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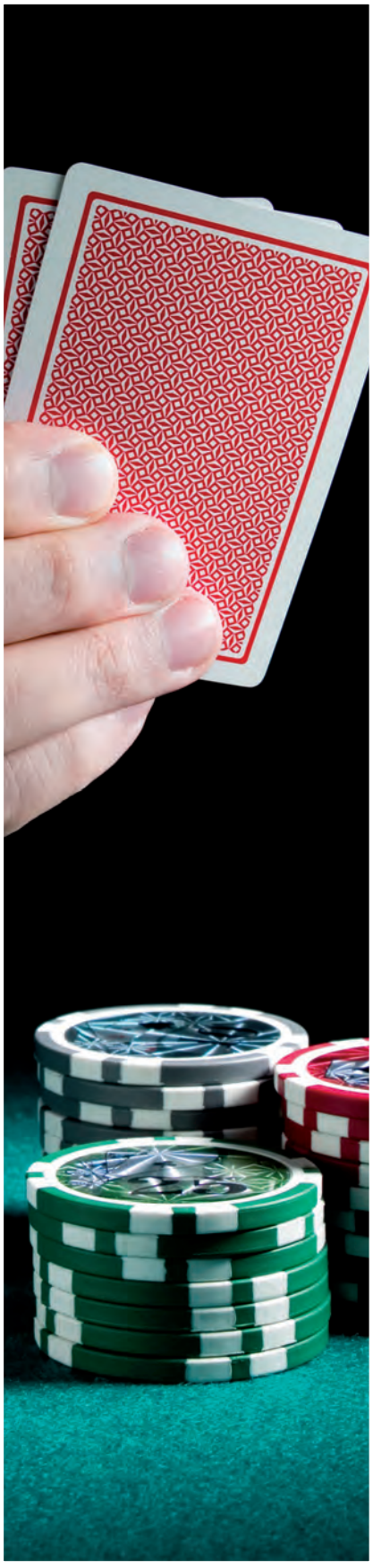
SPECIAL REPORT

The psychology of gambling

INSIDE



The psychology of gambling

Prepared by members of the **APS Gambling Working Group*** in collaboration with **Jill Giese MAPS**, APS Executive Officer

Gambling is an activity that has an impact on most Australians. It is embedded within our society as a part of mainstream culture through the entertainment, leisure, sport and tourism industries, and is a significant source of revenue to governments and private enterprise. It also causes considerable harm to some Australians due to its negative impact on individuals, families and communities through problem gambling. Consequently, it is essential that gambling and problem gambling are well understood, and that the regulation of gambling – at individual, community, industry and government levels – is well informed.

Psychology, as a science and profession, has much to contribute to understanding gambling from the perspectives of theory, research and practice. Recognising the critical role of psychology in addressing this important public issue, in 1997 the APS developed a Position Paper titled Psychological Aspects of Gambling Behaviour. *Much has changed in the subsequent decade – opportunities for gambling have expanded and embraced sophisticated new technologies, the scientific understanding of gambling behaviour has grown, and problem gambling has become acknowledged as both a public health and mental health issue. The APS has consequently commissioned a new Review Paper,* The Psychology of Gambling, *which provides an overview of major developments in understanding gambling from a psychological perspective.*

This special InPsych *report is based on material in the new Review Paper and provides contextual information on the accessibility and prevalence of gambling in Australia, an account of current psychological theories and research on problem gambling behaviour, a discussion of community and public health approaches to reducing gambling harm, and an overview of the assessment and treatment of problem gambling. The special report concludes with recommendations to enhance the contribution of psychology in addressing this important social and community issue.*

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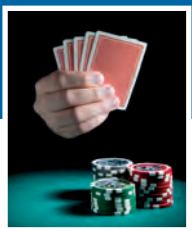
References cited in this special report are available in the online version of the report, which can be accessed from the APS website (www.psychology.org.au/publications/inpsych/2010/december/gambling). The full Review Paper prepared by the APS Working Group can be downloaded from www.psychology.org.au/publications/statements/.



Gambling in Australia

Accessibility

Although lotteries, racing and betting on card games have existed in Australia for some time, many other forms of gambling are relatively new. The first Australian casino was established at Wrestpoint, Hobart, in 1973 followed by 12 other casinos of various sizes established since then in every Australian jurisdiction. Club and hotel-based gaming machines were legalised in NSW in 1956, the ACT in 1976, and all other jurisdictions except WA in the early to mid 1990s (Productivity Commission, 2009).

In Australia, there are over 1,100 gaming tables, 199,271 gaming machines (99,826 in NSW alone), almost 6,000 venues that provide gaming machines, 4,756 lottery outlets and 4,652 TAB outlets (Australian Gaming Council, 2008/09). Gambling venues are located in suburban areas of all major cities and towns. Of special note, venues tend to be clustered in areas with lower socio-economic status (Livingstone & Woolley, 2007).

> ***'Of the 15 per cent of Australians who gamble regularly, about 10 per cent can be classified as problem gamblers and a further 15 per cent as facing 'moderate risk'.'***
>
> **Productivity Commission, 2009**

Internet gambling in the form of gambling on interactive gambling sites (e.g., online casinos) is not legal in Australia under the 2001 Interactive Gambling Act 2001, but use of the internet as a vehicle to place bets on approved forms of gambling, such as sporting events and wagering, is allowed (Australian Gaming Council, 2008/09). Internet and wireless-based gambling is increasing in Australia as elsewhere, and greatly increases accessibility (Australian Gaming Council, 2008).

Australians spend over $18 billion per annum on gambling, or $1,500 per capita, with 60 per cent of this expenditure being lost on electronic gaming machines (EGMs), mostly located in clubs and hotels (Productivity Commission, 2009). This amount is considerably higher than in other jurisdictions, such as New Zealand ($495 per capita), Canada ($393 per capita) and the United States ($325 per capita) (Delfabbro, 2010).

