



**Mood Disorders Society of Canada**  
La Société Pour Les Troubles de L'Humeur du Canada

## **Mood Disorders and Problem Gambling**

### **MOOD DISORDERS AND PROBLEM GAMBLING: CAUSE, EFFECT OR CAUSE FOR CONCERN?**

#### **A REVIEW OF THE LITERATURE**

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## **Preface**

### **Background**

The Mood Disorders Society of Canada is a national, registered, not for profit, consumer driven, volunteer health charity committed to ensuring that people affected by mood disorders enjoy the fullest, most productive lives possible, within a healthy, stigma-free environment.

Within a context of rapid government-led gambling expansion, the Mood Disorders Society of Canada sought sponsorship from the Problem Gambling Research Council of Ontario to undertake a review of the literature on mood disorders and problem gambling.

### **Intended Audience**

This review has been undertaken to provide mood disorders researchers and clinicians with an orientation to the current research linking problem gambling and mood disorders.

### **Objective**

By undertaking a critical review of the literature, we also hope to stimulate interest in further research by mood disorders and problem gambling specialists to better understand whether people with a mood disorders are at higher risk for gambling problems. If through targeted research it is discovered that they are at greater risk or suffer consequences that are more severe, then people with mood disorders represent a uniquely vulnerable 'at-risk' population requiring greater attention to prevent, assess, and treat for gambling problems.

### **Methods**

Relevant literature was identified using Medline, Science@Direct, PubMed search supplemented by a review of bibliographies of over 80 publications listed in the attached bibliography. Relevant journals in addictions and psychiatry were searched and an online review of web-based university libraries and problem gambling resources was conducted.

### **Results**

Based on the current literature there appears to be a greater prevalence of mood disorders including dysthymia, major depressive disorders, cyclothymia and bipolar disorders amongst pathological gamblers. Higher levels of substance abuse and suicidality amongst problem gamblers with comorbid affective disorders are also frequently noted and result in greater morbidity and significantly poorer treatment outcomes.

For many problem gamblers it appears that mood disorders predate the onset of pathological gambling and may play a causative role as gamblers seek relief from dysphoric moods. However, gambling does not appear to relieve depressed or dysphoric mood but in fact may worsen depression as the negative impact of gambling is felt and so to further gambling.

### **Conclusions**

In reviewing the literature, it appears that there is a constant and direct relationship between the severity of the subject's gambling addiction and measures of negative affect. To date most research into the link between mood disorders and pathological gambling has been undertaken with treatment seeking pathological gamblers. Based on this work, the evidence supporting a link between affective disturbance and pathological gambling appears irrefutable and has led to a more systematic clinical evaluation in pathological gambling assessment and treatment settings.

It is important to note that while researchers attempt to carefully delineating diagnostic categories, within the lives of people experiencing mental health and addictions problems the divisions are not always so clear. It is not uncommon to find evidence of positive family histories of psychopathology, trauma and loss, the presence of depressive and anxiety symptoms and lives complicated by substance abuse and problem gambling. People with psychiatric illness do not often stay neatly confined to one diagnosis group and determining cause from effect is often complicated. In this context, it will be important to take a holistic approach to understanding the pathways to gambling problems. Emerging problem gambling research also suggested that important factors such risk behaviours, cognitive practices, proximity to gambling venues, marketing, games of chance and societal acceptance of gambling might also play a role in the pathways to problems and need to be considered.

Overall, the relationship between problem gambling and mood disorders appears complicated and multifaceted. Many problem gamblers appear to have mild to moderate mood disorders before they begin to gamble. Some problem gamblers use gambling as a way to avoid painful events or as a distraction from challenging life circumstance. For others it is possible that gambling is a way to overcome a sense of affective anaesthesia, or to alleviate depression and anxiety. Some problem gamblers may go on to develop a more severe depressive and anxiety disorders as consequences of the negative impact of their gambling.

Surprisingly there does not appear to be a corresponding evaluation of whether people with mood disorders have a higher rate of pathological gambling. Little attention has been paid to problem gambling within mood disorders literature and research done to date, although suggestive, is not strongly conclusive. What needs to be better understood is to what extent a mood disorder presents a unique risk factor for pathological gambling rather than represent the negative sequelae of gambling problems.

The high prevalence of comorbidity of substance abuse and psychiatric illness is now widely understood, accepted, and actively screened for in the psychiatric assessment process. However, the lack of attention paid to the assessment and treatment of pathological gambling within the psychiatric population in general, and mood disorder patients in specific, may result in this disorder going unrecognized and untreated potentially compromising clinical outcomes. This may be a consequence of a low level of awareness of problem gambling and the subsequent failure of health professionals to explore this topic within the clinical assessment process or reluctance by patient to admit gambling problems as a contributing factor to their current difficulties. Higher rate of suicide has been identified as a serious concern and given the growing prevalence of pathological gambling within our society careful study of this population is essential.

Based on this literature review more research is clearly needed targeted specifically at people with mood disorders within a clinical and a community context. This sub-population may be emotionally and or biologically more at risk for developing gambling problems and based on the existing research this would appear to be true. However, the lack of research targeted specifically at this sub-population leaves a gap in our understanding.

If further research reveals that people with mood disorders are more at risk for developing gambling problems or suffer more severe consequences, then greater attention to education and awareness efforts targeted at this potentially vulnerable sub-population may

be required to reduce their risk. As well, careful systematic screening for gambling problems within the psychiatric assessment process will be essential to detect problems and direct people to appropriate treatment. Understanding the intricate interplay of a number of co-occurring conditions will open-up the opportunity for developing an integrated treatment approach, which addresses the psychiatric illness and the gambling addiction simultaneously.

