

## Factors Leading to Substance Abuse, and Implications for Gambling in New Zealand

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While much is known about the development of substance abuse, very few studies have examined how social gambling progresses to problem gambling for some individuals. Patterns of development might be similar to the patterns leading to alcohol misuse. This paper briefly reviews the literature on the association between problem gambling and substance abuse. The cultural, sociodemographic, social and personal factors that contribute to the initiation and continuation of the use of addictive substances, including alcohol, marijuana, tobacco and illicit drugs, are examined, with special reference to two longitudinal New Zealand studies. A synopsis of the development of substance use, abuse and recovery is outlined. Questions regarding the implications for the changes from social gambling and to recovery are presented. Possible key indicators of the changes are suggested.

*Keywords:* Substance abuse; Vulnerability factors; Problem gambling; New Zealand.

### Overview

This paper begins with a review of the literature on the cultural, sociodemographic, social and personal factors that contribute to the initiation and continuation of the use of addictive substances, including alcohol, marijuana, tobacco and illicit drugs. A synopsis of the development of substance use, abuse and recovery is outlined. The interrelationships between problem gambling and substance abuse are also examined. Questions regarding the implications for the changes from social to problem gambling, and to recovery are presented in the [Appendix](#). Possible key indicators of changes are suggested.

Many of the findings discussed below are derived

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from two longitudinal studies that have provided much information about alcohol and substance use among two cohorts in New Zealand. The first, the Dunedin Multidisciplinary Health and Development Study (DMHDS), began with 1,037 children at three years of age, who were born in Dunedin between April 1, 1972 and March 31, 1973, and who were subsequently assessed on a wide range of topics every two years until the age of 15, then at 18, 21, and 26 years. Data on alcohol and substance use were included from the age of nine. The second, the Christchurch Health and Development Study (CHDS), examined a birth cohort of 1,265 children followed yearly from 1977. Questions on alcohol, smoking and drug use began at approximately 10 years of age. Data on gambling among the Dunedin sample were collected when the cohort was 21 years of age, and interviews on gambling are scheduled for 32 and 38 years of age. Due to the on-going nature of this study, no meaningful results have been published to date (Nada-Raja, personal communication, December 13, 2003). Both samples are of slightly high socioeconomic status. Single parent families, Asians, Maori and Pacific Island people are under-represented, compared with the New Zealand population.

## Cultural Factors

Sussman and Ames (2001) have outlined a number of cultural factors that may be involved in changes in frequency and amount of substance use. Cultural antecedents include important life habits and rituals that are meaningful to the culture, normative structures, expectations, beliefs and attitudes about reasons for substance use and its effects. Changes in rituals, norms and beliefs can occur through acculturation, the preference or adoption of a culture to which individuals have been more recently exposed. Failure to bond successfully to the new culture and conflict with the old culture may increase stress and the likelihood of substance use to relieve the stress. For example, rates of admission to psychiatric hospitals for Maori have increased from the 1950s with rapid increases in first admissions and frequency of re-admissions through the 1960s to 1980s (Sachdev, 1989). The main problems were alcohol abuse and dependence and Maori males aged 20 to 40 years were found to be especially at risk. Rates of increase in admissions were greater for Maori than for non-Maori, and were attributed to urbanization, socioeconomic conditions and government policy changes.

From the 2000 national survey of alcohol use among 1,992 Maori (Barnes, McPherson, & Bhatta, 2003), respondents' reasons for drinking were mainly increased availability (40 to 45% of the 13- to 17-year-olds said it was easy to get alcohol) and affordability. More than 40% of the total sample thought that the laws on selling alcohol to adolescents under 18 were not adequately enforced.

The Alcohol Advisory Council of New Zealand (ALAC) surveyed the major Pacific Island groups to ascertain drinking patterns among them (Alcohol Advisory Council of New Zealand, 1997). Across all groups, more women were drinking than their respective communities acknowledged, young people who drank tended to decrease or stop attendance at church, there was no one dominant view of alcohol use within any one Pacific Island group, it was important to drink in a group until all the alcohol was consumed, heavy drinking peaked between 30 and 35 years of age, and most participants, apart from the Niuean group, seemed totally unaware of the health effects of binge drinking.