Regulation

On the whole, gambling is a highly regulated industry. All State and Territory Governments have introduced legislated measures to encourage responsible gambling and thereby reduce the potential harms associated with gambling. These measures include requirements for staff training, self-exclusion policies, limits on operating hours and machine numbers, advertising restrictions, limits on game design parameters, and the provision of safe-gaming messages (Delfabbro & LeCouteur, 2008). Industry compliance with these provisions is monitored, although the quality of this enforcement and degree of industry collaboration vary significantly between jurisdictions and between venues (Breen et al., 2006). Importantly, the Productivity Commission (2009) notes that venues have 'muted incentives' to address the problems faced by consumers, as this would mean lower profits.

Prevalence of gambling

Population surveys show that around 70 to 80 per cent of the Australian adult population gambles at least once per year (Productivity Commission, 2009). Approximately 60 per cent of adults gamble on lotteries, a third on scratch tickets, 30 per cent on gaming machines, 20 per cent on racing, and 10 per cent or less on other forms including casino table games and sports betting (Delfabbro & Le Couteur, 2009).

Regular gambling is undertaken by 15 per cent of Australians (excluding those who purchase lotteries and scratch cards) and about five per cent gamble regularly on gaming machines. Of the 15 per cent of Australians who gamble regularly, about 10 per cent can be classified as problem gamblers and a further 15 per cent as facing 'moderate risk' (Productivity Commission, 2009). Of the five per cent who gamble frequently on activities such as gaming machines, about 15 per cent would be classified as problem gamblers and another 15 per cent as experiencing 'moderate risk'.

Age and gender differences

Gambling participation rates vary significantly according to age and gender. Men are typically more likely than women to gamble on sports, casino card games and racing, whereas few sex differences in participation tend to be observed in relation to gaming machines and lotteries (Productivity Commission, 2009).

Analysis of age-related differences reveals that there are numerically more gamblers in the middle-aged range (40-60 years), but that the probability of gambling decreases during adulthood (Delfabbro & Le Couteur, 2009). Younger people are significantly more likely to gamble on most forms of gambling (except lotteries and bingo) than older people. For example, in a survey of 17,000 adults in South Australia, it was found that 51 per cent of people aged 18-24 years had gambled on gaming machines in the previous 12 months as compared with 29 per cent of 45-54 year olds and 29 per cent of 65-74 year olds (S.A. Department for Families and Communities, 2005). Under-aged gambling is particularly common and of concern, with around 60 per cent of young people (13-17 years) reporting gambling at least once per year (Lambos et al., 2007).

Risk factors for problem gambling

Overall, 90,000 to 170,000 Australian adults are estimated to experience significant problems from their gambling (0.5 to 1.0% of adults), with a further 230,000 to 350,000 (1.4 to 2.1% of adults) experiencing moderate risks that may make them vulnerable to problem gambling (Jackson et al., 2009).

Problem gambling rates vary according to the demographic characteristics of individuals as well as their preferred mode of

gambling (Productivity Commission, 2009). As a general rule, men are significantly more likely to be problem gamblers then women (ratio 60:40 in most surveys). Younger people, aged 18-30 years, are usually twice as likely to be problem gamblers as those who are older. Importantly, problem gamblers are more likely to be those who are socially disadvantaged through having lower incomes or being unemployed. They are also, overall, more likely to be single or separated.

Indigenous Australians are more likely to experience gambling problems than non-Indigenous people (Young et al., 2007). This greater vulnerability has been attributed to a variety of factors, including the limited range of alternative leisure activities for Indigenous people in some urban centres, co-morbidities including greater substance abuse and psychological problems, and the general attractiveness of gambling to communities with lower incomes and fewer other opportunities to earn money.

A major risk factor for problem gambling is the type of activity to which people are exposed. Although problem gamblers typically engage in a wider range of gambling activities than other gamblers, most statistical models show that continuous forms of gambling, such as gaming machines, racing or casino table games, are most likely to be identified as the cause of problems (Dowling et al., 2005).

Electronic gaming machines are the form of gambling associated with the most harm. Livingstone and Adams (2010) note that of the $17.5 billion spent on gambling in 2005-06, 59 per cent was spent on EGMs (Productivity Commission, 2008) and these have been shown to be implicated in around 85 per cent of gambling problems (McMillen et al., 2004). In 2008-09, 55 per cent of gambling expenditure was on 'pokies' in clubs and hotels, and a further seven per cent in casinos (Productivity Commission, 2010). Gaming machines are the preferred form of continuous gambling for both sexes, but particularly for women. Furthermore, 94 per cent of the around 200,000 EGMs are located in local clubs and hotels, which have been argued to have a locational bias toward being in areas of relative socio-economic disadvantage (Marshall & Baker, 2002). The proximity of venues to people's place of residence is thought to influence the prevalence of problem gambling (Delfabbro & Eltridge, 2008).

The presence of peers and family members whose social lives revolve around gambling, and the degree to which gambling is accepted as a legitimate pastime by others in the community, also comprise risks. For example, the gambling behaviour of family members, particularly fathers, is an important risk factor for the development of gambling problems. A series of studies specifically designed to investigate the intergenerational transmission of gambling problems (Dowling et al., 2010) found that up to 10 per cent of individuals are raised in families with a problem gambling family member (parents or siblings). The findings of this project clearly identified that individuals raised in problem gambling families are more likely to develop gambling problems themselves than individuals raised in non-problem gambling families, even after controlling for a range of relevant socio-demographic factors, family member psychopathology, and concurrent family stressors. Specifically, individuals with fathers with problem gambling were 10.7 to 13.5 times more likely, and those with mothers with problem gambling were 6.7 to 10.6 times more likely, to display problem gambling behaviour than their peers. ■

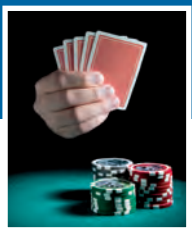
GAMBLING HARM

Gambling can give rise to different types and levels of harm and these can be personal, social, vocational, financial and legal. The most obvious harm is financial, and this is clearly related to many of the other harms. In terms of psychological harm, it has been found that 40-60 per cent of problem gamblers in treatment samples experience clinical depression, display suicidal ideation, or have significant levels of anxiety (Battersby & Tolchard, 1996). Problem gamblers also have a greater likelihood of engaging in other behaviours that compromise their wellbeing, particularly substance use. Data suggest that 50 to 60 per cent of gamblers smoke compared to 22 per cent of the general population, and that 30 to 40 per cent have a concurrent substance dependence or abuse (Rodda & Cowie, 2005) as well as poorer physical health (Delfabbro & LeCouteur, 2008).

