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## **PROBLEM AND PATHOLOGICAL GAMBLING: A CONCEPTUAL REVIEW**

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### **ABSTRACT**

This report provides a conceptual summary and critique of problem and pathological gambling and how these terms are used in policy, research and clinical practice. It summarises the varying disciplinary approaches to understanding gambling-related disorders; the distinction drawn between harm and behavioural indicators; issues in measurement; and, the significance of longitudinal evidence relating to the stability of gambling-related problems. ‘Pathological gambling’ is identified as the principal term used in psychiatric (e.g., DSM-IV) or medical literature and one which is defined largely in terms of the mechanisms which are central to substance use disorders (cravings, tolerance and withdrawal). By contrast, ‘problem gambling’ appears to have two common usages. In one usage, problem gambling refers to a less severe form of the disorder; in another, it refers to a public health conceptualisation that defines the disorder largely in terms of its harmful consequences. Commonly used psychometric measures of the disorder vary in relation to which of these conceptualisations is captured, but most include items relating to both behavioural indicators of pathology as well as harmful impacts. Longitudinal evidence suggests that reported problem gambling symptoms are often not stable over time. Individuals commonly shift between categories and this suggests that gambling-related disorders are unlikely (at least in some individuals) to be solely determined by underlying neurophysiological and dispositional factors that are immutable over time. The report supports the view that the causes of problem and pathological gambling are likely to be multi-faceted and require multi-disciplinary approaches to understand the factors responsible for the development of the disorder as well as its maintenance.

### **1 OVERVIEW**

Problem or pathological gambling is a recognised psychiatric disorder which has been included in the Diagnostic Statistical Manual (DSM) since

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1980. Although often described using a variety of terms, including ‘compulsive gambling’, ‘disordered gambling’ or ‘excessive gambling’, problem gambling is a term which is used to describe a syndrome of gambling-related behaviours that often leads to significant harm to individuals, to others close to the gambler and to the community (Neal, Delfabbro, & O’Neil, 2005). Across numerous countries, it is recognised that problem gambling is a significant public health concern with between 1-2% of the population estimated to be affected. Despite having a lower prevalence than substance abuse disorders such as alcoholism, problem gambling often presents as an acute disorder. Problems can emerge within a relatively short period of time and the effects are often thought to extend to as many as seven people who have contact with the gambler (Productivity Commission, 2010). These documented harmful impacts include: psychological distress, financial hardship, disruptions to work, study and close relationships and legal difficulties.

Despite acknowledgment of the existence of problem gambling as a disorder, a number of differences exist in relation to how the disorder should be classified, described and measured. As a result, gambling research can often appear confusing, contradictory or under-developed. This complexity can often lead to questions being raised (often by industry and government) about the extent to which existing knowledge can usefully inform policy, treatment services and other approaches to responsible gambling. Given this situation, it is useful therefore at periodic intervals to consolidate existing knowledge in a way that highlights the current state of knowledge, particularly in areas where greater certainties and uncertainties may exist. In light of this, the Responsible Gambling Trust commissioned the University of Adelaide to conduct a review of the principal areas of debate surrounding problem gambling. In particular, the University was asked to consider the following areas:

1. Problems with terminology: How the disorder is described and the theoretical justification for the use of different terms;
2. Theoretical approaches to the study of problem gambling, in particular, the principal differences between medical/ psychiatric and other human science approaches. Is problem gambling an individual as opposed to broader construct?;
3. The distinction between harm and behavioural indicators of the disorder;
4. How problem gambling is measured and the extent to which these are grounded in existing theoretical frameworks relating to the disorder; and,
5. The life-time stability or instability of the disorder and the relative value of studies that focus on the prevalence vs. incidence of problem gambling in the community.

## **2 TERMINOLOGY AND NOMENCLATURE AND THEORETICAL FRAMEWORKS**

A disorder involving gambling is most commonly described using the terms ‘pathological gambling’ or ‘problem gambling’. ‘Pathological’ is a medical or psychiatric or medical term which refers to the presence of a mental disorder recognised by the DSM-IV. First included in the DSM-III in 1980 (Lesieur & Rosenthal, 1991), pathological gambling is currently classified as an impulse disorder that cannot otherwise be explained by the presence of a manic episode (Petry, 2005). The DSM-IV describes pathological gambling as referring to “persistent and recurrent maladaptive gambling behaviour” that can “disrupt personal, family or vocational pursuits”. Diagnosis, usually based on a clinical interview, requires the satisfaction of at least 5 of 10 criteria. Included within this classification are items relating to tolerance (e.g., needing to gamble to obtain the same excitement), cravings and withdrawal (e.g., restless and irritability when stopping gambling) that were adopted from the diagnostic criteria for recognised substance use disorders. Other items relate to impaired control or the financial and personal harm associated with excessive gambling.