### **Next Steps**

The Mood Disorders Society of Canada proposes the development of a strategic research agenda to increase our understanding of the prevalence, risk factors, negative impact, and pathways to gambling for people with mood and anxiety disorders. Building on existing relationships within the mood and anxiety disorders research and clinical community the MDSC will circulate this literature review to help place gambling issue onto the radar screen for consideration.

The MDSC then proposes bringing leading mood disorders and problem gambling researchers and other relevant stakeholders together in a workshop format to develop a research agenda and recruit appropriate talent to meet our proposed goals. The next logical step is to undertake descriptive research, focused on those with mood disorders, using three basic and inter-related lines of inquiry suggested by this literature review and which is set out below.

The proposed plenary workshop will be undertaken by MDSC immediately after it secures the necessary funding.

1. **Analysis of existing data**

The recently conducted Canadian Community Health Survey on Mental Health & Well-being undertaken by Statistics Canada in 2002 gathered important data from a general population sample on mood disorders, substance abuse, gambling problems and their social and functional impacts. Undertaking a statistical analysis of this information will shed important light on the prevalence and interplay between these inter-related elements.

2. **Community survey within mood disorders self-help community**

Efforts to reach out into the community are important given the low-levels of help seeking behaviour documented for people with gambling problems in specific and mental health and additions issues in general. Utilizing the existing network of mood and anxiety self-help support groups researchers have an opportunity to map the prevalence of gambling problems within this self identified community sample.

3. **Clinical screening within mood disorder clinics**

The MDSC proposes collaborating with specific mood disorders assessment clinics to introduce the Canadian Problem Gambling Index as a part of the clinical assessment process. This will help to identify the prevalence of problem gambling within a help-seeking mood disordered population. Many problem gamblers are highly secretive regarding their gambling behaviour and may be reluctant to disclose this information without direct questioning. It may be possible to compare rates of problem gambling detection pre and post screening to determine if including a screening tool increases identification rates for problem gambling. If so, this will

bolster the need for broad screening for gambling within the standard psychiatric assessment process.

By exploring this issue within a general population sample, a targeted community sample and a clinical sample we will be able to compare across sectors and gain a richer more meaningful understanding of the prevalence of problem gambling for people with mood and anxiety disorders. From here, we can begin answer the question if mood disorders and problem gambling is a cause, effect or cause for concern?

If the answer is yes, then the MDSC as a national non-governmental organization with linkages across the provinces and territories can utilize its existing network to develop an appropriate strategic plan for raising awareness of the potential risk, advocate for appropriate assessment, research effective targeted treatments, and guide government in developing appropriate policies and programs.

## Introduction

Legalized government-run gambling in Canada is growing in popularity and availability. An estimated three-quarters of Canadians aged 15 years and over spent money on some form of gambling in 2002. Gambling is widely promoted and marketed as a legitimate and exciting form of entertainment. Revenues from gambling in Canada from government-run lotteries, video lottery terminals and casinos reached \$11.3 billion in 2002, up 5.6% from 2001 and four times higher than a decade earlier. Of this \$6.0 billion was profit<sup>1</sup>. Gambling is seen as a voluntary, adult entertainment activity making it an attractive source of revenue for governments who can avoid tax increases by increasing gambling revenues.

According to the Canadian Community Health Survey on Mental Health & Well-being undertaken by Statistics Canada, an estimated 1.2 million adult Canadians or one in 20 have or were at risk of developing a problem with gambling<sup>2</sup>. Using the 2002 Canadian Community Health Survey findings, researchers Marshall and Wynne found that one-quarter of problem gamblers reported suffering major clinical depression at some point in their lives, and one-fifth had contemplated suicide during the previous year. Compared to non-problem gamblers, those with a gambling problem had significantly higher rates of alcohol dependency (15% versus 2%), psychological distress (29% versus 9%), family problems due to gambling (49% versus 9%), and financial problems due to gambling (53% versus 0%)<sup>3</sup>.

Weibe, Single and Falkowski-Ham (2003) in their one year follow-up study examined the relationship between problem gambling and depression, distress, loneliness, life events and social supports. They found a positive predictive relationship between emotional distress and an increase in problem gambling over time. Patients with pathological gambling frequently have comorbid substance use disorders and major mood disorders upon presenting for treatment<sup>4</sup>.

In a second related report, a more detailed examination of the psychological and social factors associated with problem gambling was undertaken. Weibe, Cox and Falkowski-Ham (2003) contacted 448 participant of an original prevalence study. They found an overall trend towards a reduction in gambling problems, however approximately 10% shifted towards more severe gambling problems. Based on their findings, there is a need to better understand the role which emotional distress (depression and anxiety) may play in gambling being used as a means of self-medication leading to further problems<sup>5</sup>.

Within this context of rapid government-led gambling expansion, the Mood Disorders Society of Canada sought sponsorship from the Problem Gambling Research Council of Ontario to undertake a review of the literature on mood disorders and problem gambling. Through this review, we seek to better understand the potential link between mood disorders and problem gambling. If people with mood disorders are at greater risk of developing a gambling problem or suffer consequences that are more serious, they may represent a unique 'at-risk' group requiring greater attention to prevent, assess, and treat for gambling addictions.

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<sup>1</sup> Marshall, K. Gambling: An Update. *The Daily*. Statistics Canada; April 2003.

<sup>2</sup> Canadian Community Health Survey: Mental health and well-being. Statistics Canada: 2002.

<sup>3</sup> Marshall, K., Wynne, H. Fighting the Odds. *Perspectives on Labour & Income*. Vol 4, no 12. Statistics Canada December 2003.

<sup>4</sup> Weibe, J., Single, Falkowski-Ham. Exploring the Evolution of Problem Gambling: One-Year Follow-up Study. Oct. 2003. *Problem Gambling Research Centre website*.