Problem gambling can have significant effects on many aspects of the gambler's life, including their relationships and employment. Many problem gamblers report intimate relationship and family difficulties (Dowling et al., 2009) or having lost or jeopardised relationships as a result of gambling (Jackson et al., 1997). Others report having put off activities or neglected their families because of gambling, and most report having lied to family members or engaged in furtive activities so as to conceal the extent of their gambling and the resultant losses (Productivity Commission, 1999).

Consequently, problem gambling can be particularly devastating for families because the nature and extent of the gambling problem often can be concealed for long periods. Apart from the betrayal of trust that may be felt by families when the problem is finally revealed, the hidden nature of gambling can mean that family finances are depleted before family members have an opportunity to assist the gambler and direct them to treatment.

Similarly, although relatively less is known about the vocational impacts of problem gambling, there is evidence that those affected report having given up time from work to gamble, have lost jobs due to gambling, or have used their workplace to commit crimes to continue funding their gambling (Productivity Commission, 1999; 2009). In a detailed analysis of the offending record of 306 problem gamblers in treatment, Blaszczynski and McConaghy (1994) showed that larceny, embezzlement and the misappropriation of funds were the most common crimes reported. Many of those who committed these crimes did not have a previous history of conviction and were found to work in white-collar professions that provided them with direct access to money.



Understanding problem gambling

Motivation to gamble

There are many reasons why people gamble recreationally. These may be broadly classified under two non-mutually exclusive types of motivation: the desire for positively reinforcing subjective excitement and arousal; and the desire for the negatively reinforcing relief or escape from stress or negative emotional states. Both social and monetary reward expectancies facilitate gambling due to the learnt association with, and capacity to enhance or regulate, positive affect (Shead & Hodgins, 2009).

By its very nature, gambling represents an opportunity to win money, and, subject to the potential size of the prize, to change one's lifestyle. The prospect of winning large prizes generates excitement by allowing participants to dream and fantasise about the impact that such a windfall would have on their work, finances, leisure, and capacity to support immediate family members. Smaller wins are also exciting since these provide a gain to the player and enable further gambling in pursuit of larger wins.

> ***'There is no widely accepted causal explanation or single theoretical model that adequately accounts for the aetiology of problem gambling, which has implications for treatment interventions.'***

Importantly, the form of gambling and the environment in which it takes place are conducive to social interaction and this adds substantially to its inherent enjoyment. Hotel, club, casino and on-course venues are recreational locations that offer a range of entertainment options (food, beverage and shows). Within these contexts, gamblers can readily meet, interact socially, and test their luck and skill in pleasant and safe surroundings, leading to enhanced social integration and stimulation, self-esteem and a positive sense of recreation/leisure. Gambling is also a means of overcoming boredom.

The capacity for gambling to narrow one's focus of attention (Anderson & Brown, 1984) and produce dissociative states (Jacobs, 1986) may account for the reason why many individuals use gambling as a maladaptive coping strategy to deal with problems, emotional distress and stress/tension. Gamblers often report that gambling represents a means, albeit temporary, of distraction from worry, demands, responsibilities and confronting problems. This is one of the more powerful motivators underpinning persistent gambling in samples of problem gamblers (Petry, 2005), and forms a central component of a number of psychological models of gambling (Blaszczynski & Nower, 2002; Jacobs, 1986; Sharpe, 2002). The affect-regulation component of gambling is driven by a need to maintain optimal levels of arousal and accounts in part for the selection of certain forms of gambling – low skill activities to alleviate anxiety and stress, and high skill games to generate excitement and elevate mood (Blaszczynski & McConaghy, 1989; Petry 2005).

Evidence suggests that problem and non-problem gamblers have similar motivations to gamble but the motivational strength differs for problem gamblers. In particular, winning money (chasing losses) and relieving tension and emotional distress are implicated in promoting continued gambling (Clark et al., 2007; Platz & Millar, 2001).

There are gaps in the knowledge base about gender and age differences in respect to gambling motivations. Some studies have found that females are more likely to gamble in response to intrapsychic factors such as loneliness, depression, and to gain control over their lives and emotional issues, whereas males respond to external factors such as peer groups, financial pressures and employment related conflicts (Petry, 2005). Other studies have found no significant gender differences for either commencing or continuing gambling (e.g., Clark et al., 2007). Age differences in gambling motivation are not well understood.

Major theoretical approaches to understanding problem gambling

Currently, there is no widely accepted causal explanation or single theoretical model that adequately accounts for the aetiology of problem gambling, which has implications for treatment interventions. A range of internal and external correlates and predictive risk factors associated with problem gambling has been identified, including age, gender, impulsivity, biological/genetic vulnerabilities, family history, peer group interactions and socio-ecological variables (Blaszczynski & Nower, 2007; Brewer et al., 2008; Toneatto & Nguyen, 2007). Explanatory models can be divided into single theory models or integrated multifactorial (biopsychosocial) conceptual frameworks, all of which share common elements.

Learning theory

The basic tenet of learning models is that gambling is a behaviour governed by contingencies of reinforcement operating under operant and classical conditioning paradigms. Positive reinforcement schedules include the variable ratio schedule of 'random' financial gain and the fixed interval reinforcement schedule for subjective excitement and physiological arousal. There is also a negative reinforcement schedule that provides escape from emotional pain and aversive stress states. These operant reinforcement schedules allow gambling to be maintained sufficiently long enough for arousal and excitement to be associated with gambling-related external stimuli such as situations, places and times, or internal stimuli such as mood states, physiological arousal or cognitions. Both positive and

negative reinforcement increase the probability of a gambling response being elicited and explain persistence in gambling. In particular, the random ratio reinforcement schedule, whereby there is an element of unpredictability as to whether the next trial will result in a reward, is resistant to extinction and can account for persistence in play (McConaghy, 1980).