Pathological gambling is also to be included in the forthcoming DSM-V classification, although it is likely to be modified in several ways. For example, the classification is likely to be renamed ‘disordered gambling’ and moved from impulse control disorders to the addictive disorders section. This change is based on a growing body of evidence which suggests many physiological/neurophysiological similarities between the characteristics of pathological gambling and other addictive behaviours (Conversano et al., 2012). Diagnosis may also be based on 4 rather than 5 criteria and the final item relating to illegal acts to provide money for gambling may be removed because it has been found to have a very low level of endorsement (Petry, 2010).

By contrast, the term ‘problem gambling’ has been used in several different ways. In some contexts where researchers have discussed variations in the severity of the disorder, ‘problem’ and ‘pathological’ gambling have been conceptualised as lying on a continuum. ‘Pathological gambling’ has been considered the most severe form of the disorder whereas the term ‘problem gambling’ has been applied to people whose gambling is considered less severe. This distinction is, for example, evident in the well-known South Oaks Gambling Screen (Lesieur & Blume, 1987). Those who score 5+ out of 20 on this measure are ‘pathological gamblers’ whereas those who score 3-4 are ‘problem gamblers’. A similar distinction is evident in the recently developed Pathological Problem Gambling Measure (PPGM) by Williams and Volberg (2010).

In other contexts, the term ‘problem gambling’ has been considered a public health term which refers to a situation where gambling contributes to various forms of harm (Korn & Shaffer, 1999). In Australia, for example,

problem gambling is defined as resulting from “difficulties in limiting money and/or time spent on gambling which leads to adverse consequences for the gambler, others and for the community” (Neal et al., 2005). Similar definitions were adopted by the Australian Productivity Commission (1999) in its first major national review. Definitions of this nature concentrate on the health and social impacts of gambling and the responsibilities borne by governments/ regulators to introduce policies and fund services that alleviate the extent of the burden imposed on the community.

Conceptually, these terms appear to be distinguishable, but confusions could arise because of differences across disciplinary areas and countries. In public health, epidemiology and psychological research, most researchers use the term ‘problem gambling’ to describe anyone suitable for clinical interventions because of the desire to focus on the consequences of gambling. Public health approaches also encourage a focus on different levels of risk or case severity. As with other mental health problems such as depression or anxiety, problem gambling is thought to fall on a continuum. Problems vary in severity from less to more severe and it is assumed that people will move between categories (see Section 5).

Similar assumptions are made within such disciplines as anthropology, sociology and geography (See Section 3 below). In such disciplines, the focus is less on the individual causes of problem gambling but the broader social, spatial, and cultural factors that contribute to gambling problems (e.g., the supply and accessibility of activities as based on regulatory policies). Terms such as ‘pathological’ or ‘compulsive’ gambling are usually avoided in preference to more general terms such as ‘problem gambling’ so as to ensure that the focus of policy and research is not solely confined to individual behaviour or just personal consequences.

In contrast to these broader sociological approaches, most psychiatric or medical studies tend to place more of a focus on individuals and the internal causes of the disorder. Pathological and non-pathological gambling are more likely to be considered dichotomous categories so that people either fall into one category rather than another. Those who are ‘pathological’ usually share certain individual traits (e.g., genetic markers, response to neurophysiological/ cognitive tests) that differentiate them from others without the disorder.

Other terms sometimes used in the literature include the descriptors ‘compulsive’ and ‘excessive’. Compulsive gambling refers to disorder in which individuals are unable to resist the urge to gamble, have difficulty stopping once they have started, and/or who have difficulties cutting down their gambling over time. On the whole, recent reviews (e.g., el-Guebaly, Mudry, Zohar, Tavares, & Potenza, 2011; Hwang et al., 2012) support the view that the disorder has compulsive elements. Gamblers frequently report strong, often uncontrollable urges to gamble (Raylu & Oei, 2004) and various forms of impaired control (see O’Connor & Dickerson, 2003). However, a difficulty with the term ‘compulsion’ is that it describes only one recognised facet of gambling behaviour. Further conceptual difficulties arise when

