

# *Pathological Gambling Treatment Literature Review*

(Second Edition)

**Director:** Jim Emshoff, Ph.D.  
**Researchers:** Ayana Perkins, M.A.  
Lindsey Zimmerman B.A.  
Angela Mooss, MS  
Jennifer Zorland, MS

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For additional information, please contact:  
Jim Emshoff at (404) 413-2029  
Correspondence can be addressed to:  
GSU Gambling Project  
Attn: Jim Emshoff  
Department of Psychology  
Georgia State University,  
140 Decatur St., 11<sup>th</sup> Floor  
Atlanta, GA 30303

Georgia State University



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## EXECUTIVE SUMMARY

This report presents a review of literature from 1964 to 2007 on the treatment of pathological gambling. The report was created to assist with planning treatment interventions for problem gamblers and to identify training needs for providers in the state of Georgia. The treatment modalities covered in this literature review are as follows: 1) Behavioral; 2) Cognitive; 3) Cognitive Behavioral Treatments; 4) Gambler's Anonymous; 5) Group Therapy; 6) Pharmacotherapies; 7) Minimal Interventions; and 8) Multimodal. Literature findings of each treatment modality are examined to assess the most appropriate treatments for pathological gambling.

### Findings

- The social consequences of gambling (i.e., criminal justice, therapy, court fees) (Walker, 2003), indirectly and directly costs American society \$54 billion per year (Grinols, 2004).
- Gaming revenue is the primary source of treatment funding in most states where gambling is legal (State policymakers and providers struggle to fund and treat gambling addiction, 2005)
- The gambling prevention research has implied a need for the improved training of treatment personnel in screening and treating pathological gambling, need for more stringent controls on underage gambling activities, more rigorous and empirically sound research, and creation of new prevention modalities. (Emshoff, House, & Broomfield, 2000; Petry & Armentano, 1999)
- Gambling treatment policies vary across states with many mental health and addiction agencies serving as the governing agency (State, 2005).
- Advocates for the needs of problem gamblers emphasize the importance of delivering proper training for those who provide access to gambling treatment and those who deliver the actual treatment (Gambling as a co-occurring disorder, 2005).

## INTRODUCTION

The purpose of this report is to update the 2000 literature review on treatment outcomes of pathological gambling<sup>1</sup> interventions from 1964-2000. These data were retrieved using journals, books, the Internet, and online databases which include the following: *Academic Search Premier, Alt Health Watch, CINAHL, Health Source, Humanities International Index, MasterFile Premier, Medline, Lexis/Nexis, PsycARTICLES, Psychology and Behavioral Sciences Collection, PsychINFO, Sociological Collection, and PsycExtra*. The data sources were identified using a combination of retrieval operators when using electronic databases and online search engines. The creation of retrieval operators resulted from the interchangeable usage of synonyms of words related to this topic (e.g. pathological gambling, problem gambling, behavioral addiction, etc.).

The availability of information on gambling treatment outcomes is relatively small when compared to other Diagnostic and Statistical Manual – Fourth Edition (DSM-IV) classified disorders, which can likely be attributed to uncertainty about how to classify the disorder (Potenza, 2006). Pathological gambling is labeled as an impulse disorder (DSM-IV 2000), but most treatment interventions are based on substance abuse models (Potenza, 2006). The degree to which pathological gambling is behaviorally based or a result of physiological dysfunction also remains unclear. Therefore, with the etiology and course of pathological gambling still not resolved by the field, more research will be needed to determine the best treatment models. The studies in the review to follow describe the best practices in the treatment of pathological gambling to date. Recommendations to consider for future treatment programs are found at the end.

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<sup>1</sup> Pathological Gambling as defined by the Diagnostic and Statistical Manual – Fourth Edition (DSM-IV) of the American Psychiatric Association (2000).

## ***Legal Gambling in the United States***

Legal gambling practices are used by various states to generate supplemental revenue (State, 2005). State-sanctioned gambling practices began with lotteries and scratch off games in the 1960's. The trend continued into the 1980's and has expanded into other gambling practices such as pull-tabs, card rooms, casinos, riverboat casinos, video lotteries, and gambling on the Internet. In 1988, with the advent of casinos on Native American reservations, the prevalence of gambling skyrocketed, especially in Native American populations (Westermeyer et al, 2005). This spread of legalized gambling brought the total spent on gambling in the U.S. to half a trillion dollars by 1998, with \$31.5 billion spent on annually on state lottery games (National Opinion Research Center, 1999). The increase of gambling practices in the United States has led to an increase in problems associated with this activity (Freiberg, 1995; Grinols, 2004; Welte, 2001). This increase has been associated with the proliferation of a gambling culture in the media and mainstream culture (Castellani, 2000; Raylu & Oei, 2004). There is increased incidence of physiological, psychological, and financial problems as gambling behavior becomes more severe (American Psychiatric Association, 1994; Pasternak & Fleming, 1999, Petry, 2000). The evidence linking increased access to legalized gambling to gambling problems (especially among the poor and minorities) (Volberg & Boles, 1995; National Research Council, 1999; Welte, et. al., 2001) create the need to investigate the efficacy of prevalent gambling treatment options.

## ***Prevalence of Gambling***

In 1999, Shaffer, Hall, and Vanderbilt reported that the prevalence of problem gambling among adults had increased between the years 1974 and 1997. This comprehensive study analyzed results from 119 pathological gambling prevalence studies conducted over the course of 20 years. In the earlier (1977-1993) studies, 2.9% of the general population was classified as probable compulsive gamblers and another 0.8% as pathological gamblers. The more recent (1994-1997) studies indicated

that probable compulsive gambling and pathological gambling have increased to 4.9 % and 1.3 %, respectively. Furthermore, they ascertained that this increase in pathological gambling prevalence was most likely the result of the interaction between personality and social setting (1999).

### ***Gambling and Treatment in the State of Georgia***

In 1993, Georgia established its first legal lottery in over one hundred years. The gambling products used to generate funds for the state are instant-win scratch off game cards, lottery tickets (Cash 3, Cash 5, Fantasy 5, MegaMillions, Win for Life) and Keno (Georgia Lottery, 2007). Georgia raised \$1.13 billion, with \$330 million of those monies going to fund educational programs such as a college scholarship fund, a voluntary pre-kindergarten program, and other educational projects in its first year of operation (Georgia Lottery, 1994; Volberg & Boles, 1995). It was mandated that the Georgia Lottery Corporation should annually devote \$200,000 of unclaimed winnings to programs for the prevention and treatment of problem gamblers (1994).

Aside from the lotteries, there are also other gambling opportunities for Georgia gamblers. Casino boats dock in Brunswick Georgia (Georgia Casinos, n.d.). In addition, Georgia is surrounded by states where various forms of gambling are legal: South Carolina, Florida, and Alabama. Florida has pari-mutuel gambling (horse racing, dog racing, jai alai), casinos (absent of table games such as craps, blackjack, and roulette), and gambling cruise ships (Florida casino guide, 2007). Alabama gambling activities are limited to Native American tribal land and offshore gambling (Alabama, 2007). South Carolina has video gambling, bingo, dog racing and offshore gambling (World Casino Directory, 2007). Technological advances have made gambling easily accessible through the Internet, which have limited safeguards to prevent adolescent gambling.

### ***Prevalence of States Gambling Treatment Program***

Gambling treatment is predominantly paid through the gaming industry with states using different routes to receive and deliver treatment (States, 2005). There are few stand alone gambling treatment departments with 28 states giving single authority for gambling prevention and treatment

to their preexisting mental health and substance abuse departments (2005). Pathological gambling's has a high co-morbidity with general mental health disorders and substance abuse disorders (Welte, Barnes, Wiczorek, Tidwell, & Parker, 2001) which may explain why so many state health departments have placed gambling under a combined substance abuse and mental health state agency. Other states have separated mental health and addiction agencies resulting in mixed placement of gambling intervention services (2005). The absence of a stand alone gambling department may complicate the search for treatment. Being housed in other departments like mental health or substance abuse also may influence funding cuts or the type of funding sources available for gambling treatment (2005).

## **DEFINING PATHOLOGICAL GAMBLING**

### ***Treatment Data***

Within the last 5 years, there has been an increase in treatment data as more researchers are finding evidence for efficacious gambling treatment models. The first version of this treatment literature review cited 80 treatment studies completed between 1964 and 2000 (Courtenay-Quirk, C. & Emshoff, 2000). The current document builds on evidence in the 2000 literature review and identifies 65 new treatment outcome articles on pathological gambling completed in the last seven years with the greatest increase found in pharmacological interventions.

### ***Types of Gambling Behavior***

Although studies sometimes use terms such as *gambling*, *problem gambling*, *compulsive gambling*, and *pathological gambling* interchangeably, there are behavioral differences that distinguish one term from another. ***Gambling*** is defined as: Any betting or wagering, for self or others, whether for money or not, no matter how slight or insignificant, where the outcome is uncertain or depends upon chance or skill (Gamblers Anonymous, 2000). ***Problem (probable compulsive) gambling*** is defined as an involvement in risky gambling behaviors that adversely affect the individual's well-being. This may include issues related to relationships, family, financial standings, social matters and

vocational pursuits (Arizona Council on Compulsive Gambling, Inc. 1999). Problem gambling is not found in the DSM-IV but is considered a precursor to compulsive gambling if the behavior is not reversed. ***Compulsive (pathological) gambling*** is defined as a progressive disorder characterized by a continuous or periodic loss of control over gambling; a preoccupation with gambling and with obtaining money with which to gamble; irrational thinking; and a continuation of the behavior despite adverse consequences (Arizona Council on Compulsive Gambling, 1999).