In the islands, alcohol was produced and consumed away from the home, but when in New Zealand, it was brought into the home, so that women and children became more exposed to alcohol and its effects. Drinking rituals probably contributed to binge drinking and to the lack of awareness and concern of associated detrimental health effects. For example, in kava circle ceremonies, each man drinks a coconut cup of alcohol made from taro roots in one swig. The cup is then

passed around until all the alcohol is consumed. Wanting to drink alone was seen as problematic because the individual was rejecting the group. Generosity of giving food enhances the status of the hosts, and alcohol was considered a food to be lavished on guests. If guests went home without getting drunk, then the host was being mean and stingy.

In Western cultures which emphasize individual freedoms, laws, norms and advertising promote substance use. For example, in the Dunedin study (Casswell, Pledger, & Hooper, 2003; Casswell, Pledger, & Prata, 2002), drinking in licensed premises at 18 years of age (82% of the drinkers did so illegally) was related to availability of alcohol at 15 and was one of the predictors of greater frequency and heavier drinking into early adulthood for both sexes. Availability involves ease of setting up a drug business, establishing a distribution network, proximity to potential customers, knowledge about the substances, and ability to acquire the substances by access to money legally or illegally, or through the provision of services (Sussman & Ames, 2001). Although educational efforts to stem excessive alcohol use have had little success, policies of social control that limit availability have been more successful (Harford, 2003).

## Media and Advertising

Sussman and Ames (2001) summarized the potential effects of worldwide exposure to "hedonistic" portrayals of substance use on people's use of such substances. Television programmes, films and the Internet provide ready access to knowledge about the substances, role models and idols glamorize the consumption of them, and advertising makes them attractive. Mere repeated exposure to such images is sufficient to alter people's preferences for the substances, even if they are not paying attention to them. The images and their associations with pleasure and social status are more accessible in memory, and will automatically come to mind when decisions are being made without rational thought (Hills & Dickerson, 2002). Furthermore, people who are using or abusing substances, or predisposed to using them, have their beliefs and behaviours reinforced by the media.

For example, liking advertising for alcohol at age 18 and amount consumed at age 21 influenced the frequency of drinking at age 24 among the Dunedin cohort (Casswell et al., 2002; Casswell & Zhang, 1998). In earlier reports on the cohort (Casswell, Brasch, Gilmore, & Silva, 1985; Casswell, Gilmore, Silva, & Brasch, 1988), it was found that peers were not important for 8- and 9-year-olds in obtaining information and influencing attitudes about alcohol. Information came primarily from television (37%), parents and siblings (26%). The children tended to associate alcohol

with getting drunk, vomiting and silliness, based on their observations of familial behaviour. They also associated it with drink-driving accidents from television health-promotion advertisements.

However, the effect of health promotion messages to reduce drinking and driving is probably outweighed by television advertising and entertainment. With the Dunedin cohort, [Connolly, Casswell, Zhang, and Silva \(1994\)](#) found that the number of beer commercials recalled by males when they were aged 15 predicted amount of beer consumed at age 18. Although there were no relationships between recall of advertising and consumption of wines and spirits for both sexes, for young women at age 18, the number of hours watching television was associated with amounts of these two substances consumed. There were no associations between recall of moderation messages and amounts of alcohol consumed.

### *Spiritual Factors*

Some cultural and religious groups use drugs ritually and symbolically ([Sussman & Ames, 2001](#)), for example, in kava ceremonies before political meetings or wine representing the blood of Christ in the Catholic Mass. Most religious groups operate under two basic assumptions: (a) something is not right with the human condition, and (b) higher powers can remedy the situation ([Sussman & Ames, 2001](#)). For example, [Koski-Jannes \(1999\)](#) found that religious revival and the Alcoholics Anonymous 12-step programme were used in an attempt to change some poly-drug abusers.

[Orford \(2001\)](#) noted that the majority of substance abusers improve without professional treatment, and emphasized underlying processes from the transtheoretical model of change ([Prochaska, DiClemente, & Norcross, 1992](#)) that seem to be common to different treatment programmes that could explain natural recovery, at least for some people with severe substance abuse problems. In addition to support from others and the reinforcements of self-liberation such as day-to-day commitment to quit and self-control or willpower, moral reform seems to be important. There are common processes such as admission of having a problem and needing help, symbolic death, surrender and re-education which lead to experiential peace (lack of negative affectivity), changes in beliefs, and character change towards conscientiousness, selflessness, humility, ego-reduction, and forgiveness.

