard to both gambling and problem gambling behaviour. In particular, the concept of social connectedness (participants' relationships with their parents and peers) has been demonstrated as relevant to youth gambling. As such, the findings from this set of analyses contribute to answering the fourth research question, '*Are the protective factors that operate in other youth behavioural domains relevant to adolescent gambling?*' The findings from this section are summarised below.

Non-standardised items:

- Gambling status:
 - o The likelihood of gambling significantly decreased as participants:
 - reported undertaking increased levels of household chores; and,
 - indicated that spiritual beliefs were important to them.
 - o The likelihood of gambling significantly increased if participants:
 - had received school detention over the past year (they were one and a half times more likely to gamble than their counterparts).
- Problem gambling status:
 - o Nine of the 12 IPPA measures reached significance.

- The likelihood of problem gambling significantly decreased if participants:
 - had family that expressed interest/concern for their whereabouts;
 - were getting on well with their teachers;
 - were getting on well with other students;
 - had plans for the future; and,
 - felt as happy as most people their age.
- The likelihood of problem gambling significantly increased if participants:
 - had received school detention over the past year (they were three and a half times more likely to gamble problematically than their counterparts);
 - had been suspended from school over the past year (they were six times more likely to gamble problematically than their counterparts);
 - had thought about suicide (they were two and a half times more likely to gamble problematically than their counterparts); and,
 - had made a suicide plan (they were four times more likely to gamble problematically than their counterparts).

Standardised items - Inventory of Parent and Peer Attachment (IPPA):

- Gambling status:
 - The likelihood of gambling among participants significantly decreased with:
 - Increasing levels of maternal:

- attachment;
 - trust; and,
 - communication.
- Increasing levels of paternal:
 - attachment;
 - trust; and,
 - communication.
- The likelihood of gambling among participants significantly increased with:
 - Increasing levels of:
 - maternal alienation;
 - paternal alienation; and,
 - peer alienation.
- Problem gambling status:
 - Ten of the 12 IPPA measures reached significance.
 - The likelihood of problem gambling among participants significantly decreased with:
 - Increasing levels of maternal:
 - attachment;
 - trust; and,
 - communication.
 - Increasing levels of paternal:
 - attachment; and,
 - trust.
 - Increasing levels of peer:

- attachment; and,
 - trust.
- The likelihood of problem gambling among participants significantly increased with:
 - Increasing levels of:
 - maternal alienation;
 - paternal alienation; and,
 - peer alienation.

The next chapter provides the reader with details on the final step of analysis undertaken in this thesis. It clarifies the role of those factors that have been identified, in this chapter, as protective with respect to adolescent problem gambling. This is achieved by bringing the risk and protective factors that have already been identified together into one final analysis, thus verifying that the protective natures of these variables can be maintained while in the presence of risk factors.

11 RESULTS: SYNTHESIS OF RISK AND PROTECTIVE FACTORS AND THEIR APPLICABILITY TO PROBLEM GAMBLING

The preceding results chapters outline a number of unique and important findings with regard to protective and risk factors in youth gambling behaviour. However, although a large number of variables have demonstrated protective tendencies (i.e. they were significantly associated with a reduced risk of problem gambling), protective factors have been identified independently of risk factors (apart from gender and ethnicity, which were accounted for in each regression). It is possible that the protection that they provide may be significantly reduced, or even negated, by the presence of risk factors. As such, this final results chapter sets out to examine the robustness of selected protective factors.

This final analysis involved a multivariable regression with a number of significant protective **and** risk variables. Significant variables from each of the previous sets of analysis were considered for inclusion in this final regression. In order to prioritise variables for inclusion (as the number of variables that can be included in any one regression analysis is limited, due to impact on analytical power), several factors were considered:

1. The strength of previously demonstrated significant relationships;
2. The theoretical importance of the variable;
3. The need to balance the number of risk and protective variables;

4. The intention to achieve a balance between variable domains (home, school, spirituality, and individual); and,

5. In the instance of groups of variables with high inter-item correlations, only a single item was prioritised (according to the above criteria).

After applying the above considerations to prioritise variables, nine items were selected for inclusion. These variables were known to perform either risk (R) or protective (P) functions and related to four theoretically important domains of participants' lives (demographic, individual, school, and family). These items were:

- Gender (R);
- Ethnicity (due to small cell sizes, ethnicity was collapsed into two categories: NZ European/Pakeha, and non-NZ European/Pakeha) (R);
- Low initial age of gambling (R);
- Perceived competence at gambling (R);
- High perceived level of happiness (P);
- The presence of parental problem gambling (the maternal and paternal problem gambling variables were combined to construct this variable: a positive response to either variable resulting in a positive 'response' to this item) (R);
- High maternal attachment (P);
- Received school detention (R); and,
- Positive relationship with school teachers (P).

Age was also controlled for, resulting in ten variables being included in the final regression. As with previous regressions, the data set was also weighted according to the proportion of participants from each school and the effects of school clustering

were accounted for. Significant findings are discussed below; details relating to this final regression analysis can be found in Appendix C.65.

Protective Factors:

Two of the three protective factors sustained significant protective associations with problem gambling status when accounting for risk factors. Although level of happiness failed to maintain a significant protective function, relationships with mothers and teachers continued to do so:

- High maternal attachment (OR .975; .958-.991) ($p=.0030$); and,
- Positive relationship with school teachers (OR .665; .477-.927) ($p=.0159$).

These findings strongly confirm that even in the presence of substantial risk, social connectedness performs a protective function in relation to problem gambling. As the quality of participants relationships with their school teachers and mothers increase, the likelihood of experiencing gambling problems decreases.

Risk Factors:

Of the six included risk factors, four maintained significant associations with problem gambling status:

- Ethnicity ($p=.0117$);
- Low Initial age of gambling ($p=.0002$);
- The presence of parental problem gambling ($p=.0135$); and,
- Received school detention ($p=.0206$).

Of all the risk factors, ethnicity was associated with the greatest risk. When compared with their counterparts, non-NZ European/Pakeha participants were nearly five times

as likely to experience problem gambling (OR 4.737; 1.413-15.878). The next greatest level of risk was associated with parental gambling. Believing that at least one parent or caregiver had a gambling problem increased a young person's risk of problem gambling by more than three and a half times (OR 3.649; 1.307-10.188). Although risky to a lesser extent, participants who had received detention or were aged ten or less when they first gambled were more than twice as likely as their counterparts to gamble at problematic levels (OR 2.635; 1.160-5.982; and OR 2.274; 1.465-3.529 respectively).

Perceived competence at gambling and gender failed to maintain significant risk functions. As with previous analyses, age did not reach significance.

Table 12 provides a synopsis of the findings from this final regression. Results have been organised according to each variable's status (risk/protective) and domain/topic following preliminary and final analyses. It can be seen that two variables maintained their protective natures while in the presence of known risk factors. Both were related to social connectedness: positive attachment to a maternal figure and having a good relationship with schoolteachers.

Table 12: Overview of protective and risk factors according to initial and final analysis

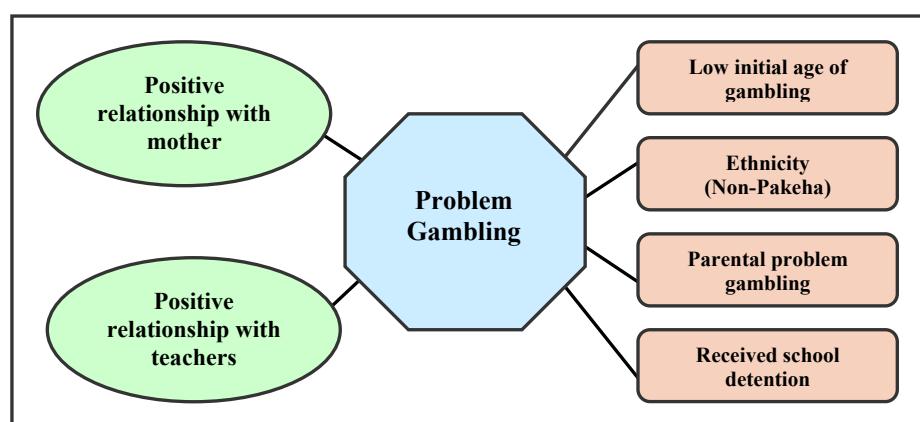
Item domain and topic	Variable Status					
	Initial Analyses (Pre final regression)			Final Analysis (Post final regression)		
	Protective	Risk	Non-significant	Protective	Risk	Non-significant
Demographic						
Age (control variable)			✓			✓
Gender (male)		✓				✓
Ethnicity (non NZE/Pakeha)		✓			✓	
Individual						
Low initial age of gambling		✓			✓	
Perceived competence at gambling		✓				✓
Perceived level of happiness	✓					✓
Family						
Parental problem gambling		✓				✓
High maternal attachment	✓			✓		
School						
Received detention		✓				✓
Positive relationship with school teachers	✓			✓		

11.1 OVERVIEW OF RESULTS - SYNTHESIS OF RISK AND PROTECTIVE FACTORS AND THEIR APPLICABILITY TO PROBLEM GAMBLING

Overall, this research has made a significant and unique contribution to the field of youth gambling. As a result of this research, numerous risk factors relating to gambling and problem gambling have been identified and/or verified as being relevant for New Zealand young people. However, unlike most research, which has focused solely upon factors associated with an increased risk of problem gambling, the current research has also investigated a range of potential protective factors.

The results from this final stage of analysis are particularly noteworthy in that two indices of social connectedness (attachment to a maternal figure, and a positive relationship with a school teacher) were found to be protective against problem gambling, even in the presence of major risk factors (parental problem gambling, being of Non-Pakeha ethnicity, receiving school detention, and an early initiation into gambling). These relationships are illustrated in Figure 36, although it should be noted that the Figure is purely schematic and does not represent a statistical model.

Figure 36: Schematic summary of protective (oval) and risk (rectangular) factors for adolescent gambling as confirmed by the current research



12 DISCUSSION

This chapter summarises and discusses the key research findings, while also relating them to the pertinent literature. For ease of discussion, this section is organised around the research questions that were initially posed in *Chapter Four*:

1. How relevant is gambling to the young people of New Zealand?
2. What are the factors associated with youth gambling in New Zealand?
3. Is problem gambling an issue for the young people of New Zealand, and, if so, what are the factors associated with increased risk?
4. Are the protective factors that operate in other youth behavioural domains relevant to adolescent gambling?

Notable limitations to this research are also outlined and discussed in relation to methodological and theoretical issues.

How relevant is gambling to the young people of New Zealand?

This research has demonstrated that gambling is a widespread activity among New Zealand young people. However, in accordance with youth gambling research in other countries (e.g. AADAC, 1996; Wallisch, 1996; Wiebe, 1999), gambling generally appears to be of low importance to this age group. Although approximately one third of participants had gambled by the age of ten, and a majority had gambled within the previous year, most young people have a limited amount of interest in gambling

activities. The results from this study reveal that, on the whole, most participants spend reasonably low amounts of time and money on gambling. These observations correspond with a number of participant comments: although a few suggested that gambling is an issue of concern for young people, quite a number indicated that it is not a relevant topic for them. The following quotes represent these contrasting views:

"I've seen my mate spend thousands of dollars on pokie machines, he inherited a house which he has now sold, he has spent at least 50,000 on pokie machines - he plays 2 or 3 at a time he occasionally wins but not enough to make back his losses, sometimes I think hes wasting his money, he gets to the point where he goes to the pokies and wont leave till he wins the jackpot - I've seen him sit in the pokies for up to 12 hours at a time, but the thing is I know they arn't designed to make you win, why cant he see that." (16 year old, male)

"Im not a gambler I think thats not much of a problem these days I think the gambling range wouldn't be at our age compared to 20-40yr olds well that what I thought." (16 year old, female)

In general, participants held fairly accurate perceptions and beliefs about gambling and as with their international counterparts, they preferred to gamble on lottery products (such as NZ Lotteries products: Lotto and Instant Kiwi) and 'informal' modes of gambling (board/dice/card games and bets with friends) (e.g. Hardoon et al., 2002; Poulin, 2000). These preferences tie in with the reasons most frequently cited for gambling: enjoyment, winning money, excitement, relief of boredom, and a challenge (which also correspond with international findings (e.g. Wiebe, 1999)). Interestingly, the reasons cited for gambling also strongly echo the messages conveyed by various members of the gambling industry through their marketing campaigns, of which participants demonstrated a strong awareness (particularly in relation to NZ Lotteries products).

A number of other findings also alluded to the importance of contextual and social aspects with regard to gambling behaviour. For instance, there appeared to be a strong

social influence on gambling behaviour: participants tended to gamble with members of their immediate social circle (friends, siblings, and parents) and school and home were among the most popular places to gamble. It is particularly concerning however, that Lotto outlets were cited as the second most frequent gambling location.

It is not particularly surprising that despite a fair degree of uncertainty with regard to ease and rights of access to gambling, the attitudes of participants tended to reflect those of society and the legislation in place at the time of research (as did their participation in certain modes): i.e. participants tended to think that they could and should have access to NZ Lotteries products (specifically Lotto and Instant Kiwi), but not to casinos, non-casino EGMs, and TABs.

Interestingly, most young people held fairly accurate beliefs and perceptions with regard to gambling. Most participants thought that NZ Lotteries products and EGMs required low levels of skill, while luck was thought to play an important role in all modes. Moreover, most participants seemed to understand that performance on EGMs cannot be improved with practice, and that being skilled at computer games would not equate to skilful use of EGMs. In line with the data showing that a majority of participants thought gambling could be an addictive behaviour, a number of comments alluded to the dangers of gambling. For instance:

“I think gambling is bad because people get addicted and flush their lives down the drain and money because they lose money and try to win it back but lose more because the odds are bad.” (14 year old, male)

Given the increasing popularity of the internet as a medium for gambling, particularly casino type gambling, it is of concern that 66% of participants had seen casino advertising on the internet. Although this high rate is not surprising given the ubiquity of pop-up advertising for internet casino sites, it is also worth noting that around 30%

of participants had seen internet advertising for New Zealand gambling: Lotto/Daily Keno, Instant Kiwi, and TAB sports/track racing (36.3%, 26.2%, and 38.6% respectively).

As most participants used the internet frequently, and did so alone or with friends, there is potential for young people to engage with gambling via the internet. This is of concern due to the potential for gambling via the internet to be a particularly socially isolating activity with inadequate safeguards (e.g. limited social monitoring or supervision/guidance by adults). It will be important to monitor youth internet gambling trends in the future, especially given that both the New Zealand Lotteries Commission and the New Zealand Racing Board have signalled their intention to further develop their on-line betting capabilities.

This research has also demonstrated that a large proportion of participants were exposed to regular gambling through familial and peer systems (again, particularly in relation to NZ Lotteries products). Unfortunately, substantial proportions of young people thought that their mother (4.0%), father (5.4%), or a friend (8.8%) was *currently* experiencing problems with their gambling. Although this research did not focus on the impact of parental gambling upon young people, these findings are particularly concerning. In addition to the stress placed on tangible resources (e.g. money, food, shelter) when parents are gambling excessively, it is likely that levels of emotional support for children are greatly reduced. As adolescence is a critical time for development and individuation, during which parents and peers are influential, and relationships are under renegotiation, this premature disengagement could have implications for the future wellbeing of young people (Muss, 1988). A substantial

number of participants made comments at the end of the questionnaire regarding the impacts of familial gambling. For example:

“I strongly think that gambling is inappropriate especially pokies, because my poppa does it in a pub almost daily and quite frankly he can not afford it. This problem not only affects his life but our family too.” (15 year old, female)

“Gambling is bad, it breaks family into pieces, is there any way anyone can stop or shut down the gambling places/stores. Because it is a killer. It puts kids in stress and pain.” (14 year old, female)

A concerning trend becomes apparent from the previous sections: NZ Lotteries has been prominent with regard to almost every aspect of these descriptive data (modes that participants gambled on; location of gambling; awareness of advertising; familial and peer gambling; and ease and rights of access). That these products appear to be so deeply ingrained in the lifestyle of New Zealand young people, despite an otherwise apparent indifference to gambling, is concerning, particularly as there is international research demonstrating these products’ ‘gateway’ tendencies, ability to normalise gambling, and that young people with gambling problems gamble primarily on lottery products (Felsher, Derevensky, & Gupta, 2004; Wood & Griffiths, 1998).

What are the factors associated with youth gambling in New Zealand?

This research provides a large body of information regarding the profile of adolescent gambling behaviour in New Zealand; an area that has been neglected to date. A wide variety of factors, including demographics, were associated with youth gambling behaviour.

Despite gender failing to reach significance in relation to whether or not participants gambled, males and females differed significantly in their gambling patterns and preferences, with males reporting that they gamble for enjoyment and being more

involved in gambling than females (in terms of time, money, and participation in multiple modes). In addition to betting with friends, boys were more likely to be involved in a number of modes that are theoretically unavailable to their age group: non-casino and casino EGMs, casino tables, and TAB sports betting. It is worth noting that most of these modes are considered more dangerous than others due to their continuous characteristics, and consequent association with a greater likelihood of problem gambling. Instant Kiwi was the only mode that females were more likely to gamble on than males. Although this preference is consistent with research into the gambling habits of New Zealand adults (where lottery products were consistently preferred by females) (Amey, 2001), international researchers have found that in addition to lottery products, young females also favour card games, EGMs, bingo, and horse racing (Gupta & Derevensky, 1998a; Stinchfield, 2000; Wallisch, 1996). Overall, the research findings were consistent with international literature showing gambling to be a more male-oriented behaviour (Derevensky et al., 1996; Stinchfield et al., 1997). It would be informative to conduct an in-depth exploration of the role of gender in youth gambling.

Ethnicity was significantly associated with various facets of gambling behaviour (modes and locations, motivations, and the presence of companions). Although participants from Asian and ‘other’ ethnic groups were less likely to gamble, those who did participate in gambling were involved to a greater extent than their NZ European/Pakeha counterparts: Asian and Maori participants spent more money on gambling activities; and, Asian and Pacific participants spent significantly more time gambling. Again, these findings resonate with research findings relating to the gambling behaviour of adults in New Zealand (Tse et al., 2005).

Not surprisingly, various aspects of gambling behaviour differed according to age group. For instance, older participants were significantly more likely to gamble at casinos than were younger groups, who were more involved in 0900 phone games. It is likely that choice of gambling activity is partially influenced by level of accessibility: while older participants would have found it much easier to access casinos, which monitor for entry of minors, those in younger age groups would find 0900 phone games easily accessible from home. In line with international research, older participants were less likely to gamble in familial contexts (e.g. at home or with relatives), perhaps echoing a general developmental shift towards independence (Fisher, 1993a; Griffiths, 1990a, 1990b; Gupta & Derevensky, 1998a; Hardoon et al., 2002; Ladouceur & Mireault, 1988; Wiebe, 1999).

Participants with more liberal beliefs and attitudes towards gambling were also more likely to engage in gambling activities. In accordance with international findings on the importance of a locus of control (Carroll & Huxley, 1994; Coventry & Norman, 1998; Frank & Smith, 1989; Moore & Ohtsuka, 1999), it was observed in the current research that increases in the level of perceived skill were associated with an increased likelihood of gambling.

This research provides further evidence for the existence of a connection between gambling and other behaviours, such as alcohol use, and internet and computer game use (Fisher, 1998; 1999; Gupta & Derevensky, 1996). As the level of engagement in these behaviours increased, so too did the likelihood of gambling. Of particular concern are the findings relating to alcohol use: all three measures of alcohol use were significantly related to gambling status. Not only were those with an affirmative response to lifetime alcohol use more likely to be gamblers: as frequencies of use and

heavy drinking increased, so too did the likelihood of gambling. These findings are likely to have a number of implications for public health approaches to gambling. It would be informative to look at alcohol responses with regard to specific forms of gambling. For example, do students who gamble primarily in licensed premises (e.g. on EGMs at a bar) differ in their drinking habits to those who gamble primarily on modes that are not located in licensed premises (e.g. lottery products)? Similarly, it is likely that further investigation would reveal that the positive association between gambling status and the frequency of internet and computer game use would differ according to mode of gambling.

Contextual factors were again shown to be important. There were several indications that increases in exposure to gambling went hand in hand with an increased likelihood of involvement in gambling. Participants whose friends and family gambled were more likely to be involved in gambling themselves, as were participants who were exposed to parental or peer problem gambling. Moreover, this research found that exposure to gambling products via advertising was associated with an increased likelihood of participation. This was observed across a wide range of advertising mediums (television, newspaper, magazine, billboard, and internet) and a variety of gambling modes (NZ Lotteries products, casinos, TAB). These findings are of particular concern due to:

- The gambling industry's engagement in advertising practises that would seem to be inappropriate due to their attractiveness to young people (for example, NZ Lotteries has regularly employed cartoon characters and animations in both its products and advertising campaigns);
- The large advertising budgets of many members of the gambling industry; and,

- The influential nature of advertising in regard to similar risky consumptions / behaviours (e.g. patterns of alcohol consumption in young people).

In essence, as advertising and marketing campaigns are likely to play an important role in introducing and facilitating gambling behaviour in youth populations, a level of observed social conscientiousness and monitoring is required in relation to the conduct of advertisers. As one participant stated:

“I think there's more adds on T.V encouraging gambling rather than help for it. There might be a lot of support groups around but I haven't seen many advertisements for them. Just like the safety & transport adds go like everyday on T.V. so should antigambling adds cos its just as important. Need to inform people more about problems & consequences of gambling addictions.” (16 year old, female)

Is problem gambling an issue for the young people of New Zealand, and, if so, what are the factors associated with increased risk?

This study is the first in New Zealand to provide a credible estimate (3.8%) of adolescent problem gambling, thereby demonstrating that this is a relevant public health issue for the young people of New Zealand. This estimate is in accordance with international figures (Shaffer & Hall, 1999, 2001) and corresponds with observations that problem rates are higher in youth than adult populations (as detailed in section 2.1, the problem gambling rate for New Zealand adults was estimated to be between 0.6% and 1.1% with an additional probable pathological gambling rate of 0.3% to 0.7% (Abbott & Volberg, 1991, 2000)). It is important to note that the findings of the current research indicate that the negative consequences of gambling are far reaching and stretch much further than just to those who satisfy the problem criteria. For instance, although not experiencing problems at clinically prescribed levels (affirmative responses to four or more dimensions of the DSM-IV-MR-J screen),

substantial proportions of participants responded affirmatively to a number of the gambling screen items, thus indicating that they were experiencing varying degrees of negative effects in relation to their gambling (e.g. disruptions to family and academic life, committing illegal acts to support their gambling, lying to family and friends about their gambling). It is interesting to note that items of the problem screen that related to social aspects of participants' lives (e.g. family and academic disruptions, illegal acts, lies and deception) were more frequently endorsed than those that were individual-oriented (e.g. loss of control, progression and preoccupation, escapism, and chasing). It is possible that these response patterns are an indication of incongruence between the perceptions (regarding gambling behaviour) of young people and of those around them. For instance, conflict with family members may be an indication of an emerging issue that may not yet be apparent to the young person of concern (i.e. those experiencing less severe problems may have a lack of consciousness or insight into the extent of their gambling).

With regard to age, there was no evidence that any particular age bracket was at greater risk of problem gambling, although the likelihood of developing a problem was greater for those who began gambling at an early age (ten or less).

As with gambling status, gender and ethnicity were both significant in relation to problem gambling: males and non-NZ European/Pakeha participants were more likely to gamble at problematic levels. It is alarming that Pacific participants exhibited 11.5 times the risk of problem gambling of NZ European/Pakeha; findings that echo those for New Zealand's adult population (Abbott & Volberg, 2000). Two participants specifically commented on the impact of gambling among Pacific Peoples:

“Gambling is a major problem in New Zealand. Especially with many Islanders.” (16 year old, female, Cook Island)

“It is very good researching about gambling as this is one of the most important issues in the Pacific side. As heaps of Pacific people gamble how many times each year and loose alot of useful money on gambling machines that could be used to provide for their children of households.”
(13 year old, female, Niuean)

Although concerns have been raised regarding the validity of standardised problem gambling screens for non-European populations, and that factors such as socio-economic status can blur the role of ethnicity, corroborating evidence from qualitative research indicates that factors relating to ethnicity, culture, and migration are important with regard to the acquisition and maintenance of gambling behaviour for Pacific Peoples (Auckland Regional Public Health Service, 2004; Perese & Faleafa, 2000; Tu’itahi, Guttenbeil-Po’uhila, Hand, & Htay, 2004).

Not surprisingly, as a young person’s engagement with gambling increased, in terms of time and money spent, so too did the likelihood of developing problems. Although most modes of gambling were positively associated with problem gambling, casino EGMs and tables were found to have the greatest risk. Despite casinos in New Zealand having an age limit of 20 years, this research has demonstrated that some young people are interested in, and able to gain access to, casino gambling. As one participant commented:

“I think it's really good that you're not allowed to gamble if you're under 20 and stuff but still people use fake I.D's and stuff, and try to get into casino so that they can gamble. I think that's pretty stupid.” (13 year old, female)

Statistics collected by Auckland’s SkyCity Casino reveal that large numbers of underage young people attempt to enter the casino every month. For example, during the second half of the year when the data for this thesis were being collected (2003), 2,000 - 2,500 minors attempted, unsuccessfully, to gain access to the gambling floor

per month. Although these young people were turned away at the door, some (e.g. 25 over the month of October) were successful in gaining entry and were later evicted by casino staff (SkyCity Entertainment Group, 2004). Despite the efforts of SkyCity, it is likely that a number of minors manage to gain entry and remain undetected (at the very least, 185, or nearly ten percent, of the young people surveyed in this research reported having gambled on casino EGMs and/or casino tables over the past year).

It is worth noting that of the four gambling modes that failed to reach significance in relation to problem gambling (i.e. involvement in them was not significantly associated with problem gambling), three were NZ Lotteries products (Lotto, Instant Kiwi, and Keno). It would be premature however, to interpret this as an indication that involvement in these modes is safe for young people. As highlighted by the quotes from participants below, these modes are often not considered to be gambling, are easily accessible, and are characterised by a high level of social acceptability and popularity with this age group:

“I don't consider buying a scratchie a form of gambling even though it technically is” (16 year old, female)

“I still think it is bad 2 gamble but things like lotto draws & daily keno are alright as they are more limited than at a casino!!!” (16 year old, female)

“I don't really think lotto is gambling. It sort of is but not really.” (13 year old, female)

Further investigation is needed, particularly as some Canadian researchers have found that lottery products play an important role in gambling problems: young people with gambling problems report a preference for, and gamble primarily on, lottery products (Felsher et al., 2004). Moreover, these young people exhibited similar problem gambling behaviour to those who were gambling problematically on other modes (e.g. chasing behaviour). *Inter alia*, the authors conclude that:

“...youths learn about the exciting properties of gambling via lottery products. In view of the fact that youths with gambling problems have managed to engage in serious gambling behaviour with lottery products, policy makers are strongly encouraged to rigorously enforce existing statutes prohibiting underage youths from purchasing lottery tickets” (Felsher et al., 2004, p. 123)

In accordance with international research (Fisher, 1998; 1999; Gupta & Derevensky, 1996), the use of alcohol, the internet, and computer games were also associated with excessive gambling. As engagement with each of these behaviours increased, so too did the likelihood of problem gambling. Although the measures of alcohol use differed from those employed by Fisher (1998; 1999), a similar pattern was observed: a greater proportion of problem gamblers indicated drinking alcohol frequently. Moreover, those with gambling problems were significantly more likely to frequently engage in heavy drinking sessions (five or more drinks in one sitting). As with gambling status, it would be valuable to investigate this relationship further, including aspects relating to co-availability and combined marketing. In particular, is the dominant or preferred mode of gambling influential with regard to a young person's relationship with alcohol? It would seem probable that young people who gamble primarily in licensed premises (e.g. on EGMs at a bar) will differ in their drinking habits from those who gamble primarily on modes that are not located in licensed premises (e.g. lottery products). Given these findings, it is not surprising that gambling at a bar/club was one of the locations associated with the greatest risk of problem gambling. These findings lend support to other research indicating that at-risk young people may experience clusters of behavioural problems in multiple areas (e.g. Adolescent Health Research Group, 2003).

It is also interesting to note at this point that a few participants compared gambling to issues such as alcohol and drug use. In general, they indicated that gambling is less of an issue for their age group:

“I don't see gambling as a huge part of teenage life, not as much as drinking alcohol is.” (17 year old, male)

“I don't know anyone who has a problem with gambling I think issues that affect todays youth more is drugs and alcohol and education.” (16 year old, female)

The gambling behaviour of those around young people was an important influence on their own engagement with gambling: participants had an increased risk of problem gambling if one or both of their parents gambled at problematic levels. In line with attachment to mothers being more influential than attachment to fathers with regard to gambling behaviour, problem gambling by mothers was associated with even greater risk than problem gambling by fathers. Non-problem, but regular, gambling by household members and friends placed participants at a greater risk of problem gambling, particularly with regard to casinos, EGMs, and TAB sports/track racing, all of which were associated with substantially inflated levels of risk.

These findings again highlight the importance of social context and relationships, and emphasise the potential for family, friends, and society in general to positively influence the gambling behaviour of young people (e.g. through teaching and modelling responsible gambling behaviour).

It is curious that participants who were experiencing problems with their gambling were almost five and a half times more likely to have gambled in the company of a person unknown to them. There are a number of possible explanations for this, the most likely being that engagement with gambling is progressive in nature: as

gambling assumes more importance in a young person's life, and becomes problematic in nature, it shifts from being an activity with a strong social aspect (i.e. something to do with friends), to being a pursuit that focuses upon the gambling itself and is less social. In other words, with increased involvement, gambling itself becomes the main focus and is therefore more likely to be conducted in isolation or with companions of a similar mindset. Similarly, when gambling at problematic levels, gambling with unknown people could be a strategy for maintaining anonymity. It is also possible that a distinguishing factor for those who progress to problem gambling is that they may be more likely to initially approach gambling as a solitary, rather than social, activity, due to poor social connectedness or a need for gambling to act as a coping mechanism.

These findings on companions and alcohol use correspond with research into other dangerous consumptions that has seen peer cluster theory put forward as a possible explanation for the congregation of those with similar mindsets (Evans, 2003). Evans suggests that:

“adolescents who engage in problem behaviors seek out and socialize with adolescents who engage in other problem behaviours, thus forming a peer group. These peer clusters encourage and normalize problem behaviors, thus making a wide range of deviant behaviors available and acceptable to the adolescents in the cluster.” (Evans, 2003, p.292)

It is surprising that, despite the complications relating to their gambling, problem gamblers were more than twice as likely as are their counterparts to cite enjoyment as a reason for gambling. It is possible that this is because young people who initially derive substantial enjoyment from gambling are more likely to engage in gambling with an intensity that increases the likelihood of the behaviour progressing to problematic levels. It is also possible that a young person whose support and social

connections have eroded due to their gambling is more likely to intensify their gambling behaviour, viewing it as one of the few enjoyable activities still open to them: gambling itself is still enjoyable, but not the consequences. Although generally in accordance with other research, these findings differ in that only one motivational reason (enjoyment) distinguished problem from non-problem gamblers (Griffiths, 1990a, 1990b, 1993a; Gupta & Derevensky, 1998a; Volberg, 1993; Wiebe, 1999). For instance, Gupta and Derevensky (1998a) found that problem and pathological gamblers were significantly more likely to gamble for enjoyment, excitement, to make money, social involvement, escape of problems, alleviation of depression, relaxation, and to feel older. Despite a substantially larger sample size, this research only gained sufficient numbers to analyse data relating to five of the 13 available reasons for gambling (i.e. the numbers of participants endorsing the other eight options were too small to enable effective analysis). Further investigation is required to explore whether these differences are an indication that New Zealand's youth gambling culture and/or socialisation towards gambling differs substantially to that which has been observed in Canada.

In line with international research (Carroll & Huxley, 1994; Derevensky et al., 1996; Griffiths, 1995; Gupta & Derevensky, 1998a; Jackson et al., 2000; Wallisch, 1996; Wiebe, 1999), various beliefs and perceptions were revealed to be important contributors to problem gambling behaviour. Participants who felt that gambling was easy to access, had more lenient attitudes regarding access to gambling, had erroneous beliefs regarding the levels of skill and luck in gambling, thought that performance on EGMs could be improved with practice, or self-rated themselves as more competent at gambling than others had a greater risk of problem gambling than their counterparts.

While each of the findings discussed in this section provides valuable information on youth problem gambling in New Zealand, together they also suggest that gambling is a multidimensional behaviour. In accordance with the model outlined in Section 4.7 of this thesis (Dickson et al., 2003), these findings provide evidence that youth gambling problems are closely related to other risky behaviours and are influenced by behavioural, personality, social, and environmental factors.

Are the protective factors operating in other youth behavioural domains relevant to adolescent gambling?

This research is unique as it has not only investigated risk factors for problem gambling, but also explored and confirmed the applicability of some protective factors. The use of both non-standardised items and a standardised instrument (the IPPA) consistently demonstrated that social connectedness fulfils a protective function in relation to youth gambling behaviour.

With regard to whether or not participants gamble, high levels of attachment, trust and communication with parents were protective: increased levels of attachment, trust and communication were associated with a decreased likelihood of gambling. Conversely, alienation from parents and peers were identified as significant risk factors: as levels of parental and peer alienation increased, so too did the likelihood of gambling. However, it is apparent that the influences of parent and peer connectedness differ with regard to gambling behaviour. Although all four measures of a participant's relationship with their parents were significantly related to gambling status, alienation was the only peer scale to demonstrate significance. This supports the need to further explore the importance of alienation and related concepts with regard to peer

networks and gambling, particularly as research in other domains has demonstrated that young people who are securely attached to parents are less likely to be affected by issues such as loneliness and social rejection (Doyle & Moretti, 2000).

In relation to *problem* gambling, indices of social connectedness consistently demonstrated protective tendencies. Participants with higher levels of attachment and trust in parents and peers were less likely to experience gambling problems. Although the findings on communication were less consistent (communication with fathers and peers did not significantly relate to problem gambling), a higher level of communication with mothers was observed to perform a protective function. Conversely, alienation contributed significantly to the risk of gambling problems: participants who felt alienated from their parents and/or peers were more likely to be gambling at problematic levels.

The importance, shown by this research, of communication with mothers (but not fathers or peers) may be indicative of a tendency for adolescents to favour maternal figures as a source of support. This phenomena has been demonstrated by research in other fields, including researchers from New Zealand who have utilised the IPPA (Paterson et al., 1994; Paterson, Pryor, & Field, 1995). For instance, Paterson et al., (1994) commented that in relation to self-esteem and attachment:

“Both sons and daughters interact less with their fathers and report a lower quality of affect with them than with their mothers, and in late adolescence both male and female adolescents reported a decrease in their ratings of their fathers’ responsiveness in proximity seeking situations and their quality of affect toward them.” (p. 595)

However, the researchers also stated that adolescents continue to regard fathers as important figures in their lives despite increasingly limited communication and emotional qualities to the attachment relationships. Overall, the findings of the current

research correspond with the diverse body of New Zealand and international literature that identifies connectedness to parents and peers as protective factors for behavioural domains in young people (Doll & Lyon, 1998; Egeland et al., 1993; Engle et al., 1996; Fergus & Zimmerman, 2005; Lambie et al., 2002; Luthar & Zigler, 1991; Masten et al., 1999; McLaren, 2002; Olsson et al., 2003; Paterson et al., 1994; Raja et al., 1992; Rubin et al., 2004; Stronski et al., 2000).

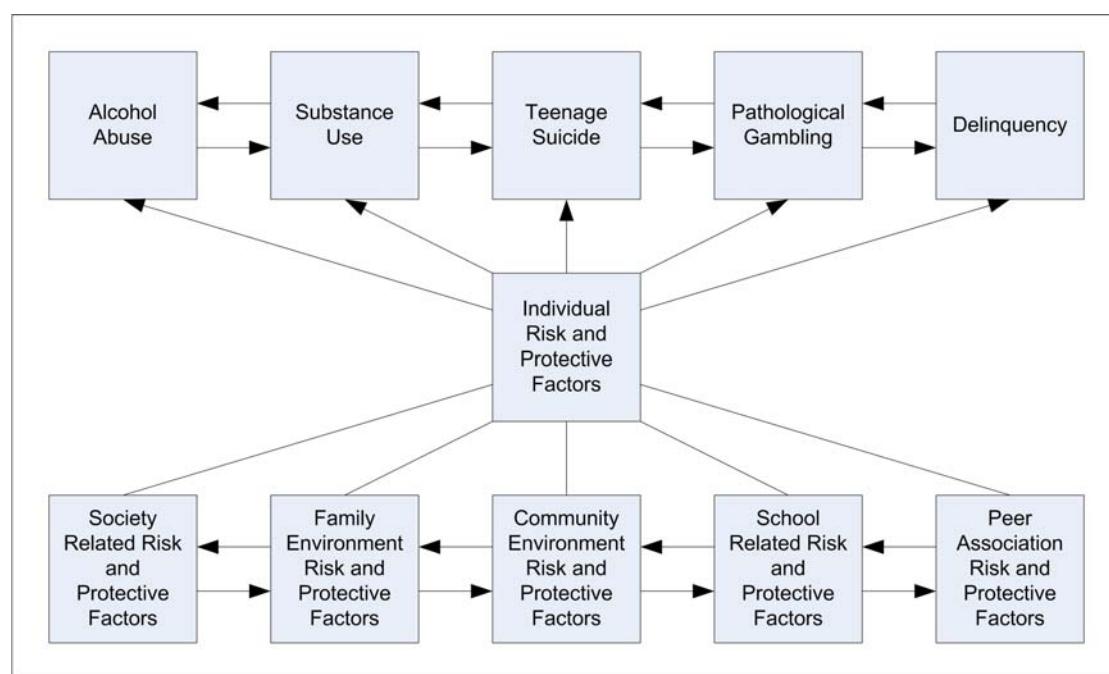
The above findings are important in their own right, illustrating that social connectedness plays a substantial role in gambling and problem gambling behaviour, however, it was considered to be possible that the protective influence of these variables may be significantly reduced or even negated by the presence of risk factors. The final step of analysis provided substantial evidence that social connectedness is an important construct in the conceptualisation of adolescent gambling behaviour. Social connectedness to maternal and teacher figures continued to perform protective functions with regard to problem gambling, even in the presence of substantial situational (parental problem gambling, low initial age of gambling, poor integration at school) and demographic (ethnicity, gender) risk factors.

