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Exposure to a Computer-hosted Cognitive-Behavioral Intervention for Pathological Gambling: Impact on Gambling Symptomatology and Disclosure of Gambling Participation in Required Counseling for Adults Receiving Opiate Substitution Therapy for Heroin Addiction

by

Andrew E. Cameron, M.S.

Dissertation

Submitted to the Department of Psychology

Eastern Michigan University

in partial fulfillment of the requirements

for the degree of

DOCTOR OF PHILOSOPHY

in

Clinical Psychology

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June 8, 2009
Ypsilanti, Michigan
Dedication

I would like to dedicate this paper to my family, for their support and encouragement throughout my academic career. I wouldn’t be where I am, or who I am, without them.
Acknowledgements

First and foremost, I would like to thank Dr. Karen Saules for her tireless support over the past five years. She not only kept me on track academically but, more importantly, set an example for the type of psychologist I hope to be someday. I would also like to thank my committee members, Drs. Koch, Gordon, and Ledgerwood, for their guidance with this project, especially Dr. Ledgerwood who provided daily support at the site and helped me through several potential setbacks. Thank you to Ashley Wiedemann, Lorrianne Kuykendall, and Amy Pilotte for their help with data collection and entry. Thanks also to the Blue Cross and Blue Shield of Michigan Foundation for their financial support of this project and others like it. Finally, I would like to thank Shannon for her patience while sharing attention with this project for the past two years.
Abstract

This study examined the prevalence of pathological gambling (PG) in an urban methadone-maintenance population ($n=125$) using the South Oaks Gambling Screen (SOGS). In addition, those meeting criteria for PG, and other inclusion criteria ($n=42$), were randomly assigned to one of two 6-week treatment groups and given the opportunity to utilize a computer-hosted cognitive-behavioral treatment program for PG. Seventeen participants used the treatment program, but no effect was found on their gambling behavior as measured by the SOGS and Timeline Follow-back procedure. Predictive factors of PG severity and treatment response were examined. Overall, 47.1% of those sampled met criteria for probable PG (SOGS 5+) and 12.6% met criteria for potential PG (SOGS 3-4), which is higher than rates found at the same site in an earlier study (Ledgerwood & Downey, 2002; 17.7% 5+, 11.3% 3-4). Possible explanations for this high rate, such as overreporting of symptoms or the development of new casinos nearby, are outlined, as well as their potential effect upon treatment response and predictive factor data. The results of this study suggest that the use of screening data to calculate prevalence of a disorder may be problematic, and a methadone-maintenance population is not ideal for the computer-hosted intervention in its current form.
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Statement of the Problem

The study of Pathological Gambling (PG) is in a budding state and many important areas are still largely unexplored. As such, assessment and treatment of PG is constantly evolving. Several treatment options have been developed, but some individuals might not access them due to proximity, expense, or stigma. This inaccessibility is evidenced by low rates of treatment-seeking among adults who meet criteria for PG (Slutske, 2006). Therefore, currently available treatment options may be unacceptable to the vast majority of Pathological Gamblers, and additional studies of alternative treatment options are greatly needed in the PG literature. Specifically, interventions that target underserved or vulnerable populations are of particular importance.

Substance abusers are especially vulnerable to additional impulse-control disorders and present an important population of study (Zuckerman, 1999; Slutske et al., 2000). Given that adults who abuse substances are likely to already be suffering the negative consequences of their primary addiction, gambling at a pathological level further compounds the potential for additional negative sequelae. However, addressing their substance abuse disorder requires a great deal of time and attention, and additional problems, like gambling, may be overlooked. This phenomenon is particularly apparent for opioid dependent individuals receiving substitution maintenance treatment. Adults in this population are far more likely to gamble at a pathological level than adults in the general adult population (Ledgerwood & Downey, 2002), and the counseling they receive may not produce significant effects upon their drug abuse (Rounsaville & Kleber, 1985; Maddux, Desmond, & Vogtsberger, 1995), much less any additional problems.
Granted, counseling as an adjunct to substitution maintenance treatment can be very effective (Ball & Ross, 1991), but its focus is primarily directed towards substance abuse and not additional problems. In addition, substance abuse treatment, overall, is more effective than treatment for the majority of other psychological disorders (Hubbard et al., 1987; Mattick & Hall, 1996; O’Brien & McLellan, 1996), but it is not generally designed to address additional disorders. Therefore, some adults in this population may benefit from an additional treatment modality so that maximum attention can be applied to both substance and behavioral disorders. A minimal-contact intervention, such as a computer-hosted protocol, might prove to be a viable adjunct to substance abuse treatment by raising awareness and providing some level of treatment for individuals who otherwise would not address their problematic gambling behaviors.

Literature Review

*Conceptualizations and Definitions of PG*

Gambling is a common activity in many cultures and countries of the world, and most gamblers do not experience undesirable consequences of gambling participation (Shaffer, Hall, & Vander Bilt, 1999). However, some gamblers develop psychosocial problems because of their gambling as manifested by financial, relational, and legal troubles. When an individual’s gambling behavior significantly impairs his or her daily functioning, he or she is considered a pathological gambler. PG is a mental disorder first recognized by the American Psychiatric Association in the Diagnostic and Statistical Manual-Third Edition (DSM-III; APA, 1980), and its criteria have been revised in subsequent publications (APA, 1994; 2000).
The Diagnostic and Statistical Manual-Fourth Edition-Text-Revised (DSM-IV-TR; APA, 2000) currently classifies PG as an Impulse-Control Disorder, and individuals meeting criteria for PG are described as feeling tension or arousal before gambling and relief or pleasure afterwards. PG is also considered by some to be an addictive behavior operating in a similar manner to substance abuse disorders (Dickerson, 1989; Grant & Potenza, 2002; Ladouceur, 2004; Petry, 2006). Petry (2006) suggests that PG has not been classified as an addiction in any version of the DSM (APA, 1980, 1994, 2000) because it is a disorder of behavioral, rather than pharmacological, excess. Because of this, she argues, other potentially excessive behaviors such as sex, shopping, Internet use, and eating are not classified as addictions, despite operating in the same manner as a pharmacological addition. Colloquially, PG is often referred to as an addiction, despite its official classification as an impulse-control disorder. Regardless of the conceptualization, PG is assessed and treated as a disorder of behavioral excess, and the etiological controversy generally affects the gambler only when undergoing treatment through Gambler’s Anonymous (GA). As will be discussed later, GA views PG as an addictive disease that can only be controlled through complete abstinence. Other modes of treatment might view PG as a disorder of impulse-control that can be controlled through a reduction in participation without complete abstinence. These other modalities, as will be discussed later, seek to control the conditions that allow gambling to get out of control by altering cognitions, behaviors, or attitudes that perpetuate the excessive behavior. In theory, healthier thoughts and behaviors prevent gambling from reaching a level that interferes with acceptable psychosocial functioning. However, therapy differs by the
individual, and abstinence might be the ultimate goal for any particular client, regardless of the therapist’s conceptualization of PG.

**DSM-IV-TR Definition and Criteria**

As discussed earlier, the DSM-IV-TR classifies PG as an impulse control disorder characterized by recurrent and persistent maladaptive gambling behavior. The **DSM-IV-TR** criteria for PG are delineated as follows (APA, 2000):

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

**B.** The gambling behavior is not better accounted for by a Manic Episode.

Stinchfield, Govoni, and Firsch (2005) established the reliability, validity, and accuracy of the DSM-IV-TR criteria using two samples of Canadian gamblers in Windsor, Ontario. Reliability was established using factor analysis, which revealed that all items had high factor loadings, ranging between .60 and .87. Internal consistency was
reported to be excellent, with a Cronbach’s coefficient alpha of .92. Convergent validity was generally high, as determined by convergence with indicators of problem gambling severity (gambling frequency, largest amount of money spent in one day, South Oaks Gambling Screen ([SOGS, Lesieur & Blume, 1987]) score, and number of days spent gambling in the past 30 days). Discriminant validity was also satisfactory, exhibited by low correlations with variables unrelated to gambling (gender, age, level of education). Using a Discriminant Function Analysis, classification was also reported to be satisfactory.

