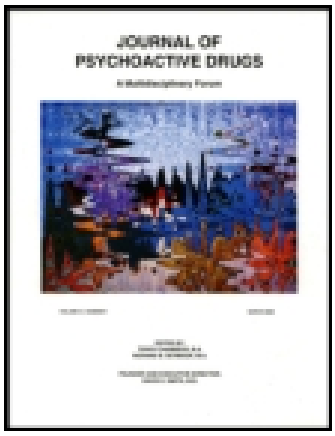

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Pathological Gambling: A General Overview

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Pathological Gambling: A General Overview

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Abstract — Throughout the course of history, gambling has been a popular activity across most cultures. In the United States, gambling has transitioned from early acceptance to prohibition to widespread proliferation. For most, gambling is a relaxing and recreational activity; however, for some individuals gambling becomes more than harmless fun. The most severe form of gambling, pathological gambling, is recognized as a mental health disorder. Pathological gambling is currently classified as an impulse control disorder in the *DSM-IV-TR*, but it shares many important features with substance use disorders, especially in terms of diagnostic criteria, clinical course, and treatment. Consequently, the DSM-V Task Force has suggested that pathological gambling be reclassified and included in a new category entitled "Addiction and Related Disorders." The category would include both substance-related and non-substance/behavioral addictions. This article provides a general overview of some of the available literature regarding pathological gambling and includes the presentation of a number of relevant topics including etiology, risk factors, comorbidity, prevention, and treatment. However, as with most complex, multifaceted, and multidimensional phenomena, more research is needed in order to improve both prevention and treatment efforts for pathological gambling.

Keywords — behavioral addiction, compulsive gambling, pathological gambling, problem gambling, process addiction

Chance is an intrinsic feature of life; consequently, gambling appeals to the inherent risk-taking proclivity of human nature. A cursory review through the archives of gambling literature leaves little doubt that gambling and games of chance have been popular activities for human beings across most cultures throughout the history of humankind (Petry 2005). Chinese gambling, for example, can be traced back more than 4,000 years, while excavations at Ur (2000 BC), Crete (1800 BC), Egypt (1600 BC) and India (1000 BC) have unearthed dice and gaming boards (McMillen 1996).

In North America, gambling preceded the foundation of the United States. Arriving on the Atlantic seaboard in the sixteenth and seventeenth centuries, European explorers and settlers encountered Native tribes who had well-established systems of wagering. For example, early explorers in New York witnessed members of the Onondaga tribe placing bets on the role of stone dice (Haugen 2006).

However, gambling in the New World was not limited solely to Native cultures. Historical reports claim that George Washington purchased the first ticket for a lottery that financed the colony of Virginia's development (Petry 2005). Additionally, lotteries also raised funds for the Continental Army during the Revolutionary War and were responsible, in part, for financing the development of the District of Columbia and early American universities such as Harvard, Yale, Columbia, and Dartmouth (Evans & Hance 1998).

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Yet, despite the developments made possible by the revenues generated through lotteries, many colonists had strong moral objections to gambling. Following in the vein of Cotton Mather, who defined gambling as "unquestionably immoral and, as such, displeasing to God" (Rosecrance 1988: 107), the Puritans opposed gambling because they believed it undermined the "Protestant ethic" of self-control, hard work, and thrift. Other religious leaders of the time also condemned gambling on the grounds that they believed that it destroyed families and exposed gamblers to additional vices such as alcohol and prostitution (Ruschmann 2009).

Eventually most forms of gambling and all lotteries were outlawed by the states beginning in the 1870s following tremendous scandals in the Louisiana lottery (Ruschmann 2009). However, in an effort to invigorate a lagging economy, the state of Nevada once again legalized casino gambling in 1931(Rushmann 2009), while the revival of lotteries began in 1964 when New Hampshire established a state lottery (NGISC 1999). Currently, all states, with the exception of Hawaii and Utah, offer some type of legalized gambling (Haugen 2006).

Overall, gambling in the United States has transitioned from early acceptance to prohibition to widespread proliferation. Viewed today as a legitimate and socially acceptable form of entertainment, legalized gambling currently generates greater revenue than any other popular leisure-time activity (Schwer, Thompson & Nakamuro 2003). Statistics indicate that approximately 85% of all Americans have gambled at least once in their lives and between 65% and 80% reported having gambled in the past year (NRC 1999).

For most individuals, gambling is a relaxing activity that does not incur negative consequences. Unfortunately, however, for some individuals gambling becomes more than harmless fun. The most severe form of gambling, pathological gambling, is recognized as a mental health disorder (Petry 2005). The personal and social effects of pathological gambling often include psychological distress, significant financial losses, family problems, legal and employment difficulties, and suicide (Oei & Gordon 2008).