These findings further highlight the parallels between gambling and a number of other youth behavioural issues, particularly those associated with dangerous consumptions (Doyle & Moretti, 2000; McLaren, 2002). They also illustrate the importance of context for youth gambling behaviour: the various risk and protective functions represent a broad range of social contexts (individual-based, demographics, home, and school). Although this contrasts with much of the more pathology-oriented research on youth gambling, which has tended to focus upon individual-based facets of

gambling behaviour, it is congruent with research that is taking a more holistic or ecological approach to youth gambling.

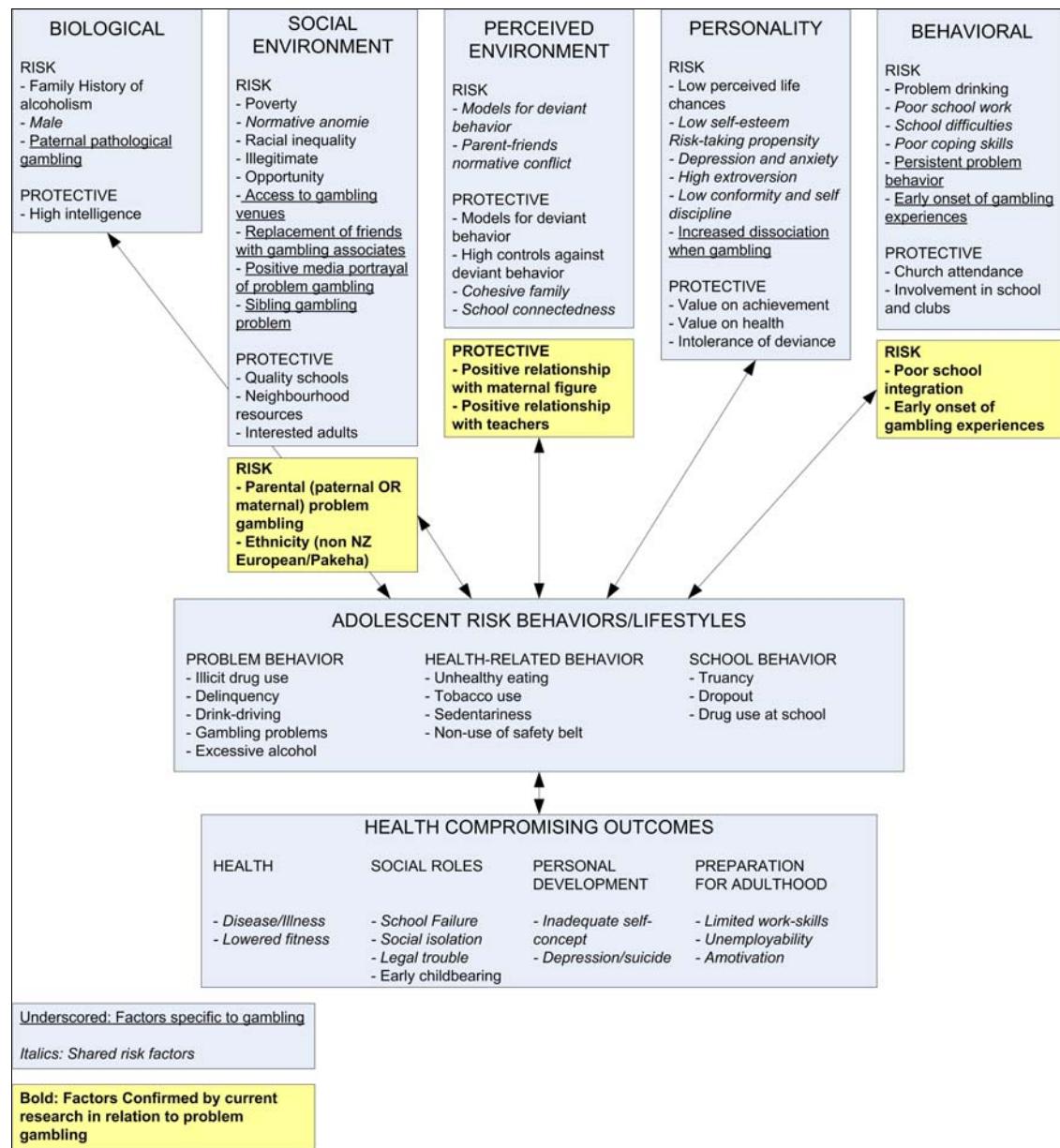
The findings of this research lend support to recent models that incorporate other risky behaviours and acknowledge the environmental aspects of gambling. In particular, it corresponds well with the work of Dickson et al., (Dickson et al., 2002, 2003) who have adapted and incorporated gambling into a multi-faceted conceptual model (as illustrated in Figure 37). This model was initially proposed by Brounstein et al., (as cited in Dickson et al., 2002) and categorises risk and protective factors according to their domain of operation (society, family environment, community environment, school, and peer). These domains then “interact with the individual, who processes, interprets, and responds to various factors, based upon his or her own unique characteristics brought to the situation” (Dickson et al., 2002, p. 104).

Figure 37: A conceptual model for understanding the domains of risk and protective factors that influence an individual’s behaviour (Source: Dickson et al., 2002, p. 105)



The findings of the present research are highly congruent with, and also further extend, Dickson et al's., (2003) version of the *General Conceptual Model for High-Risk Behaviors* (as illustrated in Figure 7, p. 98). A number of the findings that are strongly indicated by this research could be added to this model. In particular, positive relationships with maternal figures and teachers have been shown to be protective in nature and could therefore be included in the *perceived environment* category. Supporting evidence was also found for a number of risk factors. Within the *biological* category, paternal pathological gambling could be broadened to encompass parental (i.e. either paternal **or** maternal) problem gambling. It could also be argued that parental problem gambling would be more appropriate within either the *social environment* or *perceived environment* categories as there were indications that various aspects of gambling behaviour may be subject to social learning processes. The risk status of school difficulties and early onset of gambling experiences, as already listed under the *behavioural* category, were confirmed in the current research. The risk status of ethnicity, which is likely to correspond with racial inequity (as already listed under *social environment*), was also established in the current research. Although it is likely that belonging to a non-majority ethnic group is a universal risk factor, it is also possible that the current research's findings are specific to the multi-cultural issues and inequalities within New Zealand society. These proposed extensions to the model are highlighted in bold in the following Figure.

Figure 38: Incorporation of Current Research Findings into the Adolescent General Conceptual Model for High-Risk Behaviors



Although further investigation of many of these factors is required for full understanding, these findings have important implications for future research and preventative measures within this field.

12.1 RESEARCH LIMITATIONS

Despite some groundbreaking findings with regard to gambling and resiliency, this research was not without a number of limitations. For ease of discussion, limitations are sorted here into two categories: methodological and theoretical. Although these are not always mutually exclusive, this simple categorisation aids and simplifies the discussion.

Methodological Limitations

Although researchers generally view utilisation of more than one source of data and/or research methodology as beneficial (Babbie, 1983), the pioneering and unique nature of the current research meant that relying upon one source of data (student questionnaires) and one criteria for successful development (the absence of problematic gambling) was a practical and justifiable option. Moreover, this research is the first in New Zealand to provide credible baseline data on adolescent gambling, and as such required a substantial sample. Research involving multiple sources of data (e.g. young people, parents, and teachers) for such a large sample would have been beyond the scope of a doctoral thesis, which, by necessity, is subject to temporal, financial, and logistical limitations. Now that robust baseline data has been gathered and a number of factors have been identified as protective against the development of adolescent gambling issues, further investigation involving multiple sources of data may aid in the further understanding of these issues.

Sampling bias presents a second set of research limitations. Even when schools and classes are randomly chosen, voluntary participation can result in the self-selection of schools and participants, thus biasing the sample. The decision by a school to take

part can be influenced by many factors. For instance, it is possible that schools with a greater awareness of, or interest in, the dangers of adolescent gambling and/or gambling related issues (within the school or community) would be more likely to participate in research on this topic. Conversely, schools with a lack of gambling awareness, or disbelief that gambling is a potential health issue for young people, may be less inclined to accept an invitation to take part in gambling related research. Similarly, students with a particular interest in the research topic may have been more motivated to pursue and gain parental permission. One limitation of this survey was the researcher's failure to monitor return rates of parental permission slips, an omission that occurred due to complications in certain research procedures (e.g. allowing large numbers of classes to be surveyed together within school halls).

It is also relevant to this discussion to briefly outline the contextual frame of the New Zealand school system. At the time of the current research project, the national assessment framework for secondary school students was undergoing a major overhaul and was in the process of changing to a new system: NCEA (National Certificate of Educational Achievement)¹⁹. During follow-up contact with several teachers who had been invited to participate in this research, it was conveyed to the researcher that they were overworked due to changes relating to NCEA, and were therefore unable to spare the time to participate (one experienced head of department even stated that they were considering changing careers due to their new workload and subsequent levels of stress). The researcher encountered this type of sentiment frequently and it is possible that teachers with particularly high workloads (perhaps in schools that were less well resourced) were more reluctant to take part in the research.

¹⁹ NCEA (National Certificate of Educational Achievement) is now the national qualification for senior secondary students in New Zealand and is part of the National Qualifications Framework.

Further sampling bias may have resulted from the sampling of classes, as opposed to sampling individual students. A sampling frame such as that employed by the Youth2000 study (Adolescent Health Research Group, 2003), which randomly selected individual students from within each school would have provided a more robust sample. Moreover, the choice to survey only those students present at school on the specified research day may have resulted in an underestimation of the extent of gambling problems, as students with truancy issues may be more likely to experience gambling related problems. A strategy similar to Fisher's (1999), whereby data collection is postponed until the overwhelming majority of students are present would help to resolve this issue, however, the temporal, financial and logistical limitations of a PhD thesis preclude the adoption of these more expensive approaches.

Perhaps the largest threat to the sampling frame arose from restrictions requiring parental consent for those aged 15 and under. Two approaches to parental consent are regularly employed by those researching with young people: active and passive consent. Active consent procedures require written, or verbal, consent to have been obtained from parents/guardians prior to participation. In contrast, passive consent procedures inform parents/guardians that no action is required if they wish to allow their child to take part in the research (i.e. a non-response is interpreted as permission for the student to take part in the research) (Dent et al., 1993). Passive consent procedures are often viewed as advantageous for a number of reasons, including that schools are encouraged to participate due to fewer demands on their time, resources, and energy (Jason, Pokorny, & Katz, 2001). The resulting increases in response rates also encourage the use of passive consent: positive response rates have been found to range from 40% to 67% with active consent and 80% to 96% when passive consent procedures are employed (Esbensen et al., 1996). Perhaps the most convincing reason

for employing passive consent, however, is the reduction of sample bias: active consent has been found to adversely affect the ability to generalise research findings.

There is evidence that when active consent procedures are employed, parents who return consent forms differ significantly from those who do not (Anderman et al., 1995; Dent et al., 1993; Dent, Sussman, & Stacy, 1997; Esbensen et al., 1996; Jason et al., 2001; Noll, Zeller, Vannatta, Bukowski, & Davies, 1997; Pokorny, Jason, Schoeny, Townsend, & Curie, 2001; Severson & Ary, 1983). Research has shown that these differences can result in students from the following groups being under-represented:

- males;
- younger students;
- non-majority ethnic groups;
- low achievers (those not performing well at school);
- children with less well-educated parents;
- those at risk for engaging in problem or health compromising behaviours (e.g. smoking);
- children from single parent households; and,
- children who are not involved in extra-curricular activities.

Standard criteria exist in the United States to determine whether the use of active parental consent is necessary (as approved by Institutional Review Boards (IRB)) (Esbensen et al., 1996; Pokorny et al., 2001). The criteria are as follows:

1. The research involves no more than minimal risk to subjects;
2. The waiver of alterations will not adversely affect the rights and welfare of the subjects;

3. The research could not practically be carried out without the waiver or alteration; and,
4. Whenever appropriate, the subjects will be provided with additional information after participation.

The researcher vigorously pursued permission from the University of Auckland Human Subjects Ethics Committee (UAHSEC) to use passive consent in this research. However, although it can be argued that the proposed research satisfied the IRB criteria, and that there is precedence in New Zealand for the use of passive consent procedures, the UAHSEC elected to interpret their ethical guidelines as fixed regulations and denied the request for utilisation of passive consent procedures. As such, the portion of the sample from this research that relates to those aged 15 and under is likely to be biased towards students who were successful in returning written parental consent to their school. This may mean that the sample is under-represented with regard to the groups listed above. It is also interesting to note that while the research was being conducted, several teachers commented that their schools endorsed and regularly adopted passive consent procedures, and that they strongly recommend passive consent as a more realistic approach.

Theoretical Limitations

The researcher acknowledges that within resiliency theory, adolescents who have been exposed to risk may exhibit competence in one domain while experiencing significant difficulties in others. This phenomena sees some researchers arguing that a focus upon a single domain, such as gambling behaviour, is undesirable, while others argue that it may be useful to accept specific definitions of resilience (e.g. social, academic, or emotional resilience). However, the focus of the present research was an

exploration of potential protective factors in relation to youth gambling. Investigation of such factors is a logical precursor to in-depth research of resiliency, where multiple domains (including gambling) and definitions could be pursued. It is the author's belief that both the pioneering nature of this research and the limitations mandated by a PhD thesis justify the approach taken.

Research that utilises a cross-sectional research design and relies upon data gathered at a single point of time is unable to resolve issues relating to causal inference. For example, the current research identified protective relationships between various facets of social connectedness and gambling behaviour. Although it appears that low levels of connectedness contribute to the development of gambling problems, it is possible that they are also a by-product of gambling problems: perhaps as the intensity of a young person's relationship with gambling progresses, their levels of connectedness deteriorate. One avenue that would enable further investigation of issues relating to causality and the progression of gambling and gambling problems is longitudinal research.

Also relevant to the notion of causal inference within cross-sectional research designs is the practice of controlling for influential variables (De Vaus, 1995). Although a number of factors were controlled or accounted for in the present research (e.g. age, gender, ethnicity, effects of school clustering), it is possible that the investigated groups (gambler/non-gambler; problem/non-problem) differed in other important respects. However, as with any research of this type, one can only control for those factors that have been identified as relevant (either on a theoretical basis or through current or previous research). Moreover, due to constraints enforced by considerations

such as statistical power, there are limitations to the number of variables that can be included within analyses.

It is important to acknowledge that some aspects of this research may have been influenced by issues such as the researcher's ethnicity (NZ European/Pakeha), gender (female), and socio-economic background. As stated by Blum:

"There are seemingly as many outcome measures in risk and resiliency research as there are studies, each reflecting the unique perspective of the research...The outcome measure selected reflects social (or at least researcher) values and will determine the protective factors associated with positive outcomes." (1998, p. 371).

Although Maori, Pacific, and Asian representatives were consulted in the design of the research tool and all attempts were made to ensure that the research was conducted in a culturally appropriate manner, the methodology and underlying assumptions may not be those most appropriate for use across all cultures. Although the researcher's methodological and analytical processes were governed by quantitative conventions, other aspects of the research process (such as the research focus and interpretation of results) will have been influenced by the researcher's background and belief system.

13 IMPLICATIONS AND CONCLUSION

The closing chapter of this thesis provides the reader with a discussion of the implications and recommendations arising from this research. These are discussed with respect to three key topics: future research, policy, and intervention and prevention. The chapter closes with an outline of the contributions made by this research to the youth gambling field, and final concluding remarks.

13.1 IMPLICATIONS AND RECOMMENDATIONS FOR FUTURE RESEARCH

Although this research has provided much information regarding youth gambling in New Zealand and the applicability of protective factors to adolescent gambling, it has also highlighted a number of areas that require further investigation. The following section highlights areas of particular interest and provides suggestions for future research. For ease of discussion this topic is split into two sections: at-risk populations and the role of contextual and protective factors.

At-Risk Populations

Some populations, particularly males and Pacific Peoples, appear to be at greater risk of developing gambling related problems than their counterparts. Although it is clear that these variables are related to gambling behaviour, the underlying mechanisms, contexts, and roles of these risk factors are not well understood. Those mechanisms that influence problem rates within these populations require exploration, as does the

validity of diagnostic tools for Maori, Pacific, and Asian young people). Moreover, research that is able to acknowledge diversity within ethnic populations (e.g. not Pan-Pacific or Pan-Asian) is desirable. The confounding of cultural factors by those related to socio-economic issues (e.g. family income and living standards) is a common problem when researching with young people, particularly when employing quantitative research methods (McLaren, 2002). A valuable asset for future research will be the ability to elucidate, and differentiate between, these factors.

Although the present research has provided a thorough investigation of the role of gambling with those young people in attendance at a high school, international research has shown that problem gambling estimates are even higher for young people within correctional facilities (Brown, Killian, & Evans, 2005; Magoon, Gupta, & Derevensky, 2005). Research with young people who are disenfranchised from the mainstream education system (e.g. those at correctional institutes or in alternative education programmes, those with truancy and/or delinquency issues, etc) could reveal important information in relation to gambling behaviour within the New Zealand context as well as providing further knowledge on risk/protective factors.

It is recommended that:

1. Qualitative research be undertaken with young people from at-risk populations. For instance, focus groups with Pacific, Maori, and Asian young people, using culturally appropriate research methods, with the aim of exploring factors such as the role of culture in gambling behaviour are needed.
2. Research be conducted to explore the validity of gambling screens for young people in New Zealand. Particular attention should be paid to culture and gender differences.

3. Quantitative (survey-based) and qualitative (focus group or interview) research be conducted with disenfranchised youth populations to explore the correlates and extent of problem gambling behaviour within these populations.

The Roles of Contextual and Protective Factors

Two domains of contextual factors were identified as being particularly important with regard to youth gambling behaviour: social (familial/peer gambling behaviour, attitudes/perceptions, exposure to advertising), and behavioural (use of alcohol, computer games, and internet, and various beliefs and perceptions). In order to address youth gambling effectively, it will be necessary to have a thorough understanding of youth gambling culture. In particular, the meanings, motivating factors, and interpretations of gambling will be important, along with the mechanisms underlying all of these factors.

Perhaps the most promising avenue for further investigation, and one that is favoured by the author, is that of protective factors. Although this research has clearly illustrated that social connectedness, particularly within family and school systems, serves a protective function with regard to youth gambling, further research is required to identify any other relevant protective factors, and to clarify causality and underlying mechanisms (e.g. which particular aspects of parental attachment are protective). Pursuing research within a resiliency paradigm would be useful, particularly with regard to those individuals in high-risk situations, for instance, when family members/whanau are experiencing problem gambling, thus limiting access to meaningful relationships or the potential for connectedness with primary caregivers. A resiliency framework would provide a valuable perspective when investigating the mechanisms and processes associated with recovery from gambling problems.

Overall, approaches that adopt strengths-based principles will be particularly appropriate for investigating, and engaging with, youth populations. Longitudinal research will be important with regard to successful tracking of resiliency (Kinard, 1998) and allow for contextual dependence to be taken into account (i.e. resiliency is dynamic in nature: a child may be considered resilient at one point of time but not at others) (Doll & Lyon, 1998; Fergus & Zimmerman, 2005; Huggard, 1999; Rutter, 1993).

It is recommended that:

1. In-depth focus groups with young people further explore relationships between gambling behaviour and factors such as beliefs and perceptions, the use of computer games, internet use, alcohol use, and advertising for gambling products.
2. Qualitative research be conducted to provide further understanding of the social and behavioural influences affecting gambling behaviour in young people. Comparative focus groups should be conducted with young people who are variously engaged in gambling (e.g. non-involvement, social involvement, problem involvement) in order to elucidate understanding of these factors.
3. Research be undertaken to identify other factors that may be protective in relation to gambling (e.g. further exploration of factors identified by comparative fields). This is likely to best be achieved through quantitative research methodologies, where triangulation of data sources (parents, young people, teachers) would be beneficial.

4. Research be pursued within a resiliency framework/paradigm: qualitative investigation of topics such as resilient outcomes (e.g. absence of problems even in the presence of substantial risk, and successful recovery from gambling problems).
5. Issues around causality be clarified by longitudinal research: the tracking of young people who engage with gambling to varying degrees (non-involvement, social involvement, problem involvement) would enable further understanding of the roles of, and interactions between, gambling problems and risk/protective factors. Of particular interest are the effects of family/whanau problem gambling on children's gambling behaviour. There is the potential for this type of research to be conducted within a resiliency framework, with a particular focus upon connectedness.
6. Research be undertaken to develop and test processes for practical application with regard to improving protection levels in at-risk populations of young people.

13.2 IMPLICATIONS AND RECOMMENDATIONS FOR POLICY

This research has demonstrated that young people are gaining access to some modes of gambling that are theoretically unavailable to them. Therefore, issues such as underage access, host responsibility (including appropriate venues, environments, and product designs with an emphasis upon safety), and better enforcement of regulatory policy need to be addressed. The role of parental and societal attitudes towards gambling, and how these influence or enable young people to gamble on modes that are legally prohibited to them, will be important to examine. Moreover, the effects on adolescent populations of gambling advertising, governmental gambling policy, the availability of gambling, and regulatory gambling policy require investigation.

Appropriate control of young people's access to gambling in New Zealand is currently complicated through inconsistencies in the minimum legal ages for different gambling products. The current age limits include:

- Instant Kiwi: 18 years;
- Lotto/Daily Keno/Big Wednesday: no age limit;
- TAB: 18 years;
- Casino: 20 years; and,
- Bar/Club EGMs: 18 years.

This inconsistency confuses understanding of what constitutes appropriate gambling behaviour for young people. This confusion applies to parents, the broader community, gambling product vendors, and the young people, themselves.

A number of other issues exist with respect to enforcement of age limits. These include:

- Inconsistent enforcement of age limits by vendors, as evidenced by this and other research;
- Small and/or inconsistently applied penalties for gambling vendors who have failed to appropriately control access.

Although the issue of underage access is complicated, it is apparent that the issue partly stems from the attractiveness of many forms of gambling to young people.

Although the role of marketing in the normalisation and facilitation of gambling behaviour in populations such as young people is just beginning to be acknowledged, it is widely accepted that advertising and marketing campaigns play a key role in other behavioural domains (e.g. alcohol consumption) (Byrne, Dickson, Derevensky, & Gupta, 2005; Hoek, Freeman, & Martin, 2006; Korn, 2005; Perese et al., 2005).

Within New Zealand, the Advertising Standards Authority Inc (ASA)²⁰ provides a number of codes for advertising, one of which relates to gambling products (Advertising Standards Authority Inc., 2005). This code (dated 1 June 2001) specifies that the advertising of gambling products should observe a high standard of social responsibility, with Guideline 2(a) specifically referring to minors²¹ and stating that:

“Advertisements should not be directed at minors, have strong or evident appeal to minors, nor portray minors participating in activities in which they are under the legal age...”

(Advertising Standards Authority Inc., 2005, p.33).

It is interesting to compare this code with that for the advertising of liquor. In addition to the advertisements themselves, the code for advertising of liquor addresses packaging and other marketing techniques and specifies that:

²⁰ The ASA operates under self-regulatory principles, with membership being voluntary and open to media proprietors, etc.

²¹ The code defines minors as “people under the age at which they are legally entitled to participate in the particular gaming activity advertised”

“Labels, graphics, artwork, brand names, packaging, containers and other marketing materials and techniques shall observe the law, and shall not: (i) have the appearance of special appeal to minors by way of designs, motifs, cartoon characters or other devices that predominantly appeal to minors.”

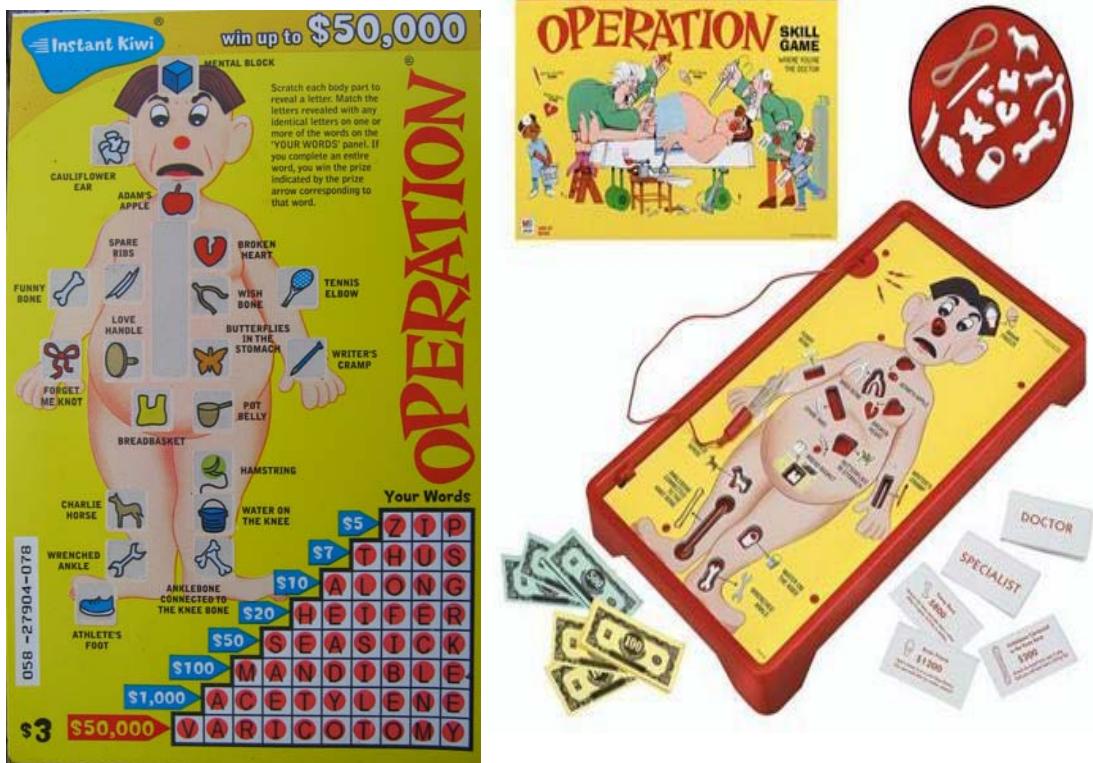
(Advertising Standards Authority Inc., 2005, p.36).

Issues such as appeal to minors, broadcasting schedules, and the use of hero figures are also attended to within the alcohol code, with Principle 4 stating:

“(1) Liquor advertisements shall be directed at adult audiences. Liquor advertisements shall not be directed at minors nor have strong or evident appeal to minors in particular. (2) Liquor advertisements shall not be shown on television between 6.00 am and 8.30 pm. (3) Liquor advertisements shall not use or refer to identifiable heroes or heroines of the young.²²” (p. 37).

It is apparent that the gaming and gambling code has adopted a much narrower focus than the more recent (2003) code for liquor and is substantially less comprehensive with regard to minors. As such, members of the gambling industry are able to regularly employ marketing techniques that would be deemed inappropriate if applied to alcohol. For instance, it is the author’s opinion that the regular use of cartoons and animations by NZ Lotteries in their marketing campaigns is inappropriate and in conflict with the spirit of the gambling advertising code, if not in technical breach of the regulations. It is also concerning that Instant Kiwi tickets have been based upon, including resembling visually, children’s board games, such as ‘Operation’. The illustrations on the next page compare the NZ Lotteries Instant Kiwi ticket (left) with images relating to the popular children’s board game.

²² The code defines heroes or heroines of the young as “individuals or groups of people who have achieved particular celebrity status with minors and includes cartoon and other imaginative characters.” (p. 35).



Although the gambling products provided by NZ Lotteries were not associated with an increased risk of problem gambling in the present research, it would be premature to consider them to be a benign form of gambling. They are one of the most popular, and earliest, modes of gambling in which young people partake. This is particularly concerning as scratch tickets have consistently been associated with youth gambling problems in the United Kingdom. As Delfabbro and Thrupp (2003) state:

“The small entry price, the capacity to make repeated purchases in a short-interval of time, combined with enticing features such as ‘near-miss’ combinations (Griffiths, 1993, 1995) means that this form of gambling shares much in common with slot-machine gambling.” (p. 314).

Moreover, as a low initial age of gambling is a substantial risk factor, these products are likely to play a role (perhaps more indirectly than some other modes) in the normalisation of gambling and the development of problem gambling in young

people. This research has clearly indicated that young people are consumers of gambling products and that subsequently, a significant proportion experience gambling related problems. As such, the gambling industry has an obligation to ensure that their products are safe, not attractive to minors (through design, placement/environment, pricing etc), and marketed in a socially responsible manner. There is a need to examine the advertising and marketing practises currently employed for gambling products: if these products were not attractive to young people, they would be less interested in purchasing them, and other parties (e.g. parents) would be less compelled to purchase on their behalf. It is apparent that the current code for advertising of gaming and gambling products requires urgent revision with regard to the protection of minors.

It is recommended that:

1. The current ASA gaming and gambling code is revised. It is advisable that a variety of stakeholders be involved and consulted throughout the revision process. Such stakeholders might include young people (e.g. through the establishment of a youth advisory panel) and agencies that can provide information relating to patterns of youth gambling and problem gambling (e.g. The Centre for Gambling Studies, University of Auckland, and the Problem Gambling Foundation of New Zealand).
2. A more robust process of accountability for advertising of gambling products is developed (such topics would seem suitable for coverage under the topic of Host Responsibility within the Gambling Act 2003).
3. Government introduces legislative amendments that emphasise responsible hosting and safety through age appropriate product design. It

should be ensured that all products, advertising materials, and environments (including venues) are safe and not attractive to young people through their design, pricing, or placement.

4. Government review legislation with regard to inconsistencies in age limits (e.g. the lack of age limits for Lotto, Daily Keno, and Big Wednesday are inconsistent and unacceptable).
5. Government improves the enforcement of restrictions on access, availability, and use of gambling products by young people. This is likely to require further enforcement resources and increased penalties for breaches. Key stakeholders in improving these enforcements will include members of the public (including young people), gambling industry, health promotion agencies and relevant government departments (Departments of Internal Affairs and Health).

13.3 IMPLICATIONS AND RECOMMENDATIONS FOR PREVENTION AND INTERVENTION EFFORTS

This research has highlighted the importance of contextual factors (familial, peer, environmental) in gambling behaviour: those in contact with young people (immediate and extended family, peers, schools, communities, etc) have a role to play in facilitating safe gambling behaviour. This role extends to those who provide and market gambling products as well as the bodies responsible for the regulation of gambling (government, local authorities). Therefore, a comprehensive strategy encompassing multiple environments would seem appropriate, particularly as there is evidence that multi-faceted approaches are more effective than the traditional

approach of considering youth behaviour and problems to be individual in nature.

Dickson et al., (2002) for instance, argue that:

“Taking a multi-faceted approach toward problem gambling means fostering in youth, strategies to successfully resolve stressful life events by addressing risk and protective factors in all areas that affect youth including individual, family, peer, school, community and society.” (pp. 142-143)

Many prevention strategies have begun to deliver more generic programmes (e.g. substance abuse programmes) in recognition that many risky behaviours share risk and protective factors (Blum, 1998; Dickson et al., 2002).

There is also evidence that the more traditional risk-reduction approaches to behaviour modification/prevention are ineffective with youth populations (Blum, 1998). Although risk-reduction strategies for gambling via industry are necessary (e.g. responsible marketing of gambling products), it will be particularly important to consider the advantages of strength building approaches when formulating prevention and treatment strategies. A comprehensive, consistent approach to youth gambling through strengths-based efforts with young people, schools, family/whanau, communities, and relevant government departments is desirable. Such approaches have already been widely adopted within New Zealand for youth issues by the Ministry of Youth Development (as per its Youth Development Strategy) (Ministry of Youth Affairs, 2002). These considerations also apply to treatment initiatives, as well as preventative and educational efforts.

It is recommended that:

1. A strengths-based philosophy with a focus upon connectedness and resiliency be incorporated across all prevention and intervention efforts.

2. Government conduct a comprehensive health promotion campaign to facilitate safe youth engagement with gambling. A strengths building approach, with a focus upon connectedness, should be adopted for activities (e.g. media campaigns, training of community workers) that assist in appropriate modelling, guidance, training, and supervision by those in contact with young people (e.g. parents, family/whanau, peers, schools, treatment facilities, community, and industry members). Due consideration should be given to the use of new media (e.g. computer games, the internet, txt messaging, etc) and technologies for any health promotion activity, given the pervasive use of these media by young people.
3. There is a need to investigate the value of gambling specific prevention programmes. It may be of more benefit to incorporate gambling prevention efforts into generic health programmes (e.g. strengths-based programmes aimed at numerous dangerous behaviours). Evaluative research of current youth prevention efforts in New Zealand and a comprehensive review of the intervention literature are required.
4. Educational efforts are required for retailers of gambling products and other members of the gambling industry regarding the dangers of both supplying gambling products to minors and utilising marketing strategies that are attractive to young people (it will be important for these efforts to be supported by appropriate legislative and advertising regulations etc, as outlined in the previous section).

13.4 CONTRIBUTION TO THE FIELD AND CONCLUSION

This research has made three key contributions to the current literature. Firstly, it has provided a large body of data regarding the practices, beliefs, and associated factors of adolescent gambling behaviour within New Zealand. This baseline data has demonstrated that our rates of youth gambling and problem gambling are comparable to those in other countries. It has also shown that the self-reported prevalence of adolescent problem gambling is higher than that of adults; a finding that is consistent with international problem gambling trends. Youth gambling in New Zealand is therefore an issue requiring the attention of families, communities, schools, researchers, government departments, and members of the gambling industry.

Secondly, in contrast to much of the existing literature, this research placed an emphasis on, and demonstrated the importance of, contextual factors and the environment(s) in which gambling occurs. It has shown that gambling is more than just an individual-based behaviour: young people's gambling choices are influenced by their life experiences and the messages conveyed to them concerning gambling. The current research ties in particularly well with the efforts of researchers such as Dickson et al., (2002; 2003) and contributes to the models proposed by them.

If contextual and environmental factors are to be acknowledged with regard to gambling, it follows that society in general has a responsibility to facilitate young people's safe engagement with gambling. Gambling is therefore an issue best addressed on multiple levels (e.g. families, peers, communities, schools, government departments, and industry) and through multiple channels (e.g. school based programmes, parental modelling, legislation, responsible marketing). Moreover, it is

apparent that the facilitation of safe gambling in young people cannot occur in the absence of governmental endorsement.

The third major contribution of this research to the youth gambling field is its radical conceptualisation of, and approach to, youth gambling behaviour. It has successfully investigated and identified a number of protective factors relevant to gambling. In particular, social connectedness has been demonstrated as a relevant and promising construct with regard to youth gambling. The dominance of medically- based models, and the subsequent focus upon risk factors within the gambling field, means that this pursuit of protective factors is pioneering in nature: the information arising from this research is unique and innovative.

The findings from this thesis strongly indicate that the investigation of protective factors and resiliency offer a promising avenue for future research within the gambling field. A focus upon strengths-based strategies and a continuing exploration of the common denominators between gambling and other dangerous consumptions for young people is likely to be of future benefit.

In closing, it is apparent that youth gambling is an issue requiring the attention of families, communities, schools, researchers, government departments, and members of the gambling industry in New Zealand. It is the author's hope that the knowledge arising from this thesis will contribute to the development of successful public health approaches to youth gambling, particularly within New Zealand.