### **Sociodemographic and Social Factors**

The prevalence of alcohol and substance use among males is generally greater than that among females, both for frequency of consumption and amounts consumed ([Sussman & Ames, 2001](#)). [Sussman and Ames](#)

suggested that males and females are taught to handle problems in general differently. Males are more likely to seek instrumental ways of dealing with their problems rather than being expressive or seeking help, while females are more likely to look for social support. The authors suspect that as women become more career-oriented, the incidence of substance use and abuse will increase among them.

In Western countries, the prevalence of alcohol use tends to peak between 26 and 34 years of age, and of illicit substance use between 18 and 25 years of age ([Harford, 2003](#); [Sussman & Ames, 2001](#)). Freedom from family constraints, and the ability to purchase alcohol and tobacco legally, possibly account for some of the increase in substance use into young adulthood. Job and new family responsibilities may contribute to decreases in use afterward. From data in the Dunedin study ([Casswell et al., 2002, 2003](#)) trajectories and predictors of drinking from 18 to 26 years of age were examined. Unlike prevalence rates in other countries which found that alcohol use peaked later, drinking peaked at age 21 in the cohort. They found that drinking in licensed premises at age 18 (illegally then) and lack of educational achievement led to greater frequency and heavier drinking through early adulthood for both males and females. Risk factors for drinking and driving incidents up to the age of 26 were male, lower socioeconomic status, no school qualifications, dependent on alcohol or marijuana at age 21, drinking at bars, and lack of foresight ([Morrison, Begg, & Langley, 2002](#)). At age 15, if access to alcohol was easy, drinking in licensed premises at age 18 was more likely. Similarly, in Denmark ([Andersen, Due, Holstein, & Iversen, 2003](#)), drinking at age 15 increased the odds of heavy drinking at 19. Drunkenness among boys and use of spirits by girls at age 15 in Denmark were the strongest predictors of excessive drinking at age 19.

Among the Dunedin cohort at age 15, more alcohol than usual was consumed away from the home, during the evening, among lower socioeconomic status adolescents with more money to spend ([Connolly, Casswell, Stewart, & Silva, 1992](#)). Approval of drinking by female friends affected amounts consumed for both sexes, and female disapproval of males' drinking had a notable effect on lowering the amounts the males normally drank. Frequency of alcohol consumption was also predicted by maternal drinking at the cohort age of 9, and heavy drinking by the same-sex parent. The authors noted that similar trajectories from longitudinal studies in other countries also included failure to monitor adolescents' whereabouts, living at college, and cohabiting with a member of the opposite sex. Marriage prevented an increase or led to decrease in alcohol consumption.

In another DMHDS report ([Droomers, Schrijvers, Casswell, & Mackenbach, 2003](#)) on high alcohol consumption at 15, 18 and 21 years of age, predictors

sumption at 15, 18 and 21 years of age, predictors from 9, 11 or 13 years were examined. The 15 year-old group whose fathers were in the lowest occupational group when the cohort was 9, had twice the odds of heavy drinking as the highest paternal occupational group. This finding was explained by family alcohol problems, peer approval of drug use, lower intelligence and lower parental attachment at all earlier ages.

From the Christchurch study, path analysis (Fergusson, Horwood, & Lynskey, 1995) showed that three factors with a 50% probability of risk predicted hazardous alcohol use (frequency, amounts and related problems) at 16 years of age: gender (males), heavy consumption at age 14, and affiliation with substance-using peers at age 15. Family social position, conduct problems at age 8, age of first using alcohol, parental use at age 11, and changes of parents' marital status were associated with early heavy consumption and affiliated peer usage. Children who were introduced to alcohol before the age of 6 and whose home environments had permissive attitudes towards alcohol use were twice as likely to drink heavily or have alcohol-related problems at age 15 (Fergusson, Lynskey, & Horwood, 1994). Low risk (<1%) adolescents were female with no evidence of early consumption or affiliation with substance-using peers. Furthermore, the predictors of vulnerability to substance use at age 16 (affiliation with antisocial youths or substance-using peers, novelty-seeking, and parental illicit drug use) were applicable to all classes of substance use, alcohol, tobacco, cannabis, and other illicit drugs, rather than to only one class (Lynskey, Fergusson, & Horwood, 1998).