### ***DSM-IV Diagnostic Criteria for Pathological Gambling***

The American Psychiatric Association recognized pathological gambling in 1980 in the DSM-III as an impulse disorder. Persistent and recurrent maladaptive gambling is indicated by five (or more) of the following:

- Preoccupation with gambling
- Gambling with larger amounts of money to increase excitement
- Repeated efforts to reduce or stop gambling
- Restlessness or irritability when attempting to control gambling behavior
- Gambling to escape problems or to alleviate a negative mood
- Trying to win back money after incurring losses while gambling
- Lying about the extent of gambling behavior to significant other(s)
- Committing crimes to finance gambling
- Lost relationships with significant other(s) or lost career advancement because of gambling
- Dependent on others to provide financial assistance to relieve a debt caused by gambling

Two different types of gamblers emerge under the category of pathological gambling:

***Action gamblers*** and ***Escape gamblers*** (Arizona Council on Compulsive Gambling, 1999). The reasons for gambling, kinds of gambling activities, and chances for recovery differ between the two types of gamblers.

**Action gamblers** are more likely to have domineering personalities and above average IQ's. Although they exude energetic and assertive behavior, they generally suffer from low self-esteem. Action gamblers tend to start early in life (adolescence) and prefer games of skill such as poker or dice games (1999). **Action gamblers** believe they can develop a system to "beat the house." This type of gambling is more prevalent among men (1999).

Chances for long-term recovery for action gamblers are low, although they are more likely to improve if they receive professional help by a trained specialist. Those who participate in a recovery program often follow it up with a 12-Step program for themselves as well as their spouses.

On the other hand, **escape gamblers** are more likely to be nurturing and responsible individuals. They prefer games of luck such as bingo and slot machines. They tend to begin their gambling activity later in life and use gambling for escape or empowerment. Escape gamblers are more often women. Escape gamblers are more likely to seek professional help than action gamblers, and stand a better chance of achieving long-term recovery (Arizona Council on Compulsive Gambling, 1999).

### ***Phases of Pathological Gambling***

Pathological gambling often progresses through a series of phases (Arizona Council on Compulsive Gambling, 1999). The **winning phase** (three to five years) is characterized by pathological gamblers winning more often than they lose and some may have experienced some big wins. Sometimes they attribute their winning to being smarter than others, which justifies spending more time and money gambling. However, this winning phase doesn't usually last and eventually pathological gamblers move into the losing phase. The **losing phase** may last more than five years. As gamblers lose more than they win, they place larger bets in an attempt to "chase losses". They may begin to lie or borrow money to cover losses as they sink deeper into financial trouble. Eventually resources for bailouts dwindle, and their personal lives rapidly deteriorate as they progress towards the **desperation phase**. The desperation phase can vary in length, as most of the

gambler's time at this point is spent preoccupied with some aspect of gambling. Signs that one is in the desperation phase may include a significantly problematic family life and career or engaging in illegal activity such as embezzling. They may suffer from depression and experience suicidal thoughts. Although outwardly gamblers in the desperation phase may still appear in control, most have lost all control over their gambling. Some may be willing to accept help during this phase. A possible fourth phase has also been proposed - *hopeless/giving up phase* (Rosenthal, 1989). In this phase, pathological gamblers know they can't recoup losses and do not care anymore. This feeling of hopeless also compels them to continue to gamble (Rosenthal, 1989).

## **CHARACTERISTICS OF PATHOLOGICAL GAMBLERS**

### ***Demographics***

The pathological gambling research provides insight into the personality of a problem gambler. The current research of pathological gambling has defined several characteristics of problem gamblers (See Table 1.). Problem and probable pathological gamblers in Georgia are significantly more likely to be young, and non-white than non-problem gamblers in the general population, and they are significantly less likely to be married and to have graduated from high school than non-problem gamblers (Volberg & Boles, 1995). Problem & pathological gamblers start gambling at a significantly younger age than non-problem gamblers (Volberg, 1995). A 1998 study found a 4% to 7 % prevalence rate of problem gamblers between the ages of 11 and 18 (Proimos, DuRant, Pierce, & Goodman, 1998). Although limited research has been done on the gambling practices of women, the New Jersey gambler's hotline reported that 24% of the callers were women (Council on Compulsive Gambling, 1999).

### *Characteristics of Compulsive Gamblers*

Who Is Compulsively Gambling?	<ul style="list-style-type: none"> <li>• Young (earlier behavior = higher prevalence)</li> <li>• Non- White Men</li> <li>• Unmarried</li> <li>• Uneducated</li> </ul>
Attributes	<ul style="list-style-type: none"> <li>• Impulsivity</li> <li>• Hyperactivity</li> <li>• Distractibility</li> </ul>
Biological Characteristics	<ul style="list-style-type: none"> <li>• Attention Deficit Disorder</li> <li>• Genetic Predisposition</li> <li>• Higher levels of Norepinephrine</li> </ul>
Consequences	<ul style="list-style-type: none"> <li>• Financial: Bankruptcy; Eviction; Repossession; Job Loss</li> <li>• Legal: Credit Card Fraud; Loan Fraud; Theft; Embezzlement</li> <li>• Physical: Headaches; High Blood Pressure; Cardiac Problems; Asthma; Intestinal Disorders; Anxiety Attacks</li> </ul>
Comorbidity	<ul style="list-style-type: none"> <li>• Depression</li> <li>• Suicide</li> <li>• Drug/Alcohol Abuse</li> <li>• Tobacco Use</li> <li>• Compulsive Shopping</li> <li>• Compulsive Sexual Behavior</li> <li>• Personality Disorders: Anxiety, Intermittent Explosive, Antisocial</li> </ul>

### *Impulse Control*

Pathological gamblers often expressed aggressiveness and low anxiety in childhood (Vitaro, Arseneault & Tremblay, 1999) and were more likely to have experienced attention deficit disorder, hyperactivity and impulsivity (Taber, Russo, Adkins, & McCormick, 1986). Pathological gamblers have been found to be highly distractible and have poor impulse control (Lacey & Evens, 1986; Carlton & Goldstein, 1987; Carlton & Manowitz, 1987; Carlton & Manowitz, 1992; Rugle & Melamed, 1993; Castellani & Rugle, 1995). Achievement through sustained effort and delayed gratification is viewed as less interesting than immediate gratification and success to compulsive gamblers (Taber, Russo, Adkins, & McCormick., 1986). High impulsivity has been identified as a potential risk factor for problem gambling among adolescents (Vitaro, Arseneault & Tremblay,

1999). Attributes of pathological gambling can be viewed as manifestations of impulsive behaviors.

This impulsivity has four basic elements:

1. Excessive sensitivity to potential reward and desire for immediate reinforcement
2. Tendency to respond impetuously without forethought of negative consequences
3. Excessive sensitivity to threatened punishment (non-reward)
4. Deficits in inhibitory control that keep the person responding despite the risk of negative consequences (Buss & Plomin, 1975; Eysenck & Eysenck, 1977; Barratt & Patton, 1983; Carlton & Manowitz, 1987; Gray, Owen, Davis, & Tsaltas, 1983; White, Moffitt, Caspi, Bartusch, Needles, & Stouthamer-Loeber, 1994).

Although most studies point to impulsivity as an attribute of gambling, some studies have shown that gambling behavior might be due to partial reinforcement of past gambling behavior, which would render the behavior very resistant to extinction (Carlton & Goldstein, 1987; Carlton & Manowitz, 1992; Rugle & Melamed, 1993).

### ***Biological Characteristics***

Some studies have found biological characteristics related to compulsive gambling. Miller's study in 1997 found elevated levels of norepinephrine in pathological gamblers. They describe a "rush" often experienced during a period of anticipation for a winning result or in preparation for gambling (Miller, Gold, & Smith, 1997). Additionally, Eisen and Lin (1998) studied monozygotic and dizygotic twin pairs and found a possible familial vulnerability (genetic or experientially based) in pathological gamblers.

### ***Comorbidity***

There is evidence that the comorbidity rate with other psychological disorders amongst problem gamblers may be as high as 90%. Steffgen (1995) found a strong link in characteristics

between compulsive gamblers and people with attention-deficit disorder (ADD). She discovered that between 30% and 43% (depending on the criteria) of gamblers met the diagnosis for ADD. Among the most common disorders that accompany problem gambling is depression. Studies show that on a lifetime basis, the depression rate in pathological gamblers is between 70 and 76 % (McCormick, Armstrong, Blaszczynski & Allcock, 1984). Not surprisingly, the suicide rate amongst compulsive gamblers is also quite high. A study of Gamblers Anonymous members found that 12 - 18 % have attempted suicide, 45-49 % have made plans to kill themselves, 48-70 % have contemplated suicide, and 80 % reported that they "wanted to die" (Thompson, Gazel, & Rickman, 1999). Studies have found that some of the highest suicide rates are in Las Vegas and Atlantic City (Becona, Del Carmen, & Fuentes, 1996) and Reno (Cohen, 1998).

Black and Moyer (1999) found evidence that 47% of compulsive gamblers recruited during a public campaign in Iowa were drug or alcohol abusers. For the participants in Stinchfield and Winter's 1996 study, the majority of gamblers (69%) used tobacco on a daily basis. Studies also found that 43% of compulsive gamblers engaged in other compulsive behaviors such as shopping (23%), sexual behavior (17%), and intermittent explosive disorder (13%) (Black & Moyer, 1999).

Many compulsive gamblers experience a range of psychiatric illnesses. Eighty-seven percent met the criteria for personality disorder (Black & Moyer, 1999). Other psychiatric disorders include mood disorders (60%), anxiety disorders (40%), substance abuse disorders (63%), and antisocial personality disorder (33%) (Black & Moyer, 1999).