Although learning theories help understand many aspects of the acquisition and maintenance of gambling, and play a prominent role in other theoretical models, they do not explain why only a small percentage of players progress to problem gambling or the processes that cause escalation from recreational to problematic gambling. However, they do offer some explanation for persistence in gambling and insights into treatment interventions (stimulus control, imaginal desensitisation).

Cognitive models

The cognitive behavioural model emphasises erroneous beliefs, cognitive distortions and misunderstanding of concepts related to randomness, probabilities and mutual independence of chance events, and drawing faulty causal associations between events (Ladouceur & Walker, 1996; Petry, 2005). Although the origin of irrational and erroneous cognitive beliefs and schemas remains unknown, social learning experiences, vicarious and participatory exposure to familial and peer-related gambling, media representations, religiosity and cultural influences, and personal experiences have all been hypothesised to play significant roles (Blaszczynski & Nower, 2007; Griffiths, 1994; Petry, 2005; Ladouceur et al., 2002).

Cognitive factors that underpin persistence in gambling include: the gambler's fallacy (belief that a win is due following a series of losses); cognitive regret (regret over ceasing prematurely and missing out on the next win); and entrapment or chasing losses (motivation to maintain a course of action having already invested so much to date). Cognitive explanations have empirical support, but have yet to account for the functional interaction between cognitions and arousal and conditioning, or the transition from recreational to problem gambling.

Addiction models

Although formally classified in DSM-IV as a disorder of impulse control, the addiction model is presently the dominant theoretical paradigm explaining pathological gambling (Blaszczynski & Nower, 2002; National Research Council, 1999), and this will be reflected in DSM-V. The addiction model of gambling is based on the similarities in motivation, patterns of behaviour and consequences found among substance use disorders. Problem gamblers report excessive preoccupations with and persistent urges to gamble, repeated participation in gambling despite serious negative consequences, withdrawal and tolerance, and impaired control evidenced by repeated unsuccessful attempts to cease. Gambling takes on an increased salience in their lives, where the activity takes precedence over familial and other social obligations.

Lending weight to the addiction model is epidemiological survey data and clinical studies describing high rates of comorbidity between pathological gambling and substance abuse (see Petry, 2005). Similarities in neurobiological activity and genetic abnormalities found among gamblers and those who are substance dependent involving cortico-meso-limbic brain structures suggest common molecular pathways (Goudriaan et al., 2004). However, caution must be exercised in concluding a causal link between biological markers and pathological gambling. Many associations are correlational in nature and neurobiological changes may reflect the consequence of repeated exposure to arousal and affective-laden stimuli and behaviours. Nevertheless, this is a promising area warranting further longitudinal studies.

Personality theory

There is no typical personality profile found among problem or pathological gamblers. A number of studies have found elevated scores on some personality traits, such as impulsivity, with inconsistent findings on others, such as sensation seeking (see Raylu & Oei, 2002 for a review). There is no consistent finding in relation to extraversion, neuroticism and locus of control. However, while no personality profile exists, specific traits, particularly impulsivity, sensation-seeking and propensity for risk taking, may be important variables moderating or modulating gambling behaviour and acting as risk factors in the aetiology of pathological gambling.

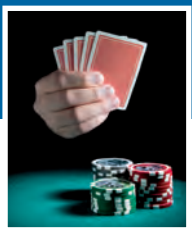
Although existing studies have reported high rates of Axis II personality disorders among populations of pathological gamblers in treatment (Specker et al., 1996) and in the community (Desai & Potenza, 2008), particularly those falling within the Cluster B category (narcissistic, antisocial and borderline), there are no coherent or unique patterns emerging.

Integrated models

In response to the multiplicity of environmental, familial and intrapsychic variables identified, several integrated explanatory models have been advanced. Blaszczynski and Nower (2002) based their integrated model on the assumption that pathological gamblers represented a heterogeneous group that could be subtyped according to underlying motivation and benefits derived from gambling. The model identifies three primary subgroups or clusters of gamblers: behaviourally conditioned (conditioning and cognitive processes are primary), emotionally vulnerable (affective disturbances, poor coping skills, dealing with painful emotional experiences, social isolation and low self esteem act to exacerbate the effect of the conditioning and cognitive processes), and biologically-based impulsive (genetic and neurochemical factors contribute to impulsivity and need for stimulation). It is assumed that all subtypes manifest similar symptoms and signs but that there are important differences in the pathogenesis of the disorder. Empirical evidence supporting Blaszczynski and Nower's (2002) model is emerging. ■

MAJOR THEORETICAL MODELS OF PROBLEM GAMBLING

- *Learning theory* – operant reinforcement and classical conditioning contingencies increase and maintain behaviour
- *Cognitive model* – erroneous beliefs and distortions (e.g., the gambler's fallacy) drive behaviour
- *Addiction model* – motivation and behaviour involves persistent urges, and participation, withdrawal and tolerance
- *Personality theory* – identified patterns involve impulsive, sensation-seeking and risk-taking traits, and high rates of Axis II personality disorders
- *Integrated models* – based on biopsychosocial variables and subtyping according to pathogenesis



Community and public health approaches to reducing gambling harm

Gambling harm is a community health issue (Neal et al., 2005). For every person with a gambling problem, it is estimated that there are five to ten other people affected, including family members and work colleagues (Productivity Commission, 2009). Interventions need to reduce the potential for harm to both the individual and his or her community. Furthermore, taking a psychosocial and environmental approach reveals other factors other than those that pathologise the individual, which can be the focus of effective interventions.