PG is currently diagnosed dichotomously, and specifiers for severity are not used (APA, 2000). Though some individual psychologists conceptualize mild, moderate, and severe PG, the DSM-IV-TR diagnoses clients as either meeting criteria for PG or not (APA, 2000; Strong, et al., 2003; Petry, 2003a). However, degrees of gambling severity can be assigned using the South Oaks Gambling Screen (SOGS; Lesieur & Blume, 1987). Scores of 0-2, 3-4, and 5+ indicate no problematic gambling, potential pathological gambling, and probable pathological gambling, respectively. These are also called levels 1, 2, and 3 gambling, respectively (Petry, 2005a). However, the SOGS is not intended for use as a diagnostic tool, and any formal diagnosis of PG is dichotomous and based upon DSM-IV-TR (APA, 2000) criteria. Additional methods of assessment and diagnosis of PG will be discussed later.

**Prevalence and Incidence of PG**

Studies estimate the current prevalence of PG to range between .4% and 3.4% in the general U.S. adult population, with roughly 66% of those affected being male (Shaffer, Hall, & Vander Bilt, 1999; APA, 2000). Winters, Bengston, Dorr, and
Stinchfield (1998) found a similar prevalence rate among college students but other studies in high-risk areas found prevalence rates as high as 11% (Oster & Knapp, 2001). The sex ratio among college students with PG is also similar to that of the general adult population (Winters et al., 1998). Discrepancies in prevalence between populations depend upon many factors, including subtle differences in age, race, sex, income level, and availability of gambling opportunities. The assessment instrument used to determine prevalence could also affect the accuracy of the rate that is obtained, since different measures examine different behaviors, symptoms, and consequences.

*Etiology and Course*

There are many different etiological theories of PG, including behavioral, cognitive, cognitive-behavioral, and psychodynamic. From a behavioral standpoint, gambling is an intermittently reinforced behavior wherein winning reinforces and maintains the problematic behavior (Anderson & Brown, 1984; Cote, et al., 2003; Weatherly, Sauter, & King, 2004; Parke & Griffiths, 2004). According to Ferster and Skinner (1957), intermittently reinforced behaviors are extremely difficult to extinguish and become stronger over time. From a cognitive standpoint, PG develops because of distorted beliefs and attitudes about control over luck, chance, and prediction of gambling outcomes (Rosenthal, 1986; Ladouceur & Walker, 1996). A combination of learning history and cognitive distortions forms the basis of the cognitive-behavioral theory (CBT) of PG etiology (Sharpe & Tarrier, 1993). Before any of these theories, psychoanalysts hypothesized that problematic gambling behaviors were caused by an unconscious desire to lose (Bergler, 1958), a search for love and approval that was denied them as children (Galdston, 1960), and a defense mechanism against helplessness and depression.
stemming from early loss (Boyd & Bolen, 1970). This is not a comprehensive review of all psychoanalytic theories of PG etiology, but rather a brief overview to demonstrate basic theory. Each of these four different etiological theories is important for the treatment of PG, though the CBT model appears to be the focus of the majority of recent treatment-outcome research.

Non-problematic gambling behavior typically begins in childhood or early adolescence but PG is more common in older adults, particularly men (Shaffer et al., 1999; APA, 2000). Left untreated, the natural course of PG lasts, on average, 6.2 years and can consume 77% of take-home pay (Schwarz & Linder, 1990). Natural recovery from untreated PG has been documented to occur in young gamblers (Slutske, Jackson, & Sher, 2003), but the course of PG is generally considered to be chronic, continuous, episodic, and unremitting (Hollander, Buchalter, & DeCaria, 2000).

Comorbidity

An important feature of PG is its high rate of comorbidity with other psychiatric conditions, particularly substance use disorders. Substance abuse problems are ubiquitous among pathological gamblers and have been described as the “rule rather than the exception” (Kaminer & Haberek, 2004, p. 1326). Shaffer, Hall, and Vander Bilt (1999) reported the lifetime prevalence of pathological gambling in substance abusers to be 29%, and alcohol, tobacco, and other illicit drugs have all been observed as common substances of abuse among pathological gamblers. Petry and Onken (2002) found that roughly two thirds of treatment-seeking pathological gamblers smoked cigarettes daily and that cigarette use was associated with increased gambling severity and risk for comorbid psychiatric problems. In addition, in a review of the National Epidemiological
Study of Alcohol and Related Conditions (NESARC) data, Petry, Stinson, and Grant (2005) found 60.4% of pathological gamblers met criteria for nicotine dependence.

Alcohol abuse is also very common among pathological gamblers. Welte, Barnes, and Tidwell (2004) found that adults who drank alcohol while gambling were significantly more likely to develop PG than those who did not consume alcohol. In addition, Dannon, Lowengrub, Shalgi, et al. (2004) found that 21% of pathological gamblers had comorbid alcohol abuse problems. Petry et al. (2005) reported that 73.2% of adults with PG also abused alcohol, and Ibanez et al. (2001) found 33.3% of adults with PG abused alcohol. Though these findings are slightly divergent, all studies found that alcohol abuse is more prevalent among pathological gamblers than among adults in the general population (APA, 2000).

Abuse of illicit substances is also more common among adults with PG than among adults in the general population. Petry et al. (2005) found that 38.1% of pathological gamblers met criteria for abuse of illicit drugs, and Ladd and Petry (2003) found that 31% of adults with PG had a history of treatment for substance abuse. History of substance abuse was found to be associated with increased severity of gambling behavior and psychiatric and occupational problems (Ladd & Petry, 2003).

Conversely, substance abusers are more likely to gamble at a pathological level than non-substance abusing peers. Ledgerwood and Downey (2002) found the prevalence of PG in a methadone maintenance program to be 17.7%, with an additional 11.3% gambling at a subclinical problematic level. Lesieur et al. (1986) and Spunt et al. (1995) found similar rates of PG in treatment-seeking adults who were addicted to opiates (18% and 16%, respectively). Adults who abuse cocaine are also more likely to meet criteria
for PG than non-abusing adults. Lesieur et al. (1986) and Steinberg et al. (1992) reported the prevalence of PG in adults addicted to cocaine at 14% and 15%, respectively. Similar findings for alcohol abuse (13%; Elia & Jacobs, 1993) and marijuana abuse (24%; Toneatto & Brennan, 2002) are reported in the literature.

While the co-occurrence of substance abuse and PG is fairly well documented, less is known about the possible shared etiological factors for these dual diagnoses. Specifically, which disorder precedes the other is a relatively unanswered question. Several studies have examined this relationship and found conflicting results based upon the substance studied. For example, Cho et al. (2002) found that alcohol abuse preceded problematic gambling behaviors in most men diagnosed as alcohol abusing or alcohol dependent in Korea. However, Hall et al. (2000) found that problematic gambling behavior preceded the development of cocaine dependence in the majority of a cocaine-dependent adult sample. Regardless of which disorder precedes the other, the presence of dual diagnoses creates an important consideration for treatment that has been rarely addressed in the PG literature. In addition, given that comorbid substance abuse among adults with PG is more common than not, it is especially important to examine how dually diagnosed adults respond to treatment.

In addition to substance abuse, other axis I disorders co-occur with PG at a rate that far exceeds PG rates among non-gambling peers. As with substance abuse comorbidity, presence of other comorbid axis I disorders is associated with increased severity of PG. Gamblers with a comorbid disorder have significantly higher scores on the South Oaks Gambling Screen (Lesieur & Blume, 1987), and severity increased
linearly as the number of comorbid diagnoses increased. In particular, mood and anxiety disorders are particularly common co-occurring disorders with PG.

Mood Disorders

Depression is a very common comorbid diagnosis with PG, and it occurs at a higher rate among gamblers than among adults in the general population (Ibanez et al., 2001; APA, 2000). Ibanez et al. (2001) found 15.9% of participants with PG had a current comorbid mood disorder, and Grant and Kim (2001) found 33.6% of adults with PG to have a current mood disorder, including 29% with Major Depressive Disorder. Bergh and Kuhlhorn (1994) studied the negative consequences of PG and found that 40% of adults with PG suffered from depression. In an examination of data from the National Epidemiological Study on Alcohol and Related Conditions (NESARC), Grant, Hasin, and Stinson, et al. (2005) reported a comparable rate of mood disorders (49.6%) in adults with PG. These rates are much higher than the 4.8% to 8.6% estimated prevalence of Major Depressive Disorder in primary care outpatient settings and the 2.1% to 3.7% estimated prevalence rate of dysthymic disorder as reported in the DSM-IV-TR (APA, 2000).