## **CONSEQUENCES OF PATHOLOGICAL GAMBLING**

The problems associated with pathological gambling reach far beyond the psychological consequences. Gamblers also experience personal, financial, legal and physical crises as a result of their gambling behavior.

### ***Family and Finances***

Often pathological gamblers get caught in a cycle of debt, which can affect their financial stability and employment (Unwin, Davis, & De Leeuw, 2000). Stinchfield and Winters (1999) found that the majority of their sample (94%) experienced at least one gambling-related financial problem in their lifetime, with debt sometimes reaching hundreds of thousands of dollars. Lesieur (1998) found that bills are often overdue and in extreme cases this challenge can lead to eviction, repossession of household items or automobiles, and even foreclosure on their homes. The burden placed on families of the disordered gamblers is high with divorce as one out of many unfortunate consequences (Volberg & Boles, 1995). Often, the pathological gambler's behavior affects their work as well. Ladouceur and Walker (1996) found that 69% to 76% of gamblers admit to having missed work due to gambling.

### ***Legal***

Stress related to personal and financial burdens can lead to anxiety, depression and cognitive disorders. This stressful experience can cause impaired judgment for pathological gamblers and lead them into criminal activity in an attempt to recover their losses (Blaszczynski, McConaghy, & Frankova, 1991). A strong association was found between gambling frequency and criminal behavior, suggesting that some criminal activity may be related to financing gambling (Brown, Killian, & Evans, 2005). Sixty-three percent of Gamblers Anonymous members reported writing bad checks; 30.1% reported stealing from the workplace; and 50.6% claimed they stole to finance gambling or to pay off gambling debts (Schwer, Thompson, & Nakamuro, 2003). A meta-analysis of 27 articles (published between 1990 and 2004), examined the prevalence of gambling in forensic populations. This analysis revealed that one-third of criminal offenders are problem or pathological gamblers, the highest prevalence found in any population (Williams, Royston & Hagen, 2005).

## ***Physical***

Financial burdens, family problems, and illegal activities often lead to stress related physical problems for the pathological gambler. This population has been found to display a wide array of physical stress illnesses including chronic or severe headaches, intestinal disorders, asthma, depression, anxiety attacks, cardiac problems, and high blood pressure (Lorenz & Yaffee, 1986).

## **TREATMENT APPROACHES**

The first treatment center to offer services for pathological gamblers was implemented in Ohio in 1968. As of 2007 there were fewer than 205 clinicians that were nationally certified gambling counselors. (National Council on Problem Gambling, 2007). The majority of treatment modalities use counseling as a mechanism for treatment. Pharmacology is the only treatment that does not directly require counseling, but in practice it is normally provided with a treatment modality that involves counseling (Korn & Shaffer, 2005).

### **Behavioral Treatments<sup>2</sup>**

Behaviorists believe that gambling is a learned behavior, initiated and maintained by positive and negative reinforcement of arousal, winnings, or both. As mentioned earlier, gamblers describe a “rush” associated with gambling. This arousal effect is an internal reinforcement of the gambling behavior. Some behaviorists attribute pathological gambling to a repeated seeking out of this arousal state (Anderson & Brown, 1984). Other behaviorists attribute pathological gambling to the positive reinforcement of winning and its random reinforcement schedules (Anderson & Brown, 1984). This intermittent reinforcement tends to sustain behavior because the odds of winning are random and it keeps the person guessing about when and whether a payoff will happen (Sarafino, 1996). Still, other behaviorists, such as McConaghy (1988), believe that once a behavior becomes habitual, a behavior completion mechanism is established in the gambler’s nervous system. If the behavior is not carried out when the person is stimulated to do so, they experience a tension so

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<sup>2</sup>The present literature review identified no new intervention studies between 2000 and 2007 that used solely a behavioral intervention

aversive that they are compelled to perform the behavior. This experience is similar to symptoms experienced by people with obsessive-compulsive disorder. Four major categories of behavioral treatment include aversion therapy, imaginal desensitization, imaginal relaxation, and in-vivo exposure.

Aversion therapy was the major focus of early research on pathological gambling (Lester, 1980). Electric shock and chemical aversion (inducing vomit) are the most common forms of aversion therapy, with electric shock therapy being preferred because it is cheaper, safer, and less humiliating to the client. During aversion therapy, a therapist administers shocks as the patient performs or views the undesirable gambling behavior. Some examples include using gambling apparatuses such as one-armed bandits (Barker & Miller, 1966) or watching slides of gambling stimuli (poker hands or roulette wheels) (Seager, 1970).

The behavioral therapeutic strategy has been found to be effective in short term cessation of gambling behaviors, but not with long term behavior changes (Barker & Miller, 1968; Lesieur, 1998; Koller, 1972). Koller (1972) reported that at the end of treatment eight of the twelve patients he treated had stopped gambling, but at follow-up only three remained abstinent. In two case studies, aversion therapy was paired with other behavioral therapies, specifically contingency management and controlled gambling (Dickerson & Weeks, 1979; Rankin, 1982). In these cases, the goal was not abstinence, but reduced gambling, which was achieved by both participants. Reduced gambling was operationalized as one weekly gambling session wagering a small amount of money and establishing a weekly gambling limit. The positive results of these case studies emphasize a need for more investigation into long term outcomes of this treatment strategy.

Imaginal desensitization teaches patients techniques on how to gradually relax using mental concentration. Patients are then asked to imagine scenarios in which they have gambled before, but instead of experiencing gambling induced stress, they leave the situation remaining relaxed. Patients begin visualizing the least anxiety-provoking scene, increasing in intensity as the patients master the

relaxation techniques. McConaghy, Armstrong, Blaszczynski, and Allcock (1983) found imaginal desensitization more effective in reducing gambling behaviors, gambling urges, and anxiety than aversion therapy in a comparative study of twenty participants. Imaginal relaxation is very similar to imaginal desensitization. Both treatments involve teaching the client relaxation techniques, but in imaginal relaxation, clients are asked to visualize relaxing images, whereas imaginal desensitization focuses on the anxiety provoking situations, such as gambling. When comparing the effectiveness of imaginal desensitization versus that of imaginal relaxation, McConaghy, Armstrong, Blaszczynski, and Allcock, (1988) found no differences (10 participants) in outcomes after treatment and at one-year follow-up.

In-vivo exposure treatment also involves relaxation techniques. Once the client has learned the relaxation methods, they are exposed to an actual gambling situation for different specified time periods (usually increasing with time). In Blaszczynski, McConaghy, and Frankova (1991) treated 120 clients with one of four techniques: imaginal desensitization, imaginal relaxation, aversion therapy or in vivo exposure. Of the 63 participants retained in the study, 18 reported abstinence, 25 reported controlled gambling and 20 reported continued uncontrolled gambling. The authors reported no significant differences in effectiveness based on treatment received. Those who reported controlled gambling and abstinence showed comparable improvements in social and financial functioning and decreased ratings of psychopathology compared to those who reported uncontrolled gambling. Some pathological gamblers have taken treatment into their own hands and have requested to be banned from casinos in Missouri (Savoye, 2000). Korn and Shaffer (2004) identified this conscious avoidance as a type of self imposed behavioral intervention. The state blocks casinos from sending any marketing material to those who elect to self-ban and enforces the ban by arresting these individuals and charging them with trespassing if found in casino. In addition, casinos request identification to enter the premises and will turn away anyone who has

been banned. As of yet, there have not been any published formal evaluations of the impact of this type of treatment approach.

### *Behavioral Treatment Summary*

Behavioral treatment is considered one of the stronger modalities within the field (Korn & Shaeffer, 2004). Support for this type of treatment stems from the fact that there have been more outcome studies that utilized random assignment of client groups, and tracked outcomes at six months and 12 months after treatment was completed. Many behavioral approaches have seen success in substance abuse treatment, which enhanced its credibility for treating other addictive type disorders. One major detractor of behavioral treatment modality is the low frequency of behavioral treatment studies within the last ten years, despite many changes in gaming activities, gaming policies, and with populations at risk during this time period. This trend may be related to the more recent emphasis on multimodal gambling treatment style, with a dominant emphasis of merging cognitive structuring techniques with behavioral modification strategies.

### *Cognitive Treatments*

According to cognitive theorists, the fundamental mistake made by gamblers is an erroneous perception of the notion of randomness (Ladouceur & Walker, 1996, Gaboury & Ladouceur, 1989). Gamblers believe that they can control their winnings or that gambling outcomes are predictable. They develop mistaken beliefs that losing increases the odds of future winnings or that winning predicts future winnings. Cognitive dissonance, an incongruence of personal belief and fact, results since the odds of winning at gambling are random and therefore independent. Problem gamblers begin to develop strategies that they believe will increase their chances of winning. According to this perspective, even when the gambler initially does not expect to win, he or she develops a set of beliefs that encourage continued gambling. These false beliefs, in which a person feels they can control events governed by chance, maintain high gambling activity (Sylvan, Ladouceur, & Boisvert, 1997). These incorrect notions lead gamblers to have biased evaluations of gambling results and falsely believe that over time their outcomes will even out (Fizel, 1997). The goal of cognitive and

cognitive-behavioral treatments is to challenge these beliefs in order to modify the gambler's behavior.

Toneatto and Sobell (1990) reported a case study in which they challenged the participant's belief system regarding personal control of outcomes, future winnings balancing current losses, and financial losses due to gambling being trivial. The client's self-reported gambling was reduced from seven times a month before treatment to once a month at post-test, and once every two months at 6-month follow-up. In 1998, Ladouceur, Sylvain, Letarte, Giroux, and Jacques treated 5 pathological gamblers with cognitive restructuring, which resulted in increased realistic perceptions of the control of outcomes in gambling. Four of the 5 participants maintained "therapeutic gains" but the authors did not specify whether these gains referred to abstinence or controlled gambling.