<sup>5</sup> Weibe, J., Cox, B, Falkowski-Ham. Psychological and Social Factors Associated with Problem Gambling in Ontario: A One Year Follow-up Study. Oct. 2003. *Problem Gambling Research Centre website*.

## Understanding Problem Gambling

The aetiology of problem gambling is complex and appears to be multidimensional in nature. Problem gamblers are a heterogeneous group who gamble for a variety of different and individual reasons. Research attempts to understand why people engage in gambling, their choice of gambling activity, the process by which people lose control and why they continue despite severe negative consequences.

Pathological gambling is hypothesized to be a complex interplay amongst environmental factors, cognitive, behavioural and emotional determinants. Numerous attempts have been made to explain the pathways to problem gambling. Blaszczynski (2000) has proposed the existence of three major types of gamblers: 1) those who are not pathologically disturbed; 2) those who are emotionally vulnerable; and 3) those characterized by biologically based impulsivity. Some theorists propose that depression appears to frequently coexist with compulsive gambling. McCormick and others hypothesize that pathological gamblers find the diversion and narrowing of attention associated with gambling, as well as the excitement and stimulation related to these activities alleviate negative mood. Other researchers suggest compulsive gambling can be seen as an attempt to ward off a severe or impending depression. Yet, others hypothesize that gambling induces depression instead of depression leading to gambling problems.

### Limitations of research

There are a number of limitations existing within the current literature that need to be considered when interpreting the data which include:

- A lack of consistency in classifying mood disorders (affective spectrum disorder, depression, dysthymia, major affective disorder, dysphoric mood, negative affectivity) making comparisons between research studies difficult.
- There is no consistent research scale used to measure depression and tools used to date have included the Beck Depression Inventory, MMPI, SCL-90 (R) CES Depression Scale, Dysthymia Scale, Modified DSM IV Diagnostic Scale, Revised Multiple Affect Adjective Check List etc. making comparisons between studies unreliable.

- Most research into the link between depression and pathological gambling has centred on treatment-seeking, older male pathological gamblers.
- Much of the research is based on small sample sizes and questionable research design (retrospective method of symptom evaluation, sample bias, etc).
- There has been limited study conducted in clinical settings focussed on the assessment and treatment of mood disorders leaving a gap in our knowledge of the prevalence of problem gambling amongst people with a mood or anxiety disorder.
- Few studies have looked at prevalence of depression and pathological gambling within a community setting.

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<sup>6</sup> Blaszczynski, A. Pathways to pathological gambling: Identifying typologies. eGambling: The Electronic Journal of Gambling Issues. March 2000.

## Research Findings

Research clearly demonstrates that there are high levels of co-morbidity amongst problem gamblers that blur the boundaries between discrete diagnostic categories. The most common disorders found are part of an affective disorder spectrum including depression and anxiety. Efforts to determine cause or effect have yielded mixed results. Although the sample sizes in many studies are small, these findings indicate that many pathological gamblers display additional psychiatric disorders, which may contribute to problem gambling and which are often amenable to psychopharmacological treatment.

Surprisingly little attention has been paid to the presence of pathological gambling amongst patients treated for mood disorders. This may be a function of a low awareness of the potential link between the two disorders.

A 1998 review of the literature on psychiatric comorbidity conducted by Crockford and el-Guebaly concluded that pathological gambling was associated with psychiatric co-morbidity of mixed types including substance abuse, mood, anxiety, attention deficit, hyperactivity, eating and dissociative disorders. There is some support for the hypothesis that pathological gambling may be part of an "affective spectrum disorder". The reviewers concluded that based on the research to date, a significant co-morbidity with depression is probable although they note serious methodological shortcomings in the research prevent firm conclusions from being made .

McCormick et al. (1984) diagnosed 76% of gamblers seeking treatment using the Research Diagnostic Criteria for major affective disorder, 8% manic disorder, 38% hypomanic disorder. They also found that all such subjects were at serious risk for suicide. 80% of those with a mood disorder experienced suicidal ideation and 12% had made a "lethal" attempt to end their lives. Of these pathological gamblers, 14% reported that depression preceding the onset of their gambling problems. Based on

their research they hypothesize that there is a subset of pathological gamblers for whom depression is recurrent and often preceded by a gambling bout<sup>8</sup>.

A study by Linden et al. (1986) found that of 25 pathological gamblers studied, 72% experienced at least one episode of major depression and 52% had recurrent episodes of major affective disorder. Six of the subjects or 24% met the criteria for bipolar disorder. Researchers found that 32% of the subjects had at least one first-degree relative with major affective disorder and 36% had at least one first-degree relative with alcohol abuse or dependency. About two-thirds of those sampled that had stopped gambling experienced at least one major depressive episode<sup>9</sup>. Black & Moyer (1998) found that two-thirds of their samples of treatment seeking pathological gamblers were suffering from additional psychiatric disorders as assessed by the Mental Health Diagnostic Interview Schedule<sup>10</sup>.

Taber et al. (1987) found that 32% of pathological gamblers had a major depressive disorder on admission to a gambling treatment unit. Depression has been frequently found after the successful treatment of gambling problems. 18% of successfully treated compulsive gamblers remained depressed after they stopped gambling and improved their functioning in other areas<sup>11</sup>.

Beaudoin & Cox's (1999) study of 55 treatment seeking problem gamblers found that over 80% of participants reported that they used gambling as a way to relieve dysphasia or escape life's problems. 30% had been seen by a mental health professional primarily for depression. They also found pronounced levels of suicidal ideation with 50% reporting suicidal ideation in the last year and 16% reporting past attempts. This is important clinically in that significant psychopathology predated the development of gambling problems for these subjects. This study supports earlier findings that a subset of problem gamblers is characterized by the presence of depression and use gambling as a means of coping<sup>12</sup>.