While the consequences of pathological gambling are certainly disturbing, there also exists an equally unsettling trend with respect to the growth in the population of pathological gamblers. Statistics indicate that the prevalence of the disorder is on the rise. In 1976 it was estimated that the base rate of the U.S. adult population that constituted pathological gamblers was 0.77% (Kindt 2003). Current studies, however, estimate that approximately 5% of the adult gambling population experiences significant problems as a result of their gambling activities (Potenza 2008). This percentage is presumed to be even higher among special populations including those comprised of young adults, people with mental health disorders, and incarcerated individuals (Shaffer, Hall & Vander Bilt 1999). Furthermore, today, problem gamblers account for approximately one-third of the industry's revenue (Oei & Gordon 2008).

DEFINITIONS

Gambling involves risk and uncertainty. Often referred to as gaming, gambling can be defined as placing something of value at risk in the hopes of gaining something of greater value (Potenza 2008). Gamblers Anonymous (GA 1984) defines gambling as any betting or wagering for oneself or others, whether or not for money, no matter how slight or insignificant, in which the outcome is uncertain or depends on "skill" or chance.

Gambling is an activity that occurs along a behavorial continuum ranging from no involvement to excessive involvement. Locations along the continuum have been demarcated using terms such as social, at-risk, subclinical, problem, pathological, compulsive, and in-transition (Shaffer & Korn 2002). Individuals experiencing difficulties with gambling can generally be grouped into two categories: (1) *problem gamblers* and, (2) *pathological* or *compulsive gamblers.* Despite some distinctions, these terms are often used interchangeably in the gambling literature. All three designations are used to describe a disorder that is characterized by a loss of control over gambling, deception regarding the extent of one's involvement with gambling, family and job disruption, theft, and "chasing" losses or attempting to win back money that has been lost while gambling (Oei & Gordon 2008).

According to Fisher and Harrison (2009), the term *pathological* generally refers to those individuals whose gambling behavior meets at least five of the ten diagnostic criteria outlined in the APA's *Diagnostic Statistical Manual of Mental Disorders, Fourth Edition-Text Revision* (DSM-IV-TR; APA 2000), while the term *problem gambling* is generally reserved for those individuals whose behavior meets three of the DMS-IV-TR diagnostic criteria. The term *compulsive gambling* is most frequently used by laypersons such as members of GA; however, the criteria associated with *compulsive gambling* do meet the diagnostic criteria for *pathological gambling*. Additionally, the term *disordered gambling* is also often used in the literature to identify problem and/or pathological gambling behavior. A meta-analysis of studies encompassing the years 1975-1999 revealed that 1.9% of North American adults qualified for a lifetime diagnosis of pathological gambling, while 4.2% fell into the problem gambler category (Shaffer & Hall 2001).

CURRENT CLASSIFICATION

Although it is first mentioned in the medical literature in the early 1800s (Harvard Mental Health Letter

2010), the APA did not classify pathological gambling as a psychiatric disorder until 1980 when it debuted in the *DSM-III* (APA 1980). Along with pyromania, kleptomania, trichotillomania, and intermittent explosive disorder, pathological gambling is currently classified as an "impulse control disorder not elsewhere specified" (APA 2000). The *DSM-IV-TR* (APA 2000) diagnostic criteria for pathological gambling are as follows:

A. Persistent and recurrent maladaptive gambling behaviors as indicated by five (or more) of the following:
   1. is preoccupied with gambling, (e.g., preoccupied with reliving past gambling experiences, handicapping or planning the next venture, or thinking of ways to get money with which to gamble)
   2. needs to gamble with increasing amounts of money in order to achieve the desired excitement
   3. has repeated unsuccessful efforts to control, cut back, or stop gambling
   4. is restless or irritable when attempting to cut down or stop gambling
   5. gambles as a way of escaping from problems or relieving a dysphoric mood (e.g., feelings of helplessness, guilt, anxiety, or depression)
   6. after losing money gambling, often returns another day to get even (chasing ones losses)
   7. lies to family members, therapists, or others to conceal the extent of involvement with gambling
   8. has committed illegal acts such as forgery, fraud, theft, or embezzlement to finance gambling
   9. has jeopardized or lost a significant relationship, job, or educational or career opportunity because of gambling
   10. relies on others to provide money to relieve a desperate financial situation caused by gambling

B. The gambling behavior is not better accounted for by a manic episode

THE HIDDEN ADDICTION: GAMBLING AS A BEHAVIORAL/PROCESS ADDICTION

Irrespective of its current classification as an impulse control disorder, pathological gambling is often referred to as an addiction, or, more specifically, the "hidden addiction" because it manifests none of the obvious physical signs that usually accompany conventional addiction-related behavior, i.e., no needle marks, slurred speech, alcohol on the breath, or dilated pupils. A urinalysis, Breathalyzer test, or blood test will not reveal gambling activity. Consequently, a gambling disorder is significantly more difficult to detect than a substance use disorder, a factor that makes early intervention difficult. Finding it easier to conceal the addiction, individuals tend to progress more easily, and, often, more rapidly toward the pathological end of the gambling-behavior continuum (Phillips 2005).