The most important contributors to this thesis are the young people of New Zealand. It is, therefore, appropriate that one of them provides the final words:

"I hope that this questionnaire can help other people that have a gambling problem understand and realize what it's doing to them and maybe they can

understand and start helping other people thats going through gambling stages the way they did. So I really hope it helps because you are losing big time but you just dont relize what you have lost untill its gone. Thank you very much for understanding what I'm trying to say. Kia kaha!! peace out!" (16 year old, female)

REFERENCES

- AADAC. (1996). *Adolescent gambling and problem gambling in Alberta*. Edmonton, AB: Author.
- Abbott, M. W., & Volberg, R. A. (1991). *Gambling and problem gambling in New Zealand (Research Series 12)*. Wellington: Department of Internal Affairs.
- Abbott, M. W., & Volberg, R. A. (1996). The New Zealand National Survey of problem and pathological gambling. *Journal of Gambling Studies*, 12(2), 143-160.
- Abbott, M. W., & Volberg, R. A. (1999). *Gambling and problem gambling in the community: An international overview and critique*. Wellington: The Department of Internal Affairs.
- Abbott, M. W., & Volberg, R. A. (2000). *Taking the pulse on gambling and problem gambling in New Zealand: A report on phase one of the 1999 national prevalence survey*. Wellington: The Department of Internal Affairs.
- Adams, P. (2004). Minimising the impact of gambling in the subtle degradation of democratic systems. *The Electronic Journal of Gambling Issues*(11).
- Adams, P., Raeburn, J., Brown, R., Lane, L., Tse, S., Manaia, W., et al. (2003). *Should Gambling Researchers Receive Funding Directly from Gambling Industries?* Retrieved 05-03-03, 2003, from <http://www.thewager.org/editorial.htm>
- Adams, P., & Rossen, F. (2005). *The Ethics of Receiving Funds from the Proceeds of Gambling*. Auckland: Centre for Gambling Studies, University of Auckland.
- Adams, P., & Rossen, F. (2006). Reducing the moral jeopardy associated with receiving funds from the proceeds of gambling. Accepted for publication subject to recommended changes. *Journal of Gambling Issues*(17).
- Adams, P., Rossen, F., Perese, L., Townsend, S., Brown, R., & Garland, J. (2004). *Gambling Impact Assessment for Seven Auckland Territorial Authorities. Part One: Introduction and Overview*. Auckland: Centre for Gambling Studies, University of Auckland.
- Adolescent Health Research Group. (2003). *New Zealand Youth: A profile of their health and wellbeing*. Auckland: University of Auckland.
- Advertising Standards Authority Inc. (2005). *Codes for Advertising*. Retrieved 25-09-06, 2006, from <http://www.asa.co.nz/codes/codes.htm>
- American Psychiatric Association. (1994). *DSM-IV: Diagnostic and statistical manual (4th ed.)*. Washington, DC: Author.
- Amey, B. (2001). *People's participation in and attitudes to gaming, 1985-2000: Final results of the 2000 survey*. Wellington: Department of Internal Affairs.
- Anderman, C., Cheadle, A., Curry, S., Diehr, P., Shultz, L., & Wagner, E. (1995). Selection bias related to parental consent in school-based survey research. *Evaluation Review*, 19(6), 663-674.
- Arcuri, A. F., Lester, D., & Smith, F. O. (1985). Shaping adolescent gambling behavior. *Adolescence*, 20(80), 935-938.

- Armsden, G. C., & Greenberg, M. T. (1987). The inventory of parent and peer attachment: Individual differences and their relationship to psychological well-being in adolescence. *Journal of Youth and Adolescence*, 16(5), 427-454.
- Ashworth, J., & Doyle, N. (2000). *Under 16s and the national lottery*: The National Lottery Commission.
- Auckland Regional Public Health Service. (2004). *Gambling Issues in the Auckland Tongan Community (Palopalema 'o e Va'inga Pa'anga 'i he Kainga Tonga 'i 'Aokalani)*. Auckland: Author.
- Babbie, E. (1983). *The practice of social research* (Fifth ed.). Belmont, California: Wadsworth Publishing Company.
- Baumeister, R., & Leary, M. (1995). The need to belong: Desire for interpersonal attachments as a fundamental human motivation. *Psychological Bulletin*, 117(3), 497-529.
- Beauvais, F., & Oetting, E., R. (1999). Drug use, resilience, and the myth of the golden child. In M. D. Glantz & J. L. Johnson (Eds.), *Resilience and development: Positive life adaptations* (pp. 101-107). New York: Kluwer Academic/Plenum Publishers.
- Bellringer, M., Perese, L., Rossen, F., Tse, S., Adams, P., Brown, R., et al. (2003). *Supporting the wellbeing of young people in relation to gambling in New Zealand*. Auckland: Centre for Gambling Studies, University of Auckland, and the Problem Gambling Foundation of New Zealand.
- Bland, M. J., & Altman, D. G. (1995). Multiple significance tests: the Bonferroni method. *British Medical Journal*, 310(6973), 170-172.
- Blaszczynski, A. (1999). Pathological gambling: An impulse control, addictive or obsessive-compulsive disorder? *Anuario de Psicología*, 30(4), 93-109.
- Blaszczynski, A., & Farrell, E. (1998). A case series of 44 completed gambling-related suicides. *Journal of Gambling Studies*, 14(2), 93-109.
- Blaszczynski, A., & McConaghy, N. (1988). SCL-90 assessed psychopathology in pathological gamblers. *Psychological Reports*, 62(2), 547-552.
- Blaszczynski, A., McConaghy, N., & Frankova, A. (1990). Boredom proneness in pathological gambling. *Psychological Reports*, 67(1), 35-42.
- Blum, R. W. M. (1998). Healthy youth development as a model for youth health promotion. *Journal of Adolescent Health*, 22, 368-375.
- Brown, R., Killian, E., & Evans, W. (2005). Gambling attitudinal and behavioral patterns and criminality in a sample of Las Vegas area detained youth. *Journal of Gambling Issues*, 13.
- Brown, R., & Raeburn, J. M. (2001). *Gambling, Harm and Health: Two perspectives on ways to minimise harm and maximise health with regard to gambling in New Zealand*. Auckland: The Gambling Studies Institute of New Zealand.
- Brown, R., & Robertson, S. (1993). Home computer and video game addictions in relation to adolescent gambling: Conceptual and developmental aspects. In W. R. Eadington & J. A. Cornelius (Eds.), *Gambling behavior and problem gambling* (pp. 451-471). Reno, Nevada: University of Nevada.
- Browne, B. A., & Brown, D. J. (1994). Predictors of lottery gambling among American college students. *Journal of Social Psychology*, 134(3), 339-347.
- Buchta, R. M. (1995). Gambling among adolescents. *Clinical Pediatrics*, 34(7), 346-348.
- Byrne, A., Dickson, L., Derevensky, J., & Gupta, R. (2005). *An examination of social marketing campaigns for the prevention of youth problem gambling*. Ontario: Ontario Problem Gambling Research Centre.

- Canadian Foundation on Compulsive Gambling. (1994). *An exploration of the prevalence and pathological gambling behavior among adolescents in Ontario*. Ontario: Author.
- Carlson, J., & Moore, T., L. (1998). *Adolescent gambling in Oregon: A report to the Oregon Gambling Addiction Treatment Foundation*. Salem: Oregon Gambling Addiction Treatment Foundation.
- Carroll, D., & Huxley, J. A. A. (1994). Cognitive, dispositional, and psychophysiological correlates of dependent slot machine gambling in young people. *Journal of Applied Social Psychology*, 24(12), 1070-1083.
- Clarke, D., & Rossen, F. (2000). Adolescent gambling and problem gambling: A New Zealand study. *New Zealand Journal of Psychology*, 29(1), 10-16.
- Collett, D. (2003). *Modelling binary data*. London: Chapman and Hall / CRC.
- Coventry, K. R., & Norman, A. C. (1998). Arousal, erroneous verbalizations and the illusion of control during a computer-generated gambling task. *British Journal of Psychology*, 89(4), 629-645.
- De Vaus, D. A. (1995). *Surveys in social research*. North Sydney: Allen and Unwin.
- Delfabbro, P., & Thrupp, L. (2003). The social determinants of youth gambling in South Australian adolescents. *Journal of Adolescence*, 26, 313-330.
- Dent, C. W., Galaif, J., Sussman, S., Stacy, A., Burtun, D., & Flay, B. R. (1993). Demographic, psychosocial and behavioral differences in samples of actively and passively consented adolescents. *Addictive Behaviors*, 18, 51-56.
- Dent, C. W., Sussman, S. Y., & Stacy, A. W. (1997). The impact of a written parental consent policy on estimates from a school-based drug use survey. *Evaluation Review*, 21(6), 698-712.
- Department of Internal Affairs. (2006a). *The Gambling Act 2003 Summary*. Retrieved 25-10-2006, from [http://www.dia.govt.nz/Pubforms.nsf/URL/FactSheet2.pdf/\\$file/FactSheet2.pdf](http://www.dia.govt.nz/Pubforms.nsf/URL/FactSheet2.pdf/$file/FactSheet2.pdf)
- Department of Internal Affairs. (2006b). *Gambling Expenditure Statistics*. Retrieved 25-10-2006, from [http://www.dia.govt.nz/pubforms.nsf/URL/Expendstats05.pdf/\\$file/Expendstats05.pdf](http://www.dia.govt.nz/pubforms.nsf/URL/Expendstats05.pdf/$file/Expendstats05.pdf)
- Derevensky, J., Gupta, R., & Cioppa, G. (1996). A developmental perspective of gambling behavior in children and adolescents. *Journal of Gambling Studies*, 12(1), 49-66.
- Dickson, L., Derevensky, J., & Gupta, R. (2002). The prevention of gambling problems in youth: A conceptual framework. *Journal of Gambling Studies*, 18(2), 97-159.
- Dickson, L., Derevensky, J., & Gupta, R. (2003). *Youth Gambling Problems: The Identification of Risk and Protective Factors*. Ontario: Ontario Problem Gambling Research Centre.
- Doll, B., & Lyon, M. (1998). Risk and resilience: Implications for the delivery of educational and mental health services in schools. *School Psychology Review*, 27(3), 348-363.
- Doyle, A. B., & Moretti, M. M. (2000). *Attachment to parents and adjustment in adolescence*. Ottawa: Childhood and Youth Division, Health Canada.
- DuBois, D. L., Felner, R. D., Brand, S., Adan, A. M., & Evans, E. G. (1992). A prospective study of life stress, social support, and adaptation in early adolescence. *Child Development*, 63, 542-557.

- Dubow, E. F., Tisak, J., Causey, D., Hryshko, A., & Reid, G. (1991). A two-year longitudinal study of stressful life events, social support, and social problem-solving skills: Contributions to children's behavioral and academic adjustment. *Child Development*, 62, 583-599.
- Dumont, M., & Provost, M. A. (1999). Resilience in adolescents: Protective role of social support, coping strategies, self-esteem, and social activities on experience of stress and depression. *Journal of Youth and Adolescence*, 28(3), 343-363.
- Dyall, L. (2003). *A Maori face to gambling*. Unpublished PhD, University of Auckland, Auckland.
- Egeland, B., Carlson, E., & Sroufe, L. A. (1993). Resilience as process. *Development and Psychopathology*, 5, 517-528.
- Engle, P. L., Castle, S., & Menon, P. (1996). Child development: Vulnerability and resilience. *Social Science Medicine*, 43(5), 621-635.
- Esbensen, F., Deschenes, E. P., Vogel, R. E., West, J., Arboit, K., & Harris, L. (1996). Active parental consent in school-based research: An examination of ethical and methodological issues. *Evaluation Review*, 20(6), 737-753.
- Evans, R. I. (2003). Some theoretical models and constructs generic to substance abuse prevention programs for adolescents: Possible relevance and limitations for problem gambling. *Journal of Gambling Studies*, 19(3), 287-302.
- Felsher, J. R., Derevensky, J. L., & Gupta, R. (2004). Lottery participation by youth with gambling problems: Are lottery tickets a gateway to other gambling venues? *International Gambling Studies*, 4(2), 109-125.
- Fergus, S., & Zimmerman, M. A. (2005). Adolescent resilience: A framework for understanding healthy development in the face of risk. *Annual Review of Public Health*, 26, 399-419.
- Ferguson, D. M. (1998). The Christchurch Health and Development Study: An overview and some findings. *Social Policy Journal of New Zealand*, 10, 154-176.
- Fisher, S. (1993a). Gambling and pathological gambling in adolescents. *Journal of Gambling Studies*, 9(3), 277-288.
- Fisher, S. (1993b). The pull of the fruit machine: a sociological typology of young players. *The editorial board of the sociological review*, 446-475.
- Fisher, S. (1998). *Gambling and problem gambling among young people in England and Wales*. Plymouth: University of Plymouth.
- Fisher, S. (1999). A prevalence study of gambling and problem gambling in British adolescents. *Addiction Research*, 7(6), 509-538.
- Fisher, S. (2000). Developing the DSM-IV-DSM-IV criteria to identify adolescent problem gambling in non-clinical populations. *Journal of Gambling Studies*, 16(2/3), 253-273.
- Fisher, S., & Balding, J. (1996). *Under age participation in the National Lottery*. London: Office of the National Lottery.
- Fisher, S., & Balding, J. (1996). *Underage participation in the national lottery, 1995-96*. Office of the National Lottery.
- Frank, M. L., & Smith, C. (1989). Illusion of control and gambling in children. *Journal of Gambling Behavior*, 5(2), 127-136.
- GamblingWatch. (2006). *How pokie profits are split*. Retrieved 30-10-2006, from <http://www.gamblingwatch.org.nz/files/Pokie%20profits%20split%20graph.pdf>

- Garmezy, N., Masten, A. S., & Tellegen, A. (1984). The study of stress and competence in children: A building block for developmental psychopathology. *Child Development*, 55(1), 97-111.
- Govoni, R., Rupcich, N., & Frisch, R. G. (1996). Gambling behavior of adolescent gamblers. *Journal of Gambling Studies*, 12(3), 305-317.
- Griffiths, M. (1990a). The acquisition, development, and maintenance of fruit machine gambling in adolescents. *Journal of Gambling Studies*, 6(3), 193-204.
- Griffiths, M. (1990b). The cognitive psychology of gambling. *Journal of Gambling Studies*, 6(1), 31-42.
- Griffiths, M. (1991). The observational study of adolescent gambling in UK amusement arcades. *Journal of Community & Applied Social Psychology*, 1(4), 309-320.
- Griffiths, M. (1993a). Fruit machine addiction in adolescence: A case study. *Journal of Gambling Studies*, 9(4), 387-399.
- Griffiths, M. (1993b). Tolerance in gambling: An objective measure using the psychophysiological analysis of male fruit machine gamblers. *Addictive Behaviors*, 18(3), 365-372.
- Griffiths, M. (1994). The role of cognitive bias and skill in fruit machine gambling. *British Journal of Psychology*, 85(3), 351-369.
- Griffiths, M. (1995). *Adolescent gambling*. London: Routledge.
- Griffiths, M. (2000). Brief communications: Scratchcard gambling among adolescent males. *Journal of Gambling Studies*, 16(1), 79-91.
- Gupta, R., & Derevensky, J. (1996). The relationship between gambling and video-game playing behavior in children and adolescents. *Journal of Gambling Studies*, 12(4), 375-394.
- Gupta, R., & Derevensky, J. (1998a). Adolescent gambling behavior: A prevalence study and examination of the correlates associated with problem gambling. *Journal of Gambling Studies*, 14(4), 319-345.
- Gupta, R., & Derevensky, J. (1998b). An empirical examination of Jacobs' General Theory of Addictions : Do adolescent gamblers fit the theory? *Journal of Gambling Studies*, 14(1), 17-49.
- Hardoon, K., Derevensky, J., & Gupta, R. (2002). *An examination of the influence of familial, emotional, conduct, and cognitive problems, and hyperactivity upon youth risk-taking and adolescent gambling problems*. Ontario: Ontario Problem Gambling Research Centre.
- Hardoon, K., & Derevensky, J. L. (2001). Social influences involved in children's gambling behavior. *Journal of Gambling Studies*, 17(3), 191-215.
- Hardoon, K., & Derevensky, J. L. (2002). Child and adolescent gambling behavior: Current knowledge. *Clinical Child Psychology and Psychiatry*, 7(2), 263-281.
- Hardoon, K., Gupta, R., & Derevensky, J. L. (2004). Psychosocial variables associated with adolescent gambling. *Psychology of Addictive Behaviors*, 18(2), 170-179.
- Hoek, J., Freeman, B., & Martin, Z. (2006). *The advertising and marketing of dangerous products*. Paper presented at the conference: Gambling and its Impacts - Policy, Practice and Research Perspectives, Auckland, New Zealand.
- Huggard, K. J. (1999). *The short-term effects of a peer support programme on the resiliency, diabetic management and metabolic control of adolescents with insulin-dependent diabetes mellitus*. Unpublished Masters Thesis, University of Auckland, Auckland.

- Huxley, J., & Carroll, D. (1992). A survey of fruit machine gambling in adolescents. *Journal of Gambling Studies*, 8(2), 167-179.
- Ide-Smith, S., & Lea, S. E. G. (1988). Gambling in young adolescents. *Journal of Gambling Behavior*, 4(2), 110-118.
- Jackson, A. C., Patton, G., Thomas, S. A., Wyn, J., Wright, J., Bond, L., et al. (2000). *The impacts of gambling on adolescents and children*. Melbourne: Victorian Department of Human Services.
- Jacobs, D. F. (1987). A general theory of addictions: Application to treatment and rehabilitation planning for pathological gamblers. In T. Galski (Ed.), *The handbook of pathological gambling*. (pp. 169-194). Springfield, IL, USA: Charles C Thomas, Publisher.
- Jacobs, D. F. (1989). Illegal and undocumented: A review of teenage gambling and the plight of children of problem gamblers in America. In H. J. Shaffer & S. A. Stein (Eds.), *Compulsive gambling: Theory, research, and practice*. (pp. 249-292). Lexington, MA, USA: Lexington Books/D. C. Heath and Company.
- Jacques, C., & Ladouceur, R. (2003). DSM-IV-J criteria: A scoring error that may be modifying the estimates of pathological gambling among youths. *Journal of Gambling Studies*, 19(4), 427-431.
- Jason, L. A., Pokorny, S., & Katz, R. (2001). Passive versus active consent: A case study in school settings. *Journal of Community Psychology*, 29(1), 53-68.
- Johansson, A., & Gotestam, K. G. (2003). Gambling and problematic gambling with money among Norwegian youth (12-18 years). *Nordic Journal of Psychiatry*, 57(4), 317-321.
- Kaplan, H. B. (1999). Toward an understanding of resilience. In M. D. Glantz & J. L. Johnson (Eds.), *Resilience and development: Positive life adaptations* (pp. 17-83). New York: Kluwer Academic/Plenum Publishers.
- Kinard, E. M. (1998). Methodological issues in assessing resilience in maltreated children. *Child Abuse and Neglect*, 22(7), 669-680.
- Korn, D. (2002). Examining gambling issues from a public health perspective. *Electronic Journal of Gambling Issues: eGambling*, 4, Available at <http://www.camh.net/egambling/issue4/feature/index.html>.
- Korn, D. (2005). *Gambling advertising: Exploring youth connection*. Paper presented at the conference: Living with gambling - A global community response, Auckland, New Zealand.
- Kumpfer, K. L. (1999). Factors and processes contributing to resilience. In M. D. Glantz & J. L. Johnson (Eds.), *Resilience and development: Positive life adaptations* (pp. 179-224). New York: Kluwer Academic/Plenum Publishers.
- Ladouceur, R. (1995). Prevalence of pathological gambling and associated problems in individuals who visit non-gambling video arcades. *Journal of Gambling Studies*, 11(4), 361-365.
- Ladouceur, R., Dube, D., & Bujold, A. (1994a). Gambling among primary school students. *Journal of Gambling Studies*, 10(4), 363-370.
- Ladouceur, R., Dube, D., & Bujold, A. (1994b). Prevalence of pathological gambling and related problems among college students in the Quebec metropolitan area. *Canadian Journal of Psychiatry*, 39(5), 289-293.
- Ladouceur, R., & Mireault, C. (1988). Gambling behaviors among high school students in the Quebec area. *Journal of Gambling Behavior*, 4(1), 3-12.
- Lambie, I. (1998). *Resiliency in the victim-offender cycle in male sexual abuse*. Unpublished PhD, University of Auckland, Auckland.

- Lambie, I., Seymour, F., Lee, A., & Adams, P. (2002). Resiliency in the victim-offender cycle in male sexual abuse. *Sexual Abuse: A Journal of Research and Treatment*, 14(1), 31-48.
- Lesieur, H. R., & Blume, S. B. (1990). Characteristics of pathological gamblers identified among patients on a psychiatric admissions service. *Hospital & Community Psychiatry*, 41(9), 1009-1012.
- Lesieur, H. R., Cross, J., Frank, M., Welch, M., White, C. M., Rubenstein, G., et al. (1991). Gambling and pathological gambling among university students. *Addictive Behaviors*, 16(6), 517-527.
- Lesieur, H. R., & Klein, R. (1987). Pathological gambling among high school students. *Addictive Behaviors*, 12(2), 129-135.
- Livingston, J. (1974). *Compulsive gamblers: Observations on Action and Abstinence*. New York: Harper and Row.
- Lorenz, V. C., & Yaffee, R. A. (1986). Pathological gambling: Psychosomatic, emotional and marital difficulties as reported by the gambler. *Journal of Gambling Behavior*, 2(1), 40-49.
- Luthar, S. S., & Zigler, E. (1991). Vulnerability and competence: A review of research on resilience in childhood. *American Journal of Orthopsychiatry*, 61(1), 6-22.
- Magoon, M. E., Gupta, R., & Derevensky, J. (2005). Juvenile delinquency and adolescent gambling. *Criminal Justice and Behavior*, 32(6), 690-713.
- Masten, A. S. (1999). Resilience comes of age: Reflections on the past and outlook for the next generation of research. In M. D. Glantz & J. L. Johnson (Eds.), *Resilience and development: Positive life adaptations* (pp. 281-296). New York: Kluwer Academic/Plenum Publishers.
- Masten, A. S., J., H. J., Gest, S. D., Tellegen, A., Garmezy, N., & Ramirez, M. (1999). Competence in the context of adversity: Pathways to resilience and maladaptation from childhood to late adolescence. *Development and Psychopathology*, 11, 143-169.
- Mayne, B., & Tyreman-Wilde, M. (1993). *Playing the game: A study of the attitudes, perceptions, and behaviours related to machine playing and gambling*. Swansea: Author.
- McCormick, R. A., Russo, A. M., Ramirez, L. F., & Taber, J. I. (1984). Affective disorders among pathological gamblers seeking treatment. *American Journal of Psychiatry*, 141(2), 215-218.
- McGowan, V., Droessler, J., Nixon, G., & Grimshaw, M. (2000). *Recent research in the socio-cultural domain of gaming and gambling: An annotated bibliography and critical overview*. Edmonton, Alberta: The Alberta Gaming Research Institute.
- McLaren, K. (2002). *Youth development: Literature review*. Wellington: New Zealand Ministry of Youth Affairs.
- Ministry of Health. (2002). *Youth Health: A Guide to Action*. Wellington: Author.
- Ministry of Health. (2005). *Preventing and minimising gambling harm: Strategic plan 2004-2010*. Wellington: Author.
- Ministry of Health. (2006). *Problem Gambling Intervention Services in New Zealand: 2005 Service-user statistics*. Wellington: Author.
- Ministry of Youth Affairs. (2002). *Youth Development Strategy Aotearoa*. Wellington: Author.

- Moore, S. M., & Ohtsuka, K. (1999). Beliefs about control over gambling among young people, and their relation to problem gambling. *Psychology of Addictive Behaviors*, 13(4), 339-347.
- Murray, J. B. (1993). Review of research on pathological gambling. *Psychological Reports*, 72(3, Pt 1), 791-810.
- Muss, R. E. (1988). *Theories of adolescence*. New York: Random House.
- National Health Committee. (1999). *Guidelines for recognising, assessing and treating alcohol and cannabis abuse in primary care*. Wellington, NZ: Author.
- National Research Council. (1999). *Pathological gambling: A critical review*. Washington, D.C: National Academy Press.
- Nickerson, A. B., & Nagle, R. J. (2005). Parent and peer attachment in late childhood and early adolescence. *Journal of Early Adolescence*, 25(2), 223-249.
- Noll, R. B., Zeller, M. H., Vannatta, K., Bukowski, W. M., & Davies, W. H. (1997). Potential bias in classroom research: comparison of children with permission and those who do not receive permission to participate. *Journal of Clinical Child Psychology*, 26(1), 36-42.
- Olsson, C. A., Bond, L., Burns, J. M., Vella-Brodrick, D. A., & Sawyer, S. M. (2003). Adolescent resilience: a concept analysis. *Journal of Adolescence*, 26, 1-11.
- Oster, S. L., & Knapp, T. J. (1998). Sports betting by college students: Who bets and how often? *College Student Journal*, 32(2), 289-292.
- Pagano, M., & Gauvreau, K. (1993). *Principles of biostatistics*. California: Duxbury Press.
- Paterson, J. E., Field, J., & Pryor, J. (1994). Adolescents' perceptions of their attachment relationships with their mothers, fathers, and friends. *Journal of Youth and Adolescence*, 23(5), 579-600.
- Paterson, J. E., Pryor, J., & Field, J. (1995). Adolescent attachment to parents and friends in relation to aspects of self-esteem. *Journal of Youth and Adolescence*, 24(3), 365-372.
- Perese, L., Bellringer, M., & Abbott, M. (2005). *Literature review to inform social marketing objectives and approaches, and behaviour change indicators, to prevent and minimise gambling harm*. Auckland: Gambling Research Centre, Auckland University of Technology.
- Perese, L., & Faleafa, M. (2000). *The impact of gambling on some Samoan Peoples lives in Auckland*. Auckland: The Compulsive Gambling Society of New Zealand.
- Phillips, J. (2006). *Sports and Leisure*. Retrieved 26-10-2006, from <http://www.TeAra.govt.nz/NewZealandInBrief/SportsAndLeisure/2/en>
- Pokorny, S. B., Jason, L. A., Schoeny, M. E., Townsend, S. M., & Curie, C. J. (2001). Do participation rates change when active consent procedures replace passive consent. *Evaluation Review*, 25(5), 567-580.
- Poulin, C. (2000). Problem gambling among adolescent students in the Atlantic Provinces of Canada. *Journal of Gambling Studies*, 16(1), 53-78.
- Poulin, C. (2002). An assessment of the validity and reliability of the SOGS-RA. *Journal of Gambling Studies*, 18(1), 67-93.
- Productivity Commission. (2000). *Australia's gambling industries: Final report*. Canberra: Productivity Commission.
- Punch, K. F. (2000). *Introduction to social research: Quantitative and qualitative approaches*. London: Sage Publications Ltd.

- Raja, S. N., McGee, R., & Stanton, W. R. (1992). Perceived attachments to parents and peers and psychological well-being in adolescence. *Journal of Youth and Adolescence*, 21(4), 471-485.
- Raylu, N., & Oei, T. P. S. (2002). Pathological gambling: A comprehensive review. *Clinical Psychology Review*, 22, 1009-1061.
- Reid, K., & Searle, W. (1996). *Public participation in and attitudes towards gambling: Final results of the 1995 survey (Research Series No.22)*. Wellington, NZ: Department of Internal Affairs.
- Richardson, G. E. (2002). The metatheory of resilience and resiliency. *Journal of Clinical Psychology*, 58(3), 307-321.
- Rolf, J. E., & Johnson, J. L. (1999). Opening doors to resilience intervention for prevention research. In M. D. Glantz & J. L. Johnson (Eds.), *Resilience and development: Positive life adaptations* (pp. 229-249). New York: Kluwer Academic/Plenum Publishers.
- Rosenstein, J., & Reutter, R. (1980). Gambling: An adolescent activity. *Journal of Adolescent Health Care*, 1(2), 180.
- Rubin, K. H., Dwyer, K. M., Booth-LaForce, C., Kim, A. H., Burgess, K. B., & Rose-Krasnor, L. (2004). Attachment, friendship, and psychosocial functioning in early adolescence. *Journal of Early Adolescence*, 24(4), 326-356.
- Rutter, M. (1987). Psychosocial resilience and protective mechanisms. *American Journal of Orthopsychiatry*, 57(3), 316-331.
- Rutter, M. (1993). Resilience: Some conceptual considerations. *Journal of Adolescent Health*, 14(8), 626-631.
- SAS Institute Inc. (2004). SAS/STAT Software (Version 9.1.2). Cary, NC: SAS International.
- Saunders, J. B., Aasland, O. G., Babor, T. F., de la Fuente, J. R., & Grant, M. (1993). Development of the Alcohol Use Disorders Identification Test (AUDIT): WHO collaborative project on early detection of persons with harmful alcohol consumption-II. *Addiction*, 88, 791-804.
- Severson, H. H., & Ary, D. V. (1983). Sampling bias due to consent procedures with adolescents. *Addictive Behaviors*, 8, 433-437.
- Shaffer, H. J. (2003). A public health perspective on gambling: The four principles. *AGA Responsible Gaming Lecture Series*, 2(1), 1-24.
- Shaffer, H. J., & Hall, M. N. (1999). Estimating the prevalence of disordered gambling behavior in the United States and Canada: A research synthesis. *American Journal of Public Health*, 89, 1369-1376.
- Shaffer, H. J., & Hall, M. N. (2001). Updating and refining prevalence estimates of disordered gambling behaviour in the United States and Canada. *Canadian Journal of Public Health*, 92(3), 168-172.
- SkyCity Entertainment Group. (2004). SkyCity Host Responsibility Statistics. Auckland: SkyCity.
- Steinberg, M. A. (1988). *Unpublished research report*. Hamden, Connecticut: Connecticut Council on Compulsive Gambling.
- Stinchfield, R. (2000). Gambling and correlates of gambling among Minnesota public school students. *Journal of Gambling Studies*, 16(2), 153-173.
- Stinchfield, R., Cassuto, N., Winters, K., & Latimer, W. (1997). Prevalence of gambling among Minnesota public school students in 1992 and 1995. *Journal of Gambling Studies*, 13(1), 25-48.

- Stronski, S. M., Ireland, M., Michaud, P., Narring, F., & Resnick, M. D. (2000). Protective correlates of stages in adolescent substance use: A Swiss national study. *Journal of Adolescent Health, 26*(6), 420-427.
- Tabachnick, B. G., & Fidell, L. S. (1996). *Using Multivariate Statistics* (3rd ed.). New York: HarperCollins College Publishers.
- Tse, S., Abbott, M., Clarke, D., Townsend, S., Kingi, P., & Manaia, W. (2005). *Why people gamble: Examining the determinants of problem gambling*. Auckland: Auckland UniServices Limited, University of Auckland.
- Tu'itahi, S., Guttenbeil-Po'uhiila, Y., Hand, J., & Htay, T. (2004). Gambling issues for Tongan people in Auckland, Aotearoa-New Zealand. *Journal of Gambling Issues, 12*.
- Vitaro, F., Ferland, F., Jacques, C., & Ladouceur, R. (1998). Gambling, substance use, and impulsivity during adolescence. *Psychology of Addictive Behaviors, 12*(3), 185-194.
- Vitaro, F., Ladouceur, R., & Bujold, A. (1996). Predictive and concurrent correlates of gambling in early adolescent boys. *Journal of Early Adolescence, 16*(2), 211-228.
- Volberg, R. A. (1993). *Gambling and problem gambling among adolescents in Washington State*. WA: Washington State Lottery.
- Volberg, R. A., & Moore, L. W. (1999). *Gambling and problem gambling among adolescents in Washington State: A replication Study, 1993 to 1999*. WA: Washington State Lottery.
- Wallisch, L. S. (1993). *Gambling in Texas: 1992 Texas survey of adolescent gambling behavior*. TX: Texas Commission on Alcohol and Drug Abuse.
- Wallisch, L. S. (1996). *Gambling in Texas: 1995 survey of adult and adolescent gambling behavior*. TX: Texas Commission on Alcohol and Drug Abuse.
- Walton, F. (1990). *A research study on young people and gambling in Blackpool*. Blackpool: Author.
- Waterman, J., & Atkin, K. (1985). Young people and fruit machines. *Society for the Study of Gambling Newsletter, 7*, 23-25.
- Wiebe, J. (1999). *Manitoba youth gambling prevalence study*. Manitoba: Addictions Foundation of Manitoba.
- Winters, K., & Anderson, N. (2000). Gambling involvement and drug use among adolescents. *Journal of Gambling Studies, 16*, 175-198.
- Winters, K., & Stinchfield, R. (1993). *Gambling behavior among Minnesota youth: Monitoring change from 1990 to 1991/1992*. Minnesota: Minnesota Department of Human Services, Mental Health Division.
- Winters, K., Stinchfield, R., & Fulkerson, J. (1993a). Patterns and characteristics of adolescent gambling. *Journal of Gambling Studies, 9*(4), 371-386.
- Winters, K., Stinchfield, R., & Fulkerson, J. (1993b). Toward the development of an adolescent gambling problem severity scale. *Journal of Gambling Studies, 9*(1), 63-84.
- Winters, K., Stinchfield, R. D., & Kim, L. G. (1995). Monitoring adolescent gambling in Minnesota. *Journal of Gambling Studies, 11*(2), 165-183.
- Wood, R. T. A., & Griffiths, M. D. (1998). The acquisition, development and maintenance of lottery and scratchcard gambling in adolescence. *Journal of Adolescence, 21*(3), 265-273.
- Zitzow, D. (1996). Comparative study of problematic gambling behaviors between American Indian and non-Indian adolescents within and near a northern plains

reservation. *American Indian & Alaska Native Mental Health Research*, 7(2), 14-26.

Appendix A QUESTIONNAIRE

This questionnaire asks about your involvement in gambling, and your relationships with important people in your life. All your answers are confidential and will NOT be shown to anyone but the researcher. There are no right or wrong answers, I'm interested in your opinions and experiences. Please read the directions to each part carefully, and answer the questions as truthfully as you can.

1. I am: _____ years of age
2. I am: male female
3. Which of the following ethnic group(s) do you belong to?
 - Maori
 - Pacific Island (please specify) _____
 - NZ European or Pakeha
 - Asian (please specify) _____
 - Other (please specify) _____
4. How long have you been living in New Zealand?
 - Less than 1 year
 - 1 year or more (please specify) _____
 - I was born in NZ
5. During the **past year**, how much money did you receive in a **typical week** (from things like an allowance or job)

<input type="checkbox"/> Less than \$ 1	<input type="checkbox"/> \$ 75 - \$ 100
<input type="checkbox"/> \$ 1 - \$ 25	<input type="checkbox"/> \$ 100 - \$ 150
<input type="checkbox"/> \$ 25 - \$ 50	<input type="checkbox"/> \$ 150 - \$ 200
<input type="checkbox"/> \$ 50 - \$ 75	<input type="checkbox"/> More than \$200

The next section asks questions about gambling or betting (when you risk money or something of value by betting, daring or wagering without knowing what the outcome's going to be). There are no right or wrong answers, I'm interested in your opinions and experiences.

6. In the **past year**, how often have you tried the following activities? For each activity, tick the answer box which is closest to correct for you.

	Never	Less than once a week	Once a week or more	Daily	
a.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Played card/dice/board games for money or an item of value
b.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Played bingo for money
c.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Lotto
d.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Instant Kiwi (scratchies)
e.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Daily Keno
f.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Played a pokie/gambling machine in a Casino
g.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Played a pokie/gambling machine in a Pub/Club
h.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Gambled on casino tables (e.g. Roulette, Blackjack)
i.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Bet on sports, pool, bowling, or other skill games with friends
j.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Bet money on a sports event at a TAB
k.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Bet money on horse or dog races at a TAB
l.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Played 0900 phone games with money prizes
m.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Bet over the internet
n.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Another form of gambling not listed above. Please specify _____

7. What is your **ONE** favourite activity from the list above (a, b, c, etc) _____

8. Did you answer 'Never' to ALL the categories (a-n) in question number 6?

yes → please go to question 27

no ↘ please continue with question number 9

9. In total, how much **money** did you spend on gambling (any activity from a-n in question 5) last week?

- | | |
|--|---|
| <input type="checkbox"/> \$ 1 or less | <input type="checkbox"/> \$ 75 - \$ 100 |
| <input type="checkbox"/> \$ 2 - \$ 25 | <input type="checkbox"/> \$ 100 - \$ 150 |
| <input type="checkbox"/> \$ 25 - \$ 50 | <input type="checkbox"/> \$ 150 - \$ 200 |
| <input type="checkbox"/> \$ 50 - \$ 75 | <input type="checkbox"/> More than \$ 200 |

10. Over the **past year**, how much money did you spend in a **typical week** on gambling activities?

- | | |
|--|---|
| <input type="checkbox"/> \$ 1 or less | <input type="checkbox"/> \$ 75 - \$ 100 |
| <input type="checkbox"/> \$ 2 - \$ 25 | <input type="checkbox"/> \$ 100 - \$ 150 |
| <input type="checkbox"/> \$ 25 - \$ 50 | <input type="checkbox"/> \$ 150 - \$ 200 |
| <input type="checkbox"/> \$ 50 - \$ 75 | <input type="checkbox"/> More than \$ 200 |

11. On an average **weekday** (Monday – Friday), how much **time** do you spend on **gambling** activities?

- | | |
|---|--|
| <input type="checkbox"/> None | <input type="checkbox"/> 3 – 6 hours per day |
| <input type="checkbox"/> Less than 1 hour per day | <input type="checkbox"/> 6 – 9 hours per day |
| <input type="checkbox"/> 1 – 3 hours per day | <input type="checkbox"/> 9 or more hours per day |

12. On an average day during the **weekend** (Saturday and Sunday), how much **time** do you spend on **gambling** activities?