A prospective study of 1,009 representative sixth grade students in Maryland (Simons-Morton, 2004) found that frequency of drinking increased from the beginning to the end of the school year. The factors accounting for the increase were peer influence, lack of engagement in school-related behaviours, and high personal expectations about drinking combined with low expectations that parents would be upset if they found out. The results were the same for both sexes, and for both Caucasian and African-American students.

Among the Christchurch cohort, the progression of cigarette smoking from non-smoking to occasional to regular smoking was traced from 10 to 16 years of age (Fergusson & Horwood, 1995). The development of smoking was largely progressive, one-way and accelerated with age. In another study of the cohort, frequency of cannabis use before age 16 was related to an increased risk of juvenile offending, mental health problems, school dropout, and unemployment at age 18 (Fergusson & Horwood, 1997). Similarly, with the Dunedin cohort, 12-month prevalence rates of canna-

bis use and dependence did not decline from 21 to 26 years of age as expected (Poulton, Moffitt, Harrington, Milne, & Caspi, 2001). Dependence was related to high rates of use of harder drugs such as heroin, selling drugs and drug convictions. Risk factors for heavy use of tobacco and cannabis for both cohorts were also similar to those for excessive alcohol consumption.

## Personal Factors

A number of personality traits have been associated with excessive substance use: sensation-seeking, impulsivity, lack of self-regulation, inability to bond to social institutions, unconventionality, rebelliousness and tolerance of deviance (Sussman & Ames, 2001). From the Dunedin longitudinal study, Caspi et al. (1997) ascertained the connection between stable personality traits at age 18 and the health-risk behaviours of alcohol dependence, violent crime, unsafe sex and dangerous driving habits at age 21. They found that the same personality type applied to all four health-risk behaviours. Compared with controls, the at-risk cohort at age 18 was lower on traditionalism (conservative, high moral standards), on harm avoidance (preference for safe activities), on self-control (reflective, cautious, careful, rational, planful), and on social closeness. They were higher on negative emotionality, including aggression and alienation (feeling mistreated, victimized, betrayed). At age three the at-risk cohort lacked adequate parental supervision and exhibited high negative emotionality which was associated with low traditionalism, low harm avoidance, low self-control and negative emotionality at age 18. The authors noted that from behavioural-genetic studies, over 50% of the variation in these four traits has been attributed to genetic factors.

The Christchurch study examined the relationship of conduct problems and attention deficits to substance use. After controlling for the confounding effects of gender, family socioeconomic status, parental use of illicit drugs and marital conflict, Lynskey and Fergusson (1995) showed that use of alcohol, tobacco and illicit drugs at age 15 was attributable to conduct problems at age 8, and not to attention deficit disorders. In a report based on the Dunedin sample (McGee, Williams, Poulton, & Moffitt, 2000), cannabis use was associated with mental health problems at 15, 18 and 21 years of age. Lower socioeconomic status, conduct problems in childhood, low adolescent parental attachment and cannabis use at age 18 were associated with mental health problems at age 21.

Some research has provided some support for the existence of a cluster of characteristics that could be described as an addictive personality trait (Hudak, 1993; Ibanez et al., 2001; Orford, 2001). Multiple addictions have been found among more than half of ado-

lescents who have a compulsive behaviour problem (Griffin-Shelley, Sandler, & Lees, 1992, as cited in Gupta & Derevensky, 1998). Compulsive problems can include substance abuse, food, sex, relationships and gambling. From earlier studies of drug dependence (Gupta & Derevensky, 1998), the trait of addiction among adolescents precedes the addiction itself; in other words, addiction to an activity does not create the addictive personality.

Orford (2001) has defined addiction as “an attachment to an appetitive activity, so strong that a person finds it difficult to moderate the activity despite the fact that it is causing harm” (p. 18), and discusses the theory that addiction is basically excessive appetite. Internally or externally generated substances that affect neurotransmission, reward mechanisms, cognitive processes and emotional cycles are involved. An addiction develops from exciting reward mechanisms that affect neurotransmitter activity and emotionality, from cues in the social environment, and from memories and cognitions which strengthen connections to the desired activity (e.g., “have fun—drink alcohol”). The associations become automatic, and rational decision-making is lost (Hills & Dickerson, 2002). A secondary process called the abstinence violation effect (Orford, 2001) involves feelings of guilt and self-blame, self-attributions that the situation is internally caused, affects all of one’s life and is uncontrollable, and feelings of helplessness and hopelessness. The feelings may be temporarily relieved by indulging in the activity, which further strengthens the cycle, leading to increased costs, conflict, guilt, depression, anxiety, apprehension, anticipation of stressful events, confusion and biased or non-vigilant information processing. Negative emotions such as depression and anxiety lose their inhibitory effect (Hills & Dickerson, 2002).