Traditionally, the term "addiction" has been used to explain a compulsive attraction or pathological attachment to a substance; consequently, "addiction" has generally been reserved for the description of substance-using behaviors (Grant et al. 2010). However, many of the current diagnostic criteria for pathological gambling share features with those of substance use disorders. For example, tolerance, withdrawal, repeated unsuccessful attempts to cut back or quit, and interference in major areas of life function are diagnostic criteria associated with both pathological gambling and substance use disorders (Potenza 2008). These similarities have led some clinicians and scholars to challenge pathological gambling's present classification in the *DSM-IV-TR* and, instead, argue for its reclassification as an addiction (Harvard Mental Health Letter 2010).

The questions regarding reclassification are not limited solely to pathological gambling. In addition to gambling, many researchers and clinicians now recognize that some individuals can become addicted to a variety of behaviors, e.g. sex, eating, Internet use, etc. Addictions to behavioral processes are termed behavioral addictions or process addictions (Grant et al. 2010).

The essential feature of a behavioral addiction is the failure to resist an impulse, drive, or temptation to perform an act that is harmful to the individual or to others. Behavioral addictions are distinguished by a recurrent pattern of behavior that manifests this fundamental feature within a particular domain. Analogous to the trajectory of substance use disorders, the repetitive engagement in these behaviors eventually interferes with functioning in other domains (Grant et al. 2010).

While the issue surrounding behavioral addictions remains somewhat controversial, resolution with respect to the matter may be close at hand with the forthcoming issuance of the DSM-V slated for publication in 2013. Proposed revisions include the elimination of the current "Substance-Related Disorders" classification and the addition of a new category entitled "Addiction and Related Disorders," a category which would encompass both substance-related and non-substance/behavioral addictions. As a result, the DSM-V Task Force has suggested moving pathological gambling from its current classification as an impulse control disorder to the category of "Addiction and Related Disorders" (Grant et al. 2010).

THE COURSE OF PATHOLOGICAL GAMBLING

The degree to which an individual gambles or wagers ranges along several dimensions. If examined over time, an individual's gambling activities and problems can decrease, increase, remain at the same level, or recur (Petry 2005). Predicated on the results of two surveys, the Gambling Impact and Behavior Study (GIBS) and the National Epidemiologic Survey on Alcohol and Related Conditions (NESARC), Slutske (2006) concluded that the pattern or course of pathological gambling is best described as "variable."

Gambling behavior can occur on different levels and progress through different phases. Shaffer, Hall and Vander Bilt (1999) demarcated four levels ranging from zero (no gambling) to three (pathological gambling) in order to illustrate the various degrees of gambling involvement. Lesieur and Custer (1984) identified three phases—the winning phase, the losing phase, and the desperation phase—in order to describe the course of progression. Recently, an additional phase—the hopeless phase—was added (Petry 2005). Not all gamblers experience all levels or phases, nor is the progression through which individuals traverse necessarily linear.

ETIOLOGY

Over time, several models have been constructed in order to explain or describe the development of gambling disorders. Early theories identified and investigated specific factors such as learning, cognition, affect, and genes; however, the models examined each component separately (Turner et al. 2008). While these paradigms certainly provided insight and a deeper understanding of each of these independent variables, they had limited descriptive, explanative, and predictive value. Due to their one-dimensional nature, they were unable to fully account for all the intricacies related to the development of pathological gambling.

Today, pathological gambling is understood as a complex, multifaceted, and multidimensional phenomenon. It is generally considered a heterogeneous disorder in which multiple variables interact in multiple manners. Current research demonstrates that biological, psychological, and social factors are all relevant to the development of problematic levels of gambling (Sharpe 2002).

To date, no one single theory has been developed that can fully explain the onset and maintenance of disordered gambling. While several more-comprehensive models have been developed, including the General Theory of Addictions, the Pathways Model, and the Public Health Model, each continues to have limitations with respect to its ability to account for either the multiplicity of variables associated with the development of problem gambling or for the seemingly endless combinations and permutations of these variables (Derevensky & Gupta 2004). However, unlike earlier theories, these models seek to both identify the multiple etiological factors involved, as well as describe the relationships between these variables.

General Theory of Addictions

The General Theory of Addictions, developed by Jacobs in 1986, was the first theory to attempt to account for both physiological and psychological factors in the etiology of pathological gambling and other addictive behaviors (Nower & Blaszczynski 2008). According to Jacobs, any mood-altering behavior that gives a psychologically vulnerable individual an opportunity to escape pain, fulfill grandiose fantasies, and create a new identity will lead to addiction (Graybar & Varble 2002). Because the need or desire to escape from one's problems occurs more frequently among individuals who have poorly developed coping capacities (Gupta & Derevensky 2000), the model suggests that excessive substance use and/or excessive behaviors, such as gambling, represent maladaptive coping skills (Turner et al. 2008).