- | | |
|---|--|
| <input type="checkbox"/> None | <input type="checkbox"/> 3 – 6 hours per day |
| <input type="checkbox"/> Less than 1 hour per day | <input type="checkbox"/> 6 – 9 hours per day |
| <input type="checkbox"/> 1 – 3 hours per day | <input type="checkbox"/> 9 or more hours per day |

13. What **age** were you when you **first** gambled for money? _____ years of age

14. **Where** do you gamble? (You can have more than one answer)

- | | |
|---|---|
| <input type="checkbox"/> at home | <input type="checkbox"/> at a Lotto shop |
| <input type="checkbox"/> at a TAB | <input type="checkbox"/> at a bar or club |
| <input type="checkbox"/> at a casino | <input type="checkbox"/> at work |
| <input type="checkbox"/> at a friends' home | <input type="checkbox"/> at a bingo hall |
| <input type="checkbox"/> at a bowling alley | <input type="checkbox"/> other (please specify) _____ |
| <input type="checkbox"/> at school | |

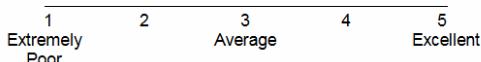
15. How often do you **gamble** with the following people?

	never	hardly ever	sometimes	often
Parents	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Friends	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Brothers or sisters	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Grandparents	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other relatives	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Someone you don't know	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Alone	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

16. Why do you gamble? (You can have more than one answer)

- | | |
|--|---|
| <input type="checkbox"/> for enjoyment | <input type="checkbox"/> to be with parents or other family members |
| <input type="checkbox"/> because I'm bored | <input type="checkbox"/> to be with or make new friends |
| <input type="checkbox"/> for a challenge | <input type="checkbox"/> to get away from problems at home or at school |
| <input type="checkbox"/> because I'm lonely | <input type="checkbox"/> to win money |
| <input type="checkbox"/> to relax | <input type="checkbox"/> to feel older |
| <input type="checkbox"/> because I'm unhappy | <input type="checkbox"/> other (please specify) _____ |
| <input type="checkbox"/> for excitement | |

17. In your opinion, how good are you at gambling? (circle the appropriate number on the scale)



18. In the past year how often have you found yourself thinking about gambling or planning to gamble?

never once or twice sometimes often

19. During the course of the past year have you needed to gamble with more and more money to get the amount of excitement you want?

yes no

20. In the past year have you ever spent much more than you planned to on gambling?

never once or twice sometimes often

21. In the past year have you felt bad or fed up when trying to cut down or stop gambling?

never once or twice sometimes often never tried to cut down

22. In the past year how often have you gambled to help you to escape from problems or when you are feeling bad?

never once or twice sometimes often

23. In the past year, after losing money gambling, have you returned another day to try and win back money you lost?

never less than half the time more than half the time every time

24. In the past year has your gambling ever led to you lying to your family or friends?

never once or twice sometimes often

25. In the past year have you ever taken money from the following without permission to spend on gambling:

a) School lunch money or fare money?

never once or twice sometimes often

b) Money from your family?

never once or twice sometimes often

c) Money from outside the family?

never once or twice sometimes often

26. In the past year has your gambling ever led to:

a) Arguments with family/friends or others?

never once or twice sometimes often

b) Missing school?

never once or twice sometimes often

The next section asks about your opinions, beliefs, and experiences with gambling.
 Your opinions and experiences are important to me - even if you don't really gamble.

27. Does anyone else in your household **regularly** (at least once a week):

Buy Instant Kiwi (scratchie tickets)	<input type="checkbox"/> yes	<input type="checkbox"/> no	<input type="checkbox"/> don't know
Go to a casino to gamble	<input type="checkbox"/> yes	<input type="checkbox"/> no	<input type="checkbox"/> don't know
Buy Lotto or Daily Keno	<input type="checkbox"/> yes	<input type="checkbox"/> no	<input type="checkbox"/> don't know
Gamble on pokie/gambling machines	<input type="checkbox"/> yes	<input type="checkbox"/> no	<input type="checkbox"/> don't know
Gamble on sports or track racing	<input type="checkbox"/> yes	<input type="checkbox"/> no	<input type="checkbox"/> don't know

28. Do any of your friends **regularly** (at least once a week):

Buy Instant Kiwi (scratchie tickets)	<input type="checkbox"/> yes	<input type="checkbox"/> no	<input type="checkbox"/> don't know
Go to a casino to gamble	<input type="checkbox"/> yes	<input type="checkbox"/> no	<input type="checkbox"/> don't know
Buy Lotto or Daily Keno	<input type="checkbox"/> yes	<input type="checkbox"/> no	<input type="checkbox"/> don't know
Gamble on pokie/gambling machines	<input type="checkbox"/> yes	<input type="checkbox"/> no	<input type="checkbox"/> don't know
Gamble on sports or track racing	<input type="checkbox"/> yes	<input type="checkbox"/> no	<input type="checkbox"/> don't know

29. Do you believe that your mother (or someone who acts as your mother) may have a gambling problem?

yes no don't know

30. Do you believe that your father (or someone who acts as your father) may have a gambling problem?

yes no don't know

31. Do you believe that any of your friends may have a gambling problem?

yes no don't know

32. Have you ever seen a **television** advertisement for:

A casino	<input type="checkbox"/> yes	<input type="checkbox"/> no	<input type="checkbox"/> don't know
Lotto or Daily Keno	<input type="checkbox"/> yes	<input type="checkbox"/> no	<input type="checkbox"/> don't know
Instant Kiwi (scratchie tickets)	<input type="checkbox"/> yes	<input type="checkbox"/> no	<input type="checkbox"/> don't know
Sports or track racing (TAB)	<input type="checkbox"/> yes	<input type="checkbox"/> no	<input type="checkbox"/> don't know

33. Have you ever seen a **newspaper** advertisement for:

A casino	<input type="checkbox"/> yes	<input type="checkbox"/> no	<input type="checkbox"/> don't know
Lotto or Daily Keno	<input type="checkbox"/> yes	<input type="checkbox"/> no	<input type="checkbox"/> don't know
Instant Kiwi (scratchie tickets)	<input type="checkbox"/> yes	<input type="checkbox"/> no	<input type="checkbox"/> don't know
Sports or track racing (TAB)	<input type="checkbox"/> yes	<input type="checkbox"/> no	<input type="checkbox"/> don't know

34. Have you ever seen a **magazine** advertisement for:

A casino	<input type="checkbox"/> yes	<input type="checkbox"/> no	<input type="checkbox"/> don't know
Lotto or Daily Keno	<input type="checkbox"/> yes	<input type="checkbox"/> no	<input type="checkbox"/> don't know
Instant Kiwi (scratchie tickets)	<input type="checkbox"/> yes	<input type="checkbox"/> no	<input type="checkbox"/> don't know
Sports or track racing (TAB)	<input type="checkbox"/> yes	<input type="checkbox"/> no	<input type="checkbox"/> don't know

35. Have you ever seen advertising on a **billboard** for:

A casino	<input type="checkbox"/> yes	<input type="checkbox"/> no	<input type="checkbox"/> don't know
Lotto or Daily Keno	<input type="checkbox"/> yes	<input type="checkbox"/> no	<input type="checkbox"/> don't know
Instant Kiwi (scratchie tickets)	<input type="checkbox"/> yes	<input type="checkbox"/> no	<input type="checkbox"/> don't know
Sports or track racing (TAB)	<input type="checkbox"/> yes	<input type="checkbox"/> no	<input type="checkbox"/> don't know

36. Have you ever seen advertising on the internet for:

A casino	<input type="checkbox"/> yes	<input type="checkbox"/> no	<input type="checkbox"/> don't know
Lotto or Daily Keno	<input type="checkbox"/> yes	<input type="checkbox"/> no	<input type="checkbox"/> don't know
Instant Kiwi (scratchie tickets)	<input type="checkbox"/> yes	<input type="checkbox"/> no	<input type="checkbox"/> don't know
Sports or track racing (TAB)	<input type="checkbox"/> yes	<input type="checkbox"/> no	<input type="checkbox"/> don't know

The next section asks about your opinions and beliefs about gambling. Please indicate how much you agree or disagree with each statement by circling a number on the scale.

37. It's easy for people my age to buy Lotto or Daily Keno tickets.

1	2	3	4	5
Strongly Disagree		Not sure		Strongly Agree

38. It's easy for people my age to buy Instant Kiwi (scratchie) tickets.

1	2	3	4	5
Strongly Disagree		Not sure		Strongly Agree

39. It's easy for people my age to get into a casino and gamble.

1	2	3	4	5
Strongly Disagree		Not sure		Strongly Agree

40. It's easy for people my age to get into a pub (or club) and gamble on a pokie (gambling) machine.

1	2	3	4	5
Strongly Disagree		Not sure		Strongly Agree

41. It's easy for people my age to gamble at a TAB.

1	2	3	4	5
Strongly Disagree		Not sure		Strongly Agree

42. People my age should be allowed to gamble on Lotto or Daily Keno.

1	2	3	4	5
Strongly Disagree		Not sure		Strongly Agree

43. People my age should be allowed to gamble on Instant Kiwi's.

1	2	3	4	5
Strongly Disagree		Not sure		Strongly Agree

44. People my age should be allowed to gamble on pokie (gambling) machines.

1	2	3	4	5
Strongly Disagree		Not sure		Strongly Agree

45. People my age should be allowed to gamble at casinos.

1	2	3	4	5
Strongly Disagree		Not sure		Strongly Agree

46. People my age should be allowed to gamble at a TAB.

1	2	3	4	5
Strongly Disagree		Not sure		Strongly Agree

47. People my age who are good at computer games will also be good at gambling on a pokie (gambling) machine.

1	2	3	4	5
Strongly Disagree		Not sure		Strongly Agree

48. The more you practise gambling on a pokie (gambling) machine, the better you get.

1	2	3	4	5
Strongly Disagree		Not sure		Strongly Agree

49. People can get hooked on (or addicted to) gambling just like they can on drugs or alcohol.

1	2	3	4	5
Strongly Disagree		Not sure		Strongly Agree

50. People my age are more likely than Adults to get hooked on gambling.

1	2	3	4	5
Strongly Disagree		Not sure		Strongly Agree

For the following questions, please indicate how much skill AND luck you think are needed to be good at each activity by circling a number on EACH scale.

51. How much skill and luck are needed to win at Lotto?

SKILL					LUCK				
1	2	3	4	5	1	2	3	4	5
No skill	Some	A lot of skill			No luck	Some	A lot of luck		

52. How much skill and luck are needed to win at Instant Kiwi (scratchies)?

SKILL					LUCK				
1	2	3	4	5	1	2	3	4	5
No skill	Some	A lot of skill			No luck	Some	A lot of luck		

53. How much skill and luck are needed to win at Daily Keno?

SKILL					LUCK				
1	2	3	4	5	1	2	3	4	5
No skill	Some	A lot of skill			No luck	Some	A lot of luck		

54. How much skill and luck are needed to win when playing Pokie (gambling) machines?

SKILL					LUCK				
1	2	3	4	5	1	2	3	4	5
No skill	Some	A lot of skill			No luck	Some	A lot of luck		

55. How much skill and luck are needed to win at **Casino tables** (e.g. Roulette, Blackjack)?

SKILL					LUCK				
1	2	3	4	5	1	2	3	4	5
No skill	Some	A lot of skill			No luck	Some	A lot of luck		

56. How much skill and luck are needed to win when gambling on **horse or dog races**?

SKILL					LUCK				
1	2	3	4	5	1	2	3	4	5
No skill	Some	A lot of skill			No luck	Some	A lot of luck		

57. How much skill and luck are needed to win when gambling on **Sports events**?

SKILL					LUCK				
1	2	3	4	5	1	2	3	4	5
No skill	Some	A lot of skill			No luck	Some	A lot of luck		

58. How much skill and luck are needed to be good at **computer games**?

SKILL					LUCK				
1	2	3	4	5	1	2	3	4	5
No skill	Some	A lot of skill			No luck	Some	A lot of luck		

The next section asks questions about your use of the internet and computer games. There are no right or wrong answers, I'm interested in your opinions and experiences.

59. On average, how often do you use the **internet**?

- Never → please go to question 63
- Monthly or less
- 2-4 times a month
- 2-3 times a week
- Every day

60. On an average **weekday** (Monday – Friday), how much **time** do you spend on the **internet**?

- | | |
|---|--|
| <input type="checkbox"/> None | <input type="checkbox"/> 3 – 6 hours per day |
| <input type="checkbox"/> Less than 1 hour per day | <input type="checkbox"/> 6 – 9 hours per day |
| <input type="checkbox"/> 1 – 3 hours per day | <input type="checkbox"/> 9 or more hours per day |

61. On an average day during the **weekend** (Saturday and Sunday), how much **time** do you spend on the **internet**?

- | | |
|---|--|
| <input type="checkbox"/> None | <input type="checkbox"/> 3 – 6 hours per day |
| <input type="checkbox"/> Less than 1 hour per day | <input type="checkbox"/> 6 – 9 hours per day |
| <input type="checkbox"/> 1 – 3 hours per day | <input type="checkbox"/> 9 or more hours per day |

62. How often do you use the **internet** with the following people?

	never	hardly ever	sometimes	often
A parent	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Friends	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
A brother or sister	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
A grandparent	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other relative	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Alone	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

63. On **average**, how often do you play **computer games** (such as Playstation, Nintendo 64, Gameboy, PC, or arcade games)?

- Never → please go to question 67
- Monthly or less
- 2-4 times a month
- 2-3 times a week
- Every day

64. On an average **weekday** (Monday – Friday), how much **time** do you spend playing computer games?

- None
- Less than 1 hour per day
- 1 – 3 hours per day
- 3 – 6 hours per day
- 6 – 9 hours per day
- 9 or more hours per day

65. On an average day during the **weekend** (Saturday and Sunday), how much **time** do you spend playing computer games?

- None
- Less than 1 hour per day
- 1 – 3 hours per day
- 3 – 6 hours per day
- 6 – 9 hours per day
- 9 or more hours per day

66. How often do you play **computer games** with the following people?

	never	hardly ever	sometimes	often
A parent	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Friends	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
A brother or sister	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
A grandparent	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other relative	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Alone	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

The next section asks questions about you, your family, and school. There are no right or wrong answers, I'm interested in your opinions and experiences. Please indicate how much you agree or disagree with the following statements by circling a number on the scale.

67. There is another adult (other than my mum or dad) that I can talk to about problems

- | | | | | |
|-------------------|---|----------|---|----------------|
| 1 | 2 | 3 | 4 | 5 |
| Strongly Disagree | | Not sure | | Strongly Agree |

68. My family spends time together having fun

- | | | | | |
|-------------|---|-----------|---|------------|
| 1 | 2 | 3 | 4 | 5 |
| Hardly ever | | Sometimes | | Very often |

69. When I'm going out, my family wants to know things like, who I'm with, and where I'm going

1	2	3	4	5
Never		Sometimes		Always

70. I have to do tasks or chores around the house (eg. doing the dishes, mowing the lawns, looking after younger children etc)

1	2	3	4	5
Hardly ever		Sometimes		Very often

71. I find it easy to get good grades at school

1	2	3	4	5
Strongly Disagree		Not sure		Strongly Agree

72. People at school (teachers, other students) expect me to get good school grades

1	2	3	4	5
Strongly Disagree		Not sure		Strongly Agree

73. I'm involved in activities outside of school (such as sports teams, drama clubs, orchestra etc)

1	2	3	4	5
Strongly Disagree		Not sure		Strongly Agree

74. I'm getting on well with my school teachers this year

1	2	3	4	5
Strongly Disagree		Not sure		Strongly Agree

75. The adults at my school (teachers, coaches, tutors etc) care about me

1	2	3	4	5
Strongly Disagree		Not sure		Strongly Agree

76. I'm getting on well with other students this year

1	2	3	4	5
Strongly Disagree		Not sure		Strongly Agree

77. I feel like a valued member of my school this year

1	2	3	4	5
Strongly Disagree		Not sure		Strongly Agree

78. I think about the future and what I would like to be doing after leaving school

1	2	3	4	5
Strongly Disagree		Not sure		Strongly Agree

79. Have you been given school detention in the past year?

yes no

80. Have you been suspended or expelled from school in the past year?

yes no

The next section asks questions about your happiness, spiritual beliefs, and use of alcohol. There are no right or wrong answers, I'm interested in your opinions and experiences.

81. Over the last year, I have been as happy as most people my age

1	2	3	4	5
Strongly Disagree		Not sure		Strongly Agree

82. Have you ever thought about committing suicide?

yes no

83. Have you ever made a plan to commit suicide?

yes no

84. During the past year, how often have you attended a church/mosque/shrine (or another place of worship)?

- Never
- Monthly or less
- 2-4 times a month
- 2-3 times a week
- Every day

85. It is important for me to attend church/mosque/shrine (or place of worship)

1	2	3	4	5
Strongly Disagree		Not sure		Strongly Agree

86. My spiritual beliefs are very important to me

1	2	3	4	5
Strongly Disagree		Not sure		Strongly Agree

87. I feel a spiritual connection to other people

1	2	3	4	5
Strongly Disagree		Not sure		Strongly Agree

88. I feel that my life is being guided by a spiritual force

1	2	3	4	5
Strongly Disagree		Not sure		Strongly Agree

89. Sometimes I feel a spiritual connection to nature

1	2	3	4	5
Strongly Disagree		Not sure		Strongly Agree

90. Have you ever drunk more than a few sips of alcohol?

no → please go to the next page

yes ↘ please continue with question 91

91. How old were you when you had your first drink?

_____ years old

92. During the **past year**, how often have you had a drink containing alcohol?

- Never
- Monthly or less
- 2-4 times a month
- 2-3 times a week
- Every day

93. During the **past year**, how many times did you have **5 or more** drinks in one go?

- Never
- Monthly or less
- 2-4 times a month
- 2-3 times a week
- Every day

94. When you **drink alcohol**, how often are you:

	never	hardly ever	sometimes	often
At home?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
At a friends home?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
At school?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
In a car?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
At an outdoor place? (beach, park etc)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
At a sports club?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
At a pub or bar?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
At another place?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

The last section asks about your relationships with important people in your life:
your mother, your father, and your close friends. Please read the directions to
each part carefully.

Mother

Some of the following statements ask about your feelings about your mother or the person who has acted as your mother. If you have more than one person acting as your mother (e.g. a natural mother and a step-mother) answer the questions for the one you feel has most influenced you.

Please read each statement and circle the ONE number that tells how true the statement is for you now.

	Almost Never or Never True	Not Very Often True	Sometimes True	Often True	Almost Always or Always True
1. My mother respects my feelings.	1	2	3	4	5
2. I feel my mother does a good job as my mother.	1	2	3	4	5
3. I wish I had a different mother.	1	2	3	4	5
4. My mother accepts me as I am.	1	2	3	4	5
5. I like to get my mother's point of view on things I'm concerned about.	1	2	3	4	5
6. I feel it's no use letting my feelings show around my mother.	1	2	3	4	5
7. My mother can tell when I'm upset about something.	1	2	3	4	5
8. Talking over my problems with my mother makes me feel ashamed or foolish.	1	2	3	4	5
9. My mother expects too much from me.	1	2	3	4	5
10. I get upset easily around my mother.	1	2	3	4	5
11. I get upset a lot more than my mother knows about.	1	2	3	4	5
12. When we discuss things my mother cares about my point of view.	1	2	3	4	5
13. My mother trusts my judgement.	1	2	3	4	5
14. My mother has her own problems, so I don't bother her with mine.	1	2	3	4	5
15. My mother helps me to understand myself better.	1	2	3	4	5
16. I tell my mother about my problems and troubles.	1	2	3	4	5
17. I feel angry with my mother.	1	2	3	4	5
18. I don't get much attention from my mother.	1	2	3	4	5
19. My mother helps me to talk about my difficulties.	1	2	3	4	5
20. My mother understands me.	1	2	3	4	5
21. When I'm angry about something, my mother tries to be understanding.	1	2	3	4	5
22. I trust my mother.	1	2	3	4	5
23. My mother doesn't understand what I'm going through these days.	1	2	3	4	5
24. I can count on my mother when I need to get something off my chest.	1	2	3	4	5
25. If my mother knows something is bothering me, she asks me about it.	1	2	3	4	5

Father

This part asks about your feelings about your **father** or the person who has acted as your father. If you have more than one person acting as your father (e.g. a natural father and a step-father) answer the questions for the one you feel has most influenced you.

	Almost Never or Never True	Not Very Often True	Sometimes True	Often True	Almost Always or Always True
1. My father respects my feelings.	1	2	3	4	5
2. I feel my father does a good job as my father.	1	2	3	4	5
3. I wish I had a different father.	1	2	3	4	5
4. My father accepts me as I am.	1	2	3	4	5
5. I like to get my father's point of view on things I'm concerned about.	1	2	3	4	5
6. I feel it's no use letting my feelings show around my father.	1	2	3	4	5
7. My father can tell when I'm upset about something.	1	2	3	4	5
8. Talking over my problems with my father makes me feel ashamed or foolish.	1	2	3	4	5
9. My father expects too much from me.	1	2	3	4	5
10. I get upset easily around my father.	1	2	3	4	5
11. I get upset a lot more than my father knows about.	1	2	3	4	5
12. When we discuss things my father cares about my point of view.	1	2	3	4	5
13. My father trusts my judgement.	1	2	3	4	5
14. My father has his own problems, so I don't bother him with mine.	1	2	3	4	5
15. My father helps me to understand myself better.	1	2	3	4	5
16. I tell my father about my problems and troubles.	1	2	3	4	5
17. I feel angry with my father.	1	2	3	4	5
18. I don't get much attention from my father.	1	2	3	4	5
19. My father helps me to talk about my difficulties.	1	2	3	4	5
20. My father understands me.	1	2	3	4	5
21. When I'm angry about something, my father tries to be understanding.	1	2	3	4	5
22. I trust my father.	1	2	3	4	5
23. My father doesn't understand what I'm going through these days.	1	2	3	4	5
24. I can count on my father when I need to get something off my chest.	1	2	3	4	5
25. If my father knows something is bothering me, he asks me about it.	1	2	3	4	5

Close Friends

This part asks about your feelings about your relationships with your **close friends**. Please read each statement and circle the ONE number that tells how true the statement is for you now.

	Almost Never or Never True	Not Very Often True	Sometimes True	Often True	Almost Always or Always True
1. I like to get my friend's point of view on things I'm concerned about.	1	2	3	4	5
2. My friends can tell when I'm upset about something.	1	2	3	4	5
3. When we discuss things, my friends care about my point of view.	1	2	3	4	5
4. Talking over my problems with friends makes me feel ashamed or foolish.	1	2	3	4	5
5. I wish I had different friends.	1	2	3	4	5
6. My friends understand me.	1	2	3	4	5
7. My friends encourage me to talk about my difficulties.	1	2	3	4	5
8. My friends accept me as I am.	1	2	3	4	5
9. I feel the need to be in touch with my friends more often.	1	2	3	4	5
10. My friends don't understand what I'm going through these days.	1	2	3	4	5
11. I feel alone or apart when I am with my friends.	1	2	3	4	5
12. My friends listen to what I have to say.	1	2	3	4	5
13. I feel my friends are good friends.	1	2	3	4	5
14. My friends are fairly easy to talk to.	1	2	3	4	5
15. When I am angry about something, my friends try to be understanding.	1	2	3	4	5
16. My friends help me to understand myself better.	1	2	3	4	5
17. My friends care about how I am feeling.	1	2	3	4	5
18. I feel angry with my friends.	1	2	3	4	5
19. I can count on my friends when I need to get something off my chest.	1	2	3	4	5
20. I trust my friends.	1	2	3	4	5
21. My friends respect my feelings.	1	2	3	4	5
22. I get upset a lot more than my friends know about.	1	2	3	4	5
23. It seems as if my friends are irritated with me for no reason.	1	2	3	4	5
24. I can tell my friends about my problems and troubles.	1	2	3	4	5
25. If my friends know something is bothering me, they ask me about it.	1	2	3	4	5

Are there any comments you would like to make about gambling - or this questionnaire?

Thank you for taking part in this study!

**Please place this questionnaire in the box or
envelope provided.**



Appendix B ETHICS

Note that all ethics forms and correspondence were printed with University of Auckland letterhead.

B.1 PRINCIPAL INFORMATION

ADOLESCENT GAMBLING AND RESILIENCY INFORMATION FOR SCHOOL PRINCIPALS

My name is Fiona Rossen, and I am doing a PhD thesis in Applied Behavioural Science at the University of Auckland. I would like to invite your school and students to take part in a study about young people's gambling. The study aims to explore the relationships between gambling and students' relationships with important people in their life (family, friends etc).

Research indicates that the majority of adolescents engage in gambling activities in a safe and sustainable manner. However, a considerable proportion of youth (estimates range between 0.9% and 11.2%), experience substantial adverse effects of gambling. This research is important as it will advance our knowledge of adolescent gambling behaviour, and inform the development of effective preventative measures.

Your school has been randomly chosen for inclusion in this research, and I would like to provide an opportunity for your students to participate. Their participation would be voluntary and would involve the completion of an anonymous questionnaire. It is anticipated that participation would take approximately 30 minutes during school hours. The information gained from the questionnaire will be confidential to myself as a researcher, and my two supervisors, Dr Robyn Dixon and Dr Peter Adams. At no time will your school or your students be identified. Data will be used for my PhD and may be retained for future use, for example, in the production of publications. If you wish, a copy of the questionnaire will be provided for you.

We hope that this study will help us to understand and prevent gambling problems among young people. Thank you for your consideration. If you would like to know more about this study or would like to discuss the research at any time in the future, I can be contacted through the Centre for Gambling Studies on 09 368 1520.

The Head of Department, Dr. Peter Adams can be contacted at the Department of Applied Behavioural Science, University of Auckland, Private Bag 92019, Auckland, phone 3737 599, extn 86538. If you have any queries about ethical matters relating to this project, you may contact The Chair, Human Subjects Ethics Committee, Research Office, Office of the Vice Chancellor, University of Auckland, Private Bag 92019, Auckland, phone 3737 599 extn 87830.

Approved by The University of Auckland Human Subjects Ethics Committee
on
10 July 2002 for a period of three years, from 10 July 2002 Reference 2002 / 121

B.2 PRINCIPAL CONSENT FORM

UNIVERSITY OF AUCKLAND

SCHOOL PRINCIPAL CONSENT FOR PARTICIPATION IN RESEARCH

Project: Adolescent Gambling and Resiliency

Researcher: Fiona Rossen

I have read and understood the information for school principals regarding the study - 'Adolescent gambling and resiliency' which is being conducted by Fiona Rossen.

I understand that participation requires students to complete an anonymous questionnaire during school hours. I understand that all information provided by this school and its students will be anonymous, and that participation is completely voluntary - there is no penalty for not participating.

I agree that students attending this school may participate in this research during school hours.

Signed:

Name (please print clearly):

Name of School (please print clearly):

Date:

Approved by The University of Auckland Human Subjects Ethics Committee

on

10 July 2002 for a period of three years, from 10 July 2002 Reference 2002 / 121

B.3 BOARD OF TRUSTEES INFORMATION

ADOLESCENT GAMBLING AND RESILIENCY INFORMATION FOR SCHOOL BOARD OF TRUSTEES

My name is Fiona Rossen, and I am doing a PhD thesis in Applied Behavioural Science at the University of Auckland. I would like to invite your school and students to take part in a study about young people's gambling. The study aims to explore the relationships between gambling and students' relationships with important people in their life (family, friends etc).

Research indicates that the majority of adolescents engage in gambling activities in a safe and sustainable manner. However, a considerable proportion of youth (estimates range between 0.9% and 11.2%), experience substantial adverse effects of gambling. This research is important as it will advance our knowledge of adolescent gambling behaviour, and inform the development of effective preventative measures.

Your school has been randomly chosen for inclusion in this research, and I would like to provide an opportunity for your students to participate. Their participation would be voluntary and would involve the completion of an anonymous questionnaire. It is anticipated that participation would take approximately 30 minutes during school hours. The information gained from the questionnaire will be confidential to myself as a researcher, and my two supervisors, Dr Robyn Dixon and Dr Peter Adams. At no time will your school or your students be identified. Data will be used for my PhD and may be retained for future use, for example, in the production of publications. If you wish, a copy of the questionnaire will be provided for you.

We hope that this study will help us to understand and prevent gambling problems among young people. Thank you for your consideration. If you would like to know more about this study or would like to discuss the research at any time in the future, I can be contacted through the Centre for Gambling Studies on 09 368 1520.

The Head of Department, Dr. Peter Adams can be contacted at the Department of Applied Behavioural Science, University of Auckland, Private Bag 92019, Auckland, phone 3737 599, extn 86538. If you have any queries about ethical matters relating to this project, you may contact The Chair, Human Subjects Ethics Committee, Research Office, Office of the Vice Chancellor, University of Auckland, Private Bag 92019, Auckland, phone 3737 599 extn 87830.

Approved by The University of Auckland Human Subjects Ethics Committee

on

10 July 2002 for a period of three years, from 10 July 2002 Reference 2002 / 121

B.4 BOARD OF TRUSTEES CONSENT FORM

UNIVERSITY OF AUCKLAND

SCHOOL BOARD OF TRUSTEES CONSENT FOR PARTICIPATION IN RESEARCH

Project: Adolescent Gambling and Resiliency

Researcher: Fiona Rossen

I have read and understood the information for school board of trustees regarding the study - 'Adolescent gambling and resiliency' which is being conducted by Fiona Rossen.

I understand that participation requires students to complete an anonymous questionnaire during school hours. I understand that all information provided by this school and its students will be anonymous, and that participation is completely voluntary - there is no penalty for not participating.

I agree that students attending this school may participate in this research during school hours.

Signed:

Name (please print clearly):

Name of School (please print clearly):

Date:

Approved by The University of Auckland Human Subjects Ethics Committee

on

10 July 2002 for a period of three years, from 10 July 2002 Reference 2002 / 121

B.5 TEACHER INFORMATION

ADOLESCENT GAMBLING AND RESILIENCY

INFORMATION FOR SCHOOL TEACHERS

My name is Fiona Rossen, and I am doing a PhD thesis in Applied Behavioural Science at the University of Auckland. I would like to invite your class and students to take part in a study about young people's gambling. This study aims to explore the relationships between gambling and students' relationships with important people in their life (family, friends etc). The principal of your school has given permission for your class to participate.

Research indicates that the majority of adolescents engage in gambling activities in a safe and sustainable manner. However, a considerable proportion of youth (estimates range between 0.9% and 11.2%), experience substantial adverse effects of gambling. This research is important as it will advance our knowledge of adolescent gambling behaviour, and inform the development of effective preventative measures.

Your school and class have been randomly chosen for inclusion in this research, and I would like to provide an opportunity for your students to participate. Their participation would be voluntary and would involve the completion of an anonymous questionnaire – the class should be instructed that those students who do not wish to participate should continue individually with another class activity. It is anticipated that participation will take approximately 30-40 minutes, and I will be present to hand out and collect the questionnaires.

The information gained from the questionnaire will be confidential to myself as a researcher, and my two supervisors, Dr Robyn Dixon and Dr Peter Adams. At no time will your school, class or students be identified. Data will be used for my PhD and may be retained for future use, for example, in the production of publications. If you wish, a copy of the questionnaire will be provided for you. We hope that this study will help us to understand and prevent gambling problems among young people. Thank you for your consideration. If you would like to know more about this study or would like to discuss the research at any time in the future, I can be contacted through the Centre for Gambling Studies on 09 368 1520.

The Head of Department, Dr. Peter Adams can be contacted at the Department of Applied Behavioural Science, University of Auckland, Private Bag 92019, Auckland, phone 3737 8599, extn 6538. If you have any queries about ethical matters relating to this project, you may contact The Chair, Human Subjects Ethics Committee, Research Office, Office of the Vice Chancellor, University of Auckland, Private Bag 92019, Auckland, phone 3737 599 extn 87830.

Approved by The University of Auckland Human Subjects Ethics Committee

on

10 July 2002 for a period of three years, from 10 July 2002 Reference 2002 / 121

B.6 PARENT INFORMATION

ADOLESCENT GAMBLING AND RESILIENCY INFORMATION FOR PARENTS

My name is Fiona Rossen, and I am doing a PhD thesis in Applied Behavioural Science at the University of Auckland. I would like to invite your son/daughter to take part in a study about young people's gambling. The study aims to explore the relationships between gambling and students' relationships with important people in their life (family, friends, school teachers etc).

Your son/daughters school and class have been randomly selected. They are among a number of students taking part within the Central North Island. I would like your permission to invite your son/daughter to take part in this study. Participation will involve the completion of a questionnaire seeking information about: demographics, gambling involvement and exposure, internet and computer game involvement, general attitudes and beliefs regarding gambling, beliefs regarding the roles of skill and luck in gambling, relationships with family, peers, and school, and general life goals, happiness, and use of alcohol. The study will take approximately 30 minutes for them to complete and will be conducted during school hours. Your son/daughters class will be instructed that those students who do not wish to participate should continue individually with another class activity. Your son/daughter will only have to participate once.

All information provided by your son/daughter will be anonymous. On completion of the questionnaire, students will place their answers in a plain envelope and hand it to the researcher. Participation is completely voluntary. There is absolutely NO penalty for not taking part. It is entirely up to you and your son/daughter. This information will also be offered to all students before participation. Data will be used for my PhD and may be retained for future use, for example, in the production of publications

If your son/daughter is currently 15 years of age or less, and you agree to them taking part in the study, please sign the attached consent form and return it to school with your son/daughter.

We hope that this study will help us to understand and prevent gambling problems among young people. Thank you for your consideration. If you would like to know more about this study or would like to discuss the research at any time in the future, the researcher Fiona Rossen, can be contacted through the Centre for Gambling Studies on 09 368 1520.

The Head of Department, Dr. Peter Adams can be contacted at the Department of Applied Behavioural Science, University of Auckland, Private Bag 92019, Auckland, phone 3737 599, extn 86538. If you have any queries about ethical matters relating to this project, you may contact The Chair, Human Subjects Ethics Committee, Research Office, Office of the Vice Chancellor, University of Auckland, Private Bag 92019, Auckland, phone 3737 599 extn 87830.

Approved by The University of Auckland Human Subjects Ethics Committee

on

10 July 2002 for a period of three years, from 10 July 2002 Reference 2002 / 121

B.7 PARENTAL CONSENT FORM

UNIVERSITY OF AUCKLAND

PARENTAL CONSENT FOR PARTICIPATION IN RESEARCH

Project: Adolescent Gambling and Resiliency

Researcher: Fiona Rossen

I have read and understood the information for parents regarding the study - 'Adolescent gambling and resiliency' which is being conducted by Fiona Rossen.

I understand that participation would require the completion of an anonymous questionnaire during school hours, and that all information provided by my son/daughter would be anonymous. I also understand that participation is completely voluntary and that there is no penalty for not participating.

I agree to my son/daughter participating in this research.

I AGREE that who is under my guardianship may participate in this research.

Signed:

Name (please print clearly):

Date:

Approved by The University of Auckland Human Subjects Ethics Committee

on

10 July 2002 for a period of three years, from 10 July 2002 Reference 2002 / 121

B.8 PARTICIPANT INFORMATION

ADOLESCENT GAMBLING AND RESILIENCY

INFORMATION FOR PARTICIPANTS

My name is Fiona Rossen, and I am doing a PhD thesis in Applied Behavioural Science at the University of Auckland. I would like to invite you to take part in a study about young people's gambling.

Taking part involves completing a questionnaire that asks questions about your gambling, and your relationships with important people in your life (family, friends, school teachers etc). This will take one class period. The study will help us understand the connection between gambling behaviour, computer games, and young people's relationships with their friends, family, and community, and to understand and prevent gambling problems among people your age.

A number of schools are taking part in this research. By chance, your school and class have been selected to take part. Your answers are completely anonymous - there will be no information that could personally identify you. Information from the questionnaire will be used for my PhD and may be kept for future use, for example, in the production of publications. At the end of the study, information will be sent to the schools which took part. You can also contact the researcher to obtain a copy of the summary for yourself.

You do not have to take part in this research - it is entirely your choice. You can decide to not take part at any time - even after you have started to fill out the questionnaire. You do not have to give any reasons for your choice. There is no penalty for not taking part. If you do not wish to take part, just continue with another activity (e.g. some schoolwork) and then place the blank questionnaire in the envelope provided and return it to the researcher. If you do decide to take part, please complete the questionnaire, place it in the envelope and give it to the researcher.

Answering questions about gambling and relationships with people in your life can be a good experience. Sometimes, however it can bring up painful memories or feelings. This is quite normal. If you continue to find such thoughts painful, please contact your school counsellor, or you can talk to someone at the Youth Gambling Helpline, on 0800 654 659.

If you would like to know more about this study, you can call the researcher (Fiona Rossen) at the Centre for Gambling Studies on 09 368 1520.