### The Development of Substance Use and Abuse

This section consists of a synopsis of the above review using Sussman and Ames’ (2001) integration of theories of the development of substance abuse, which were supported primarily by findings from longitudinal and prospective studies. In general, social, cultural, situational and environmental factors are likely to be more influential than personal factors in initiation, low-level or early substance use, while personal factors influence continuation, higher and later levels of use. Table 1 summarizes the risk and protective factors that contribute to the initiation and continuation of substance use, which could also apply to problem gambling.

Orientation towards substance use begins in families which use, encourage or tolerate the substances. Peer influence, role models, advertising and media

promote experimentation with and acquisition of knowledge of substances from the pre- to mid-teens. Family conflict and separation, poor supervision, parental modelling and tolerance of substance use, early introduction to substances, deviant peer group associations, youth unemployment and lack of educational attainment, are factors that are likely to lead to frequent or excessive substance use among adolescents and young adults. Personal factors such as genetic predisposition towards impulsivity and negative affectivity (anxiety, depression, aggression, alienation), susceptibility to peer pressure, early conduct problems, and rebelliousness make the individuals more vulnerable to acquisition of substance use habits. Sussman and Ames (2001) summarize the problem behaviour theory that adolescents have a general propensity to deviance. Problem behaviours satisfy psychosocial functions such as display of opposition to norms and values of conventional society, demonstration of unity with peer groups and affirmation of personal identity. During experimentation, associations between feelings, memories and expectations about substances are strengthened, and the physiological reinforcing effects are experienced. With the availability of alcohol legally, there is an increase in its use during young adulthood, followed by a decrease for the majority of users when employment, marriage and other social responsibilities become more important.

Regular use of alcohol continues for a substantial number of social users. A small minority becomes addicted to alcohol and illegal substances. Addicts tend to be heavier consumers of alcohol initially, with more substance abuse and life problems, and loss of control. Substance use becomes strongly entrenched, maladaptive habits are strengthened, and alternatives are limited or inaccessible. However, youth and young adults who take responsibility for caring for others, emotionally distance themselves from problem peers and significant others, get involved in positive social and recreational activities, have a hopeful outlook, have good communication skills and seek out social support when needed are more resilient against problematic substance use.

In programmes such as Alcoholics Anonymous, recovery from addiction is a long-term commitment that follows the processes of admission that there is a problem, resistance, ego-reduction, surrender, compliance, re-education and maintenance. Abusers must genuinely want to solve their problems, to work hard, to make a commitment not to use the substances, and to honestly comply with formal or informal treatment plans. Relapse can occur due to failure to avoid risky settings and social groups, failure to exert effective coping skills such as self-control when confronted with unexpected risky situations, cravings or intrusive thoughts, negative affect, and interpersonal problems and conflict. In

Table 1

*Risk and protective factors that contribute to the initiation and continuation of substance use.*

Risk Factors	Protective Factors
<i>Environmental</i>	<i>Environmental</i>
Availability and accessibility Advertising, favourable media portrayal Permissive social policy	Unavailability of substances Neighbourhood cohesiveness, stability Enforcement of legislation
<i>Cultural</i>	<i>Cultural</i>
Minority group status Norms that favour substance use Acculturation pressures	Majority group status Norms that mitigate substance use Cultural adaptation and cooperation
<i>Sociodemographic</i>	<i>Sociodemographic</i>
Male Adolescent or young adult Young age at initiation Poverty, unemployment, poor housing Family separation	Female Adulthood (30+) Later age of initiation Higher economic status, employment Intact families and marriage
<i>Social</i>	<i>Social</i>
Conflict and chaotic home environment Ineffective parenting, child abuse Disengaged and hostile families Negative peer influence Modelling use from significant others Leisure and social activities with substances	Stable home environment, family rituals Effective parenting, control Cohesive and affectionate families Conventional friends Abstinent role models Recreational, leisure and social activities without substances
<i>Personal</i>	<i>Personal</i>
Genetic predisposition to impulsivity and negative affectivity Lack of attachment to parents / caregivers Poor social and coping skills Early childhood conduct disorders Failure in school Peer susceptibility Lack of self-control Antisocial behaviours Novelty-seeking Unawareness of memory associations Liking advertising for substances	Genetic predisposition to emotional stability and positive affectivity Attachment to parents / caregivers Social competence High intelligence High academic achievement, preschool Self-confidence, conscientiousness Self-control, self-efficacy High moral standards Preference for safe activities Rational planning and foresight Awareness of substance-inducing cues