Pathways Model

In an effort to integrate the complex array of biological, personality, developmental, cognitive, learning theory, and ecological determinants of problem and pathological gambling, Blaszczynski and Nower (2002) proposed the Pathways Model. Beyond their more inclusive conceptualization, the authors also suggest that gamblers do not represent a homogeneous population. While individuals share a number of common ecological factors, i.e., cognitive distortions, behavioral contingencies of reinforcement, access to gambling opportunities, etc., they differ with respect to other biopsychosocial factors (Nower & Blaszczynski 2008). Based on these dissimilarities, Blaszczynski and Nower (2002) posited three distinct groups of gamblers: (1) behaviorally conditioned problem gamblers, (2) emotionally vulnerable problem gamblers, and (3) antisocial, impulsivist problem gamblers.

Public Health Model

Shaffer and Korn (2002) have described a public health approach to gambling. Similar to the public health models used for alcohol, tobacco, and other drugs, this paradigm describes the complex interrelationships and interactions between three specific variables: the host, the agent, and the vector/environment. With respect to gambling, the host is defined as the individual who decides to gamble. He or she might be at risk for developing problems based upon his or her own particular neurobiology, psychology, and behavior patterns. The agent represents the gambling activities. The vector refers to the money and the environment represents both micro- and macro-levels. The micro-environment consists of the gambling venue, family, and local community in which the host resides. The macro-environment includes the socioeconomic, cultural, societal, and political context in which the gambling occurs, i.e., whether gambling is legal or not, the degree of accessibility or availability, and whether or not the activity is socially sanctioned or promoted. The public health model recognizes that gambling generates both positive outcomes (e.g., socioeconomic gains, employment opportunities, tax revenues, etc.) and negative outcomes (e.g., consequences of problem gambling), and it is the confluence of the variables which

has the capacity to produce a variety of consequences ranging from desirable to undesirable.

NEUROBIOLOGY

Although neurobiological studies related to pathological gambling are still in their infancy, preliminary results indicate that pathological gambling and substance use disorders share neurobiological underpinnings (Mutschler et al. 2010). Both psychoactive drugs (e.g., alcohol, cocaine, heroin, etc.) and behaviors (e.g., gambling, compulsive shopping, etc.) have the capacity to stimulate neurobiological systems. For example, the results from functional magnetic resonance imaging (fMRI) studies have revealed that the manner in which money and beauty energize the reward system is similar to that associated with the anticipation of the effects of cocaine among users (Shaffer et al. 2004).

A growing body of literature supports the hypothesis that several neurotransmitter systems related to arousal, mood regulation, and reward regulation may all play a role with respect to impulsivity, mood disorders, and impaired control (Blaszczynski & Nower 2002). Research results have implicated the noradrenergic, serotonergic, and dopaminergic neurotransmitter systems in the pathophysiology of behavioral addictions and substance use disorders (Potenza 2008). Central noradrenaline (norepinephrine) is involved in the physiological functions associated with arousal and impulse control (Blanco et al. 2000). Serotonergic function is linked to behavioral initiation, inhibition, and aggression, while dopaminergic function is associated with reward and reinforcement mechanisms (Iancu et al. 2008).

Several brain circuits implicated in the development of addictive behavior have also been studied in pathological gambling. Four of these circuits have generated particular interest: (1) the reward circuit, which is located in the nucleus accumbens; (2) the motivational and drive circuit, which is located in the orbitofrontal cortex; (3) the memory and learning circuit, which is located in the amygdala and the hippocampus; and (4) the control circuit, which is located in the dorsolateral prefrontal cortex and the anterior cingulated gyrus (Iancu et al. 2008). Additionally, neuropsychological studies of pathological gamblers have demonstrated that pathological gamblers display deficits in the frontal lobe reward system, leading investigators to hypothesize that impairment of executive function may play a role in the etiology of pathological gambling (Iancu et al. 2008).

GENETICS

Current research results indicate a likely genetic vulnerability to pathological gambling. While the specific phenotype through which such a particular vulnerability is expressed remains obscure, genetic studies suggest that the presence of the dopamine D2A1 allele receptor gene may result in deficits in the dopamine reward pathways (Derevensky & Gupta 2004). Deficiencies in D2 receptors may influence individuals to pursue pleasure-generating activities and, consequently, increase the risk for the development of multiple addictive, impulsive, and compulsive behaviors including pathological gambling, substance abuse, and binge eating (Blum et al. 2000).