Public health perspective

The public health perspective takes the position that prevention of health problems and reduction of harm can be more effective in maintaining community and individual wellbeing than individual-focussed tertiary treatment initiatives (Dickson-Gillespie et al., 2008). This perspective takes into account risk and quality of life issues for the community by addressing biological, behavioural, socioeconomic, cultural and public policy determinants of gambling (Korn & Shaffer, 1999).

> ***'Some reluctance to apply effective prevention measures is attributed to conflicting interests.'***

Dickson-Gillespie et al. (2008) stress the need for public health strategies that address risk and protective factors at all levels of prevention (primary, secondary and tertiary), including harm minimisation and responsible gambling approaches. The notion of harm minimisation was introduced as a community health strategy to assist in reducing the negative consequences associated with substance use and later adapted to address the negative consequences associated with harmful gambling. It is important to note, however, that the harms associated with gambling are subjective and difficult to quantify. Although financial, legal, intra- and inter-personal, and vocational harms are readily identifiable, the lack of an operational definition of 'harm' (Neal et al., 2005) means that the efficacy of implemented harm reduction strategies is difficult to evaluate.

Public health approaches do not require abstinence from gambling, but promote consumers' informed choice. Notably, such approaches also include broader structural strategies regarding exposure and access to gambling activities that are most likely to result in harm, such as location of and access to electronic gaming machines (Livingstone & Adams, 2010).

Korn et al., (2003) identify three goals for public health approaches:

- To prevent gambling-related problems
- To promote informed attitudes, behaviours and policies regarding gambling
- To protect vulnerable groups from gambling-related harm.

Although a broad range of potential strategies has been identified and discussed worldwide, few initiatives have been implemented in any consistent or organised manner. Successful implementation requires commitment and collaboration from diverse stakeholders including consumers, support services and counsellors, researchers, community (including culturally and linguistically diverse groups), industry and government (Delfabbro et al., 2007).

Primary prevention

Primary prevention programs are implemented at the community level to prevent problems before they occur (Messerlian et al., 2005). The focus is on educational campaigns using electronic and print media, school programs, videos and presentations designed to raise awareness and improve knowledge about the risks and benefits of gambling and gambling products (Williams et al., 2007). These campaigns may address misconceptions about luck and chance in gambling, assist in developing and enhancing a broad range of living skills including coping, social and financial management, educate about the warning signs of problem gambling, and promote gambling help services (Dickson-Gillespie et al., 2008). However, there is limited literature supporting the efficacy of these approaches in reducing the prevalence of problem gambling, with few randomised controlled studies published (Gray et al., 2007).

The design of interventions and research methodologies was critically evaluated in a review of Australian and international primary prevention interventions (Williams et al., 2007). Despite the numerous, potentially effective educational strategies described, success was reported in terms of change in knowledge, rather than change in gambling behaviour. Improvement in gambling-related knowledge was necessary but not sufficient to bring about meaningful behaviour change with regard to risk-taking in gambling. Furthermore, knowledge improvements generally were not sustained long term (Gray et al., 2007).

The effectiveness of the interventions has been limited by the lack of evidence-based principles informing them, with the most commonly implemented initiatives (educational campaigns) being the least effective in changing gambling behaviour compared to more targeted secondary interventions. An evidence-based approach to developing primary prevention strategies is warranted, guided by psychological principles including the Theory of Planned Behaviour (Fishbein & Ajzen, 1975) and the Transtheoretical Model of Change (Prochaska & DiClemente, 1982), and more research to explain meaningful gambling behaviour change (Williams et al., 2007). In addition, there has been limited gambling research involving diverse populations, and few longitudinal studies examining the natural history of gambling behaviours (Rodgers et al., 2009).

Notably, young people are a recommended target population for primary prevention based on the premise that gambling exposure may be initiated early within families (Dowling et al., 2010), and educational interventions have been provided to this group in various countries, although no long-term outcome studies have been reported (Gray et al., 2007). These programs have focused on educating youth about the risks and benefits of gambling, and strategies to control future gambling behaviour. Schools-based primary prevention programs often include modules on understanding odds using games of chance to demonstrate (e.g., "What's the Real Deal?"; Department of Health and Human Services, 2007), with no apparent guidance for debriefing students exposed to winning or with heightened arousal, both considered risk factors for developing gambling problems (Turchi & Derevensky, 2006).

In their detailed Framework for Action based on the Ottawa Charter for Health Promotion (WHO, 1986), Messerlian et al., (2005) describe four primary prevention principles for youth gambling:

- *Prevention* of gambling problems, including strategies such as informed decision-making about participation and development of problem solving, coping and social skills
- *De-normalisation* of underage gambling, including education addressing industry marketing and gambling misconceptions
- *Harm reduction* approaches, including accurate evidence-based knowledge about the developmental needs of youth and identification of, and treatment and support for, youth problem gambling in the community
- *Protection of* children against potential harms associated with gambling by removing or reducing direct and indirect exposure to gambling products and promotions.

Importantly, this last principle seems to recommend against introducing young people to games of chance and possibly all gaming industry stimuli within the education system, as there appears to be limited evidence supporting this approach to reducing problem gambling (e.g., Williams & Connolly, 2006).

Secondary prevention

Secondary prevention aims to decrease the harm experienced by individuals at higher risk and the potential for harm to others participating in gambling activities (Dickson-Gillespie et al., 2008). These approaches usually take the form of policy initiatives (mandatory or voluntary) and comprise modifications to gaming machines (e.g., changing reinforcement schedules, slowing rate of play, reducing size of the maximum wins), or the gambling environment (e.g., including clocks, improving lighting) to prevent development of gambling problems. Other initiatives include gaming staff training, restricting access to cash for gambling, and improved awareness of, and access to, problem gambling support information and services. However, there is limited evidence of the efficacy of these approaches, with critical evaluations suggesting that the potentially most effective interventions, involving changes to the gambling environment and gaming machines, have been ineffectively implemented (Williams et al., 2007). Some reluctance to apply effective prevention measures is attributed to conflicting interests, in terms of balancing the goal of preventing and reducing harm with reductions in gambling revenue and potential changes in gambling as an entertainment for consumers (Adams, 2009; Williams et al., 2007).