Note. Adapted from [Sussman and Ames \(2001, Table 6.1, p. 76\)](#).

addition to changing habits and entrenched personal characteristics, there are post-acute physiological symptoms that need to be overcome. These include the inability to think clearly, over-reactivity, memory problems, sensitivity to stress and sleep disturbances. Self-liberating behaviours such as a day-to-day commitment to quit and self-control or willpower, spouse, family and friends' support, and changes towards conventional activities help maintain the recovery. Cohesive and affectionate families are more conducive to

maintaining change than disengaged and hostile families ([Sussman & Ames, 2001](#)). However, families need to avoid enabling the substance abuser to continue abusing the substance. For example, they could let the individual suffer the consequences of his or her abuse, letting the person reach a low point where he or she is honestly receptive to assistance. They also need to seek support for themselves independent from the abuser, and be emotionally detached from the process.

## Problem Gambling and Substance Abuse

Substance abuse is frequently associated with problem gambling, especially with alcohol use among young males (Abbott, 2001; Arseneault, Ladouceur, & Vitaro, 2001; Baron & Dickerson, 1999; Echeburua, Fernandez-Montalvo, & Baez, 2001; Giacobassi, Stitt, & Vandiver, 1998; Greenberg, Lewis, & Dodd, 1999; Gupta & Derevensky, 1998; Hendriks, Meerkerk, van Oers, & Garretsen, 1997; Hodgins & el-Guebaly, 2000; Hraba & Lee, 1996; Ibanez et al., 2001; Ladouceur, Arseneault, Dubé, Freeston, & Jacques, 1997; O'Connor & Dickerson, 2003; Orford, Morison, & Somers, 1996; Petry, 2000, 2001; Shaffer & Hall, 1996; Spunt, Dupont, & Lesieur, 1998; Sussman & Ames, 2001; Tavares, Martins, & Lobo, 2003; Welte, Barnes, Wieczorek, Tidwell, & Parker, 2004). Similar problem areas to substance abuse are involved, including obsessions, compulsions, loss of control, craving, relapse, depression, and financial, social and legal problems (Spunt et al., 1998; Sussman & Ames, 2001). In New Zealand, a recent national survey (Abbott, 2001) estimated that 37 percent of lifetime problem gamblers engaged in hazardous alcohol use, more than double that of the adult population. For the 12 months prior to the national survey, 16% of the problem gamblers reported using cannabis, and 12% used other illicit drugs, compared to the adult population rates of 7% and 1%, respectively. In an experimental study (Kyngdon & Dickerson, 1999), college males randomly assigned to a low alcohol group persisted twice as long at electronic gaming machines as the placebo group, and more than three times as many of them continued to gamble until they had lost all their money, perhaps indicating that even at low levels of consumption, alcohol can diminish self-control and rationality.

In a longitudinal study (Vitaro, Ferland, Jacques, & Ladouceur, 1998) that included self- and teacher ratings of impulsivity of young adolescents (12-14 years), more problem gamblers among them at 17 years of age used alcohol, marijuana and other drugs than non-problem gambling adolescents. Like other investigators, they found that impulsivity, disinhibition and antisocial behaviour were linked to comorbidity rather than to problem gambling alone, or to substance abuse only (Arseneault et al., 2001; Blaszczynski & Nower, 2002; Briggs, Goodin, & Nelson, 1996; Feigelman, Kleinman, Lesieur, Millman, & Lesser, 1995; Petry, 2001). The authors suggest that a longitudinal study be conducted to see if the probability of problem gamblers becoming substance abusers is greater than that of substance abusers becoming problem gamblers.