RISK FACTORS

In addition to neurobiological and genetic vulnerabilities, several other risk factors have been identified with respect to the development of pathological gambling. Some of these risk factors include earlier age of onset; gender; social modeling (i.e., the gambling attitudes and behaviors of parents and peers; Derevensky & Gupta 2004); personality factors, i.e., impulsivity and sensation-seeking traits (McDaniel & Zuckerman 2003) and antisocial behaviors (Derevensky & Gupta 2004); ineffective coping strategies (Hulsey & Lightsey 2002); preexisting mood disorders, anxiety disorders, and/or substance abuse disorders; low self-esteem; and lack of social support (Derevensky & Gupta 2004). However, it is important to remember that, as with other addictions and behaviors, it is the interaction between a variety of variables or factors, and not the factors alone, that may put an individual at higher risk for developing a problem with gambling. Therefore, risk factors cannot be assumed to be causative factors.

TRAUMA

While histories of abuse and trauma have frequently been reported by individuals diagnosed with substance use disorders, a link between problem gambling and trauma is appearing in the literature with increasing frequency. Gambling has been characterized as a way of coping with trauma and abuse, especially among women (Lesieur & Blume 1991). In a study conducted with pathological gamblers undergoing treatment, Kausch, Rugle and Rowland (2006) found that 64.4% reported some history of abuse; 56.8% reported a history of emotional abuse, 40.5% reported physical abuse, and 24.3% reported a history of sexual abuse. Multiple (two or more) incidents of abuse were reported by 42.3% of the gamblers, and both physical and sexual abuse histories were reported by 16.2% of the sample. Women were significantly more likely to report abuse than men in this sample.

ERRONEOUS COGNITIONS

Many studies have supported the theory that cognitive distortions or irrational beliefs may play a role in the development and maintenance of both addictive behaviors in general and pathological gambling specifically (Oei & Gordon 2008). Despite the objective statistical probability of failure related to games of chance, problem gamblers tend to harbor inaccurate perceptions about their ability to control or influence the gambling outcomes. Cognitive distortions associated with disordered gambling include: (1) the gambler's fallacy, i.e., the belief that completely random events, such as the outcome of a coin toss, are influenced by recent events (Johnson & Malow-Iroff 2008); (2) illusions of control, i.e., superstitious behaviors by which the gambler thinks that he/she has a reliable means of manipulating the event outcome in his/her favor (Johansson et al. 2009); (3) the magnification of gambling skills, i.e., exaggerated self-confidence (Iancu et al. 2008); and (4) recall bias, i.e., the tendency to remember and overestimate wins while forgetting about, underestimating, or rationalizing losses (Blanco et al. 2000).

ACCESSIBILITY

Although the results of a report developed by Gerstein and colleagues (1999) indicated that the prevalence rates of both problem and pathological gambling were double that of the general population for individuals living within a 50 mile radius of a casino, it is not possible to determine precisely what role, if any, location plays in the development of disordered gambling. While it is possible that the availability of or access to gambling opportunities may increase an individual's vulnerability for developing a gambling problem, it is also possible that individuals with a pre-existing gambling problem may relocate to areas that provide multiple gambling opportunities. Furthermore, it is equally possible that casinos locate to areas where the population has already demonstrated high rates of disordered gambling (Shaffer & Korn 2002).

COMORBIDITY

Comorbidity is the term used to describe the co-occurrence of two or more disorders. Each disorder can occur independently, a pattern identified as *lifetime comorbidity*, or two or more disorders can occur simultaneously, a pattern known as *current comorbidity* (Petry 2005). Research results indicate a high incidence of associated comorbid disorders and pathological gambling. Comorbid disorders for pathological gambling include substance use disorders, attention-deficit hyperactivity disorder (ADHD), antisocial, narcissistic, and borderline personality disorders, depression, cyclothymia, and bipolar disorder (Phillips 2005). In addition, pathological gamblers frequently engage in multiple impulsive and dysfunctional behaviors simultaneously, such as compulsive shopping and compulsive sexual behavior (Kausch 2003). Suicide is also highly associated with gambling disorders (Phillips 2005).

However, with respect to comorbidity, it is necessary to remember that the statistics reported represent correlations. Determining a causal role, if one or any exist, is difficult, if not impossible. For instance, do substance abusers gamble or do gamblers abuse substances? Do individuals with a psychological disorder(s) gamble to self-medicate their emotional distress or does the stress generated by gambling-related problems facilitate the development of psychological disorders (Shaffer & Korn 2002)? Regardless of the order of onset, however, it is possible that all three—substance abuse disorders, psychological disorders, and gambling disorders—may interact and, subsequently, perpetuate one another (Petry 2005).

CRIME

The literature has established a link between crime and gambling behavior (Blaszczynski & Farrell 1998). In the U.S., a 1996 study by Thompson, Gazel, and Rickman (Nower 2003) found that, on average, the serious problem gambler had lost nearly $100,000 and owed $38,644 before seeking help. As financial resources dwindle, gamblers may resort to crime in order to pay debts, maintain appearances, and acquire more money with which to gamble. It is estimated that crimes such as fraud, theft, embezzlement, forgery, robbery, assault, and blackmail are committed by 21% to 85% of pathological gamblers (Nower 2003). During the 1980s and 1990s, studies reported that between 12.5% and 15% of all pathological gamblers would become incarcerated (Kindt 2003). However, as with comorbidity, it is difficult to separate cause from effect. In other words, do criminals gamble or do gamblers become criminals (Shaffer & Korn 2002)?