comparisons are extended to draw similarities between pathological gambling and obsessive-compulsive disorders (OCD). As el-Guebaly et al. (2012) point out, while there are some behavioural similarities (e.g., uncontrollable repetitive behaviour), OCD and pathological gambling neurophysiological and psychological differences can be discerned. The principal point of departure concerns the motivational determinants of the behaviours. Whereas gambling is usually based on efforts to obtain positive reinforcement, OCDs are often based on a desire to relieve dysphoric states by reasserting control over one's environment. Pathological gamblers typically score higher on measure of novelty-seeking and impulsivity, whereas OCD suffers often score higher on measures of neuroticism (Hwang et al., 2012) and harm avoidance (el-Guebaly et al.2012). Nevertheless, it is also conceded that the two disorders may become increasingly difficult to distinguish in their most extreme forms. At these levels, people with severe problem gambling will increasingly gamble to escape dysphoric states and experience less enjoyment/ positive reinforcement from the activity.

The final term 'excessive gambling' can sometimes be used when researchers are unwilling to accede to any particular terminology (e.g., problem or pathological) or want to avoid terminology that implies the existence of an underlying individual disorder or pathology. The term 'excessive', for example, is favoured by Orford (1985) as a way to avoid what is perceived to be fundamental flaws in the pathology-based definitions. Based on observations that a significant number of people resolved their difficulties with gambling over time, or shifted between categories, Orford argued for a more psychological and sociological perspective that avoided the imputation that gambling problems arises from deep-seated and intractable factors that were not amenable to modification over time. In other words, his views challenge the assumption inherent in the DSM classification that pathological gambling is always a persistent problem for all individuals affected by the disorder. His views are supported by evidence (summarised in Section 5 below) that examines the stability of pathological gambling over time. Although it remains true that one still needs some standardised, reliable and valid means to assist epidemiologists, clinicians and others to measure problem gambling at a particular point in time, it is the conceptual framework that underlies the terminology that is subject to qualification. For example, in the same way that diagnosing someone at a particular point in time as being 'clinically depressed' should not necessarily lead to the assumption that this person is a 'clinical depressive', a similar logic is applied to pathological/ problem gambling. A positive classification or diagnosis may be useful in identifying people who are more likely to be experiencing difficulties at that point in time and who are more at risk in the future. However, one cannot assume that these people will fall into the same category if they were to be interviewed/ surveyed again in the future.

**SUMMARY:** In general, it is possible to distinguish between the terms 'pathological' and 'problem gambling' based on their usage. Problem

gambling is sometimes considered a less severe form of the disorder, but it also used (in some countries) as public health term that focuses predominantly on the harms associated with behaviour. By contrast, 'pathological gambling' more consistently refers to the current and proposed psychiatric criteria which relates to an underlying mental and behavioural dysfunction. The term 'compulsive' is generally not preferred because it only refers to a specific element of the recognised disorder.

### **3 PROBLEM GAMBLING: UNDERSTANDING ITS CAUSES**

It is now generally accepted that problem gambling should be studied from a multidisciplinary and well as a biopsychosocial perspective (e.g., Blaszczynski & Nower, 2002; Brown, 1986; Moran, 1970; Orford, 1985; Griffiths & Delfabbro, 2001). Such perspectives recognise that multiple factors are likely to contribute to the aetiology and maintenance of problem gambling and that the disorder can take different forms. The factors which influence whether a person will be exposed to gambling, have a desire to gamble, or gamble regularly, may not necessarily be the same as those which influence whether a person develops problems associated with gambling. Indeed, as Orford (1985) sensibly points out, it is likely that broader sociological and demographic factors play a role in influencing whether people gamble to begin with (and how often), but that individual-level factors become increasingly important in explaining why some regular gamblers develop problems and others do not. However, despite recognition of the likely complexity of the factors that influence problem gambling, different disciplines have usually adopted relatively narrow approaches that are consistent with their areas of expertise.

Psychiatric approaches (as discussed in Section 2 above) mainly confine their investigations to individual level factors. Problem or pathological gambling is defined mainly in terms of the range of behaviours displayed by individual gamblers (e.g., chasing, pre-occupation, concealment) or with respect to the nature of the harmful consequences that arise. In a sense, this is not surprising given the nature of these disciplines and the fact that interventions usually involve individuals and understanding the factors that contribute to individual pathology. In medical and psychiatric approaches, the disorder is usually considered to be a pathology arising from often uncontrollable factors. In particular, it is common for the disorder to be described as an 'addiction' and this positions it very much as an affliction influencing individuals and one, therefore, which has to be addressed by treating individuals. Although the use of the term addiction owes a lot to the fact that the DSM-IV classification for pathological gambling was largely adopted from more established substance abuse models, the term 'addiction' is consistent with broader assumptions about the extent to which behaviour is driven by lower level neurophysiological processes. Within these models, it is assumed that people lose control of their behaviour, impulses, judgment

because of differences and/or dysfunctions in how their brains operate relative to other people without these difficulties. An addiction approach is thought to be justified based on the scientific evidence, but also because, from a rhetorical sense, it may assist people to recognise that the problem can be treated and addressed through individual action (Blume, 1988).