A 2003 case study described a middle aged man diagnosed with pathological gambling and clinical depression, who received cognitive modification to reduce his disordered gambling, as abstinence was not his treatment goal (Boutin, Dumont, Ladouceur, & Montecalvo, 2003). After 14 sessions over a six month period the participant no longer met DSM-IV criteria for pathological gambling. However, the authors noted that he had developed a substance abuse problem. "Switching addictions" is common with substance and behavioral dependencies (Wanigaratne, Wallace, Pullen, Keaney, & Farmer; 1991) with clients also switching from substance abuse to gambling. In 1994 study, a 44 year old woman shifted from polysubstance abuse to pathological gambling and then back to substance abuse (Blume, 1994)

Ladouceur, et al. (2001) coordinated several studies on cognitive only treatment. In this study, the treatment group (n = 35) received cognitive correction and relapse prevention. The outcome measures included DSM-IV criteria, self efficacy perception, and perception of control, desire to gamble, South Oaks Gambling Screen (SOGS) scores, and frequency of gambling. There were significant differences in outcome measures between the treatment group and the wait list control group (n = 29). Nineteen members of the treatment group experienced better performance

on at least four of the measures versus two of the wait list control group. A greater percentage of those in the treatment group sustained the positive effects of the intervention at the 6- and 12-month follow up. Cognitive restructuring is explored again in the Group Therapy section.

### *Cognitive Treatment Summary*

Most of these studies have had low sample sizes and lacked efficacy data although other studies have suggested the use of cognitive restructuring treatment for pathological gambling (Petry & Armentano, 1999). Similar to behavioral treatment, there are few examples of cognitive only treatment studies within the last ten years. The basic principles of this modality still have widespread use when combined with other effective treatment approaches as seen in the following section.

### ***Cognitive-Behavioral Treatments***

Consistent with cognitive treatments, cognitive-behavioral treatments draw on the theory that gamblers have incorrect beliefs about control of gambling outcomes. A common cognitive-behavioral treatment protocol consists of four components: (1) cognitive restructuring, (2) problem solving training, (3) social skills training, and (4) relapse prevention (Bujold & Ladouceur, 1991; Bujold, Ladouceur, Sylvan, & Boisvert, 1994; Sylvan, Ladouceur, & Boisvert, 1997). The goals of cognitive restructuring are to challenge the belief system developed by the gambler and to correct gambling misconceptions. A connection between poor-problem solving skills and gambling behavior is discussed in problem-solving training. The patients are next taught a problem-solving strategy. Patients later incorporate this strategy into coping with specific problems that lead to their gambling. Node link mapping is one such problem solving activity in cognitive behavioral approach. Node-link mapping is used to illustrate the path of cognitions, emotions, and behaviors during therapy sessions and to improve understanding between the client and clinician (Melville C, Davis C, Matzenbacher D, Clayborne J, 2004). This treatment was considered for pathological gambling populations due to its successful use among chemically dependent groups. Node link mapping treatment involves three approaches: Understanding randomness, problem solving, and relapse

prevention (2004). Node mapping provides the client with a visual depiction of how thoughts, actions, and external influences are linked and influence their addiction

Social skills training is similar to problem-solving training, in that patients discuss an association between gambling behaviors and social skills during the training session. If a deficit is identified in the client's social skills, a specific training is prescribed. For example, if a client reported that their gambling resulted from encouragement from their social network, they were given assertiveness training (Sylvain, Ladouceur, & Boisvert, 1997) to counteract the social influences.

The final component of this treatment is relapse prevention. Relapse prevention involves discussing with clients the high-risk situations and reasons for returning to gambling behavior. Once the facilitators for relapse are identified, the clinician and client develop a script of how to more competently resolve vulnerable instances where the potential for relapse is high. Relapse prevention has been tested in two gambling treatment studies (Bujold, Ladouceur, Sylvain, & Boisvert, 1994; Sylvain, Ladouceur, & Boisvert, 1997) and found effective in the elimination and reduction of gambling behaviors, respectively. Bujold and colleagues (1994) reported the abstinence of their three participants from post-test through six month follow-up. However, these results may not be generalizable to all problem gamblers due to the small sample size. Sylvain, Ladouceur, and Boisvert (1997) reported reductions in gambling behavior and an increase in perceived control in comparison to control participants. However, these results must be interpreted cautiously, as they may have been influenced by the participant attrition rate of 36%. Of the 14 clients treated, only 9 were assessed at the 12 month follow-up. In addition, the authors did not differentiate between controlled gambling and abstinence.

Freidenberg, Blanchard, Wulfert, and Malta (2002) assessed the effectiveness of motivational enhancement therapy (MET) followed by additional cognitive behavioral intervention sessions among nine participants who completed treatment. MET is its own therapeutic style that is

designed to strengthen client's motivation by addressing resistance and ambivalence (Mason, 2005; Miller & Rollnick, 1991; Roffman and Stephens, 2006).<sup>3</sup> Participants in the 2002 study received three stage treatments: 1) one to three sessions of MET, 2) 10-15 sessions of cognitive behavioral treatment, and 3) pathological gambling relapse prevention in the remaining two sessions. Pre- and post-test measures included the South Oaks Gambling Screen and physiological arousal, as measured by the <sup>4</sup>Critikon Dinamap monitor. Participants showed significant decreases in both measures post-test, lending support for the effectiveness of cognitive behavioral treatment.

Echeburua and Fernandez-Montalvo (2002) co-authored a case study on a middle age housewife who suffered from pathological gambling. She received treatment in 9 sessions with 5 of the sessions focused on behavioral treatment (stimulus control and gradual in vivo exposure with response prevention), and 4 sessions in cognitive treatment (relapse prevention). The participant's daughter served as her co-counselor, providing support away from the psychologist's office<sup>5</sup>. The authors asserted the importance of tailoring the relapse prevention to adapt to the realities of the patient. The client did not exhibit pathological gambling behavior at end of treatment or at the 12 month follow up.

Milton, Crino, Hunt, and Prosser (2006) examined compliance improvement with cognitive behavioral treatment. Compliance improvement of gambling treatment involved the use of praise and reinforcement of self efficacy. Forty subjects diagnosed as pathological gamblers were randomly assigned to cognitive behavioral treatment or cognitive behavioral treatment with compliance improvement. Lower symptoms of pathological gambling behavior were measured by the SOGS. The individuals who received compliance improvement had significantly higher rates of completion

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<sup>3</sup> MET studies is not formally a subset of cognitive behavioral therapy. Many programs combine the use of MET and CBT and have met great success (Mason, 2005; Roffman and Stephens, 2006). They are often used together for brief therapies with MET used in the readiness stage and CBT for the action state (Roffman and Stephens, 2006).

<sup>4</sup> This physiological measurement tool records heart rate and blood pressure.

<sup>5</sup> Although this study is placed under cognitive behavior, this particular study would also be appropriate for a multimodal category through the use of the daughter as counseling support. Family systems approach was highly recommended by GA Strategic Plan Stakeholders (Emshoff et al., 2007).

of treatment, lower amounts of money spent on gambling, and lower symptoms of pathological gambling.

Another study by Hodgins, Currie, el-Guebaly, and Peden (2004) compared the use of brief motivational enhancement therapy with a workbook against a workbook only treatment. The MET was delivered over the phone in one 30 minute session. Equal groups of men and women were randomly assigned to both treatment groups (the control group received treatment at a later date). After 24 months, both the treatment and control group demonstrated a reduction in gambling behavior, with greater success observed among the MET group. The Hodgins et al. (2004) study provides support for the efficacy of short term cognitive behavioral treatment of pathological gambling.

#### *Cognitive Behavioral Treatment Summary*

The cognitive behavioral approach has received strong support from leading gambling treatment researchers and its efficacy is evidenced by its frequency in the literature (Korn & Shaeffer, 2004; Ladouceur, 1994; Mason, 2005; Petry et.al, 2006; Sampl, 2006; Sharpe, 2002; Sylvain, Ladouceur, and Boisvert, 1997; Toneatto & Ladouceur, 1990; and Toneatto & Ladouceur, 2003). This approach has integrated two therapeutic strategies (cognitive and behavioral) that have individually had success in gambling and other impulse and addictive disorders. Cognitive-behavioral's high rating compared to other modalities is also based on the use of randomized clinical trials; greater rates of abstinence at long term follow up (six month, 12 months, 18 months, and 24 months). This therapy can easily be delivered in brief sessions and strengthened through the use of innovative strategies such as motivational enhancement therapies.

#### ***Gambler's Anonymous***

The first group meeting of Gambler's Anonymous (GA) was held on September 13, 1957 in Los Angeles, California. This autonomous self help organization does not accept outside donations (Gamblers Anonymous, 2007) and has an affinity group for relatives of pathological gamblers,

GamAnon (Moody, 2007). The group is led by a senior member of GA named the chairmen who invites other GA members and visitors to share their stories of disordered gambling (Gambler's Anonymous-UK, 2007). Since its inception, GA has since become the most common treatment approach for those seeking help for their gambling addiction (National Resource Council, 1999). It should also be mentioned that some believe GA is not a treatment, but more of a supportive fellowship (Korn & Shaffer). For the purposes of this literature review it is included as a treatment because there are population groups who choose to go to GA instead of traditional treatment settings to obtain help with their gambling problems.