Ibanez et al. (2001) sought to determine the frequency of psychiatric comorbidity among treatment seeking pathological gamblers. They found that 62.3% of the 69 pathological gamblers studied had a comorbid psychiatric disorder and that was associated with greater severity of clinical problems reflecting the findings of other researchers<sup>13</sup>.

Blaszczynski, & McConaghy's (1988) study of 68 treatment-seeking pathological gamblers noted elevated scores on the SCL-90 (R) scale. They also found that gamblers scored significantly higher on the depression measurements than did psychiatric out-patients<sup>14</sup>. Further study by these authors in 1989 noted that pathological gamblers studied had moderate levels of depression. They hypothesized that under conditions of stress the narrowing of attention and the distraction from stressful life circumstances served as a secondary re-enforcer of gambling by reducing anxiety and tension and alleviating depressed affect. Continued financial losses as a consequence of continued gambling worsened depressed affect and anxiety resulting in the need to continue gambling<sup>15</sup>.

Another hypothesis put forward by Blaszczynski et al. (1990) is that pathological gamblers seek the stimulation of gambling to reduce adverse under arousal states of boredom and/or depression. In their study of 48 pathological gamblers and an

equal control group they used the Beck Depression Inventory and Zuckerman Sensation Seeking and Boredom Proneness Scales. Their results indicate three possible sub-types of pathological gamblers, one group characterized by boredom, one by depression and another with a mixture of boredom and depression and that pathological gamblers may persist at gambling as a means of relieving these two states<sup>16</sup>.

Ramirez et al. (1983) found that of 51 in-patients being treated for pathological gambling 78% had a major affective disorder. They also found higher rates of substance abuse amongst those pathological gamblers with depression<sup>17</sup>.

A study by Getty et al. (2000) looked at the levels of depression and coping styles of male and female Gamblers Anonymous (GA) members. Their results showed that GA members had significantly higher rates of depression using the Beck Depression Inventory, and more maladaptive coping styles than control subjects. The women in the study were found to have greater levels of depression. GA members reported greater use of reactive coping including avoidant, ruminative and impulsive styles of coping than controls. Gamblers' own self-reports show that they gamble to forget their troubles, to avoid feelings of loneliness and to alleviate feelings of depression<sup>18</sup>.

A study by Specker et al. (1996) they compared 40 pathological gamblers in out-patient treatment to 64 community controls using the Structured Clinical Interview for DSM III-R and the SCID-II for Axis II diagnosis. The most frequently found Axis I diagnoses were affective disorders, substance abuse and anxiety disorders. The controls were found to have significantly lower lifetime rates of anxiety and were less likely to have a current depression or anxiety disorder. There was no overall significant difference found in rates of Axis II personality disorders<sup>19</sup>.

Toneatto's (2002) study examined whether problem gamblers had higher rates of Axis I and Axis II diagnosis. A total of 128 individuals (39 recovered problem gamblers, 51 untreated problem gamblers, 18 treated problem gamblers and 20 recreational gamblers) were recruited and evaluated using structured clinical interviews for psychiatric problems. They found the frequency of current and lifetime histories of psychiatric disorders or familial psychopathology to be low and similar across all groups. Where present, the most common diagnosis was anxiety and mood disorders. Although the rates of disorders did not appear different, active gamblers did experience higher levels of emotional, psychiatric and substance abuse problems. The recovered problem gamblers scored similar to recreational gamblers in personality pathology, substance abuse, and emotional psychiatric distress. The researchers suggest that resolving gambling problems may significantly alleviate concurrent disorders and that this should be the target of therapeutic intervention before making a decision to treat any concurrent psychiatric or addictive disorders<sup>20</sup>.

Lesieur & Blume (1990) in evaluating 105 in-patients being treated for a mood disorder did not find the higher rates of pathological gambling that would be expected if the two disorders were considered comorbid (6.7% were identified as pathological gamblers using the SOGS, 2.6% of those with a mood disorder were problem gamblers)<sup>21</sup>.

Using the Beck Depression Inventory and DSM IV diagnostic criteria, Becona et al. (1996) conducted a house-to-house survey in Spain and discovered that 21% of pathological gamblers score 18 or more compared to 9% of non-problem gamblers surveyed. The researchers felt that depression was clearly related to severity of gambling addiction as indicated by the number of DSM IV symptoms reported<sup>22</sup>.

In an effort to determine if frequent gamblers experience gambling at a higher rate than the general public, Thorson et al. (1994) in a case-controlled community epidemiological survey of 400 adults found no relationship between depression and pathological gambling using the CES- Depression scale. They found that 12.7% of their sample was depressed. However, no correlation was found between depression and the frequency of gambling in this general population study<sup>23</sup>. In another community sample, Bland et al. (1993) found that pathological gamblers compared to controls had a significantly higher lifetime prevalence of major depressive disorders (33.3%) and dysthymia 20%<sup>24</sup>.

In a study designed to better understand the relationship between moods and gambling, Griffiths (1995) assessed the level of depressed mood before, during and after gambling in 60 subjects 18% of whom were pathological gamblers. Their findings support the association between pathological gambling and depression; however, they also found that while pathological gamblers may be more depressed before they gambling, gambling does not relieve their depression<sup>25</sup>.

To investigate whether gambling reduces depressed mood Washburn simulated a video lottery terminal gambling environment and induced depressed mood in psychology students. The pre-post scores on a Depression Adjective Checklist revealed significant reductions suggesting that VLT may reduce depressed mood. However the artifice of the experiment (simulated gambling, induced depression) and small sample size make this research of questionable reliability<sup>26</sup>.