Psychological approaches also typically focus on individual level factors, but these are not necessarily considered to be 'pathological'. Instead, problems arise as a result of the operation of well-known psychological processes evident in other areas of life. For example, it is recognised that gambling behaviour is likely to be maintained by the principles of operant and classical conditioning (Coventry & Constable, 1999; Delfabbro & Winefield, 1999; Dickerson, 1979, 1993; Dickerson et al., 1992). Other researchers have highlighted the important role played by social norms and social learning (Moore & Ohtsuka, 1999), whereas cognitive factors, including people's susceptibility to various erroneous views about probability, the profitability or the predictability of outcomes have been widely documented (Griffiths, 1995; Ladouceur et al., 1988, 1991; Walker, 1992). Despite the focus on internal factors in much of this research, not all researchers necessarily consider behaviour to be driven by uncontrollable lower-level processes. Instead, strong urges and impaired control (rather than lost control) are thought to arise as a result of the interaction between the individual and the gambling environment. For example, behavioural psychologists would argue that people's basic desire for reinforcement and money combined with the enticing schedule-based pattern of rewards and stimuli provided by gaming machines is what maintains behaviour. On the other hand, those favouring the cognitive approach would argue that many common heuristics and biases (e.g., the gambler's fallacy, biased attributions or hindsight bias) are amenable to change through appropriate education and are therefore not immutable features of problem gambling (see Griffiths, 1995; Petry, 2005; Wagenaar, 1988; Walker, 1992).

Another area of research has examined the links between broader psychological vulnerabilities (e.g., depression and anxiety) and people's likelihood of developing problems with gambling. According to these views, a person's susceptibility to addiction arises as a result of personal vulnerability and the extent to which the experience of gambling assists people in dealing with underlying psychological problems. Both Walker (1989, 1992) and Jacobs (1986) proposed that problem gambling could often be described as a form of 'psychological addiction' in that engagement in the behaviour can be negatively reinforcing. Numerous studies, for example, have shown that problem gamblers score higher on measures of depression and anxiety (see McCormick, Delfabbro & Denson, 2012 for a review), on measures of avoidant and emotion-based coping (Rodda, Brown, & Phillips, 2004; Scannell, Quirk, Smith, Maddern, & Dickerson, 2000; Scherrer et al., 2007), and are more likely to have histories of early trauma, abuse or stressful life events that preceded the gambling problems. In Jacob's view, gambling (and

particularly activities such as gaming machines) can serve to provide an escape from these other problems. Within venues, gamblers report dissociative-like states, complete immersion in the activity, altered identity and a feeling of being removed from other problems in life (Wood & Griffiths, 2007). Such gambling experiences can, therefore, through a process of exposure and conditioning give rise to dependency in that people find themselves feeling increasing restless or anxiety when removed from the gambling environment.

Although theories of this nature study problem gambling as an individual level phenomenon and consider individual action as the principal basis for the disorder, the environment is also considered to play a major role. If gambling products are designed to be highly reinforcing and are provided in environments where some people find it difficult to maintain a sense of reality or control, people are more likely to develop problems. Venues offering high-intensity gaming-machines are one very good example. Such venues typically possess many features that can lead to over-estimates of skill (Griffiths, 1995), distance people from the fact that they are spending real money, encourage people to spend more (e.g., bonus features, near-misses, multiple line play, note acceptors). Similarly, gambling environments are often structured in ways that make it hard for people to keep track of time, expenditure and a sense of reality. Although regulation and industry-initiated strategies have been put in place to address some of these concerns, it remains true that certain forms of gambling (particularly, those which allow rapid and repeated betting) are more likely to be associated with gambling problems than others (Delfabbro, 2011).