GA is a 12-step program based on the model of Alcoholics Anonymous self-help program. Consequently, GA encourages its members to achieve abstinence. GA provides incentives for its members, such as social recognition of members who remain abstinent and reach program milestones. There is controversy regarding applying the medical disease model of addiction to pathological gambling behavior, as this model assumes that if a relapse occurs it will match in severity to the most debilitating phase of the addiction cycle (Blaszczynski & McConaghy, 1989). Blaszczynski, McConaghy, and Frankova, 1991 found that not every lapse will lead to full relapse, and that at least a sub-sample of pathological gamblers are able to tolerate re-exposure to gambling behavior without long term loss of control. Furthermore, Marlatt and Gordon's (1985) relapse-prevention model argued that, depending on cognitive and/or affective responses, an initial lapse in behavior was not always associated with a return to pre-treatment addictive levels of indulgence. This finding is at odds with the central belief of GA that addiction is a lifelong disease that should be treated with abstinence to stop the inevitable return to more debilitating symptoms and experiences associated with pathological gambling (Gamblers Anonymous, 2007).

Several studies report that GA has a limited affect on achieving and maintaining abstinence (Petry, 2003a; Stewart & Brown, 1988). Petry & Armento (1999) reported evidence that GA is not effective. Specifically, 70 to 90 percent of GA attendees drop out, less than 10 percent become

active members, and only 8 percent of the attendees achieve a year or more of abstinence (1999). Similarly, Brown (1985) found that, of 232 attendees of GA meetings in Scotland, only 7.5% maintained abstinence after 1 year of attendance, and 7.3% remained abstinent after 2 years. This finding does indicate, however, that those helped by this approach may achieve long-term success.

It should be noted that these studies did not measure the severity of the gambling behavior or the individual's perception of gambling addiction. More investigation is needed to assess if the former GA members, who did not abstain from gambling, relapsed into maladaptive gambling behavior or were able to moderately gamble.

Several studies found that when GA is used in conjunction with other forms of treatment, it can be an effective tool for maintaining abstinence after the initial treatment phase is finished (Russo, Taber, McCormick, & Ramirez, 1984; Petry, 2003). Taber et. al. (1987), found that 74% of patients who were abstinent had attended at least 3 GA meetings, compared to 42% of those who were not abstinent. Active participation in GA may encourage the use of social support to maintain abstinence (Brown, 1985).

One study suggested that individuals who attend GA may have different needs than those who do not (Petry 2002). Among 321 participants, those who participated in GA had more severe gambling problems and poorer relationships with family members. However, they were able to sustain abstinence longer (2 months), and were more engaged in treatment. Participants without a history of participating in GA were more likely to actively abuse substances and were less engaged in treatment.

#### *GA Treatment Summary*

There is a dearth of empirical evidence that offers support of GA as a singular long term effective gambling treatment. GA's is used a supplemental resource to other treatment types (Petry, 2003a). Many treatment settings require attendance at GA to help compliment other treatment approaches, and is often recommended as a resource to prevent relapse (Korn & Shaffer, 2004).

These groups are not required to be facilitated by a licensed clinician. Some participants have reported negative experiences within GA meetings (Taber & Chaplin, 2005) related to comments made by other group members. The national support of Gambler's Anonymous and its availability in many different venues make this treatment an attractive option. However, limited findings on its long term singular success in the treatment of pathological gambling may indicate that until more data is found to support its sole use, it should be used only as a supplement to other more efficacious therapies.

### ***Group Therapy***

The genesis of group therapy can be found in the lack of therapists available to deliver individual therapy during World War II (Corey & Corey, 1997). Formal group therapy is not attached to one psychotherapeutic tradition or disorder (1997). The managed interaction between group members can serve in cathartic function through allowing the group exchange to advance therapeutic gains (Taber and Chaplin, 2005). Past studies have reported that group treatment for pathological gambling is preferable to individual treatment when participants were exposed to both treatment formats (Lesieur & Blume, 1991; Saiz-Ruiz, Moreno & Lopez-Ibor, 1992).

Due to success with a cognitive-only, individualized intervention (Ladouceur et al, 2001), Ladouceur and colleagues duplicated the study using a group therapy approach (Ladouceur et al., 2003). Participants were randomly assigned to a treatment group or to a wait list control group. The group cognitive treatment study had lower rates of attrition, which the researcher attributed to the dynamics of group treatment. Positive outcomes were detected at 6 months, 12 months, and 24 months.

Pathological gambling group therapy has been enhanced through node-link mapping. In the 2004 study, researchers conducted two experiments using node mapping in group treatment. In the first experiment (2004), 13 participants were randomly assigned to the node mapping group (n=4), a non mapping group (n=4), and a wait list control group (n=5). All three groups demonstrated

significant improvement in self-reported ratings of gambling control, reduction in gambling expenditures, duration, abstinence, and DSM IV ratings of pathological gambling. These treatment gains remained significant at a six month follow-up. There were only nine participants in the second experiments that were randomly assigned to node mapping group or wait list control group. The dependent variables for the second group included anxiety, depression, and DSM IV criteria. Decreases in anxiety, depression, and DSM IV symptomology of pathological gambling found in the second experiment (2004).

#### *Group Therapy Summary*

Data are minimal for the group therapeutic strategy in pathological gambling (Dowling, Smith, and Thomas, 2007). Among the few treatment studies that do exist, only one directly compares individual and group using the same treatment, duration, and theoretical approach (2007). Results of other group treatment comparison studies indicate therapeutic gains are experienced in group treatment (Blaszczynski, Maccalum & Jaukhador, 2001; 2007; Echeburua, Baez, & Fernandez-Montalvo, 1996). However, individual treatment in these comparison studies has resulted in improved outcomes with longer lasting effects (2001; 2007; 1996)

A group approach may assist with reducing costs in therapeutic interventions (Dowling, Smith, and Thomas, 2007; Teasdale, Walsh, Lancasher, & Matthews, 2003) and can be beneficial in short term treatments (Corey & Corey, 1997). The exchange between group members can assist with achieving growth in the therapeutic process (1997; Taber and Chaplin, 2005). This technique is widely used but seldom as a singular modality. Consumers are typically receiving some form of individual counseling in addition to their group therapy (Ladouceur, Sylvain, Boutin, Lachance, Doucet, & Leblond, 2003). The therapeutic style utilized is determined by the clinician leading the group and the type of group (1997). Similar to GA, group therapy can be used as the sole mechanism of receipt of gambling treatment. Although very practical and useful, the group therapy may not be able replace benefits of the one-on-one attention in individual counseling.

## *Pharmacotherapies*

Since the 2000 literature review, twenty-three new studies were identified that used pharmacotherapy for treatment of gambling. Many treatment centers use a multimodal approach rather than the exclusive use of pharmaceutical treatment for pathological gambling. The selection of different types of pharmaceutical treatments is related to how pathological gambling is defined by a researcher, based on the presentation of specific symptomology, or co-morbid disorders. If a patient is experiencing a co-occurring disorder, choosing a pharmaceutical treatment considered relatively efficacious for both disorders must be prescribed. When pathological gambling is perceived as a type of addiction, pharmacotherapies such as naltrexone are recommended due to its successful use in the treatment of alcoholism (Dannon, Lowengrub, Gonopolski, Musin & Kotler, 2005; Grant & Grosz, 2004; Grant & Kim, 2001; Kim, Grant, Yoon, Williams, & Rimmel, 2006; Kim, Grant, Adson, Shin, & Zeninelli, 2002; Kim, Grant, Adson, & Shin, 2001; Kim et al., 2001). If defined as an impulse disorder, substances such as citalopram (used for the treatment of disorders such as obsessive compulsive disorder) are recommended. There is also evidence of serotonin dysfunction in pathological gamblers (Hollander, Frenkel, Decaria, Truongold, & Stein, 1992).

### *Opioid Antagonists*

Opioid antagonists such as naltrexone and nalmafene have predominantly been used in the treatment of alcohol and opioid dependence. More recently, their use has been extended to other addiction and impulse disorders, such as pathological gambling. Naltrexone is more widely used and has been cited in seven studies with pathological gambling patients (Dannon, Lowengrub, Gonopolski, Musin & Kotler, 2005; Grant & Grosz, 2004; Grant & Kim, 2001; Kim, Grant, Yoon, Williams, & Rimmel, 2006; Kim Grant, Adson, Shin, & Zeninelli, 2002; Kim, Grant, Adson, & Shin, 2001; Kim et al., 2001).

In Kim's (1998) study, three out of 15 patients suffering from impulse control disorder were treated with naltrexone for nine months. One of the three patients was a pathological gambler who

indicated experiencing a reduced urge to gamble. Another study assessed the impact of naltrexone on 83 participants (Kim et al., 2001). Greater reductions were seen in the treatment group than the control group. However, there was also larger attrition in the treatment group than the control group. Kim, Grant, Adson, & Shin (2001) used the same study design but with 45 participants (20 received naltrexone and 25 received placebo). Naltrexone patients demonstrated greater improvement with their impulse disorders (75%). Nausea was listed as a common side effect during the first week of this study.

Similar results were found in a Kim & Grant (2001) study with 17 pathological gambling participants. For six weeks, participants received open and flexible dosage of naltrexone. The majority of participants began to notice a response to naltrexone through the reduction of pathologic gambling symptoms by the fourth week of treatment.

Kim, Grant, Yoon, Williams & Rimmel (2006), examined the potential dangers of liver damage from long-term use (N=386) of naltrexone. Study results indicated that naltrexone use can lead to elevated levels of hepatic enzymes, which can be reduced after one week if patients limit their use of aspirin, acetaminophen, or non aspirin non steroidal anti-inflammatory drugs. Nefazodone also an antidepressant that has been used for the treatment of pathological gambling, but the drug was taken off the market by Bristol Squibb Meyers in 2003 after it was determined that it caused liver damage. Clinicians who use pharmacological interventions must be aware of the long term side effects of their use.