Responsible gambling approaches

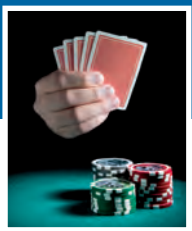
Responsible gambling is a public health strategy based on harm minimisation principles, where government agencies and the gambling industry have a responsibility to minimise the harm that may arise from gambling (Delfabbro et al., 2007). The philosophy directs stakeholders to develop and implement strategies that minimise harm associated with gambling, which may be specified at legislative or regulatory levels and by voluntary or mandatory codes of practice administered by government and industry. A national approach to responsible gambling has been endorsed by the Council of Australian Governments (COAG), with State and Territory Governments having primary responsibility for regulation of gambling in their jurisdictions.

Inherent in the gambling industry, and particularly in relation to gaming machines, is the propensity for consumers to lose control over their purchasing decisions (Dickerson, 2003). The predominant approach to responsible gambling in venues is via provision of signs and brochures, warning consumers about problem gambling and promoting counselling support services. If gambling is considered to be a series of purchasing decisions, being able to pre-determine the amount of money spent gambling before becoming affected by loss of control (e.g., by the use of pre-commitment cards), may allow for greater enjoyment of gambling without fear of adverse consequences (Dickerson, 2003). In addition, physically removing the purchasing process from the influence of the gambling area (e.g., ensuring ATM machines are not in close proximity) provides a way to ensure that consumers are fully informed about the nature and consequences of gambling and are aware of the signs of problem gambling, thereby enhancing consumers' responsible gambling behaviour and the industry's duty of care (Dickerson, 2003).

COAG has endorsed training of gaming venue staff in responsible gambling provision and encouraged venue-based interventions for consumers (Delfabbro et al., 2007). There is variability, however, in training requirements for employment as gaming staff across Australia. Responsible Service or Conduct of Gambling training modules include coverage of regulatory and legislative policies, understanding the nature of gambling, problem gambling and provision of responsible gambling, gambling exclusion processes and the identification of, and communication skills in approaching, patrons experiencing gambling problems (Delfabbro et al., 2007). ■

REDUCING GAMBLING HARM

- ***Primary prevention*** – community and individual level initiatives to prevent problems before they occur
  e.g., education campaigns
- ***Secondary prevention*** – minimising the harm experienced by individuals at risk
  e.g., modifications to electronic gaming machines
- ***Responsible gambling approaches*** – enable consumers to have greater control of 'purchasing' decisions
  e.g., use of pre-commitment cards



Treatment of problem gambling

The absence of a unifying theory of problem gambling is reflected in the range of techniques employed in its treatment. Although the evaluation of interventions for problem gambling remains relatively limited, there is some empirical evidence for a number of interventions, including behavioural interventions, cognitive interventions, cognitive behavioural therapy (CBT), minimal or brief interventions, motivational enhancement therapies (MET), Gamblers Anonymous (GA), inpatient rehabilitation programs, mindfulness-based therapies, couple therapies and pharmacological interventions. Guidelines for screening, assessment and treatment for problem gambling are beginning to be developed (e.g., Problem Gambling Research and Treatment Centre, 2010).

The overall success rates for psychological treatments have been estimated to be 70 per cent at 6-month follow-up, 50 per cent at 1-year follow-up, and 30 per cent at 2-years (López Viets & Miller, 1997). A meta-analysis revealed that psychological treatments were more effective than no treatment at post-treatment and at follow-up evaluations (Palleson et al., 2005).

Although there has been improvement in the evidence base, no psychological treatment satisfies the current standards for evidence of efficacy. Cognitive behavioural therapies have been cautiously recommended as 'best practice' for the psychological treatment of problem gambling (Westphal, 2008). Importantly, however, recent longitudinal epidemiologic studies of non-treatment seeking adults suggest that the clinical course of problem gambling may involve spontaneous remissions and natural recovery without formal intervention (Slutske, 2006).

Cognitive and behavioural interventions

A substantial literature has evaluated a range of behavioural procedures, including aversive techniques, covert sensitisation, positive reinforcement, exposure techniques, stimulus control techniques, systematic desensitisation, behavioural counselling, cue exposure and imaginal desensitisation (e.g., McConaghy, et al., 1991). The exclusive use of cognitive restructuring techniques has been positively evaluated in several randomised trials using individual and group formats (e.g., Blaszczynski et al., 2001; Ladouceur et al., 2001, 2003).

There is increasing evidence of the efficacy of CBT in individual outpatient settings (e.g., Dowling et al., 2006, 2007, 2009b), group settings (Blaszczynski et al., 2001; Dowling et al., 2007), and inpatient settings (Ladouceur et al., 2006). CBT has also been successfully applied in combination with motivation enhancement therapy (MET) (e.g., Carlbring & Smit, 2008), referral to Gamblers Anonymous meetings (Petry et al., 2006), and pharmacotherapy (Ravindran et al., 2006).

Recent research has shown successful delivery of CBT with a goal of controlled gambling (e.g., Dowling et al., 2009; Ladouceur, Lachance, & Fournier, 2009), over the internet (Carlbring & Smit,

THE ASSESSMENT OF PROBLEM GAMBLING

Pathological gambling was recognised as a clinical disorder in the DSM-III in 1980 and remains in the current DSM-IV-TR (2000) as an impulse control disorder not otherwise classified. Draft proposals for the fifth edition of the DSM reveal that problem gambling will be classified as an addiction, based on behavioural and biological similarities to substance use disorders. The current DSM-IV-TR classification comprises 10 criteria and requires the endorsement of five or more for a diagnosis of pathological gambling. A number of the items are based upon the traditional addiction model for substance use disorders and include items related to tolerance, withdrawal and difficulty controlling urges. Other items relate to preoccupation, chasing losses and the harms associated with pathological gambling. The DSM-IV is the only recognised clinical tool for diagnosing pathological gambling, and is suitable for use in clinical settings and for forensic reporting because it provides a clinical diagnosis that is more likely to be recognised by courts.