Many of these views are also shared by sociological and anthropological researchers. For example, Livingstone and Woolley (2007, 2008) and Livingstone (2005) have conducted research and produced critiques of the gaming industry that draw attention to the ways in which machine and venue design features contribute to problem gambling. Similar views are expressed by Schull (2012), who argues that the success of gaming machines can be influenced by design factors and marketing. Through the careful selection of design features that increase people's attraction to them, EGM manufacturers and venues create a highly predictable, safe and engaging milieu which is players find hard to resist. Within venues, a myriad of services (offers, refreshments, bonuses and prizes) are provided and players are surrounded by a clutter of noise, lights and other stimuli which distance people from the world outside the venue. Schull argues that all these factors conspire to create a "zone" into which people retreat in times of vulnerability. Based on observations such as this, Livingstone argues that many responsible gambling provisions and theories place too much emphasis on the modification of the behaviour of individuals rather than the industry itself. In his view, problem gambling is a broader construct and is a sociological phenomenon / construct that arises from the interface between individual and broader factors, including the nature of gambling products and venues. These views suggest



that the concept of problem gambling (from a social and policy perspective) may not be entirely captured by individual level analyses.

These arguments are underscored by other research that focuses on the geographical and demographic distribution of gambling opportunities and problems. A number of these studies (e.g., Doran & Young, 2010; Marshall & Baker, 2001; Welte, Wieczorek, Barnes, Tidwell, & Hoffman, 2004; Young, Lamb, & Doran, 2011) have shown how the availability, regulation and geographical location of gambling opportunities can have a significant influence on the level of gambling-related harm in the community. For example, the prevalence of problem gambling in Australia has been found to be significantly lower in jurisdictions (e.g., Western Australia) where there are no gaming-machines in community locations. Problem gambling prevalence rates and help-seeking rates also tend to be higher in areas where there is a higher concentration of gaming-machines (Delfabbro, 2011; Productivity Commission, 2010). Gaming machines also tend to be more clustered in locations where there is greater social disadvantage (Marshall, & Baker, 2001; Productivity Commission, 2010; Wardle, Keily, Astbury, & Reith, 2012). These studies suggest that the prevalence of problem gambling in the community is strongly influenced by the actions of the government and the industry. If products are designed in certain ways, placed in certain locations and promoted, it is more statistically likely that people will be attracted to them and possibly experience difficulties. This is evident in Australia, New Zealand and other countries where the help-seeking rates for problem gambling were relatively low prior to the proliferation of gaming-machines in the community.

Similarly, when one extends analysis from the causes to the harmful consequences arising from gambling, sociologists argue that measures based solely on individual-level harm are also potentially misleading. Despite the fact that broader social and community-level harm is recognised in some definitions of problem gambling (e.g., Neal et al., 2005), it has been argued that the nature of these harms need to be more fully articulated. The proliferation of problem gambling is thought to have broader economic impacts because it diverts expenditure away from other areas of industry which might have greater employment generating capacities. For example, it may decrease donations to charity organisations or it can undermine family cohesion; influence how sports and community events are promoted and operated. All of these potential impacts (many of them negative) are not often captured in prevalence surveys involving individuals because they are hard to capture and quantify.

**SUMMARY:** Disciplines such as psychiatry and psychology tend to examine problem gambling as an individual-level behaviour, but neither necessarily considers people to be at fault for developing problems. Psychologists often tend to adopt an 'interactionist' approach which sees problem gambling as arising from the interaction between individual and environmental factors. By contrast, sociologists and anthropologists place

much greater emphasis on the importance of environmental factors including the nature of gambling products, venues and government regulation. Sociologists argue that more emphasis should be placed on the societal causes of problem gambling and its wider community impacts.

#### **4 PROBLEM GAMBLING MEASURES: PATHOLOGICAL BEHAVIOURS AND HARMFUL CONSEQUENCES**

As discussed in Section 2, problem gambling can be defined in more than one way. One way is to focus predominantly on the behaviours that underlie the pathology, whereas another is to focus on the harms. In general, psychological and psychiatric approaches to the disorder focus on dysfunctional and pathological behaviours, whereas public health researchers place a greater emphasis on the harms associated with gambling. Both of these approaches have their strengths and disadvantages. A useful feature of the harm approach is that it avoids conceptual, and often contradictory, debates about the causes of the disorder and focuses on the degree of dysfunction caused by gambling, e.g., on individuals, families and the wider community (Neal et al., 2005). A disadvantage is that such an approach may be less useful if one wishes to focus attention on people who have problems with their gambling behaviour, but who may not as yet have suffered serious harm. Examples include people who can, for a short term, afford very high levels of expenditure, or adolescents who may gamble lower amounts, but nonetheless display many pathological behaviours (Volberg et al., 2011). The reverse arguments apply to purely behavioural approaches. In such approaches, the focus is on the behavioural indicators that may lead to harm. Although this approach has the benefit of potentially identifying people before problems develop and is conceptually clearer in that it focuses only on the pathology itself (Walker, 1995), there are disadvantages. Some people (e.g., adolescents) may gamble with relatively small amounts of money without experiencing significant harms, but still be classified as having a pathology. Without indicators of harm, it is also more difficult to highlight the impacts and costs of gambling and the extent to which people need assistance/ treatment.