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<sup>8</sup> McCormick, Richard A., Russo, Angel M., Ramirez, Luis F., Taber, Julian I. Affective disorders among pathological gamblers seeking treatment. *American Journal of Psychiatry*. Vol 141(2), Feb, Us American Psychiatric Assn. 1984 215-218.

<sup>9</sup> Linden, Robert D; Pope, Harrison G; Jonas, Jeffrey M. Pathological gambling and major affective disorder: Preliminary Findings. *Journal of Clinical Psychiatry*. Vol 47(4) Apr 1986, 201-203. Physicians Postgraduate Press, US.

<sup>10</sup> Black, D.W., Moyer, T. Clinical features and comorbidity of subjects with pathological gambling behaviour. *Psychiatric Services*. 1998 Nov; 49(11): 1434-9.

<sup>11</sup> Taber, J.I., McCormick, R.A., Adkins, B.J. & Ramirez, L.F. *Follow-up of pathologic gamblers after treatment*. American Journal of Psychiatry, 1987, 144, 757-761.

<sup>12</sup> Beaudoin, C.M., Cox, B.J. Characteristics of problem gambling in a Canadian context: a preliminary study using a DSM-IV- based questionnaire. *Canadian Journal of Psychiatry*. 1999, Jun; 44(5): 483-7.

<sup>13</sup> Ibanez, A., Blanco, C., Donahue, E., Lesieur, H.R., Perez de Castro, I., Fernandez-Piqueras, J. Saiz-Ruiz, J. Psychiatric comorbidity in pathological gamblers seeking treatment. *American Journal of Psychiatry*. 2001 Oct; 158(10): 1733-5.

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- <sup>15</sup> Blaszczynski, A., McConaghy, N. Anxiety and/or depression in the pathogenesis of addictive gambling. *The International Journal of the Addictions*, Vol 24, April 1989, 337-350.
- <sup>16</sup> Blaszczynski, Alex; McConaghy, Neil; Frankova, Anna. Boredom proneness in pathological gambling. *Psychological Reports*. Vol 67(1) Aug 1990, 35-42. Psychological Reports, US.
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- <sup>18</sup> Corless, T., Dickerson, M., Gamblers' self-perception of the determinants of impaired control. *British Journal of Addiction*. 1989 Dec; 84(12): 1527-37.
- <sup>19</sup> Specker, S. M., Carlson, G. A., Edmonson, K. M., Johnson, P. E., Marcotte, M. Psychopathology in pathological gamblers seeking treatment. *Journal of Gambling Studies*, 1996. 12, 67-81.
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- <sup>21</sup> Lesieur, H.R. & Blume. S.B. Characteristics of pathological gamblers identified among patients on a psychiatric admission service. *Hospital & Community Psychiatry*. 1990;41: 10009-12.
- <sup>22</sup> Becona, E., Del Carmen Lorenzo, M. Fuentes, M. J. Pathological gambling and depression. *Psychological Reports*, 1996. 78, 635-640.
- <sup>23</sup> Thorson, James A; Powell, F. C; Hilt, Michael. Epidemiology of gambling and depression in an adult sample. *Psychological Reports*, Vol 74(3, Pt 1) Jun 1994, 987-994. Psychological Reports, US
- <sup>24</sup> Bland, R.C., Newman, S.C. Orn, H., & Stebelsky, G. *Epidemiology of pathological gambling in Edmonton*. Canadian Journal of Psychiatry. 1993. 38: 108-112.
- <sup>25</sup> Griffiths, M. *Adolescent Gambling*. 1995. London: Routledge.
- <sup>26</sup> Washburn, D., Nicki, R., & Doiron, J. Effects of Video Lottery Terminal Gambling Induced Depression, *University of New Brunswick*, Feb. 2003. Unpublished.

## **Substance Abuse, Mood Disorders & Pathological Gambling**

The positive link between mood disorders and substance abuse is well accepted. The tangled interplay between mood disorders and substance abuse often presents significant diagnostic and treatment challenges and is found to result in greater severity of symptoms and poorer treatment outcomes. There is also a relatively high frequency of comorbid occurrence of pathological gambling, substance abuse and mood disorders. This is not surprising given the frequent coupling of gambling and alcohol within gaming facilities.

McCormick and Richard (1993) assessed 171 substance abusers for their level of gambling behaviour. Of this group, 87% had no significant problem, 7.2% were found to have a probable problem, and 5.8% had a severe gambling problem. Substance abusers with a gambling problem scored higher on measures of negative affect including depression, anxiety, guilt, and anger and have higher rates of impulsivity, and disinhibition of aggressive/ hostile responses. As a group, they use

significantly more escape - avoidance and confrontive coping strategies more often overuse avoidant coping styles to deal with depression, anger and anxiety and have more negative situations to cope with in their lives. Compared to other substance abusers problem gamblers were also found to have higher levels of substance abuse and tended to abuse more substances .

In McCormick's study (1994) of coping skill enhancement of pathological gamblers he found that problem gamblers with comorbid substance abuse problems use significantly more escape, avoidance and confrontational coping strategies. This subset of problem gamblers are more apt to overuse avoidance coping strategies to deal with depression, anger, anxiety and other negative emotional states increasing the risk of triggering gambling and substance use .

Stewart et al. (2002) tested the impact of gambling and alcohol consumption on levels of depressed mood in an experimental laboratory. In 30 regular video lottery terminal players, they found a significant increase in negative mood amongst those players who gambled and consumed alcohol .

## **Reaction to Stress**

As is found in the lives of people with mood disorders life stress plays a contributing factor. Research suggests that mood and gambling problems appear to be inextricably linked.