Anxiety Disorders

Although not as prevalent as mood disorders, anxiety disorders are also relatively common comorbid diagnoses among pathological gamblers. Ibanez et al. (2001) reported that 4.3% of gamblers have a comorbid anxiety disorder and Grant and Kim (2001) found 9.1% of a sample of pathological gamblers had an anxiety disorder; 5.3% with Panic Disorder, 1.5% with Generalized Anxiety Disorder and 2.3% with Social Phobia. However, these numbers are much lower than the 41.3% of pathological gamblers with a
current anxiety disorder as reported in the NESARC study (Grant et al., 2005). It is unclear why there is such a large discrepancy, but the much larger sample size of the NESARC study suggests that it may provide the most reliable results of the comorbidity studies. A replication is needed, however, to confirm its results.

**Genetic and Biological Vulnerabilities**

A particularly important feature of PG is that certain populations are more susceptible to developing the disorder than others. As discussed earlier, the prevalence of PG among substance-abusing adults is significantly higher than in the general adult population and this phenomenon has biological and environmental theoretical causes ranging from dysfunctional neurotransmitter receptors to the perceived necessity of gambling to pay for illicit drugs. These vulnerabilities are rarely addressed in the PG literature but form an important underpinning to the etiology of PG.

Internally, certain neurotransmitters have been implicated as possible contributors to the development of the PG. Specifically, irregular levels of serotonin, dopamine, and norepinephrine have been found in pathological gamblers at significantly higher rates than in the general population. These neurotransmitters have been linked to initiation and inhibition of behavior (serotonin; Soubrie, 1986), arousal (norepinephrine; Siever, 1987), and response to reward and reinforcement (dopamine; Koob, 1992), which are all important factors in the development and maintenance of PG. Petry (2005b) very thoroughly outlined the neurobiological underpinnings of PG, of which the most salient points were summarized here.

Serotonin receptor sites are located in many areas of the brain and serve different functions depending upon their location. For example, serotonin receptor sites located in
the limbic system affect mood and are the target of selective-serotonin reuptake inhibitor (SSRI) medications. Receptor sites in the hypothalamus are associated with more basic behaviors such as sleep, appetite, and sexual behavior (Stahl, 2000). Several studies have found low levels of serotonin in gamblers, as compared to non-gambling controls.

Certain serotonin receptor sites are related to the release of prolactin, a protein hormone, which is measurable in the blood. Moreno, Saiz-Ruiz, and Lopez-Ibor (1991) found low levels of prolactin in gamblers, which suggests a hypoactive serotonin system. In addition, Decaria et al. (1997) found that gambling severity correlated with changes in prolactin levels, suggesting that dysregulation of serotonin may underlie PG severity. However, presence of depression was not included as a variable in these studies, meaning that low serotonin levels could be attributed to comorbid depression, which, as noted earlier, is commonly comorbid with PG.

Norepinephrine mediates arousal and is activated in the presence of novel or aversive stimuli (Siever, 1987), and norepinephrine receptors are generally concentrated in regions of the brain that mediate arousal, mood, and impulse control. As such, norepinephrine is a likely target for being related to gambling behavior. Roy et al., (1988) found higher levels of urinary norepinephrine among pathological gamblers as compared to non-gambling controls. That study also found lower levels of plasma 3-methoxy-4-hydroxyphenyglycol (MHPG), which is an indicator of norepinephrine function. Again, it is unclear if these findings are affected by disorders comorbid with PG, so the effect of neurotransmitters is inconclusive.

Dopamine is associated with response to reward and reinforcement and has been observed as a factor in most drug-use disorders (Koob, 1992). Researchers who
conceptualized PG as a non-pharmacological addiction have examined whether dopamine acts the same way with PG as with other addictions, but results have been mixed. Roy, Adinoff, et al. (1988) found no difference in dopamine levels between gamblers and controls. However, Bergh et al. (1997) found decreased dopamine and increased dopamine metabolites compared to controls. In related work, Seedat, Kesler, Niehaus, and Stein (2000) found that adults with Parkinson’s disease who were given dopamine agonist therapy began to gamble at a pathological level. When administered risperdone, a dopamine antagonist, gambling and other hypomanic symptoms disappeared. Molina et al. (2000) found a similar phenomenon among 12 Spanish patients given a dopamine agonist.

These studies of neurotransmitters and PG are far from conclusive, but they introduce the important concept of a biological component to the etiology of PG. In addition, a similar pattern of neurotransmitter irregularities has been found in adults with other addictive or impulse-control disorders (Comings et al., 2001). This study found similar abnormalities in PG and the other disorders, which suggests a shared vulnerability. However, it remains unclear if irregular neurotransmitter function is an underpinning or consequence of PG and related conditions. However, if there is a biological vulnerability to PG or addictive disorders, then it becomes increasingly important that individuals suffering from one disorder avoid other potentially addictive substances or behaviors due to their elevated vulnerability.

Other Factors Associated with PG

In addition to comorbid Axis I disorders, there are several other important factors associated with the etiology of PG, and examination of these factors and their effects on
gambling behavior helps to solidify a thorough understanding of the pathological gambler. Socio-economic status (SES), culture, age, income, and proximity to gambling opportunities have significant effects on the psychopathology of PG, including prevalence and severity. 

Socio-Economic Status (SES)

SES has not been conclusively tied to the development or severity of PG, but when a gambler has fewer financial resources, there is a greater danger of other problematic sequelae. Any problem associated with finances (credit problems, inability to pay bills, bankruptcy) is compounded for those of low SES, simply because they have fewer financial resources. Gambling may also be more attractive to someone of low SES because of the perception that winning may alleviate financial problems. However, gambling may be just as dangerous to someone of high SES because a large loss can cause immediate financial ruin. Welte, Barnes, Wieczorek, and Tidwell (2004) examined demographic patterns of pathological gamblers and found no connection between SES and frequency of gambling, but they found that people in the lowest SES group were five times more likely to meet criteria for PG than those in the highest SES group. This finding suggests that people of lower SES may gamble with the same frequency as peers in a higher SES, but they are significantly more vulnerable to developing PG, presumably by virtue of their limited economic means. In addition, Orford et al. (2003) found that gamblers of low SES wagered a significantly greater percentage of their annual income than gamblers of higher SES. Further exploration would be informative, but the available literature indicates that gamblers of low SES are more vulnerable for developing PG than gamblers of higher SES.
Cultural Variables

Very few studies have examined the effect of cultural variables on gambling behavior, which is unfortunate given that many different cultures gamble, and view gambling, in different ways. Wardman, el-Guebaly, and Hodgins (2001) reviewed prevalence studies of PG among Native American adults and found that PG was 2.2 to 15.69 times more prevalent in this population than Caucasians living in the same areas. Volberg and Abbot (1997) analyzed prevalence rates of PG among Aboriginal and Caucasian groups in New Zealand and South Dakota (USA) and also found elevated rates among Aboriginal adults. A summary of their findings is reported in Table 1.

Table 1. Current and Lifetime Prevalence Rates of PG in Caucasian and Aboriginal Adults in South Dakota and New Zealand

<table>
<thead>
<tr>
<th>Volberg &amp; Abbot (1997)</th>
<th>PG % Caucasian w/ PG</th>
<th>PG % Aboriginal w/ PG</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lifetime Prevalence</td>
<td>3.0% (New Zealand)</td>
<td>8.7% (New Zealand)</td>
</tr>
<tr>
<td>Lifetime Prevalence</td>
<td>2.5% (South Dakota)</td>
<td>7.1% (South Dakota)</td>
</tr>
<tr>
<td>Current Prevalence</td>
<td>1.4% (New Zealand)</td>
<td>4.6% (New Zealand)</td>
</tr>
<tr>
<td>Current Prevalence</td>
<td>1.3% (South Dakota)</td>
<td>5.8% (South Dakota)</td>
</tr>
</tbody>
</table>

Two other studies have found elevated rates of PG among Chinese (Yeh, Hwe, & Lin, 1995) and Jewish populations (Lorenz & Shuttlesworth, 1983). However, because minority groups are typically underrepresented in studies of treatment-seeking adults (McDonald & Steel, 1997; Raylu & Oei, 2002), much remains to be examined with regard to treatment response among these, and other, minority populations.

Elevated rates of PG are likely a product of gambling being a more acceptable behavior among certain cultures, though only one study has examined this hypothesis. Clark, King, and Laylim (1990) found that Chinese adults viewed gambling as part of their way of life due to its ubiquitous reference in Chinese historical texts. Conversely,
little mention of gambling activity exists in Muslim texts due to that culture’s historical condemnation of gambling. Much more research is needed in this area so that a clear conceptualization of cultural influences on gambling can be established. However, it is important to note that acceptance of gambling in a culture may underlie greater vulnerability to, and elevated prevalence of, PG.