#### *Anti-Depressants*

Bupropion is a commonly prescribed antidepressant. Bupropion was compared with naltrexone in a 12 week study by Dannon et al. (2005). Thirty six patients were recruited. Seventeen participants were randomly assigned to bupropion and 19 to naltrexone. Twelve of the bupropion group completed their 12 weeks with nine of the subjects abstaining from gambling for two weeks and receiving higher scores on the Clinical Global Impression Improvement Scale.

Thirteen of the completers for naltrexone treatment were able to abstain from gambling and earn higher scores on the scale. The Dannon et al. (2005) results demonstrated that bupropion was as effective as naltrexone for the reduction of problem gambling behaviors.

In another study, ten pathological gamblers with no comorbidities entered an 8 week open label study of bupropion where both researchers and participants are aware of the pharmacological treatment (Black, 1999). Results indicated participant improvement on scales of obsessive compulsive behavior, attention deficit disorder, and pathological gambling (Black, 1999). Grant and Grosz (2004) co-authored a study using a sample of adults over 60 years old, which provided much needed data on this under-studied gambling population. Participants were given naltrexone, antidepressants (citalopram, fluoxetine, fluvoxamine) or a combination of both naltrexone and antidepressants. Eight of the participants (67%) across all treatments experienced a sustained reduction in gambling symptoms for over one year.

Hollander and colleagues (1998) used fluvoxamine in a single-blind study to measure its effectiveness in reducing or terminating gambling behavior. Of the 16 participants who were recruited, 10 completed the study. Researchers found that seven of the ten who completed the study achieved gambling abstinence. Again, no follow-up data were reported.

Dannon et al. (2005) compared the effects of fluvoxamine against topiramate. Topiramate is an anticonvulsant that is sometimes used for patients with mood disorders that are difficult to treat. In Dannon's study, there were 31 participants with 15 randomly assigned to topiramate and 16 to fluvoxamine. Twelve people completed the topiramate treatment and 8 completed fluvoxamine, 75% of both groups indicated that their gambling behavior was in full remission.

A more recent treatment medication is 1-(meta-chlorophenyl) piperazine or m-CPP, which has similarities with the anti-depressant, trazadone, and has been used in MDMA (ecstasy research) and for treating of migraines (Pallanti, Bernardi, DeCaria & Hollander, 2006). Unauthorized possession of this drug is illegal as it produces similar effects to MDMA ("ecstasy"). For this reason,

this drug is not mentioned here as a likely treatment modality, but response to this drug was measured by prolactin and cortisol levels, pathological gambling rating, mood, craving, and scales that measured sensory elevation (“high”). Pathological gambling participants reported greater sensory responses after treatment, which suggested to the researchers that more severe gamblers may have a cerebral dysfunction at the 5-HT (Pallanti, Bernardi, DeCaria & Hollander, 2006).

#### *Selective Serotonin Reuptake Inhibitors*

Escitalopram is a selective serotonin reuptake inhibitor (SSRI) often used for generalized anxiety disorder and depression (Grant & Potenza, 2006). In an open-label study including 12 patients administered an increasing dosage of escitalopram (the mean end study dosage was 25.4 mg a day), the majority of the patients were responders (61.5%) (Grant & Potenza, 2006). Responders were identified as those patients whose scores on the pathological gambling adaptation of the Yale Brown Obsessive Compulsive Scale (PG-YBOCS) decreased by 30% at the end of treatment. Responders also endorsed higher scores on other quality of life scores after treatment (e.g. The Sheenan Disability Scale, Perceive Stress Scale, and Quality of Life Inventory).

Paroxetine is another SSRI used for anxiety. Two studies were conducted with different results on how effective it is at treating problem gambling behaviors. In a 2002 Kim et al. study, 45 DSM-IV diagnosed pathological gamblers entered an eight week double-blind study. The treatment group had higher post scores than the control group on the Gambling Symptom Assessment Scale and the Clinical Global Impressions Scale. However, in the Grant et al. (2003) double-blind paroxetine trial, no significant differences in gambling behavior between the placebo group (n = 40) and the treatment group (n = 36) were observed.

Citalopram is also in the class of SSRI's. In the Zimmerman, Breen, & Posternak (2002) trial of 15 pathological gambling subjects, improvements were demonstrated for the treatment group. Nine of the 15 completed the open label trial with improvements on all indicators of treatment

response (Yale Brown Obsessive Compulsive Scale, Obsessive Compulsive Drinking Scale-Modified for Problem Gambling, days and money lost to gambling, Clinical Global Impressions Scale).

Sertraline, another SSRI, was tested in two trials. In a 2004 case study, Meroni, Lo Giudice, Kotzalidis, and Biondi reported reductions in pathological gambling behaviors after receiving sertraline. In 2005 Saiz-Ruiz, Blanco, Ibanez, Masramon, and Gomez coordinated a pilot study of the effects of sertraline on pathological gambling behavior. Sixty patients were enrolled in this double blind, random assignment trial. Investigators did not find a significant difference in the response of participants in the treatment (n=23) and placebo (n=21) groups on their outcome measures (Saiz-Ruiz et al., 2005).

SSRI's are used to treat the impulsivity evident in the manic phase of those with bipolar (Gorman, 1997). They are both used as mood stabilizers, useful in preventing both mania and depressive episodes. The use of these drugs in the treatment of gambling disorders seems appropriate, since impulsivity is related to both pathological gambling (Lacey & Evens, 1986; Carlton & Goldstein, 1987; Carlton & Manowitz, 1987; Carlton & Manowitz, 1992; Rugle & Melamed, 1993; Castellani & Rugle, 1995) and bipolar disorder (Petry & Armentano, 1999) and depression (McCormick, Russo, & Ramirez, 1984) are comorbid with pathological gambling.

#### *Mood Stabilizers and Drug Interactions*

Haller and Hinterhuber (1994) used carbamazepine, a mood stabilizer, to treat pathological gambling in a male patient. This patient had previously tried other interventions such as behavior therapy and self-help groups and had failed to abstain from gambling for more than three months (1994). After treatment, the client reported abstinence for 30 months (1994). In a similar study (Markowitz, 1980), they used lithium, another mood stabilizer, frequently used with bipolar disorder. Three gamblers with bipolar disorder and was found to reduce impulsivity, subsequently reducing gambling behaviors (1980). However, the magnitude of the reduction was not reported.

More recently, Hollander et al. (2005) examined the use of sustained-release lithium carbonate among 40 pathological gamblers with bi-polar disorder in a 10-week randomized experimental study. Ten (83%) of the 12 participants in the treatment group were identified as responders as compared to 5 patients assigned to the placebo group. In addition, improvement in gambling severity was significantly correlated with improvement in mania ratings (Hollander et al., 2005).

Treatment for Parkinson disease has caused some patients to develop pathological gambling symptoms (Avanzi, Uber, Bonfa, 2004; Driver-Dunckley, Samanta, & Stacy, 2003; Montastruc, Schmitt, Bagheri, 2003; Seedat, Kesler, Niehaus, and Stein, 2000). In some cases, reducing the drug treatment will eliminate pathological gambling symptoms (Dodd, Klos, Bower, Geda, Josephs, Ahlskog, 2005). Quetiapine, an anti-psychotic, has been shown to be effective in pathological gambling symptoms in a case study of a 41 year old male Parkinson patient (Sevincok, Akoglu, and Akyol, 2007). High dosages were administered to patient over a ten week period resulting in the elimination of pathological gambling behavior (2007). Quetiapine is typically used for schizophrenia but other off label use in addition to pathological gambling in Parkinson patients include post-traumatic stress disorder, restless legs syndrome, autism, and alcoholism.

#### *Pharmacological Summary*

These reports suggest that pharmacological treatment of pathological gambling may be useful, but the validity of results are limited by extremely small sample sizes, high attrition rates, and minimal follow-up data. Furthermore, researchers' definitions of positive responses to treatment vary, limiting comparisons across studies. There is no agreement as to which drug is most effective in treating gambling behavior since medication is often linked to the co-morbid symptom of the client. The side effects of these drugs are not always included in the studies, nor are their effects on attrition commonly examined. Given the high rates of comorbidity between depression and

pathological gambling, further investigation of anti-depressants' effects on gambling behavior is also needed (Petry & Armentano, 1999).

### ***Minimal Interventions***

The rising cost of healthcare is causing more patients to seek affordable alternative forms of treatment, such as self-help literature. This form of intervention requires fewer resources and does not necessarily involve the traditional role of a therapist to facilitate the progress of the client or group. Minimal interventions range from 'motivational interviewing' to self-help manuals.

Motivational interviewing is an in-depth single session with a professional therapist, who facilitates patient recognition of their problems, and strategizing and planning their own treatment. Miller and Rollnick (1991) present evidence that a motivational interviewing approach may maximize the benefit of a brief intervention and help engage people with addictive behaviors in therapy by overcoming ambivalence and clarifying goals, thus increasing opportunity for positive change. Dickerson and Weeks (1979) found that the use of a self-help manual significantly reduced gambling alone or in conjunction with a single in-depth motivation interview.

Hodgins, Currie, and el-Guebaly (2001, 2004) examined minimal treatments for pathological gambling participants that described outcomes at the end of treatment and at 24 month follow up. Gains were found for the majority of clients who received motivational interviewing or a workbook. Greater improvements were found for participants who received motivational interviewing at the end of treatment and at follow up intervals (2004). The waitlist control group also demonstrated improvement which may have been related to the anticipation of treatment (2004).