BANKRUPTCY

A high percentage of gamblers will also face bankruptcy. According to the Gambling Impact Behavior Study (GIBS) released in 1999, nearly 25% of both problem and pathological gamblers filed for bankruptcy compared to 5.5% of social gamblers and 4.2% of nongamblers. Additionally, pathological gamblers in that study reported rates of indebtedness that were 25% greater than those of social gamblers and 120% greater than nongamblers (Nower 2003).

SUICIDE

Although a causal link has not been established, emerging evidence suggests that gambling severity elevates

the risk for suicidal ideation and behavior. As consequences and losses mount, some individuals may view suicide as the only viable solution to both their emotional distress and financial stress (Hodgins, Mansley & Thygesen 2006). It has been suggested by some researchers that pathological gamblers are five to ten times more likely to attempt suicide than the general population (Blaszczynski & Farrell 1998). Studies involving treatment-seeking pathological gamblers found that 36% to 50% had a history of suicidal ideation (Lejoyeux et al. 1999; Linden, Pope & Jonas 1986), and 20% to 30% of pathological gamblers had made suicide attempts (Schwer, Thompson & Nakamuro 2003). Moreover, the mood and substance use disorders that commonly co-occur with pathological gambling are also highly associated with suicide (Crockford & el-Guebaly 1998), thereby further increasing an individual's vulnerability for suicidal ideation and/or attempts.

However, the role that gambling itself plays in precipitating suicidal ideation and/or behaviors remains unclear. Studies have generated mixed and inconclusive results. For example, a study by Kausch (2003) found that 64.3% of those who had attempted suicide reported that their most recent suicide attempt was related to gambling. Conversely, a study by Hodgins, Mansley and Thygesen (2006) revealed that suicide attempts were nearly universally made when participants reported feeling depressed. Additionally, more than half of these respondents reported that the majority of their suicide attempts had been made under the influence of alcohol or other drugs. Furthermore, in this sample, those reporting gambling-related suicide attempts tended to experience prior nongambling-related suicidal ideation. Based on these contradictory findings, it appears that gambling problems are but one of a number of stressors that may contribute to suicidal ideation and attempts.

SPECIAL POPULATIONS

Historically, pathological gambling has been viewed as a male-dominated problem. Today, however, it is clear that individuals experiencing gambling problems do not reflect a homogeneous group. Rather, excessive gambling affects individuals with diverse biopsychosocial profiles and cuts across age, gender, ethnicity, and social class.

Gender

Studies indicate that women make up the fastest growing group of individuals seeking help for problem gambling (Petry 2005). An estimated one-third of problem gamblers are now women (Volberg 1994). Research indicates that female gamblers tend to be drawn to the activity as a means of "escape," while male gamblers tend to be intrigued by the "action" (Boughton & Falenchuck 2007). As a result, women generally participate in games of "luck," (e.g., slot and video poker machines, bingo, keno, etc.), whereas men typically engage in gaming activities that require "skill" (e.g. card games, horse race betting, sports betting, etc.; Turner et al. 2008). Although the age of onset for problem gambling in women is generally later than that of men, women are found to experience a more rapid progression into a gambling problem than men, a phenomenon referred to as "telescoping" (Grant et al. 2010). However, while women tend to initiate gambling activities at a later age than men, they also tend to seek treatment for problem gambling earlier than men (Petry & Ladd 2002).

Adolescents

Gambling by teenagers is not a new phenomenon; however, according to Jacobs (2004), adolescents in the 1990s were the first U.S. generation reared in a culture in which gambling was viewed not only as an acceptable recreational activity, it was also identified as a potential career option. As a result, adolescent gambling prevalence rates are on the rise. During the 1980s, it was estimated that 45% of adolescents had gambled (Jacobs 2004). Today, however, data from multiple North American surveys demonstrate that 60% to 80% of all adolescents have gambled for money (Derevensky & Gupta 2007; Jacobs 2004). Furthermore, Derevensky & Gupta (2007) report that of the percentage of adolescents who gamble, 10% to 15% are at risk for developing gambling problems. These rates are significantly higher than those reported in the general adult population. In fact, research results indicate that adolescents experience this problem at approximately 2.5 to three times the rate of their adult counterparts (Shaffer & Korn 2002).

Seniors

Older adults comprise one of the fastest growing segments of the population. They also represent that portion of the population experiencing the highest gambling activity growth rate (Desai et al. 2004). According to Gerstein and colleagues (1999), lifetime gambling rates in older adults increased from 35% in 1975 to 80% in 1998.