**Age**

According to the DSM-IV-TR (APA, 2000), PG typically has an early and insidious onset, and severity increases with age. Very little research exists to examine gambling among children and adolescents; therefore, prevalence and severity of PG among this population is currently unknown. Shaffer, Hall, and Vander Bilt (1997) estimated the prevalence of PG between 3.2 and 8.4% for youth in America, and a large gambling impact study (National Opinion Research Study, 1999) estimated that approximately 6.1% of adolescents gamble on a pathological level. Stinchfield (2002) examined young gamblers more closely and found that, in general, they prefer informal games but will play anything available; they generally spend less than $10/month on gambling; and they usually gamble roughly once per month. However, more and less frequent and severe gambling was observed. Consistent with the Behavioral etiological theory of PG, intermittent reinforcement history may strengthen gambling behavior over time (Anderson & Brown, 1984; Cote, et al., 2003; Weatherly, Sauter, & King, 2004; Parke & Griffiths, 2004). In addition, older gamblers may have more disposable income with which to gamble, and age has been shown to correlate positively with PG severity (McNeilly & Burke, 2000). Therefore, advanced age may make gambling more risky and difficult to extinguish, though younger individuals are at risk, as well.
Availability of Gambling Opportunities

Similar to substance abuse disorders, a person cannot develop a problem with gambling unless an opportunity is available. Granted, gambling opportunities are usually available in some form (informal wagers and games), but the impact of legalized gambling is relatively unstudied. Jacques, Ladouceur, and Ferland (2000) conducted the first longitudinal study of the impact of a new casino in Canada. The authors examined gambling participation and the amounts of money wagered in the city where the new casino was erected compared to a similar city without a new casino. Prior to the new casino being built, both cities had similar access to gambling opportunities (video-lottery terminals, lottery tickets, and bingo) and both cities were located roughly 130-150 miles from the nearest casino. After one year from when the casino was established in the experimental city, gambling participation increased significantly for adults near the new casino, and the amount of money lost in one day was also found to be significantly higher in that group. However, the rate of PG did not increase significantly in the first year. Further research is needed to support this finding, but it provides a solid basis for examination of the effect of gambling availability on participation.

Internet gambling is becoming more prevalent and perhaps more dangerous given its ubiquitous availability. Ladd and Petry (2002) compared Internet gamblers to non-Internet gamblers and found that, on average, Internet gamblers had higher scores on the South Oaks Gambling Screen, indicating more severe gambling problems. This study was the first of its kind and more research is needed in this area, but it begins to explore what might become an important facet of PG research.
Overall, it appears that there are biological and environmental factors that may increase an individual’s vulnerability to develop PG, including neurotransmitter irregularities, minority status, and proximity to gambling opportunities, such as casinos. In addition, certain factors are also associated with increased severity of PG, such as comorbid Axis I disorders, low SES, and use of the Internet as a gambling medium. Although this phenomenon has not been examined directly in the PG literature, it may be inferred that meeting criteria for inclusion in multiple categories may increase an individual’s vulnerability to develop PG. For example, a minority adult of low SES, living near a casino, while concurrently meeting criteria for substance dependence, might be at marked risk of developing PG. Ledgerwood and Downey (2002) found that the rate of PG in a primarily African-American, low SES, opiate-dependent population living near several large casinos was dramatically higher than would be expected in the general adult population (17.7%). In a similar population, Weinstock, Blanco, and Petry (2006) found the lifetime prevalence of PG to be 52.7%. Prevention and treatment of PG may be particularly important for such vulnerable populations, and developing effective prevention or treatment options for these populations is one of the next important steps for the PG field.

Assessment of PG and Other Addictive Behaviors

Pathological Gambling is a relatively difficult disorder to assess because it does not typically produce observable symptoms outside of actual gambling behavior. For example, Major Depression can manifest with psychomotor retardation or agitation and/or weight loss or gain that is readily observable to others (APA, 2000). As discussed earlier, PG can create psychosocial sequelae such as financial or relational difficulties,
but these may not be readily observable to a clinician or researcher. Therefore, in lieu of
direct observation, an assessor must rely on self or collateral report to assess PG. As with
other addictive or impulse control disorders, self-report methods of assessment can be
problematic and unreliable. This phenomenon will be discussed here, and common
measures to assess PG will be described in the Method section of this paper.

Little information is available about shortcomings and difficulties in the
assessment of PG, but more is known about these issues as they pertain to substance use
and other addictive behaviors. As discussed earlier, PG has been conceptualized as an
addictive behavior, and therefore an examination of assessment problems among other
addictive behaviors might be useful. One clear advantage that assessors of substance
abusers have over assessors of PG is that substance use typically leaves byproducts that
can be measured biochemically (i.e. carbon monoxide levels in tobacco users or blood-
alcohol content in alcohol users). Gambling leaves no such physical evidence, and
assessment of prior participation relies on information from the gambler or a collateral
reporter. The reliability of this information has not been substantially investigated within
the gambling literature but has been thoroughly investigated in the substance abuse field.
An understanding of these limitations is important for psychologists dealing with
gambling behavior in a clinical or research setting because the reliability of assessment
greatly influences any conclusions or decisions that can be made.

Perhaps the most important issue in the assessment of addictive behaviors is the
fact that individuals generally do not want to disclose the specifics of their behavior
(Carroll, 1995; Babor, Steinberg, Anton, & Del Boca, 2000). Given that assessors are
seeking information about behaviors that may be regarded as socially, morally, or legally
inappropriate, it should come as no surprise that information is generally not freely shared (Hser, Anglin, & Chou, 1992). However, reviews have identified that self-report is not conclusively reliable or unreliable, valid or invalid (Babor et al, 1987; Maisto et al., 1990). Common factors that affect reliability and validity are positive or negative consequences of reporting substance use (Myers, 1983; Magura et al., 1987), social desirability of the behavior (Hser, et al., 1992), and whether the information is gathered face-to-face, via computer, or questionnaire (Cook & Bernstein, 1994; Skinner & Allen, 1983; Ross, Swinson, Larkin, & Doumani, 1994). In general, the anonymity of data collection enhances validity (Cook & Bernstein, 1994; Suler, 2004). Knowledge that additional information sources were used (collateral or biological assessment) can also improve validity and reliability of self-report assessment (Murray, O’Connell, Schmid, & Perry, 1987).

Use of collateral information can sometimes circumvent this problem, but accuracy can be limited by the actual witnessing of the target behavior by the collateral source. Given that addictive behaviors are often clandestine in nature, spouses, significant others, friends, and family often do not have the opportunity to observe an individual abusing substances (Platt, 1980; Rounsaville, Wilber, Rosenberger, & Kleber, 1981). In addition, given that collaterals of substance abusers frequently abuse substances themselves, motivation to report may be restricted (Jacob & Bremer, 1986; Kandel, 1984). Absence of these two conditions generally facilitates accurate collateral reports, and pairing with self-report can produce an overall accurate assessment (Achenbach, 2006). However, finding a situation where reliable and valid self and collateral reports are available is relatively rare (Carroll, 1995).
The self and collateral report issues discussed above may be salient to gambling assessment because gambling behavior often manifests in similar ways to substance abuse. Pathological gambling is often inconsistent with social and legal norms, and gamblers may be reluctant to disclose the full extent of their behaviors. Gambling can be clandestine in nature (i.e. Internet gambling) or occur away from the observation of collaterals (i.e. casino gambling). Direct observation may be the most valid and reliable method of assessing gambling behavior, but it is rarely possible and can be compromised by observer effects (Jacobson, 1995). In general clinical practice or research applications, self-report and collateral-report methods are the most commonly used methods of assessment, but their true accuracy remains somewhat unclear. Hodgins and Makarchuk (2003) conducted the only published study to examine the reliability and validity of self-report methods for PG. In a sample of adults who recently began or completed treatment for PG, the authors found acceptable rates of reliability and validity among self reported gambling behaviors. Self-reports also correlated well with collateral reports. Interviews for this study were conducted face-to-face and by telephone, and paper/pencil, computer-administered, and other self-report methods have not been examined in the PG literature. As such, additional studies to examine the reliability and validity of these methods are necessary. The most frequently used measures to assess PG, which are typically administered via face-to-face interview or as paper/pencil reports, are outlined in Table 2.
### Table 2