The Head of Department, Dr. Peter Adams can be contacted at the Department of Applied Behavioural Science, University of Auckland, Private Bag 92019, Auckland, phone 3737 599, extn 86538. If you have any queries about ethical matters relating to this project, you may contact The Chair, Human Subjects Ethics Committee, Research Office, Office of the Vice Chancellor, University of Auckland, Private Bag 92019, Auckland, phone 3737 599 extn 87830.

Approved by The University of Auckland Human Subjects Ethics Committee

on

10 July 2002 for a period of three years, from 10 July 2002 Reference 2002 / 121

B.9 PARTICIPANT CONSENT FORM

UNIVERSITY OF AUCKLAND

PARTICIPANT CONSENT FOR PARTICIPATION IN RESEARCH

Project: Adolescent Gambling and Resiliency

Researcher: Fiona Rossen

I have been given and have understood an explanation of this research project - 'Adolescent gambling and resiliency'. I have had an opportunity to ask questions and have them answered.

I understand that participation requires the completion of a questionnaire during school hours. I understand that all information provided is anonymous and that participation is completely voluntary - there is NO penalty for not participating.

I agree to take part in this research.

Signed:

Name (please print clearly):

Date:

Approved by The University of Auckland Human Subjects Ethics Committee

on

10 July 2002 for a period of three years, from 10 July 2002 Reference 2002 / 121

B.10 PARTICIPANT ASSENT FORM

UNIVERSITY OF AUCKLAND

PARTICIPANT ASSENT FOR PARTICIPATION IN RESEARCH

Project: Adolescent Gambling and Resiliency

Researcher: Fiona Rossen

I have been given and have understood an explanation of this research project - 'Adolescent gambling and resiliency'. I have had an opportunity to ask questions and have them answered.

I understand that participation requires the completion of a questionnaire during school hours. I understand that all information provided is anonymous and that participation is completely voluntary - there is NO penalty for not participating.

I agree to take part in this research.

Signed:

Name (please print clearly):

Date:

Approved by The University of Auckland Human Subjects Ethics Committee

on

10 July 2002 for a period of three years, from 10 July 2002 Reference 2002 / 121

B.11 INITIAL LETTER TO SCHOOLS

Fiona Rossen
Centre for Gambling Studies
The University of Auckland
PO Box 26 533
Epsom
Auckland

Dear,

I am currently enrolled as a PhD student in the department of Applied Behavioural Science's Centre for Gambling Studies, at The University of Auckland. As part of my PhD, I am conducting research on the applicability of resiliency factors to adolescent gambling behaviour.

As I'm sure you're aware, gambling is becoming an increasingly important public health issue. Given the current lack of research in New Zealand regarding adolescent gambling and its effects, this piece of research is extremely important. Previous research has indicated that the majority of adolescents engage in gambling activities in a safe and sustainable manner. However, a considerable proportion of youth experience some form of adverse effect from gambling, with a substantial number (estimates range between 0.9% and 23.8%) being classifiable as problem or pathological gamblers.

As this particular research project aims to investigate the relationship between aspects of gambling behaviour (participation, exposure, attitudes, beliefs), and possible protective factors (feeling like a valued person, connectedness to society – particularly family, friends, school, and spirituality etc) I'm interested in all levels of gambling (ie. students who don't gamble will provide just as valuable data as those who do). I'm investigating these particular protective factors as they have been shown to be important in mediating other 'risky' behaviours such as alcohol and drug use in young people.

This research will greatly advance our knowledge of adolescent gambling behaviour (both in New Zealand and internationally), thus helping us to develop preventative measures against the development of gambling problems amongst young people.

I would greatly appreciate the opportunity to discuss this project with you and invite your school to participate (participation would entail the completion of a confidential and anonymous questionnaire by selected classes). I'll contact you soon to follow up on this letter, but please feel free to contact me anytime on (09) 368 1520 or f.rossen@auckland.ac.nz

Sincerely,

Fiona Rossen

CC:
Principal

Appendix C TABLES

C.1 LOGISTIC REGRESSION OF DEMOGRAPHIC VARIABLES BY GAMBLER STATUS: FINDINGS (N=1984)

Demographic Variable	Frequency % [§] (95%CI)		Odds ratio [†] (95% CI)	P value [†]
	Gambler	Non-gambler		
<i>Age</i>				
Early Adolescence	12.4 (10.6-14.2)	9.4 (7.3-11.6)	1.408 (.661-2.999)	
Mid Adolescence	45.5 (42.8-48.2)	50.4 (46.7-54.2)	.758 (.553-1.040)	.0083*
Late Adolescence	42.1 (39.4-44.8)	40.1 (36.4-43.8)	1	
<i>Gender</i>				
Male	44.4 (41.7-47.1)	49.2 (45.5-52.9)	.927 (.697-1.233)	
Female	55.6 (52.9-58.3)	50.8 (47.1-54.5)	1	.6029
<i>Ethnicity</i>				
Maori	12.8 (11-14.6)	7.3 (5.3-9.2)	1.421 (.945-2.138)	
Pacific Peoples	15.5 (13.5-17.4)	17 (14.2-19.8)	.724 (.478-1.098)	
Asian	19.5 (17.4-21.7)	32.8 (29.3-36.4)	.485 (.335-.702)	<.0001*
Other	2.2 (1.4-3)	3.3 (2-4.7)	.574 (.332-.993)	
NZ European / Pakeha	50 (47.3-52.8)	39.5 (35.9-43.2)	1	

* p<.05

Calculated from data which is: [§] un-weighted and un-adjusted for age, gender, ethnicity and school clustering effects; [†] weighted and adjusted for age, gender, ethnicity and school clustering effects

C.2 COMPARISON OF DSM-IV-MR-J SCORES ACCORDING TO SCORING CRITERIA (N=1171)

DSM-IV-MR-J Score	Correct Application of Scoring Criteria			Incorrect Application of Scoring Criteria		
	N	% of gamblers	Cum %: problem	N	% of gamblers	Cum %: problem
0	715	61.1		715	61.1	
1	225	19.2		204	17.4	
2	100	8.5		87	7.4	
3	60	5.1		52	4.4	
4	30	2.6	2.6	35	3.0	3.0
5	19	1.6	4.2	26	2.2	5.2
6	11	.9	5.1	18	1.5	6.7
7	6	.5	5.6	10	.9	7.6
8	5	.4	6.0	12	1.0	8.6
9				3	.3	8.9
10				6	.5	9.4
11				3	.3	9.7
TOTAL	1171	100		1171	100	
Mean Score		0.83			1.02	
SD		1.41			1.88	

NB: As the cut-off for problem gambling status is a score of 4 or more, cells shaded in grey count towards problem gambling rate.

C.3 LOGISTIC REGRESSION OF DEMOGRAPHIC VARIABLES BY PROBLEM GAMBLING STATUS: FINDINGS (N=1165)

Demographic Variable	Frequency % [§] (95%CI)		Odds ratio [†] (95% CI)	P value [†]
	Non-problem gambler	Problem gambler		
<i>Age</i>				
Early Adolescence	12.6 (10.6-14.5)	5.6 (.1-11.1)	.586 (.187-1.838)	
Mid Adolescence	42.7 (39.7-45.6)	56.3 (44.5-68.2)	1.053 (.630-1.759)	.6381
Late Adolescence	44.8 (41.8-47.7)	38 (26.5-49.6)	1	
<i>Gender</i>				
Male	42.8 (40-45.8)	59.2 (47.4-70.9)	2.496 (1.104-5.642)	.0279*
Female	57.1 (54.2-60)	40.8 (29.1-52.6)	1	
<i>Ethnicity</i>				
Maori	12 (10.1-13.9)	23.9 (13.8-34.1)	2.993 (.914-9.798)	
Pacific Peoples	12.3 (10.3-14.2)	28.2 (17.4-38.9)	11.448 (3.404-38.504)	
Asian	19.7 (17.3-22)	25.4 (15-35.7)	2.003 (.591-6.787)	<.0001*
Other	2.1 (1.2-2.9)	-	<.001 (<.001-<.001)	
NZ European / Pakeha	54 (51-57)	22.5 (12.6-32.5)	1	

* p<.05

Calculated from data which is: [§] un-weighted and un-adjusted for age, gender, ethnicity and school clustering effects; [†] weighted and adjusted school clustering effects

C.4 MODE OF GAMBLING AS A FUNCTION OF FREQUENCY OF PARTICIPATION FOR THOSE PARTICIPANTS CLASSIFIED AS GAMBLERS

Mode of Gambling	Frequency of Participation							
	Daily		Once a week or more		Less than once a week		Never	
	N	%	N	%	N	%	N	%
Bets on sports/skill games with friends (<i>N</i> =1281)	31	2.4	117	9.1	516	40.3	617	48.2
Card/Dice/Board games (<i>N</i> =1285)	25	1.9	61	4.7	502	38.4	697	53.3
Lotto (<i>N</i> =1278)	23	1.8	90	7.0	461	36.1	704	55.1
Instant Kiwi (<i>N</i> =1285)	21	1.6	116	9.0	696	54.2	452	35.2
TAB sports betting (<i>N</i> =1265)	16	1.3	24	1.9	143	11.3	1082	85.5
Internet gambling (<i>N</i> =1272)	16	1.3	30	2.4	66	5.2	1160	91.2
Other form of gambling (<i>N</i> =1101)	15	1.4	19	1.7	60	5.4	1007	91.5
Daily Keno (<i>N</i> =1266)	13	1.0	15	1.2	54	4.3	1184	93.5
TAB track betting (<i>N</i> =1277)	13	1.0	20	1.6	132	10.3	1112	87.1
Casino EGMS (<i>N</i> =1272)	12	0.9	12	0.9	92	7.2	1156	90.9
Non-casino EGMS (<i>N</i> =1276)	12	0.9	19	1.5	217	17.0	1028	80.6
Bingo (<i>N</i> =1274)	10	0.8	39	3.1	150	11.8	1075	84.4
0900 Phone games (<i>N</i> =1275)	10	0.8	21	1.6	69	5.4	1175	92.2
Casino tables (<i>N</i> =1264)	9	0.7	10	0.8	50	4.0	1195	94.5

C.5 LOGISTIC REGRESSION OF DEMOGRAPHIC VARIABLES BY PARTICIPATION IN INDIVIDUAL GAMBLING MODES: FINDINGS

Gambling Mode	Demographic Variable	Frequency % [§] (95%CI)		Odds ratio [†] (95% CI)	P value [‡]
		Have gambled on mode	Have not gambled on mode		
Card, dice, board games (N=1961)	<i>Age</i>				
		Early Adolescence	13.7 (10.9-16.4)	10.5 (8.9-12.1)	1.570 (.879-2.803)
		Mid Adolescence	48.6 (44.6-52.7)	46.3 (43.7-49)	1.080 (.787-1.481)
		Late Adolescence	37.7 (33.8-41.6)	43.2 (40.6-45.8)	1
	<i>Gender</i>				
		Male	50.3 (46.3-54.4)	44.3 (41.6-46.9)	1.252 (.960-1.632)
		Female	49.7 (45.6-53.7)	55.7 (53.1-58.4)	1
	<i>Ethnicity</i>				
		Maori	14.3 (11.4-17.1)	9.5 (7.9-11)	1.895 (1.103-3.254)
		Pacific Peoples	15.5 (12.5-18.4)	16.1 (14.1-18)	.816 (.492-1.354)
		Asian	23.5 (20-26.9)	24.4 (22-26.6)	.854 (.574-1.271)
		Other	2 (9-3.2)	2.7 (1.9-3.6)	.529 (.184-1.526)
		NZ European / Pakeha	44.7 (40.7-48.8)	47.4 (44.7-50)	1
Bingo (N=1949)	<i>Age</i>				
		Early Adolescence	16.7 (11.4-21.9)	10.7 (9.2-12.1)	1.241 (.780-1.972)
		Mid Adolescence	51 (44-58)	46.7 (44.3-49)	1.026 (.802-1.313)
		Late Adolescence	32.3 (25.8-38.9)	42.6 (40.3-45)	1
	<i>Gender</i>				
		Male	42.7 (35.8-49.6)	46.4 (44.1-48.7)	.641 (.358-1.148)
		Female	57.3 (50.4-64.2)	53.6 (51.3-55.9)	1
	<i>Ethnicity</i>				
		Maori	27.6 (21.4-33.9)	8.9 (7.5-10.2)	4.696 (2.684-8.217)
					<.0001*

	Pacific Peoples	25.6 (19.5-31.7)	14.7 (13.1-16.4)	4.070 (2.052-8.074)	
	Asian	13.6 (8.8-18.4)	25.4 (23.4-27.4)	.838 (.383-1.833)	
	Other	3.5 (.9-6.1)	2.5 (1.8-3.2)	2.443 (.769-7.767)	
	NZ European / Pakeha	29.6 (23.2-36)	48.5 (46.2-50.9)	1	
Lotto (N=1955)	<i>Age</i>				
	Early Adolescence	9.3 (6.9-11.6)	12.3 (10.6-14)	.566 (.366-.876)	
	Mid Adolescence	41.3 (37.2-45.3)	49.2 (46.5-51.8)	.536 (.391-.734)	.0004*
	Late Adolescence	49.5 (45.4-53.6)	38.5 (36-41.1)	1	
	<i>Gender</i>				
	Male	44.6 (40.5-48.7)	46.8 (44.2-49.4)	.893 (.750-1.063)	.2021
	Female	55.4 (51.3-59.5)	53.2 (50.6-55.8)	1	
	<i>Ethnicity</i>				
	Maori	12.9 (10.1-15.6)	9.8 (8.2-11.3)	1.065 (.780-1.456)	
	Pacific Peoples	11.5 (8.9-14.1)	17.6 (15.6-19.6)	.612 (.409-.915)	
	Asian	20 (16.8-23.3)	26 (23.7-28.3)	.630 (.447-.888)	.0001*
	Other	2.1 (.9-3.3)	2.8 (1.9-3.7)	.410 (.146-1.153)	
	NZ European / Pakeha	53.5 (49.4-57.6)	43.8 (41.2-46.4)	1	
Instant Kiwi (N=1962)	<i>Age</i>				
	Early Adolescence	13 (10.7-15.3)	10.3 (8.5-12)	1.503 (.781-2.894)	
	Mid Adolescence	43.3 (39.9-46.7)	49.8 (46.9-52.7)	.974 (.742-1.277)	.3298
	Late Adolescence	43.7 (40.3-47.1)	39.9 (37.1-42.8)	1	
	<i>Gender</i>				
	Male	39.4 (36.1-42.7)	51 (48.1-53.9)	.691 (.537-.889)	.0040*
	Female	60.6 (57.3-63.9)	49 (46.1-51.9)	1	
	<i>Ethnicity</i>				
	Maori	14.4 (12-16.8)	8.2 (6.6-9.8)	1.024 (.705-1.485)	<.0001*
	Pacific Peoples	10.9 (8.8-13)	19.4 (17.1-21.7)	.285 (.106-.768)	
	Asian	13.1 (10.8-15.4)	32.4 (29.7-35.1)	.255 (.164-.398)	
	Other	1.6 (.7-2.4)	3.3 (2.3-4.4)	.236 (.128-.435)	

	NZ European / Pakeha	60 (56.7-63.4)	36.7 (33.9-39.5)	1	
Keno (N=1944)	<i>Age</i>				
	Early Adolescence	14.6 (6.8-22.4)	11.2 (9.8-12.7)	1.051 (.626-1.764)	
	Mid Adolescence	54.9 (43.9-65.9)	47 (44.7-49.2)	1.151 (.630-2.101)	.8989
	Late Adolescence	30.5 (20.3-40.7)	41.8 (39.6-44.1)	1	
	<i>Gender</i>				
	Male	58.5 (47.6-69.4)	45.6 (43.3-47.8)	1.162 (.761-1.775)	.4961
	Female	41.5 (30.6-52.4)	54.4 (52.2-56.7)	1	
	<i>Ethnicity</i>				
	Maori	22 (12.8-31.1)	10.4 (9-11.8)	3.64 (1.133-11.701)	
	Pacific Peoples	26.8 (17-36.6)	15.3 (13.7-17)	3.876 (1.459-10.295)	
	Asian	19.5 (10.8-28.3)	24.5 (22.5-26.4)	1.965 (.752-5.133)	<.0001*
	Other	3.7 (0-7.8)	2.6 (1.8-3.3)	2.241 (.755-6.658)	
	NZ European / Pakeha	28 (18.1-38)	47.2 (45-49.5)	1	
Non-casino EGMs (N=1952)	<i>Age</i>				
	Early Adolescence	8.5 (5-12)	11.7 (10.2-13.3)	.632 (.266-1.500)	
	Mid Adolescence	42.3 (36.1-48.5)	47.8 (45.5-50.2)	.716 (.503-1.020)	.1791
	Late Adolescence	49.2 (42.9-55.5)	40.4 (38.1-42.7)	1	
	<i>Gender</i>				
	Male	48 (41.7-54.2)	45.7 (43.4-48.1)	1.54 (1.118-2.12)	.0082*
	Female	52 (45.8-58.3)	54.3 (51.9-56.6)	1	
	<i>Ethnicity</i>				
	Maori	19.8 (14.8-24.8)	9.4 (8-10.8)	2.465 (1.344-4.520)	
	Pacific Peoples	7.7 (4.3-11)	17.1 (15.3-18.9)	.397 (.149-1.057)	
	Asian	10.1 (6.3-13.9)	2.62 (24.2-28.3)	.291 (.182-.464)	<.0001*
	Other	1.6 (0-3.2)	2.7 (2-3.5)	.272 (.067-1.106)	
	NZ European / Pakeha	60.7 (54.6-66.9)	44.5 (42.2-46.9)	1	
Casino EGMs	<i>Age</i>				

(N=1949)	Early Adolescence	6 (1.6-10.4)	11.6 (10.2-13.1)	.300 (.126-.716)	
	Mid Adolescence	49.1 (39.9-58.4)	47 (44.7-49.3)	.654 (.385-1.111)	.0214*
	Late Adolescence	44.8 (35.6-54)	41.4 (39.1-43.6)	1	
	<i>Gender</i>				
	Male	57.8 (48.6-66.9)	45.4 (43.1-47.6)	2.266 (1.147-4.478)	.0186*
	Female	42.2 (33.1-51.4)	54.6 (52.4-56.9)	1	
	<i>Ethnicity</i>				
	Maori	24.1 (16.2-32)	9.9 (8.5-11.2)	4.709 (2.420-9.165)	
	Pacific Peoples	12.1 (6.1-18.1)	16.2 (14.5-17.9)	2.14 (.697-6.570)	
	Asian	19 (11.7-26.2)	24.6 (22.6-26.5)	1.203 (.468-3.093)	<.0001*
	Other	3.4 (.1-6.8)	2.6 (1.8-3.3)	.803 (.281-2.296)	
	NZ European / Pakeha	41.4 (32.3-50.5)	46.8 (44.5-49.1)	1	
Casino tables (N=1941)	<i>Age</i>				
	Early Adolescence	8.7 (1.9-15.5)	11.5 (10-12.9)	.412 (.192-.882)	
	Mid Adolescence	44.9 (32.9-57)	47.1 (44.8-49.3)	.774 (.396-1.513)	.0457*
	Late Adolescence	46.4 (34.3-58.4)	41.4 (39.2-43.7)	1	
	<i>Gender</i>				
	Male	58.8 (46.8-70.8)	45.6 (43.4-47.9)	3.029 (1.069-8.585)	.0370*
	Female	41.2 (29.2-53.2)	54.4 (52.1-56.6)	1	
	<i>Ethnicity</i>				
	Maori	19.1 (9.5-28.7)	10.5 (9.1-11.9)	5.045 (1.574-16.164)	
	Pacific Peoples	13.2 (5-21.5)	15.9 (14.3-17.6)	1.187 (.331-4.253)	
	Asian	13.2 (5-21.5)	24.6 (22.6-26.5)	.456 (.181-1.148)	.0003*
	Other	2.9 (0-7.1)	2.5 (1.8-3.2)	.708 (.331-1.515)	
	NZ European / Pakeha	51.5 (39.3-63.7)	46.5 (44.2-48.7)	1	
Bets with friends (N=1957)	<i>Age</i>				
	Early Adolescence	11.5 (9-13.9)	11.4 (9.6-13.1)	1.214 (.686-2.148)	.7973
	Mid Adolescence	47.7 (43.9-51.5)	46.8 (44.1-49.5)	1.054 (.795-1.395)	

	Late Adolescence	40.8 (37-44.5)	41.8 (39.1-44.5)	1	
<i>Gender</i>					
	Male	52.6 (48.8-56.4)	42.9 (40.2-45.6)	1.830 (1.255-2.668)	.0017*
	Female	47.4 (43.6-51.2)	57.1 (54.4-59.8)	1	
<i>Ethnicity</i>					
TAB sports betting (N=1942)	Maori	13 (10.4-15.5)	9.5 (7.9-11.1)	.850 (.264-2.740)	
	Pacific Peoples	15.1 (12.4-17.8)	16.3 (14.3-18.3)	.554 (.212-1.449)	
	Asian	19.9 (16.9-23)	26.5 (24.1-28.9)	.499 (.332-.751)	.0151*
	Other	2.7 (1.5-4)	2.5 (1.7-3.4)	.948 (.376-2.393)	
	NZ European / Pakeha	49.3 (45.5-53.1)	45.2 (42.5-47.9)	1	
<i>Age</i>					
	Early Adolescence	13.1 (8.2-18.1)	11.3 (9.8-12.7)	1.2 (.539-2.671)	
	Mid Adolescence	42.6 (35.4-49.9)	47.4 (45-49.7)	.665 (.392-1.129)	.0653
	Late Adolescence	44.3 (37-51.5)	41.4 (39.1-43.7)	1	
<i>Gender</i>					
	Male	66.1 (59.2-73)	44.1 (41.8-46.4)	3.575 (1.911-6.688)	<.0001*
	Female	33.9 (27-40.8)	55.9 (53.6-58.2)	1	
<i>Ethnicity</i>					
	Maori	14.3 (9.2-19.4)	10.2 (8.8-11.6)	.870 (.338-2.239)	
	Pacific Peoples	11.5 (6.9-16.2)	16.3 (14.6-18.1)	.361 (.116-1.120)	
	Asian	18.7 (13-24.4)	24.7 (22.7-26.7)	.654 (.266-1.609)	.0094*
	Other	1.6 (0-3.5)	2.7 (2-3.5)	.297 (.122-.722)	
	NZ European / Pakeha	53.8 (46.5-61.2)	46 (43.7-48.4)	1	
<i>Age</i>					
TAB track betting (N=1954)	Early Adolescence	13.9 (8.6-19.3)	11.1 (9.6-12.5)	1.438 (.594-3.486)	
	Mid Adolescence	50.3 (42.6-58)	46.9 (44.5-49.2)	1.005 (.590-1.713)	.5797
	Late Adolescence	35.8 (28.4-43.1)	42.1 (39.8-44.4)	1	
<i>Gender</i>					

		Male	52.1 (44.4-59.8)	45.5 (43.2-47.8)	1.642 (.974-2.768)	.0628
		Female	47.9 (40.2-55.6)	54.5 (52.2-56.8)	1	
<i>Ethnicity</i>						
		Maori	19.5 (13.4-25.6)	10 (8.6-11.4)	2.127 (.984-4.597)	
		Pacific Peoples	10.4 (5.7-15.1)	16.4 (14.7-18.2)	.414 (.151-1.134)	
		Asian	7.3 (3.3-11.3)	25.7 (23.6-27.7)	.249 (.094-.660)	<.0001*
		Other	1.8 (0-3.9)	2.7 (1.9-3.4)	.205 (.057-.735)	
		NZ European / Pakeha	61 (53.4-68.5)	45.2 (42.9-47.5)	1	
Internet (N=1949)	<i>Age</i>					
		Early Adolescence	8 (2.9-13.1)	11.4 (10-12.9)	1.368 (.543-3.450)	
		Mid Adolescence	61.6 (52.5-70.8)	46.3 (44-48.6)	1.556 (1.004-2.410)	.1411
		Late Adolescence	30.4 (21.7-39)	42.3 (40-44.5)	1	
<i>Gender</i>						
		Male	55.9 (46.5-65.2)	45.6 (43.3-47.8)	1.693 (.888-3.228)	.1100
		Female	44.1 (34.8-53.5)	54.4 (52.2-56.7)	1	
<i>Ethnicity</i>						
		Maori	16.2 (9.3-23.2)	10.3 (8.9-11.7)	2.312 (.987-5.416)	
		Pacific Peoples	16.2 (9.3-23.2)	16 (14.3-17.6)	1.474 (.598-3.635)	
		Asian	36.9 (27.8-46.1)	23.5 (21.6-25.4)	3.689 (1.888-7.206)	.0002*
		Other	3.6 (1.7-1)	2.5 (1.8-3.3)	1.260 (.377-4.216)	
		NZ European / Pakeha	27 (18.6-35.4)	47.7 (45.4-50)	1	
Other (N=1745)	<i>Age</i>					
		Early Adolescence	15.1 (7.6-22.5)	10.5 (9-12)	2.940 (1.031-8.379)	
		Mid Adolescence	54.8 (44.5-65.1)	46.6 (44.2-49)	1.268 (.779-2.065)	.1265
		Late Adolescence	30.1 (20.6-39.6)	42.9 (40.6-45.3)	1	
<i>Gender</i>						
		Male	63.8 (53.9-73.7)	45.7 (43.3-48.1)	2.623 (1.802-3.818)	<.0001*
		Female	36.2 (26.3-46.1)	54.3 (51.9-56.7)	1	

<i>Ethnicity</i>				
Maori	17.2 (9.4-25)	9.8 (8.4-11.3)	1.528 (.642-3.635)	
Pacific Peoples	18.3 (10.3-26.3)	15.7 (13.9-17.4)	1.499 (.514-4.376)	
Asian	23.7 (14.9-32.5)	25 (22.9-27.1)	1.370 (.697-2.692)	.5960
Other	4.3 (.1-8.5)	2.5 (1.8-3.3)	1.156 (.362-3.693)	
NZ European / Pakeha	36.6 (26.6-46.5)	47 (44.6-49.4)	1	
0900 phone games (N=1952)				
<i>Age</i>				
Early Adolescence	18 (10.3-25.7)	11 (9.5-12.4)	5.118 (1.878-13.946)	
Mid Adolescence	59 (49.2-68.8)	46.5 (44.2-48.7)	2.823 (1.372-5.808)	.0052*
Late Adolescence	23 (14.6-31.4)	42.6 (40.3-44.8)	1	
<i>Gender</i>				
Male	52 (42-62.1)	45.7 (43.4-48)	1.277 (.818-1.994)	.2828
Female	48 (37.9-58)	54.3 (52-56.6)	1	
<i>Ethnicity</i>				
Maori	18.2 (10.5-25.9)	10.3 (8.9-11.7)	1.361 (.753-2.459)	
Pacific Peoples	18.2 (10.5-25.9)	15.8 (14.2-17.5)	1.240 (.512-3.002)	
Asian	20.2 (12.2-28.3)	24.4 (22.5-26.4)	.819 (.556-1.208)	.0087*
Other	4 (.1-8)	2.5 (1.8-3.2)	1.394 (.412-4.719)	
NZ European / Pakeha	39.4 (29.6-49.2)	46.9 (44.6-49.2)	1	

* p<.05

Calculated from data which is: § un-weighted and un-adjusted for age, gender, ethnicity and school clustering effects; † weighted and adjusted for age, gender, ethnicity and school clustering effects.

C.6 LOGISTIC REGRESSION OF PROBLEM GAMBLING STATUS BY INDIVIDUAL MODES OF GAMBLING: FINDINGS

Mode of Gambling	Frequency % [§] (95%CI)		Odds ratio [†] (95% CI)	P value [†]
	Non-problem	Problem		
<i>Card, dice, board games (N=1145)</i>				
Have not gambled on mode	54.6 (51.7-57.6)	31.4 (20.3-42.6)	.214 (.082-.560)	.0017*
Have gambled on mode	45.4 (42.4-48.3)	68.6 (57.4-79.7)	1	
<i>Bingo (N=1134)</i>				
Have not gambled on mode	85.8 (83.7-87.9)	57.4 (45.3-69.4)	.233 (.101-.536)	.0006*
Have gambled on mode	14.2 (12.1-16.3)	42.6 (30.6-54.7)	1	
<i>Lotto (N=1941)</i>				
Have not gambled on mode	54.1 (51.2-57.1)	40.6 (28.7-52.5)	.562 (.217-1.456)	.2352
Have gambled on mode	45.9 (42.9-48.8)	59.4 (47.5-71.3)	1	
<i>Instant Kiwi (N=1145)</i>				
Have not gambled on mode	31.4 (28.6-34.2)	44.3 (32.4-56.2)	1.407 (.759-2.609)	.2784
Have gambled on mode	68.6 (65.8-71.4)	55.7 (43.8-67.6)	1	
<i>Keno (N=1125)</i>				
Have not gambled on mode	94.7 (93.4-96.1)	77.6 (67.4-87.9)	.422 (.147-1.208)	.1078
Have gambled on mode	5.3 (3.9-6.6)	22.4 (12.1-32.6)	1	
<i>Non-casino EGMS (N=1135)</i>				
Have not gambled on mode	80.4 (78-82.8)	61.8 (49.9-73.6)	.240 (.106-.543)	.0006*
Have gambled on mode	19.6 (17.2-22)	38.2 (26.4-50.1)	1	
<i>Casino EGMS (N=1132)</i>				
Have not gambled on mode	92 (90.4-93.7)	63.2 (51.5-75)	.181 (.050-.652)	.0089*
Have gambled on mode	8 (6.3-9.6)	36.8 (25-48.5)	1	
<i>Casino Tables (N=1127)</i>				
Have not gambled on mode	95.6 (94.4-96.8)	74.6 (63.9-85.3)	.085 (.022-.331)	.0004*
Have gambled on mode	4.4 (3.2-5.6)	25.4 (14.7-36.1)	1	

<i>Bets with friends</i> (N=1140)				
Have not gambled on mode	47.4 (44.4-50.4)	30.4 (19.3-41.6)	.561 (.296-1.066)	.0774
Have gambled on mode	52.6 (49.6-55.6)	69.6 (58.4-80.7)	1	
<i>TAB sports betting</i> (N=1125)				
Have not gambled on mode	86.3 (84.2-88.4)	64.6 (52.7-76.6)	.236 (.118-.472)	<.0001*
Have gambled on mode	13.7 (11.6-15.8)	35.4 (23.4-47.3)	1	
<i>TAB track betting</i> (N=1936)				
Have not gambled on mode	88.2 (86.2-90.1)	63.8 (52.1-75.4)	.218 (.089-.534)	.0009*
Have gambled on mode	11.8 (9.9-13.8)	36.2 (24.6-47.9)	1	
<i>Internet</i> (N=1130)				
Have not gambled on mode	92.6 (91-94.2)	68.7 (57.3-80.1)	.223 (.102-.490)	.0002*
Have gambled on mode	7.4 (5.8-9)	31.3 (19.9-42.7)	1	
<i>Other</i> (N=978)				
Have not gambled on mode	92.2 (90.4-93.9)	79 (68.6-89.5)	.316 (.116-.860)	.0241*
Have gambled on mode	7.8 (6.1-9.6)	21 (10.5-31.4)	1	
<i>0900 Phone games</i> (N=1134)				
Have not gambled on mode	93.2 (91.7-94.7)	74.2 (63.4-85.1)	.209 (.067-.651)	.0069*
Have gambled on mode	6.8 (5.3-8.3)	25.8 (14.9-36.6)	1	

* p<.05

Calculated from data which is: § un-weighted and un-adjusted for age, gender, ethnicity and school clustering effects; † weighted and adjusted school clustering effects

C.7 LOGISTIC REGRESSION OF INITIAL AGE OF GAMBLING BY PROBLEM GAMBLING STATUS: FINDINGS (N=1165)

Initial age of Gambling	Frequency % [§] (95%CI)		Odds ratio [†] (95% CI)	P value [†]
	Non-problem	Problem		
Aged 10 or less	42.3 (39.3-45.2)	59.2 (47.4-70.9)	2.378 (.979-5.778)	.0558*
Aged 11 or more	57.7 (54.8-60.7)	40.8 (29.1-52.6)	1	

* p<.05

Calculated from data which is: § un-weighted and un-adjusted for age, gender, ethnicity and school clustering effects; † weighted and adjusted school clustering effects

C.8 MONETARY EXPENDITURE ON GAMBLING ACTIVITIES FOR THOSE PARTICIPANTS CLASSIFIED AS GAMBLERS

Monetary Expenditure	<i>Money spent on gambling during week prior to survey (N=1154)</i>		<i>Money spent on gambling in an average week (N=1153)</i>	
	N	%	N	%
\$1 or less	679	58.8	555	48.1
\$2 - \$25	395	34.2	438	38
\$25 - \$50	36	3.1	81	7
\$50 - \$75	18	1.6	28	2.4
\$75 - \$100	9	0.8	19	1.6
\$100 - \$150	5	0.4	14	1.2
More than \$150	12	1.1	18	1.6

C.9 LOGISTIC REGRESSION OF DEMOGRAPHIC VARIABLES BY MONETARY EXPENDITURE IN *WEEK PRIOR TO SURVEY*: FINDINGS (*N*=1148)

Demographic Variable	Frequency % [§] (95%CI)		Odds ratio [†] (95% CI)	P value [†]
	Spent \$25 or more in previous week	Spent less than \$25 in previous week		
<i>Age</i>				
Early Adolescence	3.8 (0-8.1)	12.7 (10.7-14.7)	.176 (.032-.963)	
Mid Adolescence	51.9 (40.6-63.2)	42.4 (39.5-45.4)	.578 (.235-1.423)	.0716
Late Adolescence	44.3 (33.1-55.5)	44.9 (41.9-47.9)	1	
<i>Gender</i>				
Male	60 (49-71)	42.4 (39.5-45.4)	4.093 (1.669-10.039)	.0021*
Female	40 (29-51)	57.6 (54.6-60.5)	1	
<i>Ethnicity</i>				
Maori	25 (15.3-34.7)	11.5 (9.6-13.4)	10.095 (4.612-22.095)	
Pacific Peoples	17.5 (9-26)	12.2 (10.2-14.2)	3.731 (.770-18.072)	
Asian	31.3 (20.9-41.6)	19.1 (16.7-21.5)	6.349 (2.736-14.735)	<.0001*
Other	2.5 (0-6)	2 (1.1-2.8)	1.773 (.450-6.986)	
NZ European / Pakeha	23.8 (14.2-33.3)	55.3 (52.3-58.2)	1	

* p<.05

Calculated from data which is: [§] un-weighted and un-adjusted for age, gender, ethnicity and school clustering effects; [†] weighted and adjusted for age, gender, ethnicity and school clustering effects

C.10 LOGISTIC REGRESSION OF DEMOGRAPHIC VARIABLES BY MONETARY EXPENDITURE IN AN *AVERAGE WEEK*: FINDINGS (*N*=1308)

Demographic Variable	Frequency % [§] (95%CI)		Odds ratio [†] (95% CI)	P value [†]
	Spent \$25 or more in average week	Spent less than \$25 in average week		
<i>Age</i>				
Early Adolescence	8.8 (4.3-13.2)	12.3 (10.3-14.4))	.794 (.479-1.318)	
Mid Adolescence	50 (42.2-57.8)	42.1 (39-45.2)	.957 (.660-1.387)	.6224
Late Adolescence	41.3 (33.5-49)	45.6 (42.5-48.7)	1	
<i>Gender</i>				
Male	52.8 (45-60.7)	42 (39-45.1)	1.795 (1.106-2.913)	.0179*
Female	47.2 (39.3-55)	58 (54.9-61)	1	
<i>Ethnicity</i>				
Maori	25.6 (18.8-32.5)	10.6 (8.7-12.5)	2.802 (1.578-4.976)	
Pacific Peoples	14.4 (8.9-19.9)	11.9 (9.9-13.9)	1.213 (.350-4.196)	
Asian	26.9 (19.9-33.8)	19.2 (16.7-21.6)	2.099 (1.253-3.516)	<.0001*
Other	2.5 (1-4.9)	1.9 (1.1-2.8)	1.396 (.465-4.188)	
NZ European / Pakeha	30.6 (23.4-37.8)	56.5 (53.4-59.5)	1	

* p<.05

Calculated from data which is: [§] un-weighted and un-adjusted for age, gender, ethnicity and school clustering effects; [†] weighted and adjusted for age, gender, ethnicity and school clustering effects

C.11 LOGISTIC REGRESSION OF PROBLEM GAMBLING STATUS BY MONETARY EXPENDITURE ON GAMBLING: FINDINGS

Timeframe	Monetary Expenditure	Frequency % [§] (95%CI)		Odds ratio [†] (95% CI)	P value [†]
		Non-problem gambler	Problem gambler		
<i>Previous Week</i> <i>(N=1141)</i>	Spent less than \$25	95.2 (93.9-96.5)	58.8 (46.8-70.8)	.127 (.032-.510)	.0036*
	Spent \$25 or more	4.8 (3.5-6.1)	41.2 (29.2-53.2)	1	
<i>Average Week</i> <i>(N=1143)</i>	Spent \$25 or more	88.4 (86.5-90.3)	50.7 (38.6-62.8)	.186 (.103-.336)	<.0001*
	Spent less than \$25	11.6 (9.7-13.5)	49.3 (37.2-61.4)	1	

* p<.05

Calculated from data which is: [§] un-weighted and un-adjusted for age, gender, ethnicity and school clustering effects; [†] weighted and adjusted for age, gender, ethnicity and school clustering effects.