### ***Minimalist Summary***

The minimalist approach has favorable outcomes in changing gambling behavior, although research is needed to replicate the described findings in this section (Dickerson and Weeks, 1979; Hodgins, Currie, and el-Guebaly, 2001; 2004; Miller and Rollnick, 1991). This treatment approach is very cost effective to the consumer and for those who are providing the service. Considering the

cost of health care and the possibility the individual might lack insurance coverage, this approach could be a valuable first step in treatment of pathological gambling. If the gambler does not respond favorably to this treatment approach, the treatment professional should offer the client a more intensive intervention.

### ***Multimodal Treatments***

Many different aspects of a gambler's life must be addressed if they choose to receive treatment at an in-patient facility. Pathological gambling can result in serious consequences, such as legal, financial, employment, health, psychological, and psychosocial problems. Since gamblers suffer from several difficult issues, treatment centers often use a multimodal approach to specifically address the complex problems stemming from gambling addiction. In-patient treatment programs usually last 20-30 days and consist of a combination of medical evaluations, classes on addiction, relaxation therapy, assertiveness training, group psychotherapy, marital therapy, Gambler's Anonymous meetings and physical exercise (Griffeths & MacDonald, 1999).

The Gamblers Treatment of St. Vincent's North Richmond Community Health Center found significantly less gambling at termination of treatment (Blackman, Simone & Thoms, 1989). At initiation, 79% of the sample (70 clients) were gambling daily and at termination only 6% reported that they were gambling daily. (1989). Russo and her colleagues (1984) conducted a one-year follow up study of 60 former inpatients who received treatment at the Brecksville Unit of the Cleveland Veterans Administration Medical Center. Fifty-five percent of the respondents reported complete abstinence from gambling after discharge from the treatment facility (Russo, Taber, McCormick & Ramirez 1984).

Most pathological gamblers are not likely to receive services from clinicians experienced with gambling-related problems (Petry & Armentano, 1999). Furthermore, these treatment centers typically treat problem gamblers with programs that are geared towards patients with substance abuse and/or depression, usually leaving the members and the co-facilitators of Gambler's

Anonymous to address the pathology of the gambler's addiction. Additional investigation on gambling specific treatment could provide data on treatment efficacy.

Kuentzel et al. (2003) was able to demonstrate the effects of a minimal intervention (motivational interviewing) combined with pharmacotherapy. A 49 year old clerk received a 12 week treatment regimen with 10 weeks of 20 mg fluoxetine (two week placebo) and four weeks of motivational interviewing. Gambling symptoms were reduced after the end of the treatment and the three month follow up.

A study (Petry et al., 2006) compared different combinations of treatment: Referral to Gamblers Anonymous (GA), GA Referral plus a cognitive behavioral workbook, and a GA referral in combination with 8 sessions of cognitive behavioral treatment. Greater improvement was seen with participants with treatment sessions. However, participants who maintained abstinence in the study either attended GA sessions, completed workbook assignments, or attended counseling sessions with therapist. This study indicates potential efficacy of cognitive behavioral treatment and GA.

### *Multimodal Summary*

Pathological gambling behavior is often expressed in conjunction with anxiety, impulsivity, depression, and substance abuse, which requires a comprehensive approach to eliminating or reducing pathological behavior. Korn and Shaffer (2004) suggest that pathological gambling behavior is more a *syndrome* since it most often presents with symptoms from other disorder categories, e.g., substance abuse, depression, and anxiety. Multimodal appears to be the preferred treatment method for some state programs (Stinchfield, 2001; Moore & Marotta, 2004). Oregon, which has stabilized the incidence of pathological gambling within the last decade, has adopted a multimodal approach that considers psychosocial and cultural needs of each client (Moore & Marotta, 2004). The multimodal approach may help reduce the limitations of a singular therapeutic strategy.

### ***General Summary***

The study of pathological gambling is in its beginning phase, and more data is needed on its treatment modalities. Studies of the effectiveness of treating gambling addiction typically have relatively small homogenous sample sizes. The treatment approaches were rarely compared to control groups. In those cases, researchers would assign half of the participants to a waiting list and the remaining participants received treatment. However, the researchers could not present empirical evidence to validate their results because many of the participants dropped out of the control group. Lack of attrition in the intervention studies is common in treatment groups as well.

### **RECOMMENDATIONS**

In 1999 The National Gambling Impact Study Commission (NGISC) conducted a study on gambling in the United States. They issued a report based on their findings containing recommendations that addressed many aspects of gambling.

The NGISC suggested that the regulation of gambling would best be handled on a state level (except for tribal and Internet gambling). States should impose strict guidelines regarding campaign contributions from those who have applied for the operation of gambling facilities. Because of the difficulties in regulating and enforcing any proposed guidelines, Internet gambling was recommended to be prohibited altogether.

Regarding pathological gambling, the NGISC suggested that states should also be responsible for training casino staff and management in recognizing signs of problem gambling. Service should be refused to customers who exhibit problem gambling behavior, and/or written information should be provided (confidentially) on state-approved treatment programs or self-help groups.

The commission also found that gambling facilities need to be involved in addressing problem gambling. For instance, warnings about the risks and odds of gambling should be

prominently posted, and policies prohibiting underage gambling should be strictly enforced. Additionally, credit card cash advance machines should be banned from the premises. Finally, the commission suggests that problem gambling needs to be approached from a broad viewpoint. In addition to states and gambling facilities taking action, it is recommended that health plans provide for the treatment of problem gambling and that Congress should encourage continued research on problem and pathological gambling. Although not all of these recommendations are applicable to the State of Georgia, they are all valuable to consider. Strict enforcement of underage gambling, health plans that provide for treatment of problem gambling and continued research on problem and pathological gambling are the most salient. To date, the United States has experienced an increase in pathological gambling that has been linked to the increased access of legal gambling. Durand Jacobs, PhD (Frieberg, 1995) has said that pathological gambling is the fastest growing addiction among youth and adults. In order to prevent it from reaching epidemic proportions (especially in Georgia) it is necessary to develop not only sound treatments, but also preventative measures.

## **INSTRUMENTS**

Researchers have been able to use different measures to identify gambling functioning. The most frequently mentioned instrument among all of the studies is the South Oaks Gambling Screen (SOGS). The majority of gambling instruments found in the reviewed treatment studies are adaptations of instruments for addictive or impulse disorders. A list of the reported instruments can be found in the Appendix.

## **DISCUSSION**

The research to date on the problem of pathological gambling provides hope for those who continue to struggle with problem gambling. Gambling is a relatively new field of research so more data are needed to assess the long term outcomes of these treatment modalities. Most of the treatment studies are plagued with the problem of high attrition rates, low sample sizes, selection

bias, lack of control/ comparison groups, and homogenous samples. It is often difficult to determine if other variables are influencing outcomes without access to data on incentives, involvement in other types of treatment (e.g. 12 steps), and reasons why people drop out of studies (Najavits, 2003). Alternative treatment approaches like meditation has been used in substance abuse treatment (Plasse, 2001; Pruett, Nishimora, and Priest, 2007), yet, alternative treatment research for gambling is lacking. Most disconcerting is the lack of focus on women, minorities, and people in lower socioeconomic groups, which comprise a significant proportion of pathological gamblers (Paternal, A. & Fleming, M., 1999; Volberg & Boles, 1995; Lesieur & Blume, 1991; Raylu & Oei, 2002), but historically have the least access to resources. In order to make this treatment findings generalizable, research must be done on samples that are more representative (Daughters, et al., 2003). Gamblers are a difficult population to study, as are most addiction populations , but in order to make sound recommendations of effective treatments, research in this area needs to be more rigorous and empirically sound (2003).

Many of the reviewed studies mention abstinence as a goal of treatment alongside controlled gambling. In the review of treatments such as cognitive and cognitive-behavioral, researchers measured treatment efficacy by operationalization of reduced controlled gambling. Research also indicates that both abstinent gamblers and controlled gamblers show significant reductions in indicators of pathological behaviors such as state and trait anxiety, neuroticism, psychoticism and depression (Blaszczynski, McConaghy, & Frankova, 1991). Blaszczynski et al. (1991) indicated that it its possible that controlled gamblers are more psychologically adjusted and can maintain control over their behavior, whereas abstinent gamblers lack sufficient control over their behavior. The standards for operationalization of controlled or reduced gambling as a viable outcome of treatment should be developed and studied against the option of abstinence.

As noted earlier in document, pathological gambling often evidences itself with several other disorders common in inpatient psychological institutions, such as depression, anxiety disorder, and

substance abuse. Implicit in these findings is a call for the standardized use of a gambling instrument to ensure that assessment is uniform and individuals suffering from problem or pathological gambling can receive assistance. Given these high comorbidity rates, intake personnel should be adequately trained to assess and treat pathological gambling. It has been documented that additional training is specifically needed in Georgia (Emshoff, House, & Broomfield, 2000). Training should include information on cognitive behavioral treatments, comprehensive multimodal treatments (motivational interviewing and MET), and treatments that should be used in supplemental fashion such as GA, group therapy, and pharmacological interventions. Minimal interventions should be presented as a way to tailor treatment of populations who have higher attrition rates or an intervention for those groups who are at risk for problem gambling, e.g., college students. This training also should involve the identification of factors that could affect treatment outcomes. A brief description of factors that influence gambling treatment outcomes can be found below.