A range of behavioural indicators of pathological gambling have been identified. Some of these are derived directly from the DSM-IV classification. For example, there are items relating to tolerance, withdrawal and cravings. Others refer to the impulsive or compulsive nature of gambling such: as the inability to control the urge to gamble, gambling more than one can afford; being unable to stop gambling; failed attempts to reduce gambling; or repeated attempts to go back and win back money lost. Other typical items refer to dysfunctional motivations (e.g., gambling to escape problems), pre-occupation with gambling, concealment or social conflicts associated with gamble. Content relating to the DSM-IV classification features strongly in many well-established measures, including (e.g., the South Oaks Gambling Screen, Lesieur & Blume, 1987), Problem Gambling Severity Index (Ferris &

Wynne, 2002), and the Northern American (NODS) (see Hodgins, 2004). For example, there are typically items which refer to betting more to obtain the same excitement, restlessness or irritability when gambling ceases, as well as an inability to control the amount of money spent. Indicators of harm are also usually included, but are usually less numerous. The PGSI has only two items of this nature, whereas the SOGS concentrates principally on the financial strategies used to obtain money. Some dedicated measures that relate principally to the harms associated with gambling have been developed in Australia by the Productivity Commission (1999) and also Ben-Tovim et al. (2001) (The Victorian Gambling Screen). Each of these measures captures harm across a variety of domains including: personal, social, financial, vocational and legal.

With perhaps the exception of the Victorian Gambling Screen, all of these measures are, in a sense, problematic in that the measures either downplay the role of harm or do contain a balance of items that capture pathological behaviours and the problems resulting from this behaviour. Moreover, given that many measures are derived from the DSM-IV classification and are designed for use within clinical samples, there are concerns about the appropriateness of these measures of use in public health surveys, where there may be a desire to adopt a less prescriptive conceptualisation of the disorder. A measure such as the PGSI appears in principle suitable for large-scale surveys because it was designed and validated for use in this context. However, as Svetieva and Walker (2008) have pointed out, a problem with this measure in the Australian context is that the content is not entirely consistent with the prevailing interest in public health approaches to gambling. The current definition of problem gambling in Australia (Neal et al., 2005) focuses largely upon the harms associated with excessive gambling and is couched in public health terms. Thus, because the PGSI contains relatively few items of this nature, then there appears to be a disjuncture between the accepted national definition of gambling and the principal epidemiological measure used to assess problem gambling.

To address concerns of this nature, Williams and Volberg (2010) have recently developed a new measure called the Problem and Pathological Gambling Measure (PPGM). Influenced by the Australian definition of problem gambling (Neal et al., 2005) and based on clinical assessment of several thousand case examples, this new measure differentiates between different types of item. Seven items relate to the harms or problems associated with gambling, four relate to impaired control (e.g., chasing, gambling more than intended) and three others refer to irritability, preoccupation and gambling to increase excitement. To be classified as having difficulties (either a problem or pathological gambler) an individual has to meet certain scoring criteria on the problem items, the impaired control items, and across both categories. A person also has to gamble at least once per month on some form of gambling. Psychometric testing of this measure indicated that those scoring

positively were also reliably classified in similar ways by an independent clinical assessment.

Apart from the impressive scale of the validation study, this study is important in that it avoids the conceptual problems associated relying on predominantly harm and/or behavioural items when classifying people as having a disorder. In effect, people have to display elements of both before their gambling is considered dysfunctional or disordered. The only conceptual difficulty with this new measure, however, is that it repeats the same slightly confusing logic inherent in the SOGS. Those who score higher on the measure are considered 'pathological', whereas those who score slightly below this are 'problem gamblers'. In other words, problem gambling is considered to be a less severe form of pathological gambling. As indicated in Section 2, such an approach is not consistent with broader distinctions usually drawn between problem gambling as a public health concept based largely on the presence of harm and pathological gambling, a psychiatric/ mental health term which refers to a syndrome of behaviours which may or may not lead to harm. The PPGM would arguably be easier to interpret if it perhaps used only one term, e.g., problem gambling and, as with the PGSI, referred to varying degrees of severity. Alternatively, one could classify people as pathological and/or problem gamblers based on the extent to which they reported pathological behaviours and problems associated with gambling.