C.12 TIME SPENT ON GAMBLING ACTIVITIES FOR THOSE PARTICIPANTS CLASSIFIED AS GAMBLERS

	<i>Hours spent gambling on an average week day (N=1165)</i>		<i>Hours spent gambling on an average weekend day (N=1163)</i>	
	<i>N</i>	<i>%</i>	<i>N</i>	<i>%</i>
None	872	74.8	667	57.4
Less than 1 hour per day	233	20.0	414	35.6
1 - 3 hours per day	33	2.8	53	4.6
3 - 6 hours per day	13	1.1	10	0.9
6 - 9 hours per day	6	0.5	11	0.9
9 or more hours per day	8	0.7	8	0.7

C.13 LOGISTIC REGRESSION OF DEMOGRAPHIC VARIABLES BY TEMPORAL EXPENDITURE (AVERAGE WEEK DAY): FINDINGS ($N=1159$)

Demographic Variable	Frequency % [§] (95%CI)		Odds ratio [†] (95% CI)	P value [†]
	Spent less than 1 hour	Spent 1 or more hours		
<i>Age</i>				
Early Adolescence	12.2 (10.3-14.2)	6.8 (2.13-4)	.612 (.185-2.024)	
Mid Adolescence	42.5 (39.6-45.4)	57.6 (44.6-70.6)	1.631 (.945-2.814)	.0004*
Late Adolescence	45.2 (42.3-48.2)	35.6 (23-48.2)	1	
<i>Gender</i>				
Male	42.8 (39.9-45.7)	61.7 (49-74.3)	3.035 (1.422-6.480)	
Female	57.2 (54.3-60.1)	38.3 (25.7-51)	1	.0041*
<i>Ethnicity</i>				
Maori	12 (10-13.9)	23.3 (12.3-34.4)	2.195 (.800-6.019)	
Pacific Peoples	12.5 (10.5-14.5)	21.7 (10.9-32.4)	3.203 (1.181-8.686)	
Asian	19.7 (17.3-22)	23.3 (12.3-34.4)	3.162 (1.325-7.547)	.0035*
Other	1.9 (1.1-2.7)	3.3 (0-8)	2.458 (.782-7.724)	
NZ European / Pakeha	54 (51-56.9)	28.3 (16.6-40.1)	1	

* p<.05

Calculated from data which is: [§] un-weighted and un-adjusted for age, gender, ethnicity and school clustering effects; [†] weighted and adjusted for age, gender, ethnicity and school clustering effects

C.14 LOGISTIC REGRESSION OF DEMOGRAPHIC VARIABLES BY TEMPORAL EXPENDITURE (AVERAGE WEEKEND DAY): FINDINGS (N=1157)

Demographic Variable	Frequency % [§] (95%CI)		Odds ratio [†] (95% CI)	P value [†]
	Spent less than 1 hour	Spent 1 or more hours		
<i>Age</i>				
Early Adolescence	12.3 10.4-14.3	7.4 1.6-13.2	.865 (.257-2.913)	
Mid Adolescence	42.8 39.9-45.8	51.9 40.7-63	1.024 (.519-2.018)	.9316
Late Adolescence	44.9 41.9-47.8	40.7 29.8-51.7	1	
<i>Gender</i>				
Male	42.5 39.6-45.5	61 50.2-71.8	2.995 (1.739-5.157)	<.0001*
Female	57.5 54.5-60.4	39 28.2-49.8	1	
<i>Ethnicity</i>				
Maori	12.2 10.3-14.2	17.1 8.8-25.4	1.375 (.499-3.786)	
Pacific Peoples	12.6 10.6-14.6	15.9 7.8-23.9	1.458 (.685-3.106)	
Asian	19.3 16.9-21.6	29.3 19.2-39.3	2.733 (1.213-6.161)	.0094*
Other	1.9 1-2.7	3.7 0-7.8	1.759 (.354-8.741)	
NZ European / Pakeha	54.1 51.1-57.1	34.1 23.7-44.6	1	

* p<.05

Calculated from data which is: [§] un-weighted and un-adjusted for age, gender, ethnicity and school clustering effects; [†] weighted and adjusted for age, gender, ethnicity and school clustering effects

C.15 LOGISTIC REGRESSION OF PROBLEM GAMBLING STATUS BY TEMPORAL EXPENDITURE ON GAMBLING: FINDINGS

Timeframe	Temporal Expenditure	Frequency % [§] (95%CI)		Odds ratio [†] (95% CI)	P value [†]
		Non-problem gambler	Problem gambler		
<i>Average Weekday (N=1153)</i>	<i>Less than 1 hour</i>	96.9 (95.8-97.9)	63.8 (52.1-75.4)	.083 (.041-.170)	<.0001*
	<i>1 hour or more</i>	3.1 (2.1-4.2)	36.2 (24.6-47.9)	1	
<i>Average Weekend Day (N=1151)</i>	<i>Less than 1 hour</i>	94.9 (93.5-96.2)	63.8 (52.1-75.4)	.090 (.028-.286)	<.0001*
	<i>1 hour or more</i>	5.1 (3.8-6.5)	36.2 (24.6-47.9)	1	

* p<.05

Calculated from data which is: [§] un-weighted and un-adjusted for age, gender, ethnicity and school clustering effects; [†] weighted and adjusted for age, gender, ethnicity and school clustering effects.

C.16 LOCATION OF PARTICIPATION IN GAMBLING FOR THOSE PARTICIPANTS CLASSIFIED AS GAMBLERS

<i>Location of Gambling</i>	<i>Yes</i>		<i>No</i>	
	<i>N</i>	<i>%</i>	<i>N</i>	<i>%</i>
Home (<i>N</i> =1164)	665	57.1	499	42.9
Lotto Outlet (<i>N</i> =1164)	487	41.8	677	58.2
Friends Home (<i>N</i> =1164)	333	28.6	831	71.4
School (<i>N</i> =1163)	256	22.0	907	78.0
Bar or Club (<i>N</i> =1164)	121	10.4	1043	89.6
Other Location (<i>N</i> =1162)	95	8.2	1067	91.8
TAB (<i>N</i> =1164)	81	7.0	1083	93.0
Place of Employment (<i>N</i> =1163)	60	5.2	1103	94.8
Bingo Hall (<i>N</i> =1164)	46	4.0	1118	96.0
Bowling Alley (<i>N</i> =1164)	37	3.2	1127	96.8
Casino (<i>N</i> =1164)	23	2.0	1141	98.0

C.17 LOGISTIC REGRESSION OF DEMOGRAPHIC VARIABLES BY LOCATION OF GAMBLING – GAMBLERS ONLY: FINDINGS

Location	Demographic Variable	Frequency % [§] (95%CI)		Odds ratio [†] (95% CI)	P value [‡]
		Cited location	Did not cite location		
Home (N=1158)	<i>Age</i>				
		Early Adolescence	13.3 (10.7-15.9)	10.2 (7.6-12.9)	2.029 (1.111-4.392)
		Mid Adolescence	47.5 (43.7-51.3)	38 (33.7-42.2)	1.860 (1.433-2.413)
		Late Adolescence	39.2 (35.5-42.9)	51.8 (47.4-56.2)	1
	<i>Gender</i>				
		Male	44.9 (41.2-48.7)	42.1 (37.7-46.4)	1.176 (.839-1.648)
		Female	55.1 (51.3-58.8)	57.9 (53.6-62.3)	1 (.3477)
	<i>Ethnicity</i>				
		Maori	14.3 (11.6-17)	10.4 (7.7-13.1)	1.520 (.904-2.556)
		Pacific Peoples	13.2 (10.7-15.8)	12.4 (9.5-16.4)	1.096 (.445-2.702)
		Asian	19.4 (16.4-22.4)	20.5 (16.9-24)	.865 (.450-1.662)
		Other	1.7 (.7-2.6)	2.4 (1.1-3.8)	.467 (.186-1.172)
		NZ European / Pakeha	51.4 (47.6-55.2)	54.2 (49.8-58.6)	1
A friend's home (N=1158)	<i>Age</i>				
		Early Adolescence	10.9 (7.5-14.2)	12.4 (10.2-14.7)	.993 (.648-1.522)
		Mid Adolescence	46.2 (40.8-51.6)	42.3 (38.9-45.7)	1.234 (.817-1.862)
		Late Adolescence	42.9 (37.5-48.3)	45.3 (41.9-48.7)	1
	<i>Gender</i>				
		Male	50.9 (45.5-56.3)	40.8 (37.5-44.2)	1.769 (1.138-2.748)
		Female	49.1 (43.7-54.5)	59.2 (55.8-62.5)	1 (.0112*)
	<i>Ethnicity</i>				
		Maori	15.3 (11.4-19.2)	11.6 (9.4-13.7)	1.267 (.448-3.582)
					.2481

	Pacific Peoples	11.7 (8.2-15.2)	13.4 (11.1-15.7)	.644 (.247-1.679)	
	Asian	20.4 (16.1-24.8)	19.6 (16.9-22.3)	.832 (.537-1.290)	
	Other	1.8 (.4-3.2)	2 (1.1-3)	.988 (.284-3.441)	
	NZ European / Pakeha	50.8 (45.4-56.1)	53.4 (50-56.8)	1	
School (N=1157)	<i>Age</i>				
	Early Adolescence	12.9 (8.8-17)	11.7 (9.6-13.8)	1.612 (.801-3.243)	
	Mid Adolescence	48.8 (42.7-55)	41.8 (38.6-45)	1.380 (.809-2.356)	.4020
	Late Adolescence	38.3 (32.3-44.3)	46.5 (43.2-49.7)	1	
	<i>Gender</i>				
	Male	60.6 (54.6-66.7)	39 (35.8-42.2)	2.776 (1.862-4.137)	<.0001*
	Female	39.4 (33.3-45.4)	61 (57.8-64.2)	1	
	<i>Ethnicity</i>				
	Maori	15.3 (10.8-19.7)	11.9 (9.8-14)	1.863 (.806-4.308)	
	Pacific Peoples	21.6 (16.5-26.7)	10.5 (8.5-12.5)	2.304 (.788-6.737)	
	Asian	18.4 (13.6-23.2)	20.2 (17.6-22.8)	1.074 (.557-2.072)	.5351
	Other	2 (.2-3.7)	2 (1.1-2.9)	.692 (.179-2.677)	
	NZ European / Pakeha	42.7 (36.6-48.9)	55.5 (52.2-58.7)	1	
Lotto Shop (N=1158)	<i>Age</i>				
	Early Adolescence	10.7 (7.9-13.5)	12.9 (10.4-15.4)	.6 (.349-1.032)	
	Mid Adolescence	36.8 (32.5-41.1)	48.1 (44.4-51.9)	.605 (.475-.771)	.0002*
	Late Adolescence	52.5 (48-56.9)	39 (35.3-42.7)	1	
	<i>Gender</i>				
	Male	38.5 (34.1-42.8)	47.5 (43.7-51.3)	.741 (.509-1.078)	.1173
	Female	61.5 (57.2-65.9)	52.5 (48.7-56.3)	1	
	<i>Ethnicity</i>				
	Maori	12.9 (9.9-15.9)	12.4 (9.9-14.9)	1.017 (.637-1.625)	<.0001*
	Pacific Peoples	7.2 (4.9-9.5)	17 (14.2-19.9)	.440 (.266-.729)	
	Asian	15.4 (12.2-18.6)	23.1 (19.9-26.3)	.469 (.260-.844)	

Other	1.8 (.6-3)	2.1 (1-3.1)	.439 (.137-1.414)	
NZ European / Pakeha	62.6 (58.3-66.9)	45.4 (41.7-49.2)	1	
<i>Bar/Club (N=1158)</i>				
<i>Age</i>				
Early Adolescence	7.4 (2.7-12.2)	12.5 (10.5-14.5)	.393 (.153-1.007)	
Mid Adolescence	31.4 (23-39.8)	44.8 (41.8-47.8)	.399 (.253-.630)	<.0001*
Late Adolescence	61.2 (52.3-70)	42.7 (39.7-45.7)	1	
<i>Gender</i>				
Male	43 (34-51.9)	43.8 (40.8-46.8)	1.531 (.766-3.061)	.2284
Female	57 (48.1-66)	56.2 (53.2-59.2)	1	
<i>Ethnicity</i>				
Maori	19.8 (12.6-27)	11.8 (9.8-13.8)	1.650 (1.057-2.577)	
Pacific Peoples	8.3 (3.3-13.2)	13.4 (11.4-15.5)	1.434 (.665-3.091)	
Asian	7.4 (2.7-12.2)	21.3 (18.8-23.8)	.353 (.185-.674)	<.0001*
Other	.8 (0-2.5)	2.1 (1.2-3)	.165 (.032-.863)	
NZ European / Pakeha	63.6 (54.9-72.3)	51.3 (48.3-54.4)	1	

* p<.05

Calculated from data which is: § un-weighted and un-adjusted for age, gender, ethnicity and school clustering effects; † weighted and adjusted for age, gender, ethnicity and school clustering effects

C.18 LOGISTIC REGRESSION OF GAMBLING ACTIVITY LOCATION BY PROBLEM GAMBLING STATUS: FINDINGS

Location of gambling	Frequency [§]		Odds ratio ^F (95% CI)	P value ^F
	Non-problem Gambler	Problem Gambler		
Home (N=1153)				
Yes	57 (54-59.9)	60.9 (49.1-72.7)	.855 (.483-1.514)	.5918
No	43 (40.1-46)	39.1 (27.3-50.9)	1	
Lotto Outlet (N=1153)				
Yes	42.1 (39.2-45)	37.7 (26-49.4)	.791 (.287-2.175)	.6489
No	57.9 (55-60.8)	62.3 (50.6-74)	1	
A friend's home (N=1153)				
Yes	27.4 (24.8-30.1)	47.8 (35.7-59.9)	2.268 (1.334-3.855)	.0025*
No	72.6 (69.9-75.2)	52.2 (40.1-64.3)	1	
School (N=1152)				
Yes	20.2 (17.8-22.6)	50.7 (38.6-62.8)	2.778 (1.375-5.612)	.0044*
No	79.8 (77.4-82.2)	49.3 (37.2-61.4)	1	
Bar/Club (N=1153)				
Yes	9.4 (7.6-11.1)	27.5 (16.7-38.3)	3.116 (1.104-8.797)	.0318*
No	90.6 (88.9-92.4)	72.4 (61.7-83.3)	1	

* p<.05

Calculated from data which is: [§] un-weighted and un-adjusted for age, gender, ethnicity and school clustering effects; ^F weighted and adjusted for age, gender, ethnicity and school clustering effects

C.19 MOTIVATING FACTORS FOR PARTICIPATION IN GAMBLING – GAMBLERS ONLY

Motivation for Gambling	Cited Motivation			
	Yes N	Yes %	No N	No %
For enjoyment (<i>N=1170</i>)	711	60.8	459	39.2
To win money (<i>N=1168</i>)	678	58.0	490	42.0
For excitement (<i>N=1170</i>)	394	33.7	776	66.3
To relieve boredom (<i>N=1170</i>)	315	26.9	855	73.1
For a challenge (<i>N=1170</i>)	275	23.5	895	76.5
Other (<i>N=1170</i>)	108	9.2	81.2	90.8
To be with parents or family members (<i>N=1170</i>)	102	8.7	1068	91.3
To be with or make new friends (<i>N=1170</i>)	71	6.1	1099	93.9
To relax (<i>N=1170</i>)	53	4.5	1117	95.5
To feel older (<i>N=1169</i>)	34	2.9	1135	97.1
To escape problems at home or school (<i>N=1170</i>)	31	2.6	1139	97.4
To relieve loneliness (<i>N=1170</i>)	24	2.1	1146	97.9
Because of unhappiness (<i>N=1170</i>)	20	1.7	1150	98.3

C.20 LOGISTIC REGRESSION OF DEMOGRAPHIC VARIABLES BY MOTIVATION FOR PARTICIPATION IN GAMBLING – GAMBLERS ONLY: FINDINGS

Motivation	Demographic Variable	Frequency % [§] (95%CI)		Odds ratio [†] (95% CI)	P value [‡]
		Cited motivation	Did not cite motivation		
For enjoyment (N=1164)	<i>Age</i>				
	Early Adolescence	10.3 (8-12.5)	15.1 (11.8-18.4)	.764 (.494-1.183)	
	Mid Adolescence	44.9 (41.3-48.6)	41.4 (36.8-45.9)	1.091 (.790-1.507)	.1357
	Late Adolescence	44.8 (41.1-48.5)	43.5 (39-48.1)	1	
	<i>Gender</i>				
	Male	45.3 (41.6-48.9)	41.6 (37.1-46.1)	1.577 (1.073-2.319)	.0205*
	Female	54.7 (51.1-58.4)	58.4 (53.9-62.9)	1	
	<i>Ethnicity</i>				
	Maori	12.5 (10.1-15)	13.3 (10.2-16.4)	1.083 (.823-1.423)	
	Pacific Peoples	11.4 (9.1-13.8)	15.7 (12.3-19)	.759 (.462-1.247)	
To win money (N=1162)	<i>Age</i>				
	Early Adolescence	10.9 (8.6-13.3)	13.9 (10.9-17)	.789 (.545-1.141)	
	Mid Adolescence	42.4 (38.7-46.1)	45.1 (40.7-49.5)	.911 (.717-1.156)	.4526
	Late Adolescence	46.7 (42.9-50.4)	41 (36.6-45.4)	1	
	<i>Gender</i>				
	Male	40.3 (36.6-44)	48.7 (44.2-53.1)	.679 (.371-1.242)	.2090
	Female	59.7 (56-63.4)	51.3 (46.9-55.8)	1	
	<i>Ethnicity</i>				
	Maori	14 (11.4-16.6)	11.2 (8.4-14.1)	.617 (.295-1.292)	.0004*

	Pacific Peoples	10.3 (8-12.6)	16.8 (13.4-20.1)	.504 (.301-.845)	
	Asian	15.9 (13.2-18.7)	25.8 (21.9-29.7)	.382 (.231-.631)	
	Other	1.3 (.5-2.2)	2.9 (1.4-4.3)	.198 (.052-.753)	
	NZ European / Pakeha	58.4 (54.7-62.1)	43.4 (38.9-47.8)	1	
For excitement (N=1164)	<i>Age</i>				
	Early Adolescence	12.7 (9.4-16)	11.9 (9.6-14.2)	1.263 (.738-2.164)	
	Mid Adolescence	42.5 (37.6-47.4)	44.1 (40.6-47.6)	1.118 (.669-1.868)	.6646
	Late Adolescence	44.8 (39.8-49.7)	44.1 (40.6-47.6)	1	
	<i>Gender</i>				
	Male	42 (37.1-46.9)	44.8 (41.3-48.3)	.983 (.505-1.913)	.9605
	Female	58 (53.1-62.9)	55.2 (51.7-58.7)	1	
	<i>Ethnicity</i>				
	Maori	13.7 (10.3-17.1)	12.4 (10.1-14.7)	.859 (.517-1.427)	
	Pacific Peoples	10.7 (7.6-13.7)	14.3 (11.9-16.8)	.386 (.151-.985)	
	Asian	15.2 (11.7-18.8)	22.5 (19.5-25.4)	.686 (.334-1.411)	.0165*
	Other	1 (0-2)	2.5 (1.4-3.5)	.303 (.077-1.194)	
	NZ European / Pakeha	59.4 (54.5-64.3)	48.4 (44.9-51.9)	1	
To relieve boredom (N=1164)	<i>Age</i>				
	Early Adolescence	13.4 (9.6-17.2)	11.7 (9.6-13.9)	1.381 (.922-2.068)	
	Mid Adolescence	49.7 (44.1-55.2)	41.3 (38-44.6)	1.409 (1.134-1.750)	.0070*
	Late Adolescence	36.9 (31.6-42.3)	47 (43.7-50.4)	1	
	<i>Gender</i>				
	Male	39.5 (34.1-44.9)	45.4 (42.1-48.8)	1.043 (.667-1.630)	.8551
	Female	60.5 (55.1-65.9)	54.6 (51.2-57.9)	1	
	<i>Ethnicity</i>				
	Maori	18.7 (14.4-23.1)	10.7 (8.6-12.7)	1.807 (1.011-3.231)	.2354
	Pacific Peoples	17.1 (13-21.3)	11.6 (9.4-13.7)	1.639 (.476-5.650)	
	Asian	21 (16.4-25.5)	19.7 (17-22.3)	1.285 (.947-1.743)	
	Other	2.5 (.8-4.3)	1.8 (.9-2.6)	1.342 (.390-4.619)	

	NZ European / Pakeha	40.6 (35.2-46.1)	56.3 (53-59.7)	1
For a challenge (N=1164)				
	<i>Age</i>			
	Early Adolescence	13.5 (9.4-17.6)	11.8 (9.6-13.9)	1.289 (.747-2.226)
	Mid Adolescence	48.9 (42.9-54.9)	41.9 (38.6-45.1)	1.418 (.927-2.170)
	Late Adolescence	37.6 (31.8-43.4)	46.4 (43.1-49.6)	1
	<i>Gender</i>			
	Male	52.9 (47-58.9)	41.1 (37.8-44.3)	1.437 (.931-2.219)
	Female	47.1 (41.1-53)	58.9 (55.7-62.2)	1
	<i>Ethnicity</i>			
	Maori	16 (11.6-20.4)	11.9 (9.7-14)	1.221 (.906-1.646)
	Pacific Peoples	17.8 (13.3-22.4)	11.6 (9.5-13.7)	1.097 (.417-2.887)
	Asian	19.3 (14.6-24)	20.2 (17.6-22.9)	.836 (.502-1.392)
	Other	1.8 (.2-3.4)	2 (1.1-2.9)	1.732 (.451-6.648)
	NZ European / Pakeha	45.1 (39.2-51)	54.3 (51-57.5)	1

* p<.05

Calculated from data which is: § un-weighted and un-adjusted for age, gender, ethnicity and school clustering effects; † weighted and adjusted for age, gender, ethnicity and school clustering effects

C.21 LOGISTIC REGRESSION OF MOTIVATION FOR PARTICIPATION IN GAMBLING BY PROBLEM GAMBLING STATUS: FINDINGS

Gambling motivation	Frequency [§]		Odds ratio [†] (95% CI)	P value [†]
	Non-problem Gambler	Problem Gambler		
For enjoyment (N=1161)				
Yes	60.1 (57.2-63)	72.9 (62.2-83.5)	2.308 (1.041-5.118)	.0396*
No	39.9 (37-42.8)	27.1 (16.5-37.8)	1	
To win money (N=1159)				
Yes	57.9 (55-60.8)	61.4 (49.7-73.1)	1.258 (.671-2.359)	.4749
No	42.1 (39.2-45)	38.6 (26.9-50.3)	1	
For excitement (N=1161)				
Yes	33.6 (30.8-36.4)	34.3 (22.9-45.7)	1.276 (.649-2.510)	.4803
No	66.4 (63.6-69.2)	65.7 (54.3-77.1)	1	
To relieve boredom (N=1161)				
Yes	26.3 (23.7-29)	35.7 (24.2-47.2)	1.432 (.576-3.557)	.4395
No	73.7 (71-76.3)	64.3 (52.8-75.8)	1	
For a challenge (N=1161)				
Yes	23.4 (20.9-25.9)	24.3 (14-34.6)	1.461 (.649-3.286)	.3599
No	76.6 (74.1-79.1)	75.7 (65.4-86)	1	

* p<.05

Calculated from data which is: [§] un-weighted and un-adjusted for age, gender, ethnicity and school clustering effects; [†] weighted and adjusted for age, gender, ethnicity and school clustering effects

C.22 GAMBLERS' COMPANIONS AS A FUNCTION OF OCCURRENCE

<i>Gambling Companion</i>	<i>Occurrence of Gambling With Companion</i>							
	<i>Often</i>		<i>Sometimes</i>		<i>Hardly ever</i>		<i>Never</i>	
	<i>N</i>	<i>%</i>	<i>N</i>	<i>%</i>	<i>N</i>	<i>%</i>	<i>N</i>	<i>%</i>
Friends (<i>N</i> =1150)	104	9.0	370	32.2	366	31.8	310	27.0
Sibling (<i>N</i> =1134)	98	8.6	281	24.8	267	23.5	488	43.0
Parents (<i>N</i> =1146)	49	4.3	238	20.8	374	32.6	485	42.3
Alone (<i>N</i> =1115)	40	3.6	111	10.0	143	12.8	821	73.6
Grandparent (<i>N</i> =1112)	36	3.2	84	7.6	141	12.7	851	76.5
Other Relative (<i>N</i> =1110)	33	3.0	146	13.2	232	20.9	699	63.0
Stranger (<i>N</i> =1114)	13	1.2	37	3.3	72	6.5	992	89.0

C.23 LOGISTIC REGRESSION OF DEMOGRAPHIC VARIABLES BY GAMBLING COMPANIONS: FINDINGS

Gambling Companion	Demographic Variable	Frequency % [§] (95%CI)		Odds ratio [†] (95% CI)	P value [†]
		Have gambled with companion	Have not gambled with companion		
PARENTS (N=1140)	<i>Age</i>				
	Early Adolescence	11.8 (9.3-14.3)	11.8 (8.9-14.7)	1.126 (.670-1.895)	
	Mid Adolescence	45.8 (41.9-49.6)	40.8 (36.4-45.2)	1.420 (1.110-1.816)	.0068*
	Late Adolescence	42.4 (38.6-46.2)	47.4 (42.9-51.9)	1	
	<i>Gender</i>				
	Male	38.9 (35.2-42.7)	49.4 (44.9-53.9)	.701 (.549-.894)	.0042*
	Female	61.1 (57.3-64.8)	50.6 (46.1-55.1)	1	
	<i>Ethnicity</i>				
	Maori	12.9 (10.3-15.4)	11.8 (8.9-14.7)	.684 (.363-1.288)	
	Pacific Peoples	9.1 (6.9-11.3)	17.4 (14-20.7)	.573 (.284-1.156)	
	Asian	15.9 (13.1-18.7)	25.8 (21.9-29.7)	.394 (.243-.638)	<.0001*
	Other	2.3 (1.1-3.4)	1.7 (.5-2.8)	.755 (.212-2.687)	
	NZ European / Pakeha	59.9 (56.2-63.7)	43.4 (39-47.8)	1	
FRIENDS (N=1144)	<i>Age</i>				
	Early Adolescence	10.4 (8.3-12.5)	16.1 (12-20.2)	.735 (.382-1.414)	
	Mid Adolescence	43 (39.6-46.4)	44.8 (39.3-50.4)	.901 (.531-1.528)	.5592
	Late Adolescence	46.6 (43.2-50)	39 (33.6-44.5)	1	
	<i>Gender</i>				
	Male	48.6 (45.2-52)	31.6 (26.4-36.8)	2.494 (1.684-3.696)	<.0001*
	Female	51.4 (48-54.8)	68.4 (63.2-73.6)	1	
	<i>Ethnicity</i>				
	Maori	12.6 (10.4-14.9)	11.7 (8.1-15.2)	.57 (.137-2.366)	.4705
	Pacific Peoples	12.3 (10-14.5)	14.6 (10.6-18.5)	.484 (.149-1.565)	

		20.7	18.8	.85	
	Asian	(18-23.5)	(14.4-23.1)	(.579-1.247)	
	Other	2.1 (1.2-3.1)	1.6 (2-3)	.963 (.220-4.215)	
	NZ European / Pakeha	52.3 (48.9-55.6)	53.4 (47.8-59)	1	
SIBLING (N=1128)	<i>Age</i>				
	Early Adolescence	12.4 (9.9-15)	10.9 (8.1-13.7)	1.532 (.963-2.438)	
	Mid Adolescence	45.3 (41.5-49.2)	41.3 (36.9-45.7)	1.393 (1.051-1.846)	.0678
	Late Adolescence	42.2 (38.4-46.1)	47.8 (43.4-52.3)	1	
	<i>Gender</i>				
	Male	40.6 (36.8-44.4)	46.4 (42-50.9)	.734 (.489-1.103)	.1372
	Female	59.4 (55.6-63.2)	53.6 (49.1-58)	1	
	<i>Ethnicity</i>				
	Maori	13.9 (11.3-16.6)	10.9 (8.1-13.7)	.929 (.560-1.463)	
	Pacific Peoples	13.2 (10.5-15.8)	12.1 (9.2-15)	1.085 (.737-1.597)	
	Asian	18.6 (15.6-21.6)	22.6 (18.9-26.3)	.765 (.518-1.129)	.5554
	Other	2.3 (1.2-3.5)	1.6 (.5-2.8)	.929 (.258-3.339)	
	NZ European / Pakeha	52 (48.1-55.9)	52.8 (48.3-57.2)	1	
GRANDPARENT (N=1106)	<i>Age</i>				
	Early Adolescence	11.9 (8-15.9)	11.3 (9.2-13.4)	1.145 (.843-1.556)	
	Mid Adolescence	46.9 (40.8-53)	43 (39.7-46.3)	1.342 (1.002-1.799)	.0807
	Late Adolescence	41.2 (35.1-47.2)	45.7 (42.3-49.1)	1	
	<i>Gender</i>				
	Male	44.2 (38.2-50.3)	43.2 (39.8-46.5)	1.246 (.857-1.81)	.2490
	Female	55.8 (49.7-61.8)	56.8 (53.5-60.2)	1	
	<i>Ethnicity</i>				
	Maori	17.6 (13-22.3)	10.6 (8.5-12.7)	1.453 (.865-2.44)	
	Pacific Peoples	9.6 (6-13.2)	13.5 (11.2-15.8)	.4 (.151-1.057)	
	Asian	15.7 (11.3-20.2)	21.6 (18.9-24.4)	.615 (.348-1.086)	<.0001*
	Other	1.9 (.2-3.6)	2.1 (1.1-3.1)	.618 (.283-1.353)	
	NZ European / Pakeha	55.2 (49.1-61.2)	52.1 (48.8-55.5)	1	

OTHER RELATIVE (N=1105)	<i>Age</i>				
	Early Adolescence	14.1 (10.8-17.5)	10.2 (7.9-12.4)	1.829 (1.235-2.71)	
	Mid Adolescence	49.3 (44.4-54.1)	40.4 (36.8-44.1)	1.578 (1.178-2.112)	.0012*
	Late Adolescence	36.6 (31.9-41.3)	49.4 (45.7-53.1)	1	
	<i>Gender</i>				
	Male	45 (40.2-49.8)	42.3 (38.6-46)	1.204 (.986-1.472)	.0686
	Female	55 (50.2-59.8)	57.7 (54-61.4)	1	
	<i>Ethnicity</i>				
	Maori	18.2 (14.5-22)	9.3 (7.2-11.5)	2.517 (1.456-4.35)	
	Pacific Peoples	15.3 (11.8-18.8)	10.5 (8.2-12.7)	1.138 (.375-3.454)	
STRANGER (N=1109)	Asian	21.7 (17.7-25.7)	19.3 (16.4-22.3)	1.746 (1.127-2.706)	.0072*
	Other	2.9 (1.3-4.6)	1.6 (.6-2.5)	2.251 (.789-6.421)	
	NZ European / Pakeha	41.8 (37.1-46.6)	59.3 (55.7-63)	1	
	<i>Age</i>				
	Early Adolescence	6.6 (2.1-11)	12.2 (10.2-14.3)	.442 (.193-1.015)	
	Mid Adolescence	54.1 (45.1-63.1)	42.3 (39.2-45.4)	1.147 (.695-1.895)	.0225*
	Late Adolescence	39.3 (30.6-48.1)	45.5 (42.3-48.6)	1	
	<i>Gender</i>				
	Male	63.6 (54.9-72.3)	41 (37.9-44)	2.919 (1.699-5.015)	.0001*
	Female	36.4 (27.7-45.1)	59 (56-62.1)	1	
ALONE (N=1111)	<i>Ethnicity</i>				
	Maori	13.1 (7-19.2)	12 (10-14)	.586 (.122-2.801)	
	Pacific Peoples	13.1 (7-19.2)	12.8 (10.7-14.9)	1.183 (.646-2.165)	
	Asian	28.7 (20.5-36.8)	19.1 (16.6-21.5)	.864 (.203-3.682)	.7749
	Other	2.5 (0-5.2)	2 (1.1-2.9)	.531 (.165-1.706)	
	NZ European / Pakeha	42.6 (33.7-51.5)	54.1 (51-57.2)	1	
	<i>Age</i>				
	Early Adolescence	11.2 (7.6-14.9)	11.8 (9.6-14)	.612 (.336-1.115)	.1211

Mid Adolescence	39.8 (34.2-45.4)	44.8 (41.3-48.2)	.627 (.402-.980)	
Late Adolescence	49 (43.2-54.7)	43.4 (40-46.8)	1	
<i>Gender</i>				
Male	48.5 (42.7-54.2)	42 (38.6-45.3)	1.536 (1.248-1.892)	<.0001*
Female	51.5 (45.8-57.3)	58 (54.7-61.4)	1	
<i>Ethnicity</i>				
Maori	12.2 (8.5-16)	12.1 (9.8-14.3)	.806 (.441-1.471)	
Pacific Peoples	11.2 (7.6-14.9)	13.2 (10.9-15.5)	1.790 (.790-4.058)	
Asian	21.8 (17-26.5)	19.8 (17-22.5)	.871 (.472-1.608)	.4525
Other	1.7 (.2-3.2)	2.1 (1.1-3.1)	.327 (.065-1.651)	
NZ European / Pakeha	53.1 (47.3-58.8)	52.9 (49.5-56.4)	1	

* p<.05

Calculated from data which is: § un-weighted and un-adjusted for age, gender, ethnicity and school clustering effects; † weighted and adjusted for age, gender, ethnicity and school clustering effects

C.24 LOGISTIC REGRESSION OF GAMBLING COMPANIONS BY PROBLEM GAMBLING STATUS: FINDINGS

Gambling companions	Frequency [§]		Odds ratio ^T (95% CI)	P value ^T
	Non-problem Gambler	Problem Gambler		
Parents (N=1134)				
Yes	58.2 (55.3-61.2)	50 (37.8-62.2)	.882 (.396-1.960)	.7571
No	41.8 (38.8-44.7)	50 (37.8-62.2)	1	
Friends (N=1138)				
Yes	72.3 (69.6-75)	89.7 (82.3-97.1)	1.737 (.543-5.559)	.3521
No	27.7 (25-30.4)	10.3 (2.9-17.7)	1	
Sibling (N=1122)				
Yes	56 (53-59)	76.1 (65.6-86.6)	1.926 (.917-4.043)	.0834
No	44 (41-47)	23.9 (13.4-34.4)	1	
Grandparent (N=1100)				
Yes	22.9 (20.4-25.5)	32.8 (21-44.6)	1.769 (.895-3.499)	.1009
No	77.1 (74.5-79.6)	67.2 (55.4-79)	1	
Other relative (N=1099)				
Yes	36.1 (33.1-39)	54.7 (42.1-67.2)	1.674 (.909-3.080)	.0980
No	63.9 (61-66.9)	45.3 (32.8-57.8)	1	
Stranger (N=1103)				
Yes	9.1 (7.4-10.9)	39.4 (27.3-51.5)	5.350 (1.644-17.109)	.0053*
No	90.9 (89.1-92.6)	60.6 (48.5-72.7)	1	
Alone (N=1105)				
Yes	25.3 (22.6-27.9)	46.2 (33.7-58.6)	2.789 (.748-10.398)	.1265
No	74.7 (72.1-77.4)	53.8 (41.4-66.3)	1	

* p<.05

Calculated from data which is: [§] un-weighted and un-adjusted for age, gender, ethnicity and school clustering effects; ^T weighted and adjusted for age, gender, ethnicity and school clustering effects