#### *Treatment Failures*

Treatment outcomes are worthy of study due to the potential benefits for both clients and treatment staff (Shaffer, LaBrie, LaPlante, Kidman, and Donato, 2005). Treatment failures are especially noteworthy because they could indicate that a therapeutic strategy is harmful or provide data on the appropriate use of a particular treatment. Learning about treatment failures is as important as learning about treatment success (Tonneato, 2002). These data can assist therapeutic staff become more effective in their work. Data are also needed on if treatment failures differ across special population groups as found among people with a history of gambling treatment who frequently experience higher treatment failure (Daughters, Lejuez, , Lesieur, Strong & Zvolensky, 2003).

#### *Gambling Treatment History*

Another factor to be considered is whether the presenting client has a history of treatment. Gamblers with a longer history of pathological gambling experience more treatment failure

(Daughters, Lejuez, , Lesieur, Strong & Zvolensky, 2003). History of earlier treatment is often collected at intake but the extent that these data are utilized remains unclear. The use of these data could decrease recidivism and attrition rates at treatment facilities.

### *Type of Gambler*

A thorough assessment of the origin and factors contributing to pathological gambling is critical before treatment begins (George & Murali, 2005). Factors that influence a type of pathological gambling should necessitate a particular type of treatment. Pharmacotherapy agents should be applied based on the type of gambler and any comorbidities. Impulse pathological gamblers may benefit from a short term combination of CB and pharmacotherapy. Escape pathological gamblers may require CB treatment for other psychological disorders (e.g. depression or anxiety) and could further tackle this emotional avoidance by also including GA in their treatment regimen.

Gender differences also seen within pathological gamblers. Higher rates exist for pathological gambling among men ( Volberg, 1996). Walker, Cournega,& Deng, 2007) attribute this difference to males being more driven by the behavior of influential males or tendency to socialized to be adventurous. Women are more likely to have other comorbid conditions such as problem drinking. Women are also more likely to use an outpatient program rather than residential treatment (Westphal, 2003). This preference for outpatient programs may be related to their role as primary caregivers.

### ***Efficacy of Treatment Approaches***

The most common treatment interventions aimed at pathological gamblers are 1) Behavioral Treatments; 2) Cognitive; 3) Cognitive Behavioral Treatments; 4) Gambler's Anonymous; 5) Group Therapy, 6) Pharmacotherapies; 7) Minimal Interventions; and 9) Multimodal treatments. In addition, efficacy is rated on a scale of 1 to 5, with 1 being 'Poor' and 5 being 'Excellent' (Table 2). It should be noted that no treatment modality received a rating of 'Excellent'.

***Table 2: Efficacy of Treatment Approaches***

<b>Treatment Approaches</b>	<b>Ratings* Scale: 1 - 5</b>	<b>Limitations</b>	<b>Improvements/ Implications of Research</b>
Behavioral	3	Found effective in short-term cessation, no long-term efficacy shown.	Implications for combination of treatments and outcome of controlled gambling (reduced gambling) **
Cognitive-Behavioral	4	More data needed on those who withdrew from the study.	Controlled gambling as a viable outcome as well as abstinence. Relapse prevention component has positive implications and can be considered in other treatment modalities. Minimal exposure of these treatments shows promise **
Multimodal	4	Few long term studies conducted, lack of control groups	Controlled gambling as a viable outcome as well as abstinence. Popular form of treatment in public institutions. Need for more longitudinal research **
Gambler's Anonymous	3	Small samples, lack of control group, self-reported outcomes	Seen as a viable treatment in conjunction with other types of treatment Only abstinence defined as effective **
Cognitive	3	No operational definition of abstinence, lack of control groups, small samples. No long term efficacy shown	Controlled gambling seen as a viable outcome as well abstinence Need for larger samples and longitudinal studies**
Minimal Interventions	3	Small sample, no control group, no operational definition of abstinence	Viewed as a possible cost effective treatment. Appears promising with newer studies. More research needed with larger samples and use of control group **
Pharmacotherapies	2	Small samples, no long term evidence available. More data needed on the type of gambler (action or escape) and presenting co-morbid conditions.	Controlled gambling seen as a viable outcome, more research needed with larger samples. **

The report's rating table indicates that there is no ideal treatment. By understanding the limitations of each of these therapeutic styles, practitioners may be able to increase treatment successes. Additionally, knowledge about the factors that influence treatment outcomes may

influence therapeutic staff to design programs or contingency management measures that may reduce the potential for relapse and increase probability of completing treatment. Milton (2006) suggests borrowing from other behavioral addiction treatment models. Using reinforcement models such as parking spaces, water bottles, or other clinic privileges may inspire unresolved gamblers to complete and maintain abstinence or control their gambling. Many of the treatment approaches could considerably improve abstinence or reduction in pathological gambling behavior if combined with other efficacious therapies. Referrals to self help groups like GA should also include a linkage into a long term abstinent GA member (Petry, 2002). The use of family systems or community support may prevent the escalation of depressive symptoms as seen in Echeburua and Fernandez-Montalvo's 2002 study. These findings also have implications for the training of general medical personnel, such as physicians, and physicians' assistants to recognize health implications stemming from pathological gambling. This can even be expanded to include counselors in public health centers, school counselors and mental health paraprofessionals in both inpatient and private practices.

In states where gambling is legal, there should be strict controls set up to limit adolescent access to gambling practices. Studies have shown that the age of onset of gambling behavior is significantly lower for pathological gamblers than for those who are non-problem gamblers (Volberg, 1995). This implies that the earlier a person begins gambling, the more likely they are to become pathological gamblers. A study of young Americans and Canadians found that between five to eight percent of Americans and Canadians under eighteen have a serious gambling problem compared to 1-3 % of adults (Willenz, 1998). Furthermore, adolescents are also least likely to determine that they engage in problem gambling (Ladouceur, 2004). The alarming prevalence of problem gambling among adolescents and its implications on future pathology and costs to government warrant tighter restrictions on under-age gambling. Vulnerable populations such as the

young (2005) or those with low socioeconomic status should be prioritized for prevention and treatment since they are overly represented among compulsive gamblers (Volberg, 1996).

## CONCLUSION

More data are needed for gambling treatment outcomes since this field of research is relatively new (Potenza, 2006). Despite the challenges of limited data, important findings have emerged. Cognitive behavioral treatment studies have more generalizable outcomes, long term effects, and are frequently supported among gambling treatment researchers (Korn & Shaeffer, 2004; Ladouceur, 1994; Mason, 2005; Petry et.al, 2006; Sampl, 2006; Sharpe, 2002; Sylvain, Ladouceur, and Boisvert, 1997; Toneatto & Ladouceur, 1990; and Toneatto & Ladouceur, 2003). In practice, many publicly funded gambling programs use a multimodal approach to more fully address the comprehensive needs of the presenting client (Korn & Shaeffer, 2004; Stinchfield & Winters, 1999; 2001). The predominant therapy in multimodal should include cognitive behavioral based on the strengths discuss in literature (Korn & Shaeffer, 2004; Ladouceur, 1994; Mason, 2005; Petry et.al, 2006; Sampl, 2006; Sharpe, 2002; Sylvain, Ladouceur, and Boisvert, 1997; Toneatto & Ladouceur, 1990; and Toneatto & Ladouceur, 2003). More data should be generated before applying minimal therapeutic approaches for pathological gambling clients. However, minimal interventions may provide suitable alternatives to individuals who may only experience problem gambling and could reduce the likelihood of becoming a pathological gambler. Pharmacological interventions should also be considered if the client is dually diagnosed with other psychological disorders (Dannon, Lowengrub, Gonopolski, Musin & Kotler, 2005; Grant & Grosz, 2004). GA and group therapies are widely used and should be available for use for those individuals who may not be comfortable with the traditional clinical setting.

There are many similar characteristics among gamblers but each individual has unique needs that must be assessed before prescribing a treatment. It is our hope that these collected data provide

policy makers and practitioners with a variety of options to reduce the incidence of pathological gambling within the state of Georgia.

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*Appendix: Pathological Gambling Assessment Instruments*

*Used in 2001-2007 Studies*

Yale Brown Obsessive Compulsive Scale modified for pathological gambling
Structured Clinical Interview for the DSM IV-Axis I and II Modules
Obsessive Compulsive Drinking Scale Modified for Pathological Gambling
Gambling Symptom Assessment Scale
Criteria for Control of Pathological Gambling Questionnaire (CCPGQ)
Visual Analogue Scales assessing gambling frequency, severity, amount, and improvement
Sheehan Disability Scale
Herbert Louis Gambling Index
Ludo-Cage Test
Modified Obsessive Compulsive Drinking Scale
Gambling Severity Index
Addiction Severity Index
Modified Timeline Followback
Inventory of Drinking Situations Questionnaire
Iowa Gambling Task
Canadian Problem Gambling Index
Gambling Attitudes Scale
Gambling Attitudes and Belief Scale
Gambler's Belief Questionnaire
Gambler's Self-Efficacy Questionnaire
Gambler Metacognition Questionnaire
Massachusetts Gambling Screen
<i>Psychopathological Indicators Associated with Gambling</i>
Inadaptation Scale
State Trait Anxiety Inventory
Beck Depression Inventory
Hamilton Rating Scale for Anxiety
Hamilton Depression Rating Scale
Clinical Global Improvement-Impressions Scale
Profile of Mood States
Brief Symptom Inventory
Service Utilization Form
Beck Anxiety Inventory
Readiness to Change Questionnaire
Informational Biases Scale
Composite International Diagnostic Interview

Although gambling treatment dates several decades, few empirically supported treatments for pathological gambling have been developed. This critical review includes only controlled treatment studies. The primary inclusion criterion was randomization of participants to an experimental group and to at least 1 control group. Eleven studies were identified and evaluated. Key findings showed that cognitive-behavioral studies received the best empirical support. Recommendations to improve gambling treatment research include better validated psychometric measures, inclusion of process measures, better