From a theoretical perspective, it is also important to recognise that the PPGM is based on other conceptual frameworks and definitions. Many items are drawn from DSM-IV based measures, so that the extent to which it is appropriate for use in public health surveys is determined by the extent to which the DSM-IV framework is valid in this context. Another important issue is the definition of problem gambling. Clinical validations as well as the items themselves were influenced by the definition of problem gambling advocated in Australia by Neal et al. (2005). To the extent that both the measure itself and the clinical assessments were based on this conceptualisation of problem gambling, it is possible that this could have influenced the likely degree of correspondence between psychometric classifications and clinical assessments.

**SUMMARY:** Measures of problem gambling do not necessarily correspond with the accepted definitions of problem gambling. Whereas governments often like to adopt a public health approach and focus on the harms associated with gambling, it is important to recognise that many existing standardised measures are heavily influenced by the DSM-IV, which adopts an individual, addiction-based approach to the disorder. Thus, it is not entirely clear whether the content of measures is consistent with the purposes for which they are used.

## 5 STABILITY AND CONSISTENCY IN PROBLEM GAMBLING

By definition, most prevalence studies as well as the DSM-IV operate on the assumption that problem gambling is a relatively stable and homogenous construct. Estimates are made of the proportion of people reporting symptoms consistent with problem gambling over a specified interval (usually the last 12 months). Those who have problems with gambling are also usually assumed to be current (and usually regular gamblers) whose very high time and monetary commitment is principally the cause of their difficulties. However, despite the widespread and ongoing use of prevalence studies, there is increasing recognition of both the diversity of problem gambling as well its unstable nature.

Within the context of prevalence surveys, the subject of diversity is important because of questions concerning the links between the intensity and frequency of gambling and problem gambling. In many studies conducted around the world it is usually assumed that people who gamble more regularly are more likely to experience difficulties with gambling. In recognition of this, most studies (including nearly all conducted in Australia and many in Canada and the US) have typically not administered gambling screens to all gamblers in the survey. Only those who have been found to gamble sufficiently frequently and/or on more risky activities (e.g., something other than bingo or lotteries) are assessed to ascertain whether they report any symptoms of problem gambling (see Delfabbro, 2011). For the most part, these assumptions are generally valid. There is generally a relationship between the intensity of gambling and problem gambling and some non-continuous forms of gambling are generally associated with a low risk of problem gambling. However, a difficulty with these assumptions is that they may understate the importance of less frequent gamblers who engage in episodes of binge gambling (e.g., very high expenditures every few months). Binge gambling has generally been under-researched in the literature and particularly so in prevalence studies where it is assumed that problem gambling involves a regular habit and a typical level of expenditure per session.

In Australia, evidence has emerged which suggests that less frequent gamblers (less than weekly) also develop problems with gambling. For example, Jackson et al. (2010) conducted analyses in which they re-analysed an earlier 2007 Victorian prevalence survey to examine what proportion of problem gamblers (based on the PGSI) participated less than weekly. The results showed that 35.7% of problem gamblers and 30.4% of moderate risk gamblers did not gamble regularly (i.e., on a weekly basis). These findings suggested that the problem gambling participation rate (reported as .75%) should have been at least 1%. To follow up this point, Delfabbro (2011) examined how serious this problem would have been for other studies (e.g., South Australia) that used a fortnightly sampling frame and concluded that the

official prevalence rate was probably understated by 20% by not administering the PGSI to all gamblers. These findings suggested that not all problem gambling is necessarily based on a consistent or weekly habit and that other conceptualisations of gambling behaviour are needed.

The second issue, stability, has also attracted interest both in Australia, the UK (Reith & Dobie, 2012) and the United States (La Plante, Nelson, La Brie, & Shaffer, 2008 for a review). Most estimates of problem gambling are based on prevalence studies, so relatively little is known about whether people who report problems at a particular point in time will report similar problems at a later date. Such studies also provide few insights into 'incidence' or the number of new cases that develop over time. Both of these topics are important and for different reasons. Understanding stability is important because it reflects the reliability (and by implication- validity) of prevalence estimates (Reith & Dobie, 2012). If people's status is more flexible, then less confidence can be placed in prevalence estimates as the basis for anticipating the scale and impacts of problem gambling in the community, or the likely demand for help-services. If changes reflect an improvement in people's situation (e.g., a reduction in problem gambling), stability data therefore provides the starting point for understanding how and why people cope with their problems, or whether existing measures are entirely effective in capturing longer-term gambling problems. As suggested by Orford (1985), problem gambling may be more a less stable disorder than is often suggested by traditional medical-based models and this highlights fundamental weaknesses in these approaches and the need for other (e.g., psychological or sociological frameworks). Incidence is important because it provides a strong indication as to which people are currently most at risk and may help to identify the risk and protective factors that serve to move people up or down the risk continuum over time.