C.25 LOGISTIC REGRESSION OF EXPOSURE TO GAMBLING (VIA HOUSEHOLD AND PEER GAMBLING) BY GAMBLING STATUS: FINDINGS

Question Domain	Frequency % [§] (95%CI)		Odds ratio [¶] (95% CI)	P value [¶]
	Non-gambler	Gambler		
<i>REGULAR GAMBLING BY HOUSEHOLD MEMBER</i>				
Instant Kiwi (N=1917)				
<i>Don't know</i>	11.5 (9.1-13.9)	13.1 (11.2-14.9)	1.787 (1.181-2.705)	
<i>Yes</i>	9.4 (7.2-11.6)	29.3 (26.8-31.9)	7.046 (3.900-12.730)	<.0001*
<i>No</i>	79.1 (76-82.2)	57.6 (54.8-60.3)	1	
Casino (N=1904)				
<i>Don't know</i>	9.3 (7.1-11.5)	9.8 (8.2-11.5)	1.271 (.950-1.701)	
<i>Yes</i>	7.7 (5.6-9.7)	10.2 (8.5-11.8)	1.618 (1.021-2.563)	.0673
<i>No</i>	83 (80.2-85.9)	80 (77.8-82.2)	1	
Lotto or Daily Keno (N=1961)				
<i>Don't know</i>	8.7 (6.5-10.8)	7.2 (5.8-8.6)	.969 (.538-1.745)	
<i>Yes</i>	44.3 (40.5-48)	62.7 (60.1-65.3)	2.129 (1.871-2.422)	<.0001*
<i>No</i>	47.1 (43.3-50.8)	30.1 (27.6-32.6)	1	
Gambling Machines (N=1911)				
<i>Don't know</i>	7.8 (5.7-9.8)	10 (8.4-11.7)	2.015 (1.229-3.141)	
<i>Yes</i>	6.7 (4.8-8.6)	11.3 (9.6-13.1)	1.450 (.908-2.316)	<.0001*
<i>No</i>	85.5 (82.8-88.2)	78.6 (76.4-80.9)	1	
Sports or Track Racing (N=1905)				
<i>Don't know</i>	7 (5.1-9)	10.6 (8.9-12.3)	2.306 (1.567-3.393)	
<i>Yes</i>	5.8 (4.1-7.6)	16.5 (14.5-18.6)	3.943 (2.127-7.308)	
<i>No</i>	87.1 (84.6-89.7)	72.8 (70.4-75.3)	1	<.0001*
<i>REGULAR GAMBLING BY FRIEND(S)</i>				
Instant Kiwi (N=1948)				
<i>Don't know</i>	36.3 (32.7-39.9)	34 (31.4-36.6)	1.163 (.801-1.688)	
<i>Yes</i>	10.4 (8.1-12.7)	23.7 (21.4-26)	3.428 (1.658-7.089)	<.0001*

<i>No</i>	53.2 (49.5-57)	42.3 (39.6-45)	1	
Casino (N=1918)				
<i>Don't know</i>	29.8 (26.3-33.2)	29 (26.5-31.5)	.981 (.579-1.662)	
<i>Yes</i>	4.5 (2.9-6)	5.6 (4.3-6.8)	1.595 (.891-2.855)	
<i>No</i>	65.8 (62.2-69.4)	65.5 (62.8-68.1)	1	.2812
Lotto or Daily Keno (N=1939)				
<i>Don't know</i>	35.8 (32.2-39.4)	31.9 (29.3-34.4)	.946 (.636-1.407)	
<i>Yes</i>	12.3 (9.8-14.8)	22.6 (20.3-24.9)	2.132 (1.198-3.792)	
<i>No</i>	51.9 (48.1-55.7)	45.5 (42.8-48.2)	1	.0095*
Gambling Machines (N=1923)				
<i>Don't know</i>	31.1 (27.6-34.6)	30.2 (27.7-32.8)	1.173 (.867-1.586)	
<i>Yes</i>	3.7 (2.3-5.1)	9.3 (7.7-10.9)	3.469 (1.817-6.623)	
<i>No</i>	65.2 (61.6-68.8)	60.4 (57.7-63.1)	1	.0008*
Sports or Track Racing (N=1924)				
<i>Don't know</i>	31.9 (28.3-35.4)	31.6 (29-34.2)	1.107 (.718-1.709)	
<i>Yes</i>	5.8 (4-7.5)	11.3 (9.6-13.1)	2.767 (1.707-4.488)	
<i>No</i>	62.4 (58.7-66)	57.1 (54.3-59.8)	1	<.0001*

* p<.05

Calculated from data which is: § un-weighted and un-adjusted for age, gender, ethnicity and school clustering effects; † weighted and adjusted for age, gender, ethnicity and school clustering effects

C.26 LOGISTIC REGRESSION OF EXPOSURE TO GAMBLING (VIA HOUSEHOLD AND PEER GAMBLING) BY PROBLEM GAMBLING STATUS: FINDINGS

Question Domain	Frequency % [§] (95%CI)		Odds ratio [¶] (95% CI)	P value [¶]
	Non-problem gambler	Problem gambler		
<i>REGULAR GAMBLING BY HOUSEHOLD MEMBER</i>				
Instant Kiwi (N=1126)				
<i>Don't know</i>	12.4 (10.4-14.3)	23.1 (12.6-33.6)	2.341 (1.129-4.857)	
<i>Yes</i>	28.7 (26-31.4)	46.2 (33.7-58.6)	3.604 (1.492-8.705)	.0130*
<i>No</i>	59 (56-61.9)	30.8 (19.2-42.3)	1	
Casino (N=1117)				
<i>Don't know</i>	9.6 (7.9-11.4)	13.8 (5.2-22.5)	2.184 (.941-5.065)	
<i>Yes</i>	8.4 (6.7-10.1)	36.9 (24.9-49)	7.468 (3.152-17.696)	<.0001*
<i>No</i>	81.9 (79.6-84.3)	49.2 (36.7-61.7)	1	
Lotto or Daily Keno (N=1151)				
<i>Don't know</i>	6.5 (5.1-8)	10.1 (2.8-17.5)	2.358 (1.238-4.489)	
<i>Yes</i>	63.6 (60.7-66.5)	65.2 (53.7-76.7)	2.492 (1.223-5.080)	.0232*
<i>No</i>	29.9 (27.1-32.6)	24.6 (14.2-35.1)	1	
Gambling Machines (N=1121)				
<i>Don't know</i>	9.6 (7.8-11.4)	12.7 (4.2-21.2)	2.231 (.860-5.789)	
<i>Yes</i>	10.1 (8.2-11.9)	38.1 (25.8-50.4)	6.392 (2.876-14.207)	<.0001*
<i>No</i>	80.4 (78-82.7)	49.2 (36.5-61.9)	1	
Sports or Track Racing (N=1116)				
<i>Don't know</i>	10.2 (8.4-12)	15.6 (6.5-24.8)	3.069 (1.136-8.288)	
<i>Yes</i>	15.2 (13-17.4)	46.9 (34.3-59.4)	7.477 (2.942-19.007)	.0001*
<i>No</i>	74.6 (71.9-77.2)	37.5 (25.3-49.7)	1	
<i>REGULAR GAMBLING BY FRIEND(S)</i>				
Instant Kiwi (N=1144)				
<i>Don't know</i>	34 (31.2-36.8)	30.8 (19.2-42.3)	.949 (.347-2.593)	.0403*

<i>Yes</i>	23.8 (21.2-26.3)	40.0 (27.8-52.2)	2.220 (1.059-4.655)	
<i>No</i>	42.2 (39.3-45.2)	29.2 (17.9-40.6)	1	
 Casino (<i>N</i> =1122)				
<i>Don't know</i>	28.9 (26.2-31.6)	27 (15.7-38.3)	1.112 (.442-2.797)	
<i>Yes</i>	4.5 (3.3-5.8)	30.2 (18.5-41.8)	9.883 (4.651-21.001)	<.0001*
<i>No</i>	66.6 (63.7-69.4)	42.9 (30.3-55.4)	1	
 Lotto or Daily Keno (<i>N</i> =1138)				
<i>Don't know</i>	32.3 (29.5-35.1)	23.2 (13-33.4)	.828 (.395-1.738)	
<i>Yes</i>	21.9 (19.4-24.3)	43.5 (31.5-55.5)	2.136 (.925-4.933)	.0239*
<i>No</i>	45.9 (42.9-48.8)	33.3 (21.9-44.7)	1	
 Gambling Machines (<i>N</i> =1127)				
<i>Don't know</i>	30.1 (27.3-32.8)	26.2 (15.2-37.1)	.912 (.418-1.988)	
<i>Yes</i>	8.2 (6.6-9.9)	36.9 (24.9-49)	6.952 (3.049-15.853)	<.0001*
<i>No</i>	61.7 (58.8-64.6)	36.9 (24.9-49)	1	
 Sports or Track Racing (<i>N</i> =1123)				
<i>Don't know</i>	31.4 (28.6-34.2)	31.7 (19.9-43.6)	1.476 (.569-3.833)	
<i>Yes</i>	10.8 (8.9-12.7)	33.3 (21.4-45.3)	4.945 (2.341-10.446)	.0001*
<i>No</i>	57.8 (54.8-60.8)	34.9 (22.8-47)	1	

* p<.05

Calculated from data which is: § un-weighted and un-adjusted for age, gender, ethnicity and school clustering effects; † weighted and adjusted for age, gender, ethnicity and school clustering effects

C.27 FREQUENCY OF PERCEIVED PARENTAL AND PEER PROBLEMATIC GAMBLING

	Yes		No		Don't Know	
	N	%	N	%	N	%
Believes <i>mother</i> may have gambling problem (N=1994)	79	4	1790	89.8	125	6.3
Believes <i>father</i> may have gambling problem (N=1988)	107	5.4	1732	87.1	149	7.5
Believes a <i>friend</i> may have gambling problem (N=1991)	176	8.8	1466	73.6	349	17.5

C.28 LOGISTIC REGRESSION OF EXPOSURE TO GAMBLING (VIA PERCEIVED PARENTAL AND PEER PROBLEM GAMBLING) BY GAMBLING STATUS: FINDINGS

Question Domain	Frequency % [§] (95%CI)		Odds ratio [†] (95% CI)	P value [†]
	Non-gambler	Gambler		
Believes Mother may have a gambling problem (N=1974)				
Don't know	4.8 (3.2-6.4)	6.9 (5.5-8.3)	3.066 (1.502-6.258)	
Yes	2.3 (1.2-3.5)	4.8 (3.6-5.9)	1.269 (.522-3.082)	
No	92.9 (91-94.8)	88.3 (86.6-90.1)	1	.0003*
Believes Father may have a gambling problem (N=1969)				
Don't know	5.4 (3.7-7.1)	8.5 (7-10)	2.546 (1.559-4.158)	
Yes	3.3 (2-4.7)	6.5 (5.2-7.8)	2.715 (1.908-3.863)	
No	91.3 (89.2-93.4)	85 (83-86.9)	1	<.0001*
Believes friend(s) may have a gambling problem (N=1971)				
Don't know	18.1 (15.3-21)	17.1 (15-19.1)	1.194 (.978-1.458)	
Yes	6.2 (4.4-8.1)	10.2 (8.5-11.8)	1.903 (1.169-3.097)	
No	75.6 (72.4-78.8)	72.8 (70.3-75.2)	1	.0041*

* p<.05

Calculated from data which is: [§] un-weighted and un-adjusted for age, gender, ethnicity and school clustering effects; [†] weighted and adjusted for age, gender, ethnicity and school clustering effects

C.29 LOGISTIC REGRESSION OF EXPOSURE TO GAMBLING (VIA PERCEIVED PARENTAL AND PEER PROBLEM GAMBLING) BY PROBLEM GAMBLING STATUS: FINDINGS

Question Domain	Frequency % [§] (95%CI)		Odds ratio [†] (95% CI)	P value [‡]
	Non-problem gambler	Problem gambler		
Believes Mother may have a gambling problem (N=1159)				
Don't know	5.5 (4.1-6.8)	17.1 (8.1-26.2)	7.351 (2.124-25.444)	
Yes	3.6 (2.5-4.7)	21.4 (11.6-31.3)	10.866 (3.847-30.695)	<.0001*
No	91 (89.2-92.7)	61.4 (49.7-73.1)	1	
Believes Father may have a gambling problem (N=1153)				
Don't know	7.1 (5.6-8.6)	21.4 (11.6-31.3)	7.573 (3.573-16.054)	
Yes	5 (3.7-6.3)	24.3 (14-34.6)	6.412 (2.340-17.572)	<.0001*
No	87.9 (86-89.9)	54.3 (42.3-66.2)	1	
Believes friend(s) may have a gambling problem (N=1154)				
Don't know	14.7 (12.6-16.8)	27.1 (16.5-37.8)	1.433 (.417-4.930)	
Yes	9.2 (7.5-10.9)	31.4 (20.3-42.6)	2.913 (.888-9.563)	.1384
No	76.1 (73.6-78.7)	41.4 (29.6-53.3)	1	

* p<.05

Calculated from data which is: [§] un-weighted and un-adjusted for age, gender, ethnicity and school clustering effects; [†] weighted and adjusted for age, gender, ethnicity and school clustering effects

C.30 AWARENESS OF GAMBLING PRODUCT ADVERTISING (BY ADVERTISING MEDIUM AND GAMBLING MODE)

Question Domain	Yes		No		Don't Know	
	N	%	N	%	N	%
<i>Television Advertising for:</i>						
A Casino (N=1956)	1322	67.6	514	26.3	120	6.1
Lotto or Daily Keno (N=1986)	1880	94.7	79	4	27	1.4
Instant Kiwi (N=1965)	1432	72.9	401	20.4	132	6.7
Sports or track racing (N=1974)	1419	71.9	407	20.6	148	7.5
<i>Newspaper Advertising for:</i>						
A Casino (N=1963)	825	42	872	44.4	266	13.6
Lotto or Daily Keno (N=1986)	1392	70.1	430	21.7	164	8.3
Instant Kiwi (N=1968)	861	43.8	823	41.8	284	14.4
Sports or track racing (N=1980)	1253	63.3	506	25.6	221	11.2
<i>Magazine Advertising for:</i>						
A Casino (N=1970)	666	33.8	971	49.3	333	16.9
Lotto or Daily Keno (N=1979)	933	47.1	738	37.3	308	15.6
Instant Kiwi (N=1971)	666	33.8	933	47.3	372	18.9
Sports or track racing (N=1974)	771	39.1	834	42.2	369	18.7
<i>Billboard Advertising for:</i>						
A Casino (N=1975)	684	34.6	900	45.6	391	19.8
Lotto or Daily Keno (N=1978)	971	49.1	655	33.1	352	17.8
Instant Kiwi (N=1965)	543	27.6	981	49.9	441	22.4
Sports or track racing (N=1978)	794	40.1	760	38.4	424	21.4
<i>Internet Advertising for:</i>						
A Casino (N=1961)	1295	66	517	26.4	149	7.6
Lotto or Daily Keno (N=1956)	710	36.3	1028	52.6	218	11.1
Instant Kiwi (N=1954)	511	26.2	1177	60.2	266	13.6
Sports or track racing (N=1955)	754	38.6	944	48.3	257	13.1

C.31 LOGISTIC REGRESSION OF GAMBLING PRODUCT ADVERTISING (BY ADVERTISING MEDIUM AND GAMBLING MODE) BY GAMBLING STATUS: FINDINGS

Question Domain	Median [§]		Odds ratio [¶] (95% CI)	P value [¶]
	Non-gambler	Gambler		
Aware of television advertising for:				
A Casino (<i>N</i> =1937)				
Don't know	6.5 (4.6-8.3)	5.9 (4.6-7.2)	1.131 (.642-1.991)	
Yes	64.6 (61-68.2)	69.2 (66.7-71.8)	1.161 (.805-1.675)	.6663
No	28.9 (25.5-32.3)	24.9 (22.5-27.3)	1	
Lotto or Daily Keno (<i>N</i> =1965)				
Don't know	1.7 (.8-2.7)	.3 (.5-1.6)	.444 (.122-1.613)	
Yes	93.3 (91.4-95.2)	95.4 (94.3-96.6)	.986 (.553-1.757)	.3476
No	5 (3.3-6.6)	3.5 (2.5-4.5)	1	
Instant Kiwi (<i>N</i> =1945)				
Don't know	7.8 (5.8-9.8)	6.1 (4.8-7.4)	1.370 (.752-2.496)	
Yes	67.1 (63.6-70.6)	76 (73.7-78.3)	1.612 (.927-2.803)	.1652
No	25.1 (21.8-28.4)	17.9 (15.8-20)	1	
Sports or track racing (<i>N</i> =1955)				
Don't know	8.8 (6.7-10.9)	6.8 (5.4-8.1)	1.398 (.883-2.212)	
Yes	64.9 (61.3-68.5)	75.7 (73.3-78)	1.662 (1.099-2.513)	.0501*
No	26.4 (23-29.7)	17.6 (15.5-19.6)	1	
Aware of newspaper advertising for:				
A Casino (<i>N</i> =1943)				
Don't know	14.9 (12.2-17.6)	12.7 (10.9-14.6)	.788 (.610-1.016)	
Yes	37 (33.4-40.7)	44.8 (42-47.5)	1.311 (1.042-1.649)	.0270*
No	48.1 (44.3-51.9)	42.5 (39.8-45.2)	1	
Lotto or Daily Keno (<i>N</i> =1965)				
Don't know	9.6 (7.4-11.9)	7.5 (6.1-8.9)	.983 (.664-1.454)	<.0001*

Yes	62.8 (59.1-66.4)	74 (71.6-76.4)	1.690 (1.359-2.101)	
No	27.6 (24.2-30.9)	18.5 (16.4-20.7)	1	
Instant Kiwi (<i>N</i> =1948)				
Don't know	14.1 (11.5-16.7)	14.6 (12.6-16.5)	1.005 (.750-1.348)	
Yes	39.1 (35.4-42.8)	46.1 (43.4-48.9)	1.361 (1.064-1.742)	.0295*
No	46.8 (43-50.5)	39.3 (36.6-42)	1	
Sports or track racing (<i>N</i> =1961)				
Don't know	12.7 (10.2-15.2)	10.3 (8.6-11.9)	.989 (.544-1.797)	
Yes	54.6 (50.9-58.4)	67.9 (65.4-70.5)	1.850 (1.295-2.642)	<.0001*
No	32.7 (29.1-36.2)	21.8 (19.6-24.1)	1	
Aware of magazine advertising for:				
A Casino (<i>N</i> =1949)				
Don't know	16.4 (13.6-19.2)	17.1 (15.19.1)	.922 (.617-1.378)	
Yes	30.2 (26.8-33.7)	35.8 (33.2-38.4)	1.243 (1.044-1.480)	.0003*
No	53.4 (49.6-57.1)	47.1 (44.4-49.8)	1	
Lotto or Daily Keno (<i>N</i> =1959)				
Don't know	15.6 (12.9-18.3)	15.4 (13.5-17.4)	.951 (.613-1.475)	
Yes	40.3 (36.6-44)	50.9 (48.2-53.6)	1.515 (1.192-1.927)	.0030*
No	44.1 (40.4-47.8)	33.7 (31.1-36.3)	1	
Instant Kiwi (<i>N</i> =1951)				
Don't know	18 (15.1-20.9)	19.3 (17.1-21.4)	.890 (.485-1.634)	
Yes	28.2 (24.8-31.6)	36.8 (34.2-39.5)	1.690 (1.316-2.171)	.0002*
No	53.8 (50.1-57.5)	43.9 (41.2-46.6)	1	
Sports or track racing (<i>N</i> =1955)				
Don't know	18.3 (15.4-21.2)	18.9 (16.7-21)	.966 (.523-1.785)	
Yes	29.9 (26.4-33.3)	44 (41.3-46.7)	1.714 (1.302-2.256)	<.0001*
No	51.8 (48.1-55.6)	37.1 (34.5-39.8)	1	
Aware of billboard advertising for:				
A Casino (<i>N</i> =1955)				
Don't know	19.3 (16.3-22.3)	20.1 (17.9-22.3)	1.382 (1.027-1.859)	<.0001*
Yes	28.8 (25.4-32.2)	37.8 (35.1-40.4)	1.551 (1.277-1.883)	

No	51.9 (48.1-55.7)	42.1 (39.4-44.8)	1	
Lotto or Daily Keno (N=1959)				
Don't know	17.1 (14.3-19.9)	18.1 (16-20.2)	1.186 (.782-1.799)	
Yes	44.3 (40.6-48)	51.8 (49.1-54.5)	1.317 (1.006-1.724)	.1334
No	38.6 (34.9-42.3)	30.1 (27.6-32.6)	1	
Instant Kiwi (N=1946)				
Don't know	21.1 (18.1-24.2)	23.1 (20.8-25.4)	1.183 (.884-1.583)	
Yes	22.5 (19.3-25.6)	30.5 (27.9-33)	1.444 (1.038-2.007)	.0332*
No	56.4 (52.7-60.1)	46.4 (43.7-49.1)	1	
Sports or track racing (N=1959)				
Don't know	20.6 (17.6-23.7)	21.8 (19.5-24.1)	1.295 (.968-1.733)	
Yes	32.7 (29.2-36.3)	44.1 (41.4-46.9)	1.736 (1.314-2.293)	<.0001*
No	46.6 (42.9-50.4)	34.1 (31.5-36.6)	1	
Aware of internet advertising for:				
A Casino (N=1941)				
Don't know	6.3 (4.5-8.2)	8.2 (6.7-9.7)	1.923 (1.062-3.484)	
Yes	64.2 (60.6-67.8)	67 (64.5-69.6)	1.260 (.996-1.593)	.0050*
No	29.5 (26-32.9)	24.7 (22.4-27.1)	1	
Lotto or Daily Keno (N=1937)				
Don't know	9 (6.8-11.2)	12.2 (10.4-14)	1.373 (.994-1.897)	
Yes	31.9 (28.4-35.4)	38.7 (36-41.4)	1.302 (1.028-1.897)	.0130*
No	59.1 (55.4-62.8)	49.1 (46.3-51.8)	1	
Instant Kiwi (N=1934)				
Don't know	11.5 (9.1-13.9)	14.6 (12.6-16.5)	1.386 (1.134-1.694)	
Yes	23.2 (20.1-26.4)	27.8 (25.3-30.2)	1.211 (.917-1.599)	.0035*
No	65.3 (61.7-68.9)	57.6 (54.9-60.4)	1	
Sports or track racing (N=1936)				
Don't know	11.5 (9.1-13.9)	14 (12.1-15.9)	1.414 (1.078-1.855)	
Yes	31.4 (27.9-34.9)	42.4 (39.7-45.1)	1.504 (1.105-2.047)	.0118*
No	57.1 (53.3-60.8)	43.6 (40.9-46.3)	1	

* p<.05

Calculated from data which is: § un-weighted and un-adjusted for age, gender, ethnicity and school clustering effects; † weighted and adjusted for age, gender, ethnicity and school clustering effects

C.32 LOGISTIC REGRESSION OF GAMBLING PRODUCT ADVERTISING (BY ADVERTISING MEDIUM AND GAMBLING MODE) BY PROBLEM GAMBLING STATUS: FINDINGS

Question Domain	<i>Median</i> [§]		<i>Odds ratio</i> [¶] (95% CI)	<i>P value</i> [¶]
	<i>Non-problem gambler</i>	<i>Problem gambler</i>		
Aware of television advertising for:				
A Casino (<i>N</i> =1135)				
Don't know	6.1 (4.6-7.5)	6 (1-11.8)	.852 (.336-1.163)	
Yes	69.6 (66.8-72.3)	70.1 (58.9-81.4)	1.924 (.650-5.693)	.3038
No	24.4 (21.8-27)	23.9 (13.4-34.4)	1	
Lotto or Daily Keno (<i>N</i> =1153)				
Don't know	.7 (.2-1.2)	3 (0-7.2)	1.416 (.102-19.707)	
Yes	96.5 (95.4-97.6)	86.6 (78.2-94.9)	.296 (.109-.801)	.0380*
No	2.7 (1.8-3.7)	10.4 (2.9-18)	1	
Instant Kiwi (<i>N</i> =1140)				
Don't know	5.9 (4.5-7.3)	10.3 (2.9-17.7)	2.600 (.617-10.961)	
Yes	76.7 (74.2-79.2)	76.5 (66.1-86.8)	2.132 (.792-5.739)	.2075
No	17.3 (15.1-19.6)	13.2 (5-21.5)	1	
Sports or track racing (<i>N</i> =1148)				
Don't know	6.4 (5-7.9)	10.6 (3-18.2)	1.992 (.413-9.603)	
Yes	76.7 (74.2-79.3)	74.2 (63.4-85.1)	2.614 (.948-7.206)	.1752
No	16.8 (14.6-19)	15.2 (6.3-24.0)	1	
Aware of newspaper advertising for:				
A Casino (<i>N</i> =1140)				
Don't know	13.2 (11.2-15.3)	10.8 (3-18.5)	.937 (.257-3.417)	
Yes	45.4 (42.4-48.4)	44.6 (32.2-57)	.805 (.388-1.670)	.8228
No	41.4 (38.4-44.3)	44.6 (32.2-57)	1	
Lotto or Daily Keno (<i>N</i> =1156)				
Don't know	7.3 (5.8-8.9)	7.2 (1-13.5)	1.484 (.349-6.303)	.0546*

Yes	75.4 (72.8-77.9)	66.7 (55.3-78.1)	.412 (.174-.976)	
No	17.3 (15-19.5)	26.1 (15.5-36.7)	1	
Instant Kiwi (N=1142)				
Don't know	15.2 (13-17.3)	10.6 (3-18.2)	.686 (.210-2.247)	
Yes	45.7 (42.7-48.6)	56.1 (43.8-68.4)	2.145 (.900-5.113)	.0932
No	39.2 (36.3-42.1)	33.3 (21.7-45)	1	
Sports or track racing (N=1152)				
Don't know	10.2 (8.4-12)	10.1 (2.8-17.5)	4.309 (.668-27.802)	
Yes	69.1 (66.3-71.8)	68.1 (56.8-79.4)	1.515 (.536-4.284)	.2388
No	20.8 (18.3-23.2)	21.7 (11.8-31.7)	1	
Aware of <i>magazine</i> advertising for:				
A Casino (N=1143)				
Don't know	17.5 (15.2-19.7)	12.1 (4-20.2)	1.829 (.438-7.636)	
Yes	35.6 (32.8-38.5)	37.9 (25.9-49.9)	1.744 (.591-5.143)	.5950
No	46.9 (43.9-49.9)	50 (37.6-62.4)	1	
Lotto or Daily Keno (N=1148)				
Don't know	15.7 (13.5-17.8)	13 (4.9-21.2)	2.446 (.489-12.232)	
Yes	50.9 (47.9-53.9)	50.7 (38.6-62.8)	1.594 (.681-3.731)	.5150
No	33.5 (30.6-36.3)	36.2 (24.6-47.9)	1	
Instant Kiwi (N=1142)				
Don't know	19.5 (17.2-21.9)	14.7 (6.1-23.3)	1.918 (.500-7.354)	
Yes	36.6 (33.7-39.5)	42.6 (30.6-54.7)	1.790 (.828-3.869)	.3046
No	43.9 (40.9-46.9)	42.6 (30.6-54.7)	1	
Sports or track racing (N=1147)				
Don't know	18.8 (16.5-21.1)	14.5 (6-23)	1.198 (.241-5.962)	
Yes	44.6 (41.7-47.6)	47.8 (35.7-59.9)	1.273 (.589-2.751)	.7699
No	36.5 (33.7-39.4)	37.7 (26-49.5)	1	
Aware of <i>billboard</i> advertising for:				
A Casino (N=1145)				
Don't know	19.7 (17.4-22.1)	18.2 (8.6-27.7)	2.043 (.542-7.706)	.5479

Yes	39.1 (36.2-42)	36.4 (24.4-48.3)	1.743 (.552-5.499)	
No	41.2 (38.3-44.1)	45.5 (33.1-57.8)	1	
Lotto or Daily Keno (N=1149)				
Don't know	17.8 (15.6-20.1)	17.6 (8.4-26.9)	2.724 (.571-12.992)	
Yes	52.9 (49.9-55.9)	52.9 (40.8-65.1)	1.490 (.532-4.173)	.4460
No	29.3 (26.5-32)	29.4 (18.3-40.5)	1	
Instant Kiwi (N=1140)				
Don't know	23.1 (20.6-25.7)	19.7 (9.8-29.5)	1.701 (.507-5.708)	
Yes	30.6 (27.8-33.3)	36.4 (24.4-48.3)	1.735 (.624-4.827)	.5250
No	46.3 (43.3-49.3)	43.9 (31.6-56.2)	1	
Sports or track racing (N=1149)				
Don't know	21.3 (18.8-23.7)	27.9 (17.38.9)	2.490 (.619-10.012)	
Yes	45.6 (42.7-48.6)	39.7 (27.8-51.6)	1.259 (.468-3.383)	.4009
No	33.1 (30.3-35.9)	32.4 (20.9-43.8)	1	
Aware of internet advertising for:				
A Casino (N=1140)				
Don't know	8.1 (6.4-9.7)	16.7 (7.4-25.9)	1.408 (.462-4.289)	
Yes	68.9 (66.1-71.7)	59.1 (46.9-71.3)	.943 (.369-2.408)	.7322
No	23.1 (20.5-25.6)	24.2 (13.6-34.9)	1	
Lotto or Daily Keno (N=1139)				
Don't know	12.1 (10.2-14.1)	15.2 (6.3-24)	1.323 (.458-3.825)	
Yes	38.5 (35.6-41.4)	48.5 (36.1-60.9)	1.882 (.796-4.448)	.3313
No	49.4 (46.4-52.4)	36.4 (24.4-48.3)	1	
Instant Kiwi (N=1134)				
Don't know	14.7 (12.6-16.8)	15.4 (6.4-24.4)	1.484 (.582-3.785)	
Yes	27.5 (24.9-30.2)	40 (27.8-52.2)	2.759 (1.082-7.036)	.0940
No	57.8 (54.8-60.7)	44.6 (32.2-57)	1	
Sports or track racing (N=1138)				
Don't know	13.8 (11.8-15.9)	21.2 (11.1-31.3)	2.028 (.804-5.115)	
Yes	43.1 (40.2-46.1)	42.4 (30.2-54.7)	1.883 (.725-4.892)	.3066
No	43 (40.1-46)	36.4 (24.4-48.3)	1	

* p<.05

Calculated from data which is: [§] un-weighted and un-adjusted for age, gender, ethnicity and school clustering effects; [†] weighted and adjusted for age, gender, ethnicity and school clustering effects

C.33 BELIEFS AND PERCEPTIONS REGARDING ACCESS TO GAMBLING AS A FUNCTION OF GAMBLING MODE

Belief/ Perception	<i>Level of Agreement With Statement</i>									
	1 = Strongly Disagree		2		3 = Not Sure		4		5 = Strongly Agree	
	N	%	N	%	N	%	N	%	N	%
<i>Easy to Access Gambling Mode</i>										
Lotto/Daily Keno (N=1972)	227	11.5	209	10.6	795	40.3	336	17	405	20.5
Instant Kiwi (N=1962)	194	9.9	192	9.8	628	32	407	20.7	541	27.6
Casino (N=1971)	1004	50.9	390	19.8	469	23.8	72	3.7	36	1.8
Non-casino EGMs (N=1961)	662	33.8	359	18.3	525	26.8	291	14.8	124	6.3
TAB (N=1970)	565	28.7	340	17.3	792	40.2	175	8.9	98	5
<i>Rights of Access to Gambling Modes</i>										
Lotto/Daily Keno (N=1965)	439	22.3	292	14.9	570	29	380	19.3	284	14.5
Instant Kiwi (N=1965)	297	15.1	215	10.9	475	24.2	517	26.3	461	23.5
Casino (N=1969)	1133	57.5	263	13.4	357	18.1	97	4.9	119	6
Non-casino EGMs (N=1973)	860	43.6	356	18	444	22.5	181	9.2	132	6.7
TAB (N=1973)	822	41.7	360	18.2	492	24.9	170	8.6	129	6.5

C.34 LOGISTIC REGRESSION OF PERCEPTIONS AND BELIEFS (RELATING TO ACCESS TO GAMBLING) BY GAMBLING STATUS: FINDINGS

Question Domain	Median [§]		Odds ratio [†] (95% CI)	P value [†]
	Non-gambler	Gambler		
<i>Ease of Access to Gambling Modes</i>				
Lotto/Daily Keno (N=1955)	3	3	1.426 (1.160-1.752)	.0007*
Instant Kiwi (N=1946)	3	4	1.432 (1.218-1.684)	<.0001*
Casino (N=1954)	1	1	1.067 (.934-1.217)	.3404
Non-casino EGMs (N=1944)	2	2	1.149 (.999-1.321)	.0521*
TAB (N=1953)	3	3	1.188 (1.045-1.350)	.0086*
<i>Rights of Access to Gambling Modes</i>				
Lotto/Daily Keno (N=1948)	3	3	1.553 (1.376-1.752)	<.0001*
Instant Kiwi (N=1950)	3	4	1.729 (1.501-1.990)	<.0001*
Casino (N=1952)	1	1	1.493 (1.300-1.714)	<.0001*
Non-casino EGMs (N=1956)	1	2	1.441 (1.305-1.591)	<.0001*
TAB (N=1955)	1	2	1.535 (1.384-1.703)	<.0001*

* p<.05

Calculated from data which is: [§] un-weighted and un-adjusted for age, gender, ethnicity and school clustering effects; [†] weighted and adjusted for age, gender, ethnicity and school clustering effects

C.35 LOGISTIC REGRESSION OF PERCEPTIONS AND BELIEFS (RELATING TO ACCESS TO GAMBLING) BY PROBLEM GAMBLING STATUS: FINDINGS

Question Domain	Median [§]		Odds ratio [†] (95% CI)	P value [†]
	Non-problem gambler	Problem gambler		
<i>Ease of Access to Gambling Modes</i>				
Lotto/Daily Keno (N=1153)	3	3	1.499 (1.048-2.142)	.0264*
Instant Kiwi (N=1145)	4	4	1.357 (.982-1.874)	.0644
Casino (N=1149)	1	2	1.282 (.913-1.800)	.1509
Non-casino EGMs (N=1142)	2	3	1.244 (.953-1.623)	.1084
TAB (N=1149)	3	3	1.291 (1.029-1.620)	.0272*
<i>Rights of Access to Gambling Modes</i>				
Lotto/Daily Keno (N=1145)	3	4	1.284 (.991-1.665)	.0584
Instant Kiwi (N=1148)	4	4	1.146 (.890-1.475)	.2925
Casino (N=1146)	1	3	1.872 (1.214-2.887)	.0046*
Non-casino EGMs (N=1149)	2	3	1.959 (1.418-2.708)	<.0001*
TAB (N=1154)	2	3	1.572 (1.081-2.286)	.0179*

* p<.05

Calculated from data which is: [§] un-weighted and un-adjusted for age, gender, ethnicity and school clustering effects; [†] weighted and adjusted for age, gender, ethnicity and school clustering effects

C.36 MISCELLANEOUS BELIEFS AND PERCEPTIONS

Question Domain	Level of Agreement With Statement									
	1 = Extremely Poor		2		3 =Average		4		5 = Excellent	
	N	%	N	%	N	%	N	%	N	%
How good they are at gambling (N=1107: gamblers only)	175	15.8	239	21.6	457	41.3	181	16.4	55	5
If skilled with computer games then will be skilled with EGMs (N=1974)	772	39.1	350	17.7	630	31.9	132	6.7	90	4.6
EGM performance can be improved by practising (N=1961)	958	48.9	269	13.7	516	26.3	110	5.6	108	5.5
Gambling is addictive like drugs and alcohol (N=1968)	156	7.9	68	3.5	262	13.3	297	15.1	1185	60.2
Young people are more likely to get hooked on gambling than adults (N=1967)	261	13.3	275	14	903	45.9	253	12.9	275	14

C.37 LOGISTIC REGRESSION OF MISCELLANEOUS PERCEPTIONS AND BELIEFS BY GAMBLING STATUS: FINDINGS

<i>Question Domain</i>	<i>Median</i> [§]		<i>Odds ratio</i> [†] (95% CI)	<i>P value</i> [†]
	<i>Non-gambler</i>	<i>Gambler</i>		
If skilled with computer games then will be skilled with EGMs (<i>N</i> =1956)	2	2	1.171 (.976-1.404)	.0894
EGM performance can be improved by practising (<i>N</i> =1944)	1	2	1.141 (.957-1.360)	.1413
Gambling is addictive like drugs and alcohol (<i>N</i> =1951)	5	5	.960 (.880-1.048)	.3634
Young people are more likely to get hooked on gambling than adults (<i>N</i> =1949)	3	3	.922 (.830-1.023)	.1246

* p<.05

Calculated from data which is: § un-weighted and un-adjusted for age, gender, ethnicity and school clustering effects; † weighted and adjusted for age, gender, ethnicity and school clustering effects

C.38 LOGISTIC REGRESSION OF MISCELLANEOUS PERCEPTIONS AND BELIEFS BY PROBLEM GAMBLING STATUS: FINDINGS

<i>Question Domain</i>	<i>Median</i> [§]		<i>Odds ratio</i> [¶] (95% CI)	<i>P value</i> [¶]
	<i>Non-problem gambler</i>	<i>Problem gambler</i>		
How good they are at gambling (<i>N</i> =1103)	3	4	2.588 (1.445-4.637)	.0014*
If skilled with computer games then will be skilled with EGMs (<i>N</i> =1152)	2	3	1.504 (.942-2.402)	.0874
EGM performance can be improved by practising (<i>N</i> =1145)	1	3	1.307 (1.011-1.690)	.0412*
Gambling is addictive like drugs and alcohol (<i>N</i> =1148)	5	4	.768 (.568-1.038)	.0858
Young people are more likely to get hooked on gambling than adults (<i>N</i> =1147)	3	3	1.165 (.921-1.473)	.2033

* p<.05

Calculated from data which is: § un-weighted and un-adjusted for age, gender, ethnicity and school clustering effects; ¶ weighted and adjusted for age, gender, ethnicity and school clustering effects