**Assessment Measures for Pathological Gambling**

<table>
<thead>
<tr>
<th>Instrument</th>
<th>Author/Reference</th>
<th>Description</th>
<th>Available Psychometrics</th>
</tr>
</thead>
</table>
| Addiction Severity Index – Gambling Severity Index (ASI-G) | Lesieur & Blume (1991)            | Five or six items used to form a composite score which is composed of days spent gambling, days experiencing problems, level of troubled feelings importance of treatment, and amount of money spent on gambling | Cronbach’s Alpha = .73  
Convergent V = .57, .75 (SOGS)  
IC = .90                                                                                           |
| Lie/Bet Questionnaire                           | Johnson, et al. (1997)            | Two items to assess lying about gambling and feeling the need to bet increasing amounts of money.                                                                                                       | Sensitivity = .99  
Specificity = .91  
Positive predictive value = .92  
Negative predictive value = .99                                                                 |
| South Oaks Gambling Screen (SOGS)               | Lesieur & Blume. (1987)           | 20 yes/no items to assess gambling-related behaviors                                                                                                                                                      | Cronbach’s Alpha = .97  
TR = .71                                                                                           |
IRR = 1.00  
TR = .97  
Sensitivity = .882  
Specificity = 1.00  
Positive predictive value = 1.00  
Negative predictive value = .666  
Convergent V = .34 (SOGS)  
Cronbach’s Alpha = .90                                                                 |
| Gambling Attitudes and Beliefs Scale (GABS)     | Breen & Zuckerman (1999)          | 35-item, forced choice questionnaire to assess irrational beliefs and attitudes about gambling.                                                                                                           |                                                                                         |
| Diagnostic Interview for Gambling Severity (DIGS) | Winters, Specker, & Stitchfield, 2002 | 10 items from the DSM-IV, asked twice in different forms.                                                                                                                                               | IC = .92  
Convergent V = .77,.75 (SOGS)  
Sensitivity = .950  
Specificity = .996  
Cronbach’s Alpha = .78-.89                                                                    |
| Gambling Treatment Outcome Monitoring System (GAMTOMS) | Stitchfield & Winters (1996)  | Clinician-administered structured interview combining items from the DIGS plus gambling type, severity, frequency, and related problems.                                                                    |                                                                                         |
IC = .84                                                                                           |
| Diagnostic Interview Schedule (DIS)             | Robins, et al. (1996)             | Four items from the larger DIS are used to assess PG.                                                                                                                                                     | NA                                                                                     |
| Timeline Follow-back Procedure (TLFB)           | Taber et al. (1987)               | Calendar prompts to assess frequency and severity of gambling participation.                                                                                                                                | TR = .42-.98  
Correlation between collateral and client report = .60                                        |

*Note. IC = Internal Consistency. TR = Test Retest Reliability. V = Validity. IRR = Inter-rater Reliability. NA = Not Available.*

The SOGS is the most commonly used instrument to screen for PG, but all of the other measures and methods described are useful in different situations. The SOGS or
Lie/Bet questionnaires are appropriate choices for basic screening to identify gamblers with problematic behavior. For the purposes of treatment, these measures might be followed with the DIGS, NODS, SCI-PG, or the GAMTOMS so that important diagnostic information and information about specific gambling and comorbid behaviors can be gathered. The TLFB, GAMTOMS, or ASI-G can be used to measure changes in gambling behaviors through the course of treatment (Petry et al., 2006). The SOGS is also useful for this purpose and has been found sensitive enough to be used in this manner (Sylvain, Ladouceur, & Boisvert, 1996; Petry et al., 2006).

As discussed earlier, the SOGS was not designed for diagnostic purposes, and this task would be more appropriately addressed with DSM-IV-based structured interview measures like the DIGS, NODS, SCI-PG, or the GAMTOMS. Though the SOGS is commonly used, authors of new scales cite how it is rapidly becoming outdated because it is based upon criteria from the DSM-III (Winters et al, 2002; Grant et al., 2004). Newer measures are typically based upon DSM-IV criteria, which in turn are based upon the most recent available information about the symptomatology for PG. Therefore, the SOGS continues to be used as a screening tool but DSM-IV-based measures are generally recommended for diagnostic applications.

_Treatment of PG_

*Definition and Discussion of Treatment of PG*

As discussed earlier, many people participate in gambling activities but relatively few develop a problem (Shaffer, Hall, & Vander Bilt, 1999). In light of this phenomenon, some suggest that reducing a pathological gambler’s gambling behavior to a non-problematic level would be an acceptable goal for treatment. Others, however, believe
that completely eliminating gambling behavior is a more appropriate goal, given that
controlled gambling was not previously possible for the individual and would not likely
be possible after a problem had developed. These two treatment goals will be discussed,
followed by a review of the treatment modalities employed to pursue these goals. Special
considerations in the treatment of PG will be outlined, including possible treatment
methods that are currently not in common practice.

\textit{Gambler’s Anonymous (GA)}

As discussed earlier, very few pathological gamblers seek treatment (Ladouceur,
et al., 2005; Slutske, 2006), but among those who do, the majority utilize Gambler’s
Anonymous (GA; Petry, 2005b). GA is modeled in a self-help group format, similar to
Alcoholics Anonymous (AA). As in AA, GA members progress through 12 steps with
the ultimate goal of achieving complete abstinence. Abstinence is seen as the only
appropriate goal by GA because gambling is conceptualized as a disease that cannot be
cured, but only put into remission through abstinence. As in AA meetings, members are
identified only by their first names, generally state the length of their abstinence at the
beginnings of meetings, and earn token rewards for milestone periods of abstinence (i.e.
after one month, one year). Members select a sponsor whom they are encouraged to call
in the event of an emergency or while experiencing the urge to gamble.

Although GA is a relatively popular treatment option for adults with PG, very
little published data are available to document the rate of its success. Stewart and Brown
(1988) examined attendance trends in GA over a 16-year span and found that the majority
of GA attendees did not achieve abstinence through GA. In their study, they found that
22.4% attended only one session and 15.5% attended only two sessions. Many (69.4%)
attended 10 sessions or more, but very few (7.5%) earned a pin for being abstinent from gambling for one full year.

Petry (2003) compared adults with GA experience to adults without GA experience who presented for outpatient treatment of PG. On average, adults with GA experience were older, had higher incomes, and were less likely to be single. In addition, they had higher scores on the SOGS (Lesieur & Blume, 1987), more years of problematic gambling, and were deeper in debt. Individuals without GA experience were more likely to have comorbid substance abuse problems and were less likely to achieve abstinence through outpatient treatment. From this study, it appears that adults with GA experience have more severe gambling problems but are more likely to benefit from outpatient treatment. This suggests that GA might help prime gamblers to change their behavior, even if it does not control PG in and of itself. More research is needed to examine the effects of GA, both as a stand-alone treatment option and as a stepping-stone to traditional outpatient treatment.

When paired concurrently with outpatient treatment, GA appears to produce relatively high rates of abstinence. Lesieur and Blume (1991) combined multimodal individual and group therapy with GA and found that 64% of participants achieved complete abstinence from gambling. Russo, Taber, and McCormick (1984) found a 55% abstinence rate using a similar procedure. However, neither study used a control group or administered either treatment alone. As such, the mechanism of change remains unclear. The combination of GA and group or individual therapy, however, appears much more effective than GA attendance alone, based upon these two studies.
**Traditional Psychotherapy**

Gambler’s Anonymous is considered an informal and non-professional intervention because it is conducted without the help of a trained clinician and the therapeutic element stems from fellowship with other gamblers. More formal treatment modalities are typically conducted in an outpatient format and delivered by a trained clinician. These are summarized in Table 3 and will be outlined next.