SCREENING TOOLS

Generally, the DSM-IV it is not suitable as a screening tool for population surveys where the intention may be to identify individuals with problems of varying severity as required by public health approaches. In these broader contexts, psychologists have typically used more general screening tools. The two most widely used are the South Oaks Gambling Screen (SOGS) (Lesieur & Blume, 1987) and the Problem Gambling Severity Index (PGSI) of the Canadian Problem Gambling Index (CPGI) (Ferris & Wynne, 2001), although good quality validation information is also available for the Australian-developed Victorian Gambling Screen (VGS) (Ben-Tovim et al., 2001).

The SOGS is a 20-item scale based largely on the DSM classification with items relating to tolerance, withdrawal and impaired control. It is heavily weighted towards items relating to excessive expenditure. Despite its widespread usage, particularly in the 1990s, the SOGS has fallen into some disfavour in Australia because of concerns about the high rates of false positives and the fact that it was developed as a clinical screening tool using a non-gambling sample as a comparison group (Battersby et al., 2002; Lesieur & Blume, 1987).

The PGSI of the CPGI was developed specifically for use in community prevalence surveys and contains nine items, each of which is scored on a 4-point scale. The CPGI has been adopted as the method of choice in Australian prevalence research as it appears to have superior psychometric qualities compared with the SOGS (McMillen & Wenzel, 2006). It generates a 'continuum of risk' that is attractive to exponents of a public health approach and is a more conservative measure than the SOGS. It is a widely-used screening tool with good current normative data and often used by psychologists in research studies.

2008), and through self-help workbooks (e.g., Petry et al., 2006). The techniques employed in these studies have included cognitive restructuring, alternative activity planning, problem solving financial planning and limit setting, social skills and communication training, relapse prevention, stimulus control, in-vivo exposure and imaginal desensitisation.

Minimal and brief interventions

Minimal or brief interventions are those treatments involving less professional time and/or resources than are typical of traditional therapy. From a stepped-care perspective, these interventions may provide non-threatening, cost-effective and time-efficient alternatives to traditional psychological interventions, particularly for those problem gamblers who have earlier onset and less severe gambling problems. Many of these interventions may also be appropriate for problem gamblers unable or unwilling to access local services and increase the accessibility of treatment for problem gamblers located in geographically remote areas.

A recent literature has successfully employed a range of interventions with minimal therapist intervention including self-help workbooks (e.g., Petry et al., 2006), internet-based CBT (Carlbring & Smit, 2008), brief advice (Petry et al., 2008), MET and CBT approaches (Petry et al., 2008), information materials delivered through the mail (Hodgins et al., 2007), and behavioural interventions delivered through audiocassette (Blaszczynski et al., 2005) and videoconferencing (Oakes et al., 2008).

Gamblers Anonymous

Gamblers Anonymous (GA), the parallel organisation for Alcoholics Anonymous (AA), is a voluntary fellowship that employs abstinent gamblers as counsellors. While GA is a common form of treatment, evaluative research is limited. Recent studies have employed comparative designs to evaluate the efficacy of GA-oriented treatment programs, demonstrating that GA alone does not appear to be sufficient to produce recovery for the majority of problem gamblers (Toneatto & Dragonetti, 2008).

Controlled gambling interventions

Although, historically, total abstinence has been viewed as the only legitimate and acceptable criteria of success, a substantial proportion of problem gamblers select controlled or reduced gambling as a treatment goal when it is available (e.g., Blaszczynski et al., 2005; Dowling, 2007). While the most common reason for selecting abstinence is a belief that control is not possible, the reasons for problem gamblers to select controlled gambling are that gambling retains some enjoyment, that abstinence is unrealistic or overwhelming, and that they want to successfully manage social situations involving gambling (Dowling & Smith, 2007). This research also shows that few differences have been found between problems gamblers selecting abstinence and controlled gambling as treatment goals.

The viability of controlled gambling as a treatment goal is generally supported by recent studies (Dowling et al., 2009b). Notably, like controlled drinking, the choice of treatment goal in problem gambling appears fluid, with the majority of participants shifting from the goal of controlled gambling to abstinence at least once during intervention (Ladouceur et al., 2009).

Treatment of concerned significant others

Several studies have evaluated coping skill interventions specifically designed to assist partners or 'concerned significant others' (CSOs). In the largest study, Hodgins and colleagues (2007) evaluated the efficacy of a self-help workbook based on the Community Reinforcement and Family Therapy (CRAFT) model. This model, which has been successfully employed with the CSOs of problem drinkers, is a CBT intervention that aims to improve CSO personal and relationship functioning, engage the problem gambler in treatment, and decrease gambling behaviour. In this study, the workbook conditions produced better outcomes than the control condition in terms of gambling behaviour, program satisfaction and having needs met.

Pharmacological interventions

Research evaluating the efficacy of pharmacological interventions in problem gambling behaviour has recently emerged. The clinical heterogeneity of problem gambling has led to the study of a wide range of psychopharmacological agents, including antidepressants, mood stabilisers and opioid antagonists. A recent meta-analysis revealed that pharmacological treatments are more effective than no treatment/placebo at post-treatment (Palleson et al., 2007). However, to date, no specific pharmacological agent has been found to be effective in at least two double-blind studies conducted by independent research teams, and there is little empirical data to guide the selection of one pharmacological intervention over another.

Combined psychosocial and pharmacological interventions

Combined pharmacological and psychological intervention is considered the optimal treatment strategy for many psychiatric disorders. However, there is a dearth of studies evaluating this in the treatment of problem gambling.

Treatment in the context of co-morbidities

The treatment of problem gambling is complicated by substantial variation in the clinical presentation of problem gamblers, in part due to a high co-morbidity with psychiatric disorders. However, the implications for treatment have received little attention.