However, the strength of the association between problem gambling and substance abuse varies depending upon sociodemographic variables and the gambling

activity involved. For example, Petry (2003) found that among problem gamblers in treatment, horse/dog-track gamblers had moderate rates of current substance abuse problems, sports gamblers had high rates of substance abuse problems, card and slot-machine players exhibited fewer substance abuse problems, and scratch/lottery gamblers had severe symptoms of substance abuse. Petry (2003) hypothesized that low rates of substance abuse occurred in the slot-machine problem gambling cohort in this sample because they were generally older women, and women are less likely to have substance abuse problems than men in general. Conversely, the scratch/lottery problem gamblers indicated more psychiatric symptoms other than substance abuse than the other groups did.

Theoretically, problems associated with substance abuse and problem gambling can be construed along a continuum of control, from maladaptive behaviours over which users have some control to behaviours over which individuals have little control (Sussman & Ames, 2001). At the lower extreme, users may exhibit very few problem behaviours and recover easily. At the other extreme, substances or gambling are engaged in excessively, a greater range of substances and activities are tried to regain pleasurable mood states or to minimize physical effects of withdrawal in the case of alcohol, tobacco and drugs, more problems are experienced, and recovery is very difficult. Problems with substance use can progress for several years before becoming debilitating, but for some types of problem gambling, especially electronic gaming machines, the decline can be more rapid, possibly in less than a year (Evans, 2003).

In comparing recoveries from gambling problems to recoveries from alcohol problems, Hodgins and el-Guebaly (2000) used the transtheoretical model of change (Prochaska et al., 1992) to ascertain the factors perceived to initiate and maintain recoveries, the role of life events in recovery, and differences between natural and assisted recoveries. The major reason for people not seeking treatment for either addiction was the desire to handle the problem on one's own, which perhaps reflects the stigmatization, embarrassment, shame and loss of self-esteem associated with alcohol and gambling addiction. From among the factors of gender, age, type of gambling, problem severity, comorbid diagnoses for alcohol, drugs, or depression, and changes in life events, only severity of problem gambling (number of *DSM-IV* criteria) predicted entry into treatment. Compared to heavy drinkers, fewer problem gamblers evaluated the pros and cons of their behaviours in their decision to seek change. Fewer problem gamblers also reported that life-style changes precipitated recovery, perhaps because regular drinking is frequently a part of social life, whereas regular gambling is not. Two major actions were taken to resolve their gambling situation:

stimulus control by limiting access to gambling or venues associated with gambling, and the development of new activities such as exercise, reading and family activities. Very few reported voluntarily limiting access to sources of money such as automatic teller machines and credit cars. The recovered gamblers in this study gave reasons for maintaining the changes which were similar to the reasons given by recovered alcoholics and drug abusers, including not liking to see themselves as having a problem; self-liberating behaviours such as day-to-day commitment to quit and self-control or willpower (especially for naturally-recovered gamblers and drinkers); spouse, family and friends' support; change in recreational, leisure or social life activities; and physical health change. While life events did not appear to precipitate steps to recovery, a reduction in negative life events and an increase in positive events after recovery, especially in health and financial areas, helped to maintain changes.

### Key Indicators of Changes in Gambling Behaviour

From the literature on alcohol and substance abuse, questions which may be pertinent in tracking changes from social to intense to problem gambling, and recovery are listed in the [Appendix](#).

Recently, the Alcohol and Advisory Council (ALAC) of New Zealand initiated the Youth Drinking Campaign in New Zealand to lower the prevalence of excessive drinking among youth ([de Bonnaire, Fryer, Kalafatellis, & Whitfield, 2000](#); [Kalafatellis, 2000](#)). Prior to the commencement of the campaign, three key indicators were established in a benchmark survey to track changes in parents' attitudes towards drinking among youth 14 to 18 years of age: (a) parents' recognition of, and concerns with alcohol as an issue for teenagers; (b) feelings of empowerment in regard to dealing with teenagers and alcohol; and (c) their level of involvement in providing alcohol to adolescents and in seeking help for alcohol-related problems. In general, few parents were especially concerned about the issue, few knew the extent of their adolescents' binge drinking, very few knew where to get help for teenage alcohol problems, many overstated how well they were managing their teenagers' alcohol use. However, 65% of the parents were the suppliers of alcohol for the 14 to 17 year olds, 25% had given their teenager alcohol to take to a social event that they were not attending themselves, and 23% thought that it was alright for their teenager to get drunk sometimes.