Early studies by Niederland (1967, 1968) noted that that victims of political and racial persecution participated in compulsive gambling as a means of coping with depressive reactions, anxiety, loss of self-esteem and failure related to traumatic life events <sup>30/31</sup> .

One study by Roy et al. (1988) found that depressed pathological gamblers experienced a significantly greater number of negative life events before the onset of their depression compared to control subjects. Less than one half of these events were unrelated to gambling <sup>32</sup> .

A study by Taber, McCormick, Adkins & Ramirez (1987) noted that depression in pathological gamblers is often correlated with a history of traumatic events. In a review of 44 cases of in-patient pathological gamblers, they found 90% had severe life trauma preceding the onset of their gambling. Those patients with higher trauma or those who also abused substances were found to have higher rates of depression <sup>33</sup> .

In a further study, McCormick & Taber (1988) used the MMPI Depression scale and the Dysthymia scale to measure rates of depression in pathological gamblers and to determine the manner in which patients interpret the significance and meaning of stressful events. In the 54-in-patient pathological gamblers studied, the authors found a positive relationship between rates of depression and the tendency to attribute negative events to internal, stable, and global causes <sup>34</sup> .

<sup>30</sup> Niederland, W.G., A contribution to the psychology of gambling. *Psychoanalytical Forum*. 1967; 2: 175-185,

<sup>31</sup> Niederland, W.G., Clinical observations on the survivor syndrome. *International Journal Psychoanalysis* 1968; 49:313-315.

<sup>32</sup> Roy, Alec; Custer, R; Lorenz, Valerie C; Linnoila, Markku. Depressed pathological gamblers. *Acta Psychiatrica Scandinavica*. Vol 77(2) Feb 1988, 163-165. Munksgaard Scientific Journals, US.

<sup>33</sup> Taber, J.I., McCormick, R.A., Adkins, B.J. & Ramirez, L.F. *Follow-up of pathologic gamblers after treatment*. American Journal of Psychiatry, 1987; 144, 757-761.

<sup>34</sup> McCormick, Richard A; Taber Julian I. Attributional style in pathological gamblers in treatment. *Journal of Abnormal Psychology*. Vol 97(3) Aug 1988, 368 -370. American Psychological Assn, US.

## Biological Approaches

There appears to be considerable debate within the addictions field regarding whether there is a biological mechanism involved in the development of pathological gambling which is primarily considered psychological phenomena<sup>35</sup>. The issue of whether there is a biological underpinning in some pathological gamblers is important to resolve given the availability of safe and effective pharmacological treatments, which may be helpful to a sub-set of pathological gamblers.

Little research has been undertaken to date on the efficacy treating pathological gamblers, with elevated levels of major affective disorders, with psychotropic medications however, Selective serotonin reuptake inhibitors (SSRI), carbamazepine and lithium have all been used with some success. The research available has very small sample sizes making it difficult to draw definitive conclusions. Efforts to identify biological markers for depression, impulsivity, and problem gambling have been undertaken.

In Ramirez' et al. study (1988) basal serum cortisol and dexamethasone suppression tests were given to 21 pathological gamblers in treatment who tested positive for depression using the Beck Depression Inventory and the Minnesota Multiphasic Personality Inventory. All subjects were suppressors on the DST and a significant relationship was found between fluctuating basal cortisol levels and psychological measures. These patients tended to have a long history of dysphoria and to attribute responsibility and blame to themselves. The authors suggests that this sub-population of problem gamblers do less well in maintenance, have difficulty coping with post-treatment stress tending to become depressed and retreat into gambling<sup>36</sup>.

In another study by Moreno et al. (1991) Serotonin levels were measures in 8 pathological gamblers and 8 control subjects. Serotonin is widely investigated as a biological contributant to psychiatric behavioural disorders including impulse control disorders. Using the seretonergic probe clomipramine (CMI) pathological gamblers showed a blunted response over

control subjects. The authors suggest this may be a useful test in identifying a sub-set of impulse disordered pathological gamblers <sup>37</sup>.

Hollander et al. (1998) found that seven out of ten level 3 gamblers responded positively to the use of the SSRI fluvoxamin. It is important to note that the same agent may have exacerbated mood and gambling symptoms in two of the three patients who did not respond positively to the treatment <sup>38</sup>. Moskowitz (1980) achieved some success in treating pathological gamblers with lithium carbonate; a medication frequently used to stabilize mood swings in bipolar disorder <sup>39</sup>.

Zimmerman et al. (2002) tested the hypothesis that pathological gambling is part of an obsessive-compulsive spectrum disorder. Twenty pathological gamblers meeting the DSM-IV criteria were recruited through a local newspaper and treated with citalopram a selective serotonin reuptake inhibitor found to be effective in treating OCD. Of the initial 20, five did not return for initial follow-up and only 9 completed the study. Zimmerman found that all citalopram patients involved in the study improved including fewer days gambling, lower obsessive-compulsive symptoms and severity of depression. The researchers compared those patients with a major affective disorder at baseline to those without. They found that both groups improved suggesting the citalopram had an effect of gambling in addition to its effect on depression<sup>40</sup>.

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<sup>35</sup> McPeake, J.D.. Anti-addiction Medicine and the Future of Addiction Treatment: A Discussion. *The Wager*. Jan. 17th 2001.

<sup>36</sup> Ramirez, L. F., McCormick, R. A., Lowry, M. T. Plasma cortisol and depression in pathological gamblers. *British Journal of Psychiatry*, 1988; 153, 684-686.

<sup>37</sup> Moreno, I; Saiz-Ruiz, J; Lopez, J. J. Serotonin and Gambling dependence. *Human Psychopharmacology. Vol 6(Suppl)* Oct 1991, 9-12. John Wiley & Sons, US.