C.39 PERCEIVED LEVEL OF SKILL REQUIRED TO WIN AS A FUNCTION OF GAMBLING MODE

Gambling Mode (N=)	Level of Perceived Skill											
	1 = None		2 = Very little		3 = Some		4 = Quite a lot		5 = A lot		Central tendency	
	N	%	N	%	N	%	N	%	N	%	Mean	SD
Lotto (N=1963)	1301	66.3	187	9.5	270	13.8	74	3.8	131	6.7	1.75	1.22
Instant Kiwi (N=1960)	1379	70.4	173	8.8	267	13.6	63	3.2	78	4.0	1.62	1.09
Daily Keno (N=1945)	1172	60.3	226	11.6	365	18.8	85	4.4	97	5.0	1.82	1.18
EGM (N=1955)	934	47.8	232	11.9	445	22.8	128	6.5	216	11.0	2.21	1.38
Casino Tables (N=1959)	312	15.9	123	6.3	568	29.0	350	17.9	606	30.9	3.42	1.39
Track racing (N=1951)	404	20.7	210	10.8	585	30.0	355	18.2	397	20.3	3.07	1.39
Sports betting (N=1952)	374	19.2	208	10.7	620	31.8	370	19.0	380	19.5	3.09	1.35

C.40 LOGISTIC REGRESSION OF PERCEIVED LEVEL OF SKILL REQUIRED TO WIN BY GAMBLING STATUS: FINDINGS

Gambling mode	Median [§]		Odds ratio [†] (95% CI)	P value [†]
	Non-gambler	Gambler		
Lotto (<i>N</i> =1947)	1	1	1.157 (1.007-1.328)	.0390*
Instant Kiwi (<i>N</i> =1942)	1	1	1.194 (.923-1.545)	.1769
Daily Keno (<i>N</i> =1927)	1	1	1.184 (.952-1.472)	.1285
EGMs (<i>N</i> =1938)	2	2	1.146 (1.031-1.272)	.0112*
Casino Tables (<i>N</i> =1940)	3	4	1.087 (.945-1.249)	.2417
Track (horse/dog) racing (<i>N</i> =1933)	3	3	1.190 (1.068-1.327)	.0017*
Sports betting (<i>N</i> =1934)	3	3	1.174 (1.033-1.335)	.0138*
Computer games (<i>N</i> =1933)	5	5	.968 (.875-1.070)	.5219

* p<.05

Calculated from data which is: [§] un-weighted and un-adjusted for age, gender, ethnicity and school clustering effects; [†] weighted and adjusted for age, gender, ethnicity and school clustering effects

C.41 LOGISTIC REGRESSION OF PERCEIVED LEVEL OF SKILL REQUIRED TO WIN BY PROBLEM GAMBLING STATUS: FINDINGS

<i>Gambling mode</i>	<i>Median</i> [§]		<i>Odds ratio</i> [†] (95% CI)	<i>P value</i> [†]
	<i>Non-problem Gambler</i>	<i>Problem Gambler</i>		
Lotto (<i>N</i> =1149)	1	2	1.249 (.897-1.737)	.1878
Instant Kiwi (<i>N</i> =1145)	1	2	1.438 (1.103-1.876)	.0073*
Daily Keno (<i>N</i> =1134)	1	3	1.394 (1.085-1.792)	.0095*
EGMs (<i>N</i> =1144)	2	3	1.332 (1.047-1.695)	.0196*
Casino Tables (<i>N</i> =1149)	4	4	1.133 (.903-1.421)	.2803
Track (horse/dog) racing (<i>N</i> =1143)	3	4	1.235 (.994-1.534)	.0566
Sports betting (<i>N</i> =1141)	3	3	1.133 (.908-1.415)	.2678
Computer games (<i>N</i> =1137)	5	5	.957 (.683-1.342)	.8002

* p<.05

Calculated from data which is: § un-weighted and un-adjusted for age, gender, ethnicity and school clustering effects; † weighted and adjusted for age, gender, ethnicity and school clustering effects

C.42 PERCEIVED LEVEL OF LUCK REQUIRED TO WIN AS A FUNCTION OF GAMBLING MODE

Gambling Mode (N=)	Level of Perceived Luck												
	1 = None		2 = Very little		3 = Some		4 = Quite a lot		5 = A lot		Central tendency	Mean	SD
	N	%	N	%	N	%	N	%	N	%			
Lotto (N=1954)	131	6.7	31	1.6	178	9.1	107	5.5	1507	77.1	4.45	1.15	
Instant Kiwi (N=1958)	138	7.0	50	2.6	294	15.0	198	10.1	1278	65.3	4.24	1.22	
Daily Keno (N=1955)	138	7.1	67	3.4	283	14.5	230	11.8	1237	63.3	4.21	1.23	
EGMs (N=1956)	153	7.8	47	2.4	289	14.8	260	13.3	1207	61.7	4.19	1.24	
Casino Tables (N=1954)	132	6.8	65	3.3	473	24.2	365	18.7	919	47.0	3.96	1.21	
Track racing (N=1961)	128	6.5	116	5.9	505	25.8	373	19.0	839	42.8	3.86	1.22	
Sports betting (N=1947)	145	7.4	127	6.5	606	31.1	355	18.2	714	36.7	3.70	1.23	

C.43 LOGISTIC REGRESSION OF PERCEIVED LEVEL OF LUCK REQUIRED TO WIN BY GAMBLING STATUS: FINDINGS

Gambling mode	Median [§]		Odds ratio [†] (95% CI)	P value [†]
	Non-gambler	Gambler		
Lotto (<i>N</i> =1935)	5	5	1.052 (.940-1.177)	.3782
Instant Kiwi (<i>N</i> =1941)	5	5	1.090 (.991-1.199)	.0777
Daily Keno (<i>N</i> =1937)	5	5	1.051 (.940-1.175)	.3815
EGMs (<i>N</i> =1938)	5	5	1.029 (.940-1.126)	.5401
Casino Tables (<i>N</i> =1936)	4	4	1.065 (.908-1.247)	.4394
Track (horse/dog) racing (<i>N</i> =1943)	4	4	1.009 (.855-1.190)	.9156
Sports events (<i>N</i> =1930)	4	4	.999 (.856-1.165)	.9869
Computer games (<i>N</i> =1928)	3	3	1.182 (1.026-1.362)	.0205*

* p<.05

Calculated from data which is: [§] un-weighted and un-adjusted for age, gender, ethnicity and school clustering effects; [†] weighted and adjusted for age, gender, ethnicity and school clustering effects

C.44 LOGISTIC REGRESSION OF PERCEIVED LEVEL OF LUCK REQUIRED TO WIN BY PROBLEM GAMBLING STATUS: FINDINGS

<i>Gambling mode</i>	<i>Median</i> [§]		<i>Odds ratio</i> [†] (95% CI)	<i>P value</i> [†]
	<i>Non-problem Gambler</i>	<i>Problem Gambler</i>		
Lotto (<i>N</i> =1144)	5	5	.671 (.458-.984)	.0409*
Instant Kiwi (<i>N</i> =1147)	5	5	.747 (.571-.977)	.0334*
Daily Keno (<i>N</i> =1140)	5	5	.856 (.649-1.129)	.2711
EGMs (<i>N</i> =1146)	5	5	.851 (.634-1.143)	.2829
Casino Tables (<i>N</i> =1145)	4	4	.940 (.769-1.149)	.5455
Track (horse/dog) racing (<i>N</i> =1148)	4	4	.824 (.575-1.181)	.2927
Sports events (<i>N</i> =1141)	4	4	.744 (.500-1.107)	.1450
Computer games (<i>N</i> =1138)	3	4	1.243 (.927-1.667)	.1455

* p<.05

Calculated from data which is: § un-weighted and un-adjusted for age, gender, ethnicity and school clustering effects; † weighted and adjusted for age, gender, ethnicity and school clustering effects

C.45 FREQUENCY OF INTERNET USAGE (*N*=1970)

<i>Frequency of Internet Usage</i>	<i>N</i>	%
Never	192	9.8
Monthly or less	195	9.9
2-4 times a month	240	12.2
2-3 times a week	585	29.8
Every Day	752	38.3

C.46 TIME SPENT USING THE INTERNET

<i>Frequency of Internet Usage</i>	<i>Average Weekday</i> (N=1521)		<i>Average Weekend Day</i> (N=1518)	
	<i>N</i>	<i>%</i>	<i>N</i>	<i>%</i>
None	115	6.5	298	16.8
Less than 1 hour per day	718	40.6	562	31.7
1 – 3 hours per day	659	37.3	504	28.4
3 – 6 hours per day	172	9.7	250	14.1
6 – 9 hours per day	45	2.5	80	4.5
9 or more hours per day	60	3.4	78	4.4

C.47 COMPANION FOR INTERNET USAGE BY FREQUENCY

<i>Companion</i>	<i>N</i>	<i>%</i>
<i>A Parent (N=1756)</i>		
Never	857	48.8
Hardly Ever	499	28.4
Sometimes	306	17.4
Often	94	5.4
<i>Friends (N=1765)</i>		
Never	267	15.1
Hardly Ever	346	19.6
Sometimes	726	41.1
Often	426	24.1
<i>A brother or sister (N=1758)</i>		
Never	592	33.7
Hardly Ever	386	22
Sometimes	529	30.1
Often	251	14.3
<i>A grandparent (N=1743)</i>		
Never	1485	85.2
Hardly Ever	176	10.1
Sometimes	50	2.9
Often	32	1.8
<i>Other relative (N=1746)</i>		
Never	1020	58.4
Hardly Ever	311	17.8
Sometimes	294	16.8
Often	121	6.9
<i>Alone (N=1760)</i>		
Never	109	6.2
Hardly Ever	100	5.7
Sometimes	290	16.5
Often	1261	71.6

C.48 LOGISTIC REGRESSION OF ITEMS RELATING TO INTERNET USAGE BY GAMBLING STATUS: FINDINGS

Question Domain - Internet Usage	Frequency [§]		Odds ratio [†] (95% CI)	P value [†]
	Non-gambler	Gambler		
Frequency of internet usage (N=1944)				
Never	12.5 (10-15)	8.2 (6.7-9.7)	.494 (.281-.871)	
Weekly or less	20 (17-23)	23.3 (21-25.6)	.547 (.350-.855)	<.0001*
Twice a week or more	32.3 (28.7-35.8)	28.5 (26-30.9)	.556 (.431-.717)	
Every Day	35.2 (31.6-38.8)	40 (37.3-42.7)	1	
Daily temporal expenditure: Average <u>weekday</u> (N=1753)				
None	7.5 (5.3-9.6)	6 (4.7-7.4)	.356 (.139-.912)	
Less than 1 hour per day	38.8 (34.9-42.8)	41.4 (38.6-44.3)	.568 (.330-.977)	
1- 3 hours per day	39.7 (35.7-43.6)	36 (33.3-38.7)	.659 (.400-1.088)	.1695
3 or more hours per day	14.1 (11.3-16.9)	16.5 (14.4-18.6)	1	
Daily temporal expenditure: Average <u>weekend day</u> (N=1756)				
None	17.5 (14.5-20.6)	16.3 (14.1-18.4)	.794 (.505-1.250)	
Less than 1 hour per day	27.3 (23.7-30.9)	34 (31.3-36.8)	1.247 (.845-1.841)	
1- 3 hours per day	29.7 (26-33.4)	27.8 (25.3-30.4)	1.071 (.781-1.469)	.4036
3 or more hours per day	25.5 (21.9-29)	21.9 (19.5-24.2)	1	

* p<.05

Calculated from data which is: [§] un-weighted and un-adjusted for age, gender, ethnicity and school clustering effects; [†] weighted and adjusted for age, gender, ethnicity and school clustering effects

C.49 LOGISTIC REGRESSION OF ITEMS RELATING TO INTERNET USAGE BY PROBLEM GAMBLING STATUS: FINDINGS

Question Domain - Internet Usage	Frequency [§]		Odds ratio [†] (95% CI)	P value [†]
	Non-problem gambler	Problem gambler		
Frequency of internet usage (N=1144)				
Never	6.4 (4.9-7.8)	11.8 (3.9-19.6)	1.204 (.446-3.245)	
Weekly or less	23 (20.5-25.5)	17.6 (8.4-26.9)	.476 (.202-1.121)	.1900
Twice a week or more	28.8 (26.1-31.5)	22.1 (11.9-32.2)	.696 (.292-1.661)	
Every Day	41.8 (38.9-44.8)	48.5 (36.3-60.7)	1	
Daily temporal expenditure: Average <u>weekday</u> (N=1070)				
None	5.5 (4.1-6.9)	4.9 (0-10.5)	.351 (.059-2.096)	
Less than 1 hour per day	42.3 (39.3-45.4)	26.2 (14.9-37.6)	.356 (.150-.844)	.0005*
1- 3 hours per day	36.3 (33.4-39.3)	29.5 (17.7-41.3)	.370 (.209-.655)	
3 or more hours per day	15.8 (13.5-18)	39.3 (26.7-52)	1	
Daily temporal expenditure: Average <u>weekend day</u> (N=1070)				
None	15.8 (13.5-18)	15 (5.7-24.3)	.359 (.092-1.396)	
Less than 1 hour per day	35.5 (32.6-38.5)	13.3 (4.5-22.2)	.188 (.069-.514)	.0102*
1- 3 hours per day	28 (25.2-30.8)	25 (13.7-36.3)	.409 (.209-.803)	
3 or more hours per day	20.7 (18.2-23.2)	46.7 (33.7-59.7)	1	

* p<.05

Calculated from data which is: [§] un-weighted and un-adjusted for age, gender, ethnicity and school clustering effects; [†] weighted and adjusted for age, gender, ethnicity and school clustering effects

C.50 FREQUENCY OF COMPUTER GAME USAGE (*N*=1970)

<i>Frequency of Computer Game Usage</i>	<i>N</i>	%
Never	452	22.9
Monthly or less	443	22.5
2-4 times a month	329	16.7
2-3 times a week	417	21.2
Every Day	329	16.7

C.51 TIME SPENT USING COMPUTER GAMES

<i>Frequency of Computer Game Usage</i>	<i>Average Weekday</i> (N=1521)		<i>Average Weekend Day</i> (N=1518)	
	<i>N</i>	<i>%</i>	<i>N</i>	<i>%</i>
None	415	27.3	308	20.3
Less than 1 hour per day	597	39.3	538	35.4
1 – 3 hours per day	361	23.7	397	26.2
3 – 6 hours per day	84	5.5	160	10.5
6 – 9 hours per day	33	2.2	55	3.6
9 or more hours per day	31	2	60	4

C.52 COMPANION FOR COMPUTER GAME USAGE BY FREQUENCY

<i>Companion</i>	<i>N</i>	<i>%</i>
<i>A Parent (N=1503)</i>		
Never	1048	69.7
Hardly Ever	284	18.9
Sometimes	128	8.5
Often	43	2.9
<i>Friends (N=1521)</i>		
Never	250	16.4
Hardly Ever	283	18.6
Sometimes	594	39.1
Often	394	25.9
<i>A brother or sister (N=1504)</i>		
Never	426	28.3
Hardly Ever	268	17.8
Sometimes	465	30.9
Often	345	22.9
<i>A grandparent (N=1492)</i>		
Never	1356	90.9
Hardly Ever	87	5.8
Sometimes	30	2
Often	19	1.3
<i>Other relative (N=1496)</i>		
Never	870	58.2
Hardly Ever	221	14.8
Sometimes	256	17.1
Often	149	10
<i>Alone (N=1506)</i>		
Never	233	15.5
Hardly Ever	171	11.4
Sometimes	367	24.4
Often	735	48.8

C.53 LOGISTIC REGRESSION OF ITEMS RELATING TO COMPUTER GAME USAGE BY GAMBLING STATUS: FINDINGS

Question Domain - Computer Game Usage	Frequency [§]		Odds ratio [†] (95% CI)	P value [†]
	Non-gambler	Gambler		
Frequency of computer game usage (N=1951)				
Never	29.1 (25.7-32.5)	19.8 (17.6-21.9)	.513 (.357-.737)	
Weekly or less	33.8 (30.3-37.4)	42 (39.3-44.7)	.908 (.606-1.361)	<.0001*
Twice a week or more	37.1 (33.4-40.7)	38.2 (35.5-40.9)	1	
Daily temporal expenditure: Average <u>weekday</u> (N=1505)				
None	28.9 (24.9-33)	26.4 (23.7-29)	.915 (.554-1.513)	
Less than 1 hour per day	38 (33.7-42.4)	40 (37-43)	.933 (.654-1.330)	.8936
1 or more hours per day	33.1 (28.9-37.3)	33.6 (30.7-36.5)	1	
Daily temporal expenditure: Average <u>weekend day</u> (N=1502)				
None	19.4 (15.8-22.9)	20.4 (18-22.9)	.941 (.644-1.375)	
Less than 1 hour per day	34.2 (29.9-38.4)	36.2 (33.3-39.1)	1.348 (.846-2.147)	.3803
1 or more hours per day	46.5 (42-50.9)	43.4 (40.3-46.4)	1	

* p<.05

Calculated from data which is: [§] un-weighted and un-adjusted for age, gender, ethnicity and school clustering effects; [†] weighted and adjusted for age, gender, ethnicity and school clustering effects

C.54 LOGISTIC REGRESSION OF ITEMS RELATING TO COMPUTER GAME USAGE BY PROBLEM GAMBLING STATUS: FINDINGS

Question Domain - Computer Game Usage	Frequency [§]		Odds ratio [†] (95% CI)	P value [†]
	Non-problem gambler	Problem gambler		
Frequency of computer game usage (N=1150)				
Never	19.1 (16.7-21.4)	21.4 (11.6-31.3)	1.690 (.305-.9.358)	
Weekly or less	42.9 (40-45.9)	25.7 (15.2-36.2)	.462 (.250-.855)	.0018*
Twice a week or more	38 (35.1-40.9)	52.9 (40.9-64.8)	1	
Daily temporal expenditure: Average <u>weekday</u> (N=932)				
None	27.6 (24.7-30.6)	7.5 (.2-14.9)	.043 (.009-.202)	
Less than 1 hour per day	41.2 (38-44.5)	26.4 (14.1-38.7)	.336 (.178-.632)	<.0001*
1 or more hours per day	31.1 (28.1-34.2)	66 (52.9-79.2)	1	
Daily temporal expenditure: Average <u>weekend day</u> (N=931)				
None	20.7 (18-23.3)	13 (3.7-22.2)	.114 (.022-.602)	
Less than 1 hour per day	37.6 (34.4-40.8)	16.7 (6.4-26.9)	.198 (.075-.529)	.0015*
1 or more hours per day	41.8 (38.5-45)	70.4 (57.8-83)	1	

* p<.05

Calculated from data which is: [§] un-weighted and un-adjusted for age, gender, ethnicity and school clustering effects; [†] weighted and adjusted for age, gender, ethnicity and school clustering effects

C.55 LOGISTIC REGRESSION OF HYPOTHESISED PROTECTIVE FACTORS BY GAMBLING STATUS: FINDINGS

Continuous Variables					
Item #	Variable	Median §		Odds ratio † (95% CI)	P value †
		Non-gambler	Gambler		
67	<i>Other adult for support (N=1939)</i>	4	4	.1 (.914-1.093)	.9976
68	<i>Family spends time together having fun (N=1927)</i>	3	3	.963 (.914-1.014)	.1517
69	<i>Family wants details when going out (N=1146)</i>	5	5	1.017 (.858-1.206)	.8483
70	<i>Household task or chores (N=1953)</i>	4	4	.905 (.854-.96)	.0008*
71	<i>Easy to get good grades (N=1925)</i>	3	3	.904 (.809-1.011)	.0761
72	<i>School expects me to get good grades (N=1944)</i>	4	4	1.035 (.976-1.097)	.2494
73	<i>Involved in extra-curricular activities (N=1941)</i>	4	4	1.076 (.983-1.179)	.1118
74	<i>Getting on well with teachers (N=1931)</i>	4	4	.837 (.679-1.032)	.0956
75	<i>Adults at school care about me (N=1946)</i>	3	3	.948 (.82-1.095)	.4647
76	<i>Getting on well with students (N=1936)</i>	4	4	.951 (.76-1.19)	.659
77	<i>Feel like valued member of school (N=1942)</i>	3	3	.975 (.877-1.083)	.6327
78	<i>Have plans for the future (N=1948)</i>	5	5	1.01 (.836-1.219)	.9207
81	<i>Happiness (N=1934)</i>	4	4	1.026 (.941-1.12)	.5576
84	<i>Frequency of worship (N=1944)</i>	2	2	.912 (.767-1.083)	.2926
85	<i>Important to attend church etc (N=1934)</i>	3	3	.887 (.777-1.013)	.0766

86	<i>Importance of spiritual beliefs (N=1931)</i>	4	3	.883 (.796-.980)	.0188*
87	<i>Spiritual connection to other people (N=1942)</i>	3	3	.949 (.865-1.041)	.2644
88	<i>Life guided by spiritual force (N=1937)</i>	3	3	.964 (.830-1.121)	.6373
89	<i>Spiritual connection to nature (N=1939)</i>	3	3	.987 (.892-1.092)	.8016

Categorical Variables

Item #	Variable	Frequency % [§] (95% CI)		Odds ratio [†] (95% CI)	P value [†]
		Non-gambler	Gambler		
79	<i>Have received detention (N=1947)</i>				
	Yes	44.6 (40.9-48.4)	56.7 (54-59.4)	1.572 (1.139-2.169)	.0059*
	No	55.4 (51.6-59.1)	43.3 (40.6-46)	1	
80	<i>Have received suspension (N=1915)</i>				
	Yes	5.3 (3.6-7)	8.2 (6.7-9.7)	2.115 (.932-4.798)	.0732
	No	94.7 (93-96.4)		1	
82	<i>Had thoughts about suicide (N=1942)</i>				
	Yes	30.7 (27.2-34.2)	33.3 (30.7-35.9)	.920 (.697-1.213)	.5539
	No	69.3 (65.8-72.8)		1	
83	<i>Has made a suicide plan (N=1941)</i>				
	Yes	10.7 (8.3-13)	14 (12.1-15.9)	1.360 (.993-1.862)	.055
	No	89.3 (87-91.7)		1	

* p<.05

Calculated from data which is: [§] un-weighted and un-adjusted for age, gender, ethnicity and school clustering effects; [†] weighted and adjusted for age, gender, ethnicity and school clustering effects

C.56 LOGISTIC REGRESSION OF HYPOTHESISED PROTECTIVE FACTORS BY PROBLEM GAMBLING STATUS: FINDINGS

Continuous Variables						
<i>Item #</i>	<i>Variable</i>	<i>Median</i> [§]	<i>Non-problem gambler</i>	<i>Problem gambler</i>	<i>Odds ratio</i> [¶] <i>(95% CI)</i>	<i>P value</i> [¶]
67	<i>Other adult for support (N=1144)</i>	4	3	.898 (.660-1.221)	.4912	
68	<i>Family spends time together having fun (N=1136)</i>	3	3	.640 (.385-1.064)	.0854	
69	<i>Family wants details when going out (N=1144)</i>	5	3	.681 (.511-.909)	.0090*	
70	<i>Household task or chores (N=1149)</i>	4	3	.800 (.517-1.239)	.3174	
71	<i>Easy to get good grades (N=1128)</i>	3	3	.750 (.459-1.224)	.2496	
72	<i>School expects me to get good grades (N=1145)</i>	4	4	.929 (.671-1.287)	.6589	
73	<i>Involved in extra-curricular activities (N=1141)</i>	4	3	.935 (.695-1.259)	.6586	
74	<i>Getting on well with teachers (N=1139)</i>	4	3	.450 (.294-.688)	.0002*	
75	<i>Adults at school care about me (N=1143)</i>	3	3	.693 (.397-1.210)	.1969	
76	<i>Getting on well with students (N=1136)</i>	4	4	.612 (.380-.987)	.0439*	
77	<i>Feel like valued member of school (N=1141)</i>	3	3	.871 (.603-1.259)	.4626	
78	<i>Have plans for the future (N=1147)</i>	5	4	.530 (.363-.773)	.0010*	
81	<i>Happiness (N=1135)</i>	4	3	.456 (.296-.704)	.0004*	
84	<i>Frequency of worship (N=1142)</i>	2	2	1.095 (.924-1.298)	.2940	
85	<i>Important to attend church etc (N=1137)</i>	3	3	.889 (.706-1.118)	.3140	

86	<i>Importance of spiritual beliefs (N=1132)</i>	3	3	.886 (.701-1.119)	.3089
87	<i>Spiritual connection to other people (N=1141)</i>	3	3	.812 (.545-1.209)	.3042
88	<i>Life guided by spiritual force (N=1137)</i>	3	3	.871 (.613-1.239)	.4424
89	<i>Spiritual connection to nature (N=1141)</i>	3	3	.980 (.697-1.377)	.9076

Categorical Variables

Item #	Variable	Frequency % [§] (95% CI)		Odds ratio [†] (95% CI)	P value [†]
		Non-problem gambler	Problem gambler		
79	<i>Have received detention over the past year (N=1145)</i>				
	Yes	55.2 (52.2-58.1)	73.1 (62.2-84)	3.578 (1.575-8.128)	.0023*
	No	44.8 (41.9-47.8)	26.9 (16-37.8)	1	
80	<i>Have received suspension (N=1124)</i>				
	Yes	6.5 (5-8)	26.2 (15.2-37.1)	5.993 (2.094-17.151)	.0008*
	No	93.5 (92-95)	73.8 (62.9-84.8)	1	
82	<i>Had thoughts about suicide (N=1143)</i>				
	Yes	33.4 (30.6-36.2)	49.3 (37.4-61.2)	2.530 (1.466-4.366)	.0009*
	No	66.6 (63.8-69.4)	50.7 (38.8-62.6)	1	
83	<i>Has made a suicide plan (N=1141)</i>				
	Yes	12.8 (10.8-14.8)	32.4 (21.2-43.6)	3.943 (1.788-8.695)	.0007*
	No	87.1 (85.2-89.2)	67.6 (56.4-78.8)	1	

* p<.05

Calculated from data which is: [§] un-weighted and un-adjusted for age, gender, ethnicity and school clustering effects; [†] weighted and adjusted for age, gender, ethnicity and school clustering effects

C.57 AGE OF INITIALLY CONSUMING A DRINK CONTAINING ALCOHOL (N=1276)

<i>Age in Years</i>	<i>N</i>	<i>%</i>
9 or less	336	26.5
10	156	12.2
11	86	6.7
12	171	13.4
13	223	17.5
14	161	12.6
15	95	7.4
16	36	2.8
17	7	.5
18	4	.3
19	1	.1

C.58 CONSUMPTION OF DRINKS CONTAINING ALCOHOL – FREQUENCY OVER PAST YEAR ($N=1315$)

<i>Frequency</i>	<i>N</i>	%
Never	89	6.8
Monthly or Less	487	37
2-4 times a month	477	36.3
2-3 times a week	236	17.9
Every day	26	2

**C.59 CONSUMPTION OF FIVE OR MORE DRINKS
CONTAINING ALCOHOL IN ONE SESSION – FREQUENCY
OVER PAST YEAR ($N=1320$)**

<i>Frequency</i>	<i>N</i>	<i>%</i>
Never	430	32.6
Monthly or Less	450	34.1
2-4 times a month	301	22.8
2-3 times a week	119	9
Every day	20	1.5

C.60 LOCATION/VENUE OF CONSUMPTION OF DRINKS CONTAINING ALCOHOL BY FREQUENCY

<i>Location / Venue</i>	<i>N</i>	<i>%</i>
<i>At home (N=1316):</i>		
Never	301	22.9
Hardly ever	372	28.3
Sometimes	372	28.3
Often	271	20.6
<i>At a friend's home (N=1318):</i>		
Never	261	19.8
Hardly ever	161	12.2
Sometimes	470	35.7
Often	426	32.3
<i>At school (N=1304):</i>		
Never	1173	90
Hardly ever	64	4.9
Sometimes	48	3.7
Often	19	1.5
<i>In a car (N=1299):</i>		
Never	818	63
Hardly ever	200	15.4
Sometimes	203	15.6
Often	78	6
<i>At an outdoor place (N=1311):</i>		
Never	454	34.6
Hardly ever	268	20.4
Sometimes	398	30.4
Often	191	14.6
<i>At a sports club (N=1304):</i>		
Never	990	75.9
Hardly ever	150	11.5
Sometimes	118	9
Often	46	3.5
<i>At a pub or bar (N=1303):</i>		
Never	895	68.7
Hardly ever	154	11.8
Sometimes	157	12
Often	97	7.4
<i>At another place (N=1306):</i>		
Never	437	33.5
Hardly ever	185	14.2
Sometimes	364	27.9
Often	320	24.5

C.61 LOGISTIC REGRESSION OF ITEMS RELATING TO ALCOHOL USAGE BY GAMBLING STATUS: FINDINGS

Question Domain - Alcohol Usage	Median [§]		Odds ratio [†] (95% CI)	P value [†]
	Non-gambler	Gambler		
Ever drunk more than a few sips of alcohol (N=1943)				
No	51.3 (47.5-55)	22.4 (20.1-24.7)	.351 (.184-.670)	.0015*
Yes	48.7 (45-52.5)	77.6 (75.3-79.9)	1	
Frequency of consuming a drink containing alcohol over the past year (N=1220)				
Never	10.1 (6.8-13.4)	5.7 (4.2-7.1)	.131 (.045-.377)	
Monthly or less	44.6 (39.2-50.1)	34.6 (31.6-37.6)	.295 (.197-.443)	<.0001*
2-4 times a month	33.9 (28.8-39.1)	37.1 (34-40.1)	.515 (.356-.744)	
2 or more times a week	11.3 (7.9-14.8)	22.6 (20-25.3)	1	
Frequency of consuming five or more drinks in one session over the past year (N=1312)				
Never	43.8 (38.4-49.2)	28.8 (26-31.7)	.234 (.139-.394)	
Monthly or less	34.3 (29.2-39.5)	34.1 (31.1-37.1)	.531 (.325-.869)	<.0001*
2-4 times a month	15.5 (11.6-19.4)	25.3 (22.6-28)	1.161 (.674-2.001)	
2 or more times a week	6.4 (3.7-9)	11.7 (9.7-13.8)	1	

* p<.05

Calculated from data which is: [§] un-weighted and un-adjusted for age, gender, ethnicity and school clustering effects; [†] weighted and adjusted for age, gender, ethnicity and school clustering effects

C.62 LOGISTIC REGRESSION OF ITEMS RELATING TO ALCOHOL USAGE BY PROBLEM GAMBLING STATUS: FINDINGS

Question Domain - Alcohol Usage	Median [§]		Odds ratio [†] (95% CI)	P value [†]
	Non-problem gambler	Problem gambler		
Ever drunk more than a few sips of alcohol (N=1145)				
No	20.5 (18.1-22.9)	21.2 (11.4-30.9)	.841 (.371-1.908)	
Yes	79.5 (77.1-81.9)	78.9 (69.1-88.6)	1	.6787
Frequency of consuming a drink containing alcohol over the past year (N=905)				
Never	5.1 (3.6-6.5)	8.9 (1.2-16.6)	.248 (.087-.702)	
Monthly or less	33.7 (30.5-36.9)	21.4 (10.3-32.5)	.140 (.051-.386)	
2-4 times a month	39.4 (36.1-42.7)	30.4 (17.9-42.8)	.246 (.098-.619)	.0008*
2 or more times a week	21.9 (19.1-24.6)	39.3 (26.1-52.5)	1	
Frequency of consuming five or more drinks in one session over the past year (N=907)				
Never	29.1 (26-32.1)	10.7 (2.4-19.1)	.039 (.009-.169)	
Monthly or less	33.8 (30.6-36.9)	30.4 (17.9-42.8)	.164 (.068-.396)	
2-4 times a month	26.8 (23.9-29.8)	23.2 (11.8-34.6)	.321 (.112-.914)	<.0001*
2 or more times a week	10.3 (8.3-12.4)	35.7 (22.8-48.7)	1	

* p<.05

Calculated from data which is: [§] un-weighted and un-adjusted for age, gender, ethnicity and school clustering effects; [†] weighted and adjusted for age, gender, ethnicity and school clustering effects

C.63 LOGISTIC REGRESSION OF IPPA SCORES BY GAMBLING STATUS: FINDINGS

IPPA Scales	Median [§]		Odds ratio [†] (95% CI)	P value [†]
	Non-gambler	Gambler		
<i>Maternal IPPA Scales (N=1912):</i>				
Attachment / Overall Score	95	90	.990 (.985-.996)	.0017*
Trust	42	40	.982 (.969-.996)	.0132*
Communication	32	30	.979 (.965-.994)	.0052*
Alienation	14	15	1.034 (1.009-1.059)	.0071*
<i>Paternal IPPA Scales (N=1846)</i>				
Attachment / Overall Score	87	83	.989 (.978-.999)	.0268*
Trust	39	37	.979 (.959-1)	.0536*
Communication	28	27	.976 (.954-.999)	.0388*
Alienation	15	16	1.045 (1.018-1.072)	.0011*
<i>Peer IPPA Scales (N=1870)</i>				
Attachment / Overall Score	93	93	.995 (.985-1.005)	.3449
Trust	41	41	.994 (.975-1.014)	.5392
Communication	29	30	1.002 (.974-1.030)	.9114
Alienation	17	18	1.035 (1.011-1.060)	.0044*

* p<.05

Calculated from data which is: [§] un-weighted and un-adjusted for age, gender, ethnicity and school clustering effects; [†] weighted and adjusted for age, gender, ethnicity and school clustering effects

C.64 LOGISTIC REGRESSION OF IPPA SCORES BY PROBLEM GAMBLING STATUS: FINDINGS

IPPA Scales	Median [§]		Odds ratio ^T (95% CI)	P value ^T
	Non-problem gambler	Problem gambler		
<i>Maternal IPPA Scales (N=1125):</i>				
Attachment / Overall Score	90	79	.951 (.925-.979)	.0005*
Trust	40	33	.899 (.855-.945)	<.0001*
Communication	30	28	.929 (.869-.993)	.0297*
Alienation	15	18	1.150 (1.050-1.259)	.0027*
<i>Paternal IPPA Scales (N=1085)</i>				
Attachment / Overall Score	83	78	.966 (.940-.992)	.0117*
Trust	38	33	.929 (.886-.975)	.0025*
Communication	27	28	.981 (.912-1.056)	.6165
Alienation	16	18	1.154 (1.047-1.271)	.0037*
<i>Peer IPPA Scales (N=1098)</i>				
Attachment / Overall Score	94	83	.964 (.936-.994)	.0170*
Trust	41	35	.942 (.896-.989)	.0174*
Communication	30	28	.955 (.893-1.020)	.1773
Alienation	17	21	1.104 (1.020-1.195)	.0146*

* p<.05

Calculated from data which is: [§] un-weighted and un-adjusted for age, gender, ethnicity and school clustering effects; ^T weighted and adjusted for age, gender, ethnicity and school clustering effects

C.65 LOGISTIC REGRESSION OF KNOWN PROTECTIVE AND RISK FACTORS, AND DEMOGRAPHICS BY PROBLEM GAMBLING STATUS: FINDINGS

Continuous Variables	<i>Median</i> [§]		<i>Odds ratio</i> [†] (95% CI)	<i>P value</i> [†]
	<i>Non-problem gambler</i>	<i>Problem gambler</i>		
Perception of how good they are at gambling	3	4	1.561 (.833-2.925)	.1642
Relationship with their school teachers	4	3	.665 (.477-.927)	.0159*
Maternal attachment	90	79	.975 (.958-.991)	.0030*
Perceived level of happiness	4	3	.840 (.550-1.285)	.4225
Age	15	15	1.029 (.660-1.606)	.8983
Categorical Variables	<i>Frequency</i> [§] (95% CI)		<i>Odds ratio</i> [†] (95% CI)	<i>P value</i> [†]
	<i>Non-problem gambler</i>	<i>Problem gambler</i>		
Have received detention over the past year (N=1145)				
Yes	55.2 (52.2-58.1)	73.1 (62.2-84)	2.635 (1.160-5.982)	.0206*
No	44.8 (41.9-47.8)	26.9 (16-37.8)	1	
Age of first gambling (N=1165)				
Aged 10 or less	42.3 (39.3-45.2)	59.2 (47.4-70.9)	2.274 (1.465-3.529)	.0002*
Aged 11 or more	57.7 (54.8-60.7)	40.8 (29.1-52.6)	1	
Perceived parental problem gambling				
Yes	7.4 (5.8-9.1)	41.8 (28.4-55.3)	3.649 (1.307-10.188)	.0135*
No	92.6 (90.9-94.2)	58.2 (44.7-71.6)	1	
Ethnicity				
Non - NZ European/Pakeha	46 (43.1-49)	77.5 (67.5-87.4)	4.737 (1.413-15.878)	.0117*
NZ European/Pakeha	54 (51-56.9)	22.5 (12.6-32.5)	1	
Gender (N=1165)				
Male	42.8 (40-45.8)	59.2 (47.4-70.9)	1.156 (.473-2.828)	.7500

Female	57.1 (54.2-60)	40.8 (29.1-52.6)	1
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* p<.05

Calculated from data which is: [§] un-weighted and un-adjusted for age, gender, ethnicity and school clustering effects; [†] weighted and adjusted for age, gender, ethnicity and school clustering effects