**Table 3**  
*Behavioral, Cognitive, and Cognitive-Behavioral Treatment Outcome Studies of PG*

<table>
<thead>
<tr>
<th>Author(s)</th>
<th>Treatment Modality</th>
<th>N</th>
<th>Design</th>
<th>Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>Barker &amp;</td>
<td>Behavioral (AT)</td>
<td>1</td>
<td>Case Report</td>
<td>Complete cessation of gambling</td>
</tr>
<tr>
<td>Miller (1966)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Salzman (1982)</td>
<td>Behavioral (AT)</td>
<td>4</td>
<td>Descriptive</td>
<td>Cessation of gambling for all ppts.</td>
</tr>
<tr>
<td>Seager (1970)</td>
<td>Behavioral (AT)</td>
<td>14</td>
<td>Descriptive</td>
<td>Significant reduction in gambling for all ppts.</td>
</tr>
<tr>
<td>Kraft (1970)</td>
<td>Behavioral (SD)</td>
<td>1</td>
<td>Case Report</td>
<td>No change</td>
</tr>
<tr>
<td>Greenberg &amp; Rankin (1982)</td>
<td>Behavioral (Multimodal)</td>
<td>26</td>
<td>Descriptive</td>
<td>Five stopped or controlled behavior, seven had lapses, 14 saw no change</td>
</tr>
<tr>
<td>McConaghy et al. (1983)</td>
<td>Behavioral (AT) vs. Cognitive (ID)</td>
<td>20</td>
<td>Random Assignment</td>
<td>Gambling reduced in 80% in ID vs. 60% in AT groups at 1 month (70% and 30% at one year)</td>
</tr>
<tr>
<td>Sylvain &amp; Ladouceur (1992)</td>
<td>Cognitive</td>
<td>3</td>
<td>Descriptive</td>
<td>All ppts. reduced gambling</td>
</tr>
<tr>
<td>Ladouceur et al. (1998)</td>
<td>Cognitive</td>
<td>5</td>
<td>Descriptive</td>
<td>4 of 5 reduced gambling substantially; maintained at 6 mo. follow-up.</td>
</tr>
<tr>
<td>Ladouceur et al. (2001)</td>
<td>Cognitive</td>
<td>59</td>
<td>Randomized Trial (wait-list control group of 29)</td>
<td>32% of tx. ppts. reduced gambling by 50% (vs. 7% of controls)</td>
</tr>
<tr>
<td>Ladouceur et al. (2003)</td>
<td>Cognitive</td>
<td>46</td>
<td>Randomized Trial (wait-list control group of 25)</td>
<td>43% of tx. ppts. reduced gambling by 50% (vs. 6% of controls)</td>
</tr>
<tr>
<td>Toneatto &amp; Sobell (1990)</td>
<td>CBT</td>
<td>1</td>
<td>Case Report</td>
<td>Time spent gambling reduced by 95% at 6 mos.</td>
</tr>
<tr>
<td>Arribas &amp; Martinez (1991)</td>
<td>CBT</td>
<td>4</td>
<td>Descriptive</td>
<td>All reduced gambling</td>
</tr>
<tr>
<td>Echeburua et al. (1996)</td>
<td>CBT</td>
<td>64</td>
<td>Randomized Trial (wait list control group of 48)</td>
<td>Abstinence or significant reduction in 75% of tx. group vs. 25% of wait list</td>
</tr>
<tr>
<td>Sylvain et al. (1997)</td>
<td>CBT</td>
<td>22</td>
<td>Randomized Trial (wait-list control group of 18)</td>
<td>36% of tx. ppts. reduced gambling by 50% (vs. 6% of controls)</td>
</tr>
</tbody>
</table>
Behavioral therapies were among the first psychological treatments for PG. Operating upon behavioral theories of classical and operant conditioning, behavioral therapies sought to either pair a negative stimulus with gambling or alter the reinforcing properties of gambling participation. One of the first behavioral treatments for PG was Aversive Therapy (AT), which paired a negative stimulus with gambling behavior. Most commonly, participants would be shocked upon gambling or reporting thoughts of gambling. In theory, a Pavlovian association would then develop and participants would be discouraged from gambling due to its new negative association. Immediate and complete reductions in gambling behavior are common with AT (Seager et al., 1966; Barker & Miller, 1966; Salzman, 1982), but these gains fade over time. Walker (1993) suggests a conservative long-term success rate of AT of approximately 23%, which, while high, is not sufficient to justify administration of an aversive stimulus when non-aversive treatments are also comparably effective.

Systematic Desensitization (SD) is another behavioral treatment modality for PG, though it is typically less effective than AT. Through SD, a gambler is taught to relax and then is gradually exposed to distressing conditions while not being allowed to utilize the problematic response (gambling). One theory behind SD is that gamblers use gambling as an escape response to alleviate negative affect or distress. In this theory, gambling functions similar to the way a compensatory response functions for persons diagnosed

<table>
<thead>
<tr>
<th>Table 3 Continued</th>
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</thead>
<tbody>
<tr>
<td>Petry, et al.</td>
</tr>
<tr>
<td>(2006)</td>
</tr>
<tr>
<td>CBT</td>
</tr>
<tr>
<td>231</td>
</tr>
<tr>
<td>Randomized Trial</td>
</tr>
<tr>
<td>(individual</td>
</tr>
<tr>
<td>CBT therapy vs.</td>
</tr>
<tr>
<td>GA referral</td>
</tr>
<tr>
<td>vs. CBT workbook)</td>
</tr>
<tr>
<td>75% reduction in</td>
</tr>
<tr>
<td>days</td>
</tr>
<tr>
<td>gambled, 93%</td>
</tr>
<tr>
<td>reduction in</td>
</tr>
<tr>
<td>amt. gambled vs.</td>
</tr>
<tr>
<td>65%/71%</td>
</tr>
<tr>
<td>for GA and 68%/71%</td>
</tr>
<tr>
<td>for workbook</td>
</tr>
<tr>
<td>groups</td>
</tr>
</tbody>
</table>

with Obsessive-Compulsive Disorder (OCD), though SD is not a treatment for OCD. For gamblers who do not use gambling as an escape response, but for whom it functions as an impulsive behavior, SD can still be used. In this model, SD is used to teach the gambler to relax and resist the impulse to gamble. Kraft (1970) attempted to treat a pathological gambler with SD but produced no change in gambling behavior. Imaginal Desensitization (ID) operates similarly to SD but the participant is asked only to imagine distressing situations and is not systematically exposed to them in vivo as in SD. Use of ID for treating PG is uncommon but has been documented to produce success rates of 80% at one month follow-up and 70% after one year (McConaghy, Armstrong, Blaszczynski, & Allcock, 1983). These results were promising and have been replicated twice by the original authors (McConaghy et al., 1988, 1991), but other research teams have not confirmed these results.

The behavioral components of Cognitive Behavioral Therapy (CBT) have not been published as independent interventions. These components, as will be discussed later, consist of teaching behaviors incompatible with gambling, altering gambling stimuli, and teaching alternative reactions to the reinforcing effects of gambling. Combined with cognitive components, these individual behavioral interventions have been effective, but they have not been pulled out of comprehensive treatment protocols and tested separately.

*Cognitive Therapy (CT)*

Cognitive Therapy (CT) for PG arises from the theory that pathological gamblers overestimate their level of control over the odds of winning. This overestimation is called a cognitive distortion. Toneatto (1999) classified cognitive distortions into categories,
which included magnification of gambling skill, illusion of control over luck, superstitious beliefs, illusory correlations, and interpretive biases.

Magnification of gambling skill and illusion of control over luck are common cognitive distortions among pathological gamblers. These illusions refer to the gambler’s belief that the application of a specific strategy will alter the odds of winning in his or her favor. These phenomena are also known as the Illusion of Control (Strickland, Lewicki, & Katz, 1966). Cognitive restructuring in this case would seek to train the gambler to think that the odds of winning are unchangeable and each person has an equal chance of winning or losing. Granted, certain games do have an element of skill, such as poker, blackjack, and choosing winning racehorses, and there are people who make careers of betting on such games. However, even these activities can produce cognitive distortions due to the overestimation of the level of control that can be attained. In general, successful gamblers do not overestimate their odds of winning and only make carefully controlled bets. For example, a successful career poker player will only bet when he or she has a greater than 50% chance of winning, based upon his or her cards. In the long-run, that gambler stands a better chance of winning money consistently than one who relies on an irrational strategy such as betting every third hand. Though this might seem obvious, the Illusion of Control is a very common cognitive distortion among pathological gamblers (Lesieur, 1977).

Other common cognitive distortions among adults with PG are the Illusory Correlation and Superstitious Beliefs, which refers to the belief that causal relationship has been created when one does not exist. These particular distortions typically manifest in superstitious behavior such as only playing at certain tables, on certain days of the
month, or only while wearing a lucky article of clothing (King, 1990). Bersabe and Arias (2000) examined this phenomenon specifically by examining gambling behavior in controlled conditions while students wore a special watch. Under the controlled conditions, participants would win frequently while wearing the watch, but rarely while not wearing it. When later asked if they wanted to wear the watch for future gambling, all participants said yes.