<sup>38</sup> Hollander, E. DeCaria, C.M., & Mari, E., (1998) Short-term single-blind fluvoximine treatment of pathological gambling. *American Journal of Psychiatry*, 149, 710-711.

<sup>39</sup> Moskowitz, J.A. Lithium & lady luck: use of lithium carbonate in compulsive gambling. *NY State Journal of Medicine* 1980: 80:785-788.

<sup>40</sup> Zimmerman, M., Breen, R., & Posternak, M. An Open-Label Study Of Citalopram In The Treatment Of Pathological Gambling. *Journal of Clinical Psychiatry*, 2002; 63(1), 44-48.

## Family Histories

Some research scientists have speculated that problem gambling is more prevalent in families with a pathological gambling problem and other psychiatric disorders suggesting a possible genetic relationship.

Researchers have found a positive family history of mood disorders with approximately one-third of problem gamblers having a biological parents and siblings with a mood disorder. In Roy et al. (1988) study, 33% and 25% of the pathological gamblers studied, had first-degree relatives with mood disorders and alcohol abuse respectively <sup>41</sup>. Similar results were found by Linden et al (1986) <sup>42</sup>.

Black, Moyer & Schlosser found, in a study of 30 self-selected problem gamblers, that close relatives were at increased risk for a variety of psychiatric conditions <sup>43</sup>. In early studies, the prevalence of pathological gambling in first-degree relatives of patients with bipolar affective disorder was noted. In early studies by Clayton (1981)<sup>44</sup> and Winokur (1969) the prevalence of pathological gambling in first-degree relatives if patients diagnosed with bipolar disorder was noted <sup>45</sup>.

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<sup>41</sup> Roy, Alec; Custer, R; Lorenz, Valerie C; Linnoila, Markku. Depressed pathological gamblers. *Acta Psychiatrica Scandinavica*. Vol 77(2) Feb 1988, 163-165. Munksgaard Scientific Journals, US.

<sup>42</sup> Linden, Robert D; Pope, Harrison G; Jonas, Jeffrey M. Pathological gambling and major affective disorder: Preliminary Findings. *Journal of Clinical Psychiatry*. Vol 47(4) Apr 1986, 201-203. Physicians Postgraduate Press, US.

<sup>43</sup> Black, D.W., Moyer, T., & Schlosser, S. (2003). Quality of Life and Family History in Pathological Gambling. *Journal of Nervous & Mental Diseases*, 191(2), 124-126.

<sup>44</sup> Clayton, P.J.: (1981) The epidemiology of bipolar affective disorder. *Comparative Psychiatry*, 22: 31-43.

<sup>45</sup> Winokur G., Clayton P.J., & Reich T. Manic Depressive Illness. St. Louis, CV Mosby, 1969.

## Suicide

Suicide and mood disorders are strongly correlated. The prevalence of suicidal ideation and suicide attempts in the general population is estimated at 5-18% and 1-5% respectively. An estimated 30-70% of people who are known to have committed suicide were identified to have a major depressive disorder <sup>46</sup>.

Numerous studies have found very high rates of suicidal ideation and attempts amongst pathological gamblers. Pathological gamblers have increased rates of suicide, suicidal ideation, and number of negative life events and severity of self-reported depressive symptoms.

Estimates for suicidal ideation amongst pathological gambling range from 17% to 80% and between 4% to 23% for suicide attempts. There is research evidence which links the potential risks for suicide to gambling behaviour including financial difficulties, disrupted social relations, marital strain and job loss. The risk of suicide is increased when alcohol or substance abuse was a factor found Moreyra et al. (2000)<sup>47</sup>, Roy et al. (2000)<sup>48</sup> and Blaszczyński et al. (1989)<sup>49</sup>.

A recent study by Bourget et al. (2003) analyzed 75 suicides linked to gambling in Quebec from 1994 to 2000. Of the 75 victims, 64 were men. Fifty-two per cent of the victims were married and at least 45 per cent were employed. (Researchers were unable to determine the job status of 21 victims). Marital and employment status are considered protective factors against suicide. However, these gamblers hid their gambling losses and most family members were unaware of the true extent of the deceased's gambling activities. More than 60 per cent of suicide victims in the study had never attempted to kill themselves before. A history of such attempts was found in 25 per cent; data were insufficient for the others. More than half did suffer from a mental illness like major depressive disorder and one-third of the victims had a background of abusing alcohol or drugs. Their research suggests that detecting psychiatric illness and suicidal intent may be more difficult within this population resulting in an underestimate of the risks for suicide<sup>50</sup>.

In a random telephone survey of 7,214 participants' researchers Newman and Thompson (2003) assessed lifetime histories of psychiatric disorders, and suicidal attempts. Of the 30 cases of pathological gambling identified researchers found they were four times more likely to attempt suicide than non-pathological gamblers. Subjects with major depression were almost twelve times as likely to commit suicide. It would appear from their study that pathological gamblers are a high-risk population for suicide and need to be assessed for comorbid mental illness<sup>51</sup>.

In a recent study of 85 treatment-seeking pathological gamblers, MacCallum and Blaszcanski (2003) found that problem gamblers experienced significantly higher levels of suicidal ideation (36%) and more suicidal attempts (8%). However, those gamblers reporting suicidal ideation were more likely to be depressed and had higher scores on the Beck scale than non-suicidal pathological gamblers and did not report more gambling problems. Given the association to impulsive disorders it was suggested that less serious ideation should be considered a risk in this population. The researchers state that although the causal relationship between depression and problem gambling remains illusive these findings suggest that depression and other risk factors might be associated with increase suicide risk<sup>52</sup>.