The recognition of psychiatric co-morbidity and the development of subtypes of problem gambling (e.g., Blaszczynski & Nower, 2002) may eventually have implications for individually tailored intervention approaches. For example, the three subtypes of problem gambling that have been proposed are each based on a different primary aetiology and consequently have different implications for treatment: the 'behaviourally conditioned' subgroup (given the absence of psychopathology) may respond well to brief interventions using psychoeducation and basic cognitive therapy designed to correct irrational beliefs; the 'emotionally vulnerable' subgroup may respond to problem solving and stress-based interventions comprising more extensive cognitive-behavioural therapies; while those in the 'biologically-based impulsive' subgroup may require adjunct psychopharmacotherapy, intensive cognitive behavioural therapy and impulse control strategies. ■

Enhancing psychology's contribution to addressing problem gambling

This special *InPsych* report has highlighted the contribution of the science and practice of psychology to understanding gambling behaviour and addressing problem gambling. It is hoped that this overview of the current state of knowledge will encourage an increased focus by psychologists on this important public health and wellbeing issue.

There are major opportunities for psychologists to contribute to more informed public health policy decisions to address problem gambling, develop more effective prevention programs, and enhance the provision of effective treatment interventions. Greater investment in gambling research could further the understanding of gambling behaviour and progression from recreational to problem gambling, and enable the development of evidence-based interventions for problem gambling, particularly in the context of growing awareness of a high level of co-morbidity. The following areas are identified as ways in which psychology's contribution to addressing this significant concern for the Australian community can be enhanced.

Inform public debate and policy with psychological knowledge

- *Increase awareness of known risk factors and groups at risk of problem gambling*
  Regulation of gambling should be informed by the knowledge of identified risk factors for problem gambling, such as children raised in families where there is a family member affected by problem gambling, vulnerable people in lower socioeconomic groups, type of gambling activity, and proximity of gambling venue to place of residence. Such knowledge will inform policy responses to the differential impact of problem gambling on different parts of the Australian community.
- *Focus attention on electronic gaming machines*
  Given the knowledge that EGMs are implicated in 85 per cent of gambling problems in Australia, psychologists could contribute to debate regarding the number and location of EGMs, ways to reduce the harm of EGMs through machine modifications and ways to increase consumer control.
- *Consider the impact of the increase in gambling advertising*
  There has been a noticeable increase in the advertising of gambling opportunities in the electronic media and at sporting fixtures, aimed at increasing gambling participation rates. An understanding of the impact of this advertising on problem gamblers and vulnerable groups at risk of problem gambling is required to enable informed policy and possible regulation in gambling advertising.

Inform prevention initiatives

- *Argue for better implementation of effective public health approaches*
  Effective implementation of preventative public health initiatives has been hampered by the conflicting demands of harm minimisation and profit maximisation. Evaluations demonstrating effective prevention initiatives can be used to argue for investment in implementation to overcome the reluctance of vested interests, including those of governments that are dependent on gambling revenue.
- *Better understand the developmental pathways to problem gambling*
  Adolescence is a particularly vulnerable developmental stage and the high prevalence of gambling in this age group is of significant concern. Adolescents should be the focus of the development of targeted prevention programs, and consideration should be given to regulating the burgeoning advertising of gambling so that it does not deliberately target this vulnerable group. The impact of the increasing internet gambling opportunities on this group also warrants attention.

Enhance effective treatment interventions

- *Establish training initiatives for primary health providers*
  Given the associated stigma, gambling problems are frequently under-reported. Training initiatives for GPs and mental health practitioners could raise awareness of risk factors and population groups at risk of problem gambling, improve identification of people with gambling problems, enhance referral pathways for treatment and provide knowledge of interventions with the best evidence of effectiveness.
- *Improve screening protocols for problem gambling in mental health services*
  The high rate of co-morbidity of problem gambling with other psychiatric disorders, such as depression, anxiety, alcohol/substance use disorders and personality disorders, suggests that people who are presenting for assessment or treatment for mental health problems should be screened for problem gambling using validated measurement tools.
- *Improve screening protocols for co-morbidity in problem gambling services*
  The co-morbidity of problem gambling with a range of other psychiatric disorders also suggests that people presenting for assessment or treatment for gambling problems should be screened for other mental health problems, including anxiety disorders, depression, personality disorders, and alcohol or substance use problems. Suicide risk screening protocols should be considered when depression is evident.

- *Develop treatment guidelines for evidence-based interventions*
  There is a clear need for treatment guidelines regarding evidence-based interventions for problem gambling. The development of these needs to be informed by further investment in building a robust evidence base.
- *Undertake more extensive treatment studies with improved methodology*
  While the treatment outcome literature provides some research evidence that problem gambling is amenable to intervention, the outcome literature is characterised by a range of methodological limitations, including small sample sizes, high attrition rates, low numbers of women affected by problem gambling and heterogeneity in forms of gambling. Important directions for future investigation are conducting independent randomised controlled outcome trials comparing interventions, and evaluating interventions for subtypes of problem gamblers so that clinicians can offer more definitive and individually tailored intervention recommendations. Pilot evaluations of new treatments for problem gambling are also warranted.

Further the knowledge base

- *Investigate new aspects of gambling, particularly those enabled via global connection through the internet*
  The past 10 years has seen a burgeoning of more sophisticated ways to gamble, including highly engaging electronic gaming machines and access to 24-hour gambling through the internet, mobile phone technology and interactive television platforms. Internet access poses unique problems for national regulation and regulation of access via minors. Greater understanding of the effects of exposure and access to gambling activities, particularly those most likely to cause harm such as electronic gaming, needs to be progressed.
- *Develop an internationally accepted measure of problem gambling*
  There is currently much debate about the appropriate conceptualisation of problem gambling and the best way to measure it. Agreement on the assessment of problem gambling and the operationalisation of gambling harm would enable comparative studies. Comparing performance of screening and assessment tools against clinician-administered DSM- based criteria measures is required.
- *Better understand gambling participation across the lifespan*
  Longitudinal studies of developmental trends in gambling participation are required to describe its natural history, which would enable better understanding of risk and protective factors for problem gambling and the relationship between exposure and harm. The complex interplay of individual factors, gambling activity characteristics, and environmental factors needs to be better understood. ■