Toneatto’s (1999) final category was Interpretive Biases, which pertains to the problem gambler explaining losses in ways that justify continued gambling. This category contains several specific distortions. "Near misses," are a phenomena in which a gambling outcome falls just short of a win (e.g., one symbol missing from a winning slot machine combination), and these are often explained as near wins rather than losses (Parke & Griffiths, 2004). The gambler's fallacy refers to the belief that a win is more likely because it has not occurred for an extended period of time (Rogers, 1998). A final common Interpretive Bias is called Entrapment, which occurs when an individual commits to an unsatisfactory outcome in order to recoup previous investments. This frequently manifests in gamblers who have lost a great deal of money but continue playing in order to win back that which was lost. Lesieur (1977) termed this behavior “chasing” and found it to be a very common behavior among pathological gamblers. Of all the common distortions, Entrapment might be the most dangerous because it directly contributes to the loss of all available money. With the other distortions, the gambler might still quit after losing because faith in strategy or superstition might fade. However, Entrapment only strengthens with each loss, which further increases the likelihood that excessive amounts of money will be lost.
Cognitive Therapy seeks to educate gamblers about their cognitive distortions and restructure their thought patterns to be more consistent with reality (Ladouceur, Sylvain, Boutin, & Doucet, 2002). In addition, prevention of cognitive distortions is also a goal of CT (Gaboury & Ladouceur, 1993). Few purely cognitive interventions for PG have been conducted; most contain at least a small behavioral component. Toneatto and Sobell (1990) published the results of a case study in which an adult male gambler with a 26-year gambling history reduced gambling frequency by 95% after being taught that he was unable to predict winners of horse races with sufficient frequency to win money in the long-term. This intervention was conducted using imaginary bets on real-life events, which might be considered a behavioral intervention, but the primary component of treatment was educating the client about his irrational beliefs in controlling the odds of winning. Therefore, this was a primarily cognitive intervention with a small behavioral component. Larger studies with similar aims were conducted by Sylvain and Ladouceur (1992) and Ladouceur et al. (1998, 2001, 2003), with very good results (see Table 4). The intervention in these studies consisted mostly of cognitive restructuring with small behavioral components such as self-monitoring and stimulus control.

**Cognitive-Behavioral Therapy (CBT)**

As might be surmised from its name, CBT is a mixture of cognitive and behavioral components in a comprehensive treatment package. Rationale for the use of CBT to treat PG stems from the conceptualization of PG as a disorder with both behavioral and cognitive etiology. From a behavioral standpoint, PG is perpetuated through reinforcement history, loss of stimulus control, and a lifestyle made compatible with gambling. Specifically, gambling is an intermittently reinforced behavior that is
difficult to extinguish (Ferster & Skinner, 1957), and over time, cues develop that might trigger a person to gamble such as payday, driving past a casino, seeing a lottery sign, and so on. Finally, gamblers might alter their behavior to be more compatible with gambling. For example, paychecks might be cashed at a store that sells lottery tickets, driving routes might be altered to include a pass by the local casino, and friendships with other gamblers might increase the frequency of gambling. These are the types of behavioral factors that are addressed in CBT protocols, but addressing these factors alone has not been shown to be effective in completely controlling PG. Therefore, cognitive restructuring of the aforementioned cognitive distortions forms the other important half of CBT for PG.

CBT has recently become more popular in the treatment of PG, though it has not been established as a gold standard treatment despite promising results in treatment-outcome studies (see Table 3). One major reason for this is that large, randomized treatment-outcome studies using CBT interventions are relatively rare. Another reason is that the selection of components in CBT treatment packages has not been firmly established, and it seems that different research teams include different combinations of components. Common components across studies are cognitive restructuring, stimulus control, and relapse-prevention (Echeburua et al., 1996; Ladouceur et al., 2001, 2003; Petry et al., 2006). Some studies include social skills training (Sylvian et al., 1997), problem-solving (Bujold, et al., 1994; Sylvian, 1997), and self-monitoring (Arribas & Martinez, 1991; Petry, et al., 2006).

One major advantage of CBT interventions is that they are typically time-limited and delivered in a structured number of sessions. Petry et al. (2006) delivered their CBT
package in eight structured sessions and produced significant reductions in time and money spent gambling (see Table 3). This protocol included sessions devoted to discovering triggers, assessment, increasing positive behaviors, self-management planning, coping with urges to gamble, assertiveness training, challenging irrational thinking, and coping with lapses. The authors found this particular combination of components to produce satisfactory results in an outcome study, but further validation is needed.

**Motivation Enhancement Therapy (MET) and Motivational Interviewing (MI)**

Motivational Enhancement Therapy (MET; Miller, Zweben, DiClemente & Rychtarik, 1992) and Motivational Interviewing (MI; Miller & Rollnick, 1992, 2002) are techniques used to prepare individuals who may otherwise be ambivalent about changing problematic behavior to do so. The primary function of MET and MI is to increase a client’s motivation to change problematic behavior. MET and MI have been shown to be effective in treatment of addictive behaviors such as smoking, alcohol, and other drug use (Burke, Arkowitz, & Dunn, 2002). It has been hypothesized to be useful for treating PG as well (Hodgins, Currie, el-Guebaly, & Peden, 2004). MET and MI may be used alone or in conjunction with additional interventions such as CBT. One of MET’s and MI’s motivation enhancing facets involves addressing awareness of the positive and negative consequences of their problematic behavior. Specific to gambling, negative consequences might be strained finances and relationships, and positives might be an escape from stressful or boring situations. The client is guided through the interview to eventually conclude that the negative consequences outweigh the positive benefits of gambling. This
conclusion is intended to either directly lead to a reduction in gambling behavior or at least motivate the client for further treatment through an additional modality like CBT.

Very little research has been conducted to examine the effect of MET and MI on PG. Of the available literature, no study has examined MET/MI as a stand-alone intervention. Hodgins et al. (2001) found that MET and a workbook was superior to the workbook alone, and positive outcomes were maintained at a 24-month follow-up (Hodgins et al., 2004). Freidenberg, Blanchard, Wulfert, and Malta (2002) combined MET with CBT in a descriptive study of nine pathological gamblers and found that all participants’ gambling behaviors decreased significantly. The study was small, however, and not randomized or controlled; as such, the true efficacy of this intervention for the treatment of PG is unknown.

**Telehealth**

Gamblers Anonymous and the other outpatient treatment options previously discussed all require the gambler’s physical presence, as well as the presence of a therapist or other GA member. In areas where GA meetings or outpatient treatment options are available, the primary barrier to attendance is motivation. However, not all areas of the country have equal access to these treatment options and some gamblers are left unable to access help. In this situation, a remotely administered treatment option would allow any gambler with the motivation to address his or her gambling problem the opportunity to do so. Remotely administered psychological treatment is also known as Telehealth or Telepsychiatry and is defined as the use of telecommunications and information technology to provide access to health assessment, diagnosis, intervention, supervision, education, and information across distances (Nickelson, 1998).
Consistent with other areas of the PG literature, the application of Telehealth for the treatment of PG is largely unexplored. Several websites exist that are dedicated to PG, but most are educational in nature and only explain PG, its traditional treatment options, and provide contact information for GA meetings or other traditional treatment centers (see http://www.soberrecovery.com/links/gamblingaddiction.html for a selected listing of sites). Actual remote interventions are very rare, but when the current program of research was begun, a computer-directed CBT intervention for PG was under development for the state of Connecticut (N. M. Petry, personal communication, October 20, 2004). That protocol was utilized to develop an Internet-hosted version of the same protocol (Cameron, 2007). This Internet version was used in the present study, though it was modified to be hosted on a freestanding computer without use of the Internet. In preliminary testing, the program was viewed favorably by college students who did not gamble (n = 15), and a sample of college students who met criteria for PG (n = 7). Qualitative data from that study suggested that the program may be used as a stepping stone from which a gambler may access more traditional treatment (Cameron, 2007). Therefore, the present study is a logical extension of this earlier work and is designed to test this intriguing hypothesis. In another recent study (Carlbring & Smit, 2008), an Internet-hosted CBT treatment was found effective at reducing problematic gambling in an adult population in Sweden, and gains were maintained at 12, 24, and 36 months post-treatment. Participants with comorbid depression were screened out of the study, leaving its utility for the average adult with PG somewhat ambiguous. This study, however, was an important step towards establishing the utility of Internet-hosted treatments for PG.
Phone help lines are another Telehealth option for gamblers who cannot or will not present for traditional treatment. Griffiths, Scarfe, and Bellringer (1999) and Potenza et al. (2001) found that a diverse population of gamblers accessed gambling help lines, but the efficacy of these interventions for PG is still unknown. Though Telehealth for PG is still relatively unexplored, it warrants further attention for two primary reasons. First, traditional treatment is not available to all who need it. Rural areas and areas with few therapists or GA meetings might have more gamblers than can be accommodated, if any can be accommodated at all. Second, gamblers typically do not access traditional treatment (Slutske, 2006), perhaps due to the clandestine nature of PG as an addictive behavior. Therefore, an intervention that does not force gamblers to be physically present or admit their problem to another person may increase the likelihood of participation. This area requires much more research, including treatment-outcome studies, and especially studies that compare Telehealth interventions to their equivalents administered face-to-face. Initially, however, establishing the acceptability, feasibility and efficacy of Telehealth interventions is particularly important.