Based on the literature on changes in substance use and its relationship to gambling that were reviewed above, the following key indicators are proposed to monitor changes in gambling behaviour:

1. *Environmental*. Availability of gambling activities (ease of access, advertising)
2. *Cultural*. Degree of empowerment (community, family control of members' gambling)
3. *Sociodemographic*. Socioeconomic status (unemployment, sources of income)
4. *Social*. Number of significant others who gamble (family, peers, friends)
5. *Personal*. Control of gambling (number of gambling activities, other addictions)

With changes in gambling policy or community interventions, it may be possible to track the effects of the changes on these indicators. Like the alcohol awareness campaign, it is assumed that with changes in these indicators, there will also be concomitant changes in gambling behaviour.

### Conclusion

The literature on substance abuse can provide guidelines for examining factors associated with the transition from social to problem gambling. Availability, accessibility and advertising can increase the incidence of gambling. Consequently, the number of gamblers who become problem gamblers will increase in areas of New Zealand where this occurs. There may be sociodemographic and cultural differences that influence the transition which need to be explored in longitudinal and prospective studies. Social factors such as inadequate parenting may be conducive to both substance abuse and problem gambling. Personal factors could include lack of self-control, impulsivity and harmful risk-taking in childhood. Beyond possible risk factors, many factors which protect vulnerable individuals from becoming substance abusers or developing gambling problems also need to be studied.

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## **Appendix**

### **Implications for Changes in Gambling Behaviour**

For each cultural group, the following questions may be pertinent in tracking changes from social to intense to problem gambling, and recovery.

#### **General**

1. Is the process of transition from social to intense to problem gambling progressive and one-way, or discontinuous and regressive, how rapid are the changes, and does the process accelerate with age?
2. Are there different trajectories for different cultural groups and for different gambling activities? For example, do machine gamblers move through the process to excessive gambling faster than gamblers on other activities?

#### **Environmental**

3. What are the community sources of knowledge, attitudes and concepts of gambling that lead young people into gambling?
4. How have the changes occurred in relation to availability, accessibility, advertising, including the introduction of casinos and the proliferation of gambling machines?

#### **Cultural**

5. Are some types of gambling culturally reinforced, while others are shunned?
6. How do cultural values and traditions affect the process (e.g., social and family events where gambling takes place, who gamble with, types of gambling preferred)?
7. To what extent do acculturation pressures influence the process?
8. To what extent does church attendance and moral reform have on the process?
9. To what extent do stigmatization, guilt and shame hinder seeking help with recovery?

#### **Sociodemographic**

10. What changes in demographics occur with the changes in gambling behaviour (e.g., education, employment, socioeconomic status, living arrangements, marital status)?
11. Do women progress from social to intense to problem gambling faster than men, and on what types of gambling activities?
12. When gambling starts to become problematic, how do men and women differ in dealing with the problems?

### **Social**

13. What are the relative strengths of the effects of the following on gambling initiation and continuation into adolescence and adulthood: chaotic home environments, childhood adversity, parent involvement in gambling or permissive attitudes toward gambling, lack of social bonding to family and social institutions, early introduction to gambling, peer influence (including affiliations with delinquent and substance-using peers), and access to money?
14. To what extent do parents care about their adolescents' gambling, know about the extent of their gambling, are able to influence and control their teenagers' gambling?

### **Personal**

15. What changes in self-control, substance use, involvement in risky activities and social behaviours occur with changes in gambling behaviour? For examples:
16. Do childhood conduct disorders and early involvement in gambling (<16 years of age) lead to other problems such as substance abuse, offending, mental health problems, unemployment and school dropout?
17. Do problem gambling and substance abuse develop simultaneously during adolescence, and have a common impulse control deficits origin?
18. To what extent is substance use associated with gambling, and are problem gamblers with co-morbid substance abuse more entrenched in problem gambling than problem gamblers without co-morbidity?
19. What expectations, feelings and emotions accompany gambling changes?
20. To what extent do gamblers at the different stages of the process like advertisements for gambling, alcohol and tobacco?

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