Seniors may be especially vulnerable to developing a gambling problem for a number of reasons. First, seniors tend to have both more discretionary time and discretionary income than members of the general population (Desai et al. 2004). These factors alone can serve to increase gambling frequency and involvement. Second, the desire to numb or escape from the uncomfortable feelings associate with life changes—e.g., death of a spouse, health or financial problems, boredom, etc.—may motivate some seniors to gamble (Illinois Department on Aging 2005). Third, seniors may have greater accessibility to gambling opportunities than the general population. Bus trips or group excursions to casinos are popular activities sponsored by senior living centers (Illinois Department on Aging 2005), while in-house gambling activities (e.g., bingo) are frequently offered at residential and assisted-care facilities (Parekh & Morano (2009).

ASSESSMENT

A variety of instruments have been developed for screening and classifying gambling behaviors (Petry 2005), including the South Oaks Gambling Screen (SOGS), the National Opinion Research Center DSM Screen for Gambling Problems (NODS), the Lie/Bet Questionnaire, and the Gamblers Anonymous 20 questions. The SOGS is highly correlated to the *DSM-IV-TR* diagnosis of pathological gambling (McCown & Chamberlain 2000) and has been demonstrated to be valid and reliable; however, it has been criticized for its tendency to generate false positives (Petry 2005). On the other hand, the NODS, originally developed as a survey instrument for research purposes, has a propensity to generate false negatives (Phillips 2005). While all four instruments are effective screening tools, the most significant limitation with respect to each is the same limitation associated with all self-report inventories: individuals can easily misrepresent themselves when responding (Phillips 2005).

TREATMENT

Despite its increasing prevalence, pathological gambling often remains untreated. While effective treatment for gambling problems does exist, relatively few individuals experiencing gambling problems seek treatment (Cunningham 2005; Petry 2005). Data analysis based on the qualitative information derived from two national population surveys conducted since 1989 in the U.S. (Slutske 2006; Cunningham 2005) found that only 7.1% to 9.9% of lifetime pathological gamblers had sought treatment or attended Gamblers Anonymous (GA). The outcome of this analysis indicates that 90.1% to 92.9% of the individuals experiencing gambling problems neither seek treatment nor attend GA.

Both process/behavioral addictions and substance use disorders often respond favorably to the same treatments. Cognitive-behavioral therapy (CBT), motivational enhancement/motivational interviewing (ME/MI) and 12-Step approaches commonly used to treat substance use disorders have been used successfully to treat pathological gambling. The psychosocial interventions for both behavioral addictions and substance use disorders are generally structured within the context of a relapse prevention model. This model encourages individuals undergoing treatment to develop and maintain abstinence through the process of identifying patterns of abuse, developing the strategies necessary to avoid and/or to cope with high-risk situations, and generating lifestyle changes that reinforce healthier behaviors (Grant et al. 2010).

Behavioral interventions have also been found to be useful for some individuals engaged in the recovery process. Both self-exclusion and funds-management strategies can help facilitate abstinence and/or gambling-behavior modification. For example, some casinos offer a program that allows individuals to ban themselves from the establishment, thereby limiting an individual's access to a high-risk situation. Also, individuals can elect to limit their access to funds. Useful strategies include canceling credit cards, removing ATM cards, credit cards, and/or cash from wallets, and utilizing direct-deposit options for paychecks (Ladouceur & LaChance 2007).

Lipinski, Whelan and Meyers (2007) examined the reviews of psychological treatments for pathological gambling and generated three conclusions. First, pathological gambling responds to psychosocial treatment. Interventions falling within the cognitive-behavioral spectrum have the most empirical support at present (Toneatto & Ladouceur 2003). Second, brief outpatient treatments that have been successful with other addictive behaviors show promise for the treatment of pathological gambling. Third, positive change from psychological treatment is not limited to abstinence-only outcomes; rather, the reduction of gambling behaviors to more normal or functional levels has been demonstrated to be viable treatment goal and outcome for some individuals.

Korn and Shaffer (1999) suggest that the most effective treatments for gambling problems will reflect a multimodal "cocktail approach" combined with client-treatment matching. They recommend a multidimensional treatment approach that includes combinations of psychopharmacology and psychology coupled with financial, educational, and self-help interventions. And, while formal treatment is useful for some, it is not always a necessary prerequisite for recovery (Suurvali, Hodgins & Cunningham 2010). Utilizing data from previous studies, Slutske (2006) found that approximately one-third of the lifetime pathological gamblers participating in the studies had recovered without formal treatment.