Summary

Pathological Gambling has received comparatively less attention than similarly prevalent conditions and, therefore, many important areas are relatively unexplored. In addition, PG is more common in certain populations because certain specific variables increase vulnerability of an individual to developing PG, or other addictive and impulse-control disorders. Proximity to gambling opportunities (Jacques, Ladouceur & Ferland, 2000), low SES (Welte, Barnes, Wieczorek, & Tidwell, 2004), comorbid substance abuse problems (Kaminer & Haberek, 2004), and cultural acceptance of gambling (Clark, King,
& Laylim, 1990; Wardman, el-Guebaly, & Hodgins, 2001), all indicate a heightened vulnerability for an individual to develop PG. Older adults may be more vulnerable, as well (McNeilly & Burke, 2002). Though not examined specifically in the PG literature, it stands to reason that individuals in more than one of these categories are likely to be especially vulnerable. As discussed earlier, adults receiving substitution maintenance treatment for opiate dependence are a prime example of a vulnerable population because they are much more likely to possess characteristics associated with elevated rates of PG (Ledgerwood & Downey, 2002; Weinstock, Blanco, & Petry, 2006). They are typically of low SES (Orford, 2004; Weinstock, Blanco, & Petry, 2006), meet criteria for multiple comorbid conditions (Weinstock, Blanco, & Petry, 2006), may have a biological vulnerability to impulse control disorders like PG (Comings et al., 2001), and, if living in urban areas, may be near a casino or otherwise have gambling opportunities easily available. In addition, adults in this population have been observed to meet criteria for PG at a much higher rate than individuals in the general adult population (Ledgerwood & Downey, 2002; Orford, 2004; Weinstock, Blanco, & Petry, 2006). Until now, little attention has been paid to vulnerable populations and their gambling behaviors, which is unfortunate, given the extreme prevalence of PG and the dangerous effects of its sequelae in these populations.

As discussed, few pathological gamblers receive treatment (Slutske, 2006), but of those who do, Cognitive-Behavioral interventions have been shown to produce promising results (Echeburua et al., 1996; Sylvain et al., 1997; Petry et al., 2006). In addition, treatment outcome research in the PG field appears to be focusing on establishing the efficacy of CBT as the intervention of choice. However, not all gamblers have equal
access to CBT treatment, and low rates of utilization of other traditional methods suggests that CBT might be equally underutilized in the general population of pathological gamblers. Therefore, the establishment of a more acceptable intervention modality for pathological gamblers is an important direction for the field to take. Telehealth may be an acceptable modality, but much more research needs to be done to explore this possibility, starting with basic investigations of whether Telehealth interventions will be accessed if available, and if they are capable of producing change in PG symptomatology.
1. Recruitment and Screening – Informed Consent, HIPPA, Demographics, SOGS, NODS, DASS-21 (2-4 weeks)
   i. Inclusion: SOGS 3+ and >1 Month Attendance
   ii. Exclusion: SOGS <3 and/or < 1 Month Attendance
   iii. All paid $5 for participating
   iv. No Computer Access (4 weeks)
   v. Participants randomly assigned to groups
   vi. Therapists surveyed about disclosure over the past four weeks.

2. Group 1 Computer Access – SOGS and DASS-21 administered in 6th week to both groups (6 weeks)
   a. Group 1 participants paid $2 per module completed. Both groups paid $5 for SOGS, TLFB, and DASS-21
3. Group 2 Computer Access – SOGS and DASS-21 administered in 6th week to both groups (6 weeks)
   a. Group 2 participants paid $2 per module completed. Both groups paid $5 for SOGS, TLFB, and DASS-21
4. Follow-up – No Computer Access - Both groups paid $5 for SOGS, TLFB, DASS-21, and NODS administered in 4th week (4 weeks)

Figure 1. Study design flow-chart
Statement of Research Hypotheses

This study proposed to explore the effects of the availability of a computer-hosted treatment for PG on the disclosure of gambling behavior during ongoing substance abuse counseling sessions as well as overall gambling symptomatology. In addition, specific characteristics and correlates of the study population were investigated, such as predictive factors and prevalence rates of PG.

The following research hypotheses were proposed:

Baseline Phase Hypotheses:

1. It was hypothesized that NODS and SOGS data would suggest a markedly higher rate of PG in the opiate-substitution clinic population than would be expected in the general adult population. In addition, the prevalence rate was expected to be higher than that found by Ledgerwood and Downey (2002) at the same site, given that their study was conducted shortly after a large casino was built in Detroit, and the time since then likely allowed residents time and opportunity to develop PG.

2. Presence and/or number of comorbid Axis I diagnoses, age, income, length of time in treatment, and number of positive urinalysis tests during the study period were expected to be significant predictors of PG severity, as measured by number of items endorsed on the SOGS. In addition, an interaction effect was anticipated between positive urinalysis tests and comorbidity of Axis I disorders, given that comorbid conditions are associated with increased drug use and resistance to change behavior. It was hypothesized that the
interaction of these two variables would thus be associated with increased PG severity.

Experimental Phase Hypotheses:

3. Consistent with literature that shows disclosure is enhanced by anonymity (Skinner & Allen, 1983; Cook & Bernstein, 1994; Ross, Swinson, Larkin, & Doumani, 1994), SOGS scores from the first computer-hosted treatment module – which occurred prior to exposure to any of the computer-based interventions – were expected to be significantly higher than those obtained face-to-face during the recruitment interview.

4. It was hypothesized that exposure to the computer-hosted CBT protocol would be associated with four significant effects on participant behavior. First, exposure would increase disclosure of gambling behavior in the participants’ mandatory biweekly psychotherapy sessions (see figure below; A). Second, increased disclosure in counseling would decrease PG symptomatology, as measured by SOGS scores (B). Third, exposure would reduce PG symptomatology, as measured by SOGS scores (C). Finally, a mediation effect would be found for disclosure, which was anticipated to mediate the relationship between exposure to treatment and reductions in SOGS scores (M). Specifically, exposure to treatment would increase disclosure, which would, in turn, decrease PG symptomatology. These hypotheses can be depicted within the mediation model set forth by Baron and Kenny (1986):
The second treatment group, which would have had longer knowledge of the presence of the computer-hosted intervention, was hypothesized to respond more favorably to the treatment than the first treatment group, as measured by reductions in SOGS and Timeline-Followback scores from baseline to follow-up.

Consistent with addiction literature that shows severity of a disorder is positively correlated with resistance to treatment (Pollack, Otto, & Rosenbaum, 1996), it was hypothesized that reductions in symptomatology after access to treatment would correlate negatively with initial SOGS and NODS scores, presence and/or number of comorbid axis I diagnoses, age, and number of positive urinalysis tests during the study period.

**Statistical Analyses**

Baseline: SOGS, NODS, and demographic data obtained during the recruitment/screening phase of all available clients of the University Psychiatric Centers (UPC) Jefferson Avenue Research Clinic was used to examine baseline hypotheses.

1. A score of five or more on the NODS and SOGS was interpreted as indicative of PG. The rate of PG at the UPC Jefferson Clinic was descriptively compared to
that of the highest estimated prevalence rate of PG in the general adult population; currently 3.4% (APA, 2000). In addition, a descriptive comparison was made between the prevalence rate found in 2008, as measured by scores on the SOGS, to that reported in 2002 using the same instrument (Ledgerwood & Downey, 2002).