A study by Petry & Kiluk (2002), assessed 342 treatment-seeking pathological gamblers for suicidal ideation and/ or attempts. They found that those who experienced suicidal ideation and or suicidal attempts (49%) had more psychiatric symptoms than non-suicidal pathological gamblers<sup>53</sup>.

However, in one questionable study, by McLeary & Chew (1998), they felt that no positive correlation could be found between the availability of legalized gambling and higher suicide rates amongst gamblers<sup>54</sup>.

Sullivan et al (1994) in a case review of 329 gambling help line callers found that 92% of pathological gamblers identified through SOGS had

contemplated suicide: 24% had planned suicide and 4% had made an attempt on their lives<sup>55</sup>.

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<sup>46</sup> A Report On Mental Illnesses In Canada. Health Canada, Ottawa Canada 2002.

<sup>47</sup> Moreyra, Paula; Ibanez, Angela; Saiz-Ruiz, Jeronimo; Nissenson, Kore; Blanco, Carlos. Review of the phenomenology, etiology and treatment of pathological gambling. *German Journal of Psychiatry*. Vol 3(2) 2000, 37-52. German Journal of Psychiatry, Germany.

<sup>48</sup> Roy, Alec; Custer, R; Lorenz, Valerie C; Linnoila, Markku. Depressed pathological gamblers. *Acta Psychiatrica Scandinavica*. Vol 77(2) Feb 1988, 163-165. Munksgaard Scientific Journals, US.

<sup>49</sup> Blaszczynski, A., McConaghy, N. (1989a). Anxiety and/or depression in the pathogenesis of addictive gambling. *The International Journal of the Addictions*, Vol 24, April 1989, 337-350.

<sup>50</sup> Bourget., D. *The Bulletin*, Canadian Psychiatric Association, Dec. 2003.

<sup>51</sup> Newman, S., & Thompson, A. A population-based study of the association between pathological gambling and attempted suicide. *Suicide & Life Threatening Behavior*, 2003; 33(1), 80-87.

<sup>52</sup> Blaszczynski, A., & Maccallum, F. Pathological gambling and suicidality: An analysis of severity and lethality. *Suicide and Life-Threatening Behaviour*, 2003; 33(1), 88.

<sup>53</sup> Petry, N.M., & Kiluk, B.D. Suicidal ideation and suicide attempts in treatment-seeking pathological gamblers. *Journal of Nervous and Mental Disorders*. 2002; Jul: 190(7): 462-9.

<sup>54</sup> McCleary, R. Chew, K. (1998). Suicide and gambling: An analysis of suicide rates in U.S. counties and metropolitan areas. Irvine, CA: University of California, Irvine.

<sup>55</sup> Sullivan, S. Abbott, M., McAvoy B. & Arroll, B. (1994) Pathological gamblers: will they use a new telephone hotline? *N.Z. Medical Journal* 1994; 107: 313-5.

## Bipolar Disorder & Problem Gambling

Recent changes in the diagnostic criterion for pathological gambling in the DSM IV exclude manic episodes if these could better explain the gambling behaviour<sup>56</sup>. This change presents a challenge for determining the comorbidity rates of major affective disorders, which include bipolar disorders. Pathological gambling is now classified by the DSM IV as an impulse control disorder (ICD). According to the Wager, researchers have hypothesized that ICD's may be closely related to bipolar disorder. Both share many similarities in comorbidity, phenomenology, course, family history, and biology and treatment response. The prevalence of bipolar disorder amongst pathological gamblers has been noted in the early literature on problem gambling.

In a review of the literature a lifetime history of mood disorders was found in 84% of 99 pathological gamblers in three studies. Impulse Control Disorders and bipolar disorders also share similar comorbidity patterns with other psychiatric disorders such as substance abuse<sup>57</sup>.

McCormick (1984) also found significantly higher levels of bipolar disorders (types I and II and cyclothymia) in pathological gamblers. Gamblers also self-report using gambling to alleviate their depression or manic episodes <sup>58</sup>.

Researchers Linden et al. (1986) have also found a substantial increase in the rates of bipolar disorder in first-degree relatives of pathological gamblers i.e. 24% vs. 1% in the general population <sup>59</sup>. Winokur (1969) noted higher prevalence rates of pathological gambling in the families of bipolar patients .

McElroy et al. (1992) review of the literature hypothesized a link between pathological gambling, impulse control disorders and affective disorders. Their conclusion, based on an exhaustive review of the literature, is that impulse control disorders appear to be related to one another and may represent a form of "affective spectrum disorders" <sup>61</sup>.

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<sup>56</sup> American Psychiatric Association. Diagnostic and statistical manual of mental disorders. 1994 (4th ed.). Washington, DC: Author.

<sup>57</sup> The Wager, Are Impulse Control Disorders Related to Bipolar Disorder? July 30, 1996.

<sup>58</sup> McCormick, R., Russo, A. M., Ramirez, L., & Taber, J. I. (1984). Affective disorders among pathological gamblers seeking treatment. *American Journal of Psychiatry*, 141, 215-218.

<sup>59</sup> Linden, Robert D; Pope, Harrison G; Jonas, Jeffrey M. Pathological gambling and major affective disorder: Preliminary Findings. *Journal of Clinical Psychiatry*. Vol 47(4) Apr 1986, 201-203. Physicians Postgraduate Press, US.

<sup>60</sup> Winokur G., Clayton P.J., & Reich T. *Manic Depressive Illness*. St. Louis, CV Mosby, 1969.

<sup>61</sup> McElroy, S. L., Hudson, J. I., Pope, H. G., Jr., Keck, P. E., Aizley, H. G. The DSM-III-R Impulse Control Disorders Not Elsewhere Classified: Clinical characteristics and relationships to other psychiatric disorders. *American Journal of Psychiatry*, 1992. 149, 318-327.

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