Pharmacotherapy

Research assessing the efficacy of pharmacotherapies for use in the treatment of gambling addiction is limited. Currently, there are no U.S. Food and Drug Administration (FDA) approved medications for the treatment of pathological gambling (Grant, Chambers & Potenza 2004). However, neurobiological similarities between pathological gambling and drug addiction suggest that medications used for the treatment of drug addiction might be useful in the treatment of pathological gambling (Mutschler et al. 2010). For example, naltrexone, a mu-opioid receptor antagonist approved by the FDA for the treatment of alcoholism and opioid dependence, has demonstrated efficacy in controlled clinical trials for the treatment of pathological gambling (Kim et al. 2001). Medications that alter glutamatergic activity have also been used to treat both behavioral addictions and substance use disorders (Grant et al. 2010). Selective serotonin reuptake

inhibitors (SSRIs) have also shown some promise with respect to reducing the craving to gamble (Mutschler et al. 2010).

Gamblers Anonymous

A less formal, but commonly utilized intervention for problem gambling is the mutual-aid fellowship called Gamblers Anonymous (GA). Modeled on the 12-Step Alcoholics Anonymous (AA) program, GA is a self-help group for compulsive gamblers that was founded in Los Angeles, California, in 1957 (Frank 1962). Since its inception, GA has expanded internationally, and today over 1000 GA chapters are available in the U.S. alone (Petry 2005).

While research has found that GA meeting attendance is often associated with increased abstinence (Oei & Gordon 2008), high rates of attrition limit GA's efficacy. Research indicates that the majority of GA attendees fail to maintain active engagement in the fellowship. A study conducted by Stewart and Brown (1988) found that only 18% of the sample attended GA meetings consistently for a year or more. Of all the new members surveyed in the study only 7.5% attained a one-year abstinence pin and 7.3% received at two-year pin (Petry 2005).

RELAPSE

Similar to addiction to alcohol and other drugs, pathological gambling is characterized as a chronic relapsing disorder (Grant, Williams & Kim 2006). Relapse rates, in general, range from 80% to 90% in the first year following treatment (Shaffer et al. 2004). Hodgins and el-Guebaly (2004) found that only 8% of the participants in their sample were entirely free of gambling during the 12-month period, which meant that 92% relapsed. Therefore, the prevention of relapse is a crucial and critical element of effective treatment. Relapse prevention should be integrated into therapy and addressed throughout the entire therapeutic process, not only in an effort to help prepare individuals to prevent relapse, but also to help them manage a relapse should one occur (Ladouceur & LaChance 2007).

PREVENTION

Problematic gambling results in far-reaching and long-lasting negative consequences; therefore, prevention is a primary factor when addressing the issue. While prevention efforts are critical in averting the development of problems in all segments of the population, the specific type of prevention approach or approaches that should be adopted remains unclear. The questions central to the issue pertain to which form of prevention is best for targeting the issue of gambling problems (Derevensky et al. 2004).

Currently, prevention approaches are classified under two global paradigms: *abstinence* or *harm-reduction.* While not mutually exclusive, these two approaches are predicated upon different short-term goals and processes (Derevensky et al. 2004). Clearly, abstinence both prevents problems from developing as well as terminates behaviors after problems have developed.

The goals of the harm-reduction approach are essentially two-fold: (1) information dissemintation, and (2) facilitation of a recovery process in which abstinence is not necessarily the goal. In an effort to foster public awareness, harm-reduction models are designed to alert consumers to both the warning signs and the consequences of problem gambling, as well as to provide information related to help options and/or treatment resources. Most governments today have implemented a harm-reduction approach aimed at reducing or minimizing the negative impact of gambling without negating gaming revenues or access to the general public (Derevensky et al. 2004).

CONCLUSION

Gambling is imbedded in a cultural and social context, as well as in a psychological one (Suurvali, Hodgins & Cunningham 2010). While research tends to focus on the adverse mental health and social consequences associated with problem gambling, gambling does generate positive benefits for both individuals and societies. For example, gambling can, for some, provide an opportunity to socialize, to experience a sense of connectedness, or to enjoy an entertaining respite from life's daily demands. Benefits can also accrue to communities through gambling-related economic growth. For instance, casinos can provide employment opportunities, as well as serve as catalysts for drawing and/or developing additional business ventures within local communities (Shafffer & Korn 2002).

While most individuals who gamble are able to do so without incurring negative consequences, a small percentage of individuals who do gamble develop serious problems with gambling and, as a result, experience significant difficulties. Excessive gambling has the potential to interfere with an individual's healthy functioning in all areas of life. Pathological gambling is associated with increased physical and psychological distress, psychiatric comorbidity, financial and legal difficulties, academic and/or employment disruptions, and familial and other relational discord. In addition to the problems experienced by the individual him/herself, pathological gambling also results in collateral damage. Studies have found that pathological gambling is also associated with child neglect and domestic violence (Wong et al. 2010).

Most research into pathological gambling is preliminary. However, data indicate that, like substance abuse disorders, disordered gambling is amenable to treatment. However, much more research is needed in order to improve both prevention and treatment efforts.

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