In the last 10-15 years, several studies have been conducted to examine the stability of gambling over time. In the United States, Shaffer and Hall (2002) tracked 639 casino employees over 3 years and found that 50% of those scoring 5+ on the South Oaks Gambling Screen had improved over time. Another study by Winters et al. (2005) tracked 306 16 year olds for 2.5 years and found that around 72% had improved. Slutske et al. (2003) tracked 393 young adults from the age of 18-19 years to age 29 and reported findings relating to the stability of DSM scores over time. The findings showed that 3% reported at least one DSM symptom at Time 1 vs. 1.8% at the age of 29 (a decrease). In Canada, Currie et al. (2011) reported the early findings from the 5-year Leisure, Life-style and Life-Cycle Project (LLLP). A sample of 809 young adults were tracked for one year (time 1 to time 2) to examine how their gambling varied over time. The findings generally showed a gradual increase in problem gambling symptoms over time: 9% endorsed 2+ items on the PGSI at time 1 and 14% did so at Time 2; 19% of participations were described as being more at risk over time, 58% stayed low risk at both times, 6% decreased their level of risk and 16% were considered high risk on both

occasions, based on their level of expenditure, frequency of gambling and other criteria. Although not all of these studies are without weakness (most had a low prevalence of problem gambling and some used modified screening instruments), all of the findings were reasonably consistent.

Similar studies have been conducted in Australia and New Zealand. For example, in New Zealand, Abbott, Williams and Volberg (2004) followed 143 lifetime problem gamblers identified in an earlier national prevalence study in 1991. The results showed that, of those assessed as currently being 'probable' problem gamblers in 1991 (SOGS 5+), only a quarter scored 5+ when assessed seven years later. Moreover, only a quarter of those who reported being lifetime problem gamblers in 1991 still scored as lifetime 'probable' problem gamblers at this follow-up point. Another similar set of analyses were conducted in the Australian State of Queensland following a prevalence survey in 2003-2004. The Queensland Government re-contacted 1728 people who had originally been surveyed and administered the PGSI once again. Just under three quarters (72.6%) remained in the same PGSI category as before, 14.3% had moved to a higher risk group, and 13.1% had moved to a lower risk group. Of those who had originally been classified as problem gamblers (PGSI scores of 8+), only around half (52%) were still classified as problem gamblers at the follow-up point. At the same time, 14% of those who had previously been in the moderate risk group had moved into the problem gambling group (Haworth, 2005).

In contrast, more recent research reported in the Australian State of Victoria suggests that problem gambling can be stable over time. In 2009, 7148 people who took part in a prevalence survey agreed to be followed-up over time. A total of 5003 took part in Wave 2 (2010), Wave 3 in 2011 and Wave 4 in 2012. The analysis of Wave 2 data showed that 6% of gamblers moved up to a higher PGSI risk category across the period and that 9% of moderate risk gamblers became problem gamblers over time. Another 4% moved down a risk category. Seventy three percent of people who were problem gamblers at time 1 were still problem gamblers at time 2 and 88% of non-problem gamblers (those who scored 0 on the PGSI) still scored the same 12 months later. These findings suggest that the classifications are relatively stable at the lower and higher ends of risk, but that there is some movement within the middle categories (from low to moderate or back again) (Billi, 2012). These findings support the view that there may be a small proportion of problem gamblers in the community who may be prone to ongoing difficulties with gambling. At the same, they also suggest considerable variability particularly amongst those who fall on the margin between problem and less problematic gambling. Some of these people may be classified as having a problem if interviewed at a particular point of time, but may not be similarly classified this way over time. From a methodological perspective, these observations underscore the need for longitudinal research to understand trajectories of gambling behaviour rather than just cross-sectional research. These studies also suggest the need for appreciating the

life-time as opposed to short-term prevalence of problem gambling because it is clear that the population affected by gambling is larger than that identified in cross-sectional prevalence studies.

**SUMMARY:** Incidence studies play a potentially important role in understanding the recent impacts of problem gambling on the community. Such studies also call into question some of the assumptions of medical/pathology models of gambling that assume that the disorder is reasonably stable over time. These findings further indicate that caution should be applied when interpreting prevalence studies and the extent to which current measures indicate the existence of ongoing problems. Although some problem gamblers may have problems which extend over many years, there are likely to be many people whose status varies across time, so that their experiences need to be researched from a longitudinal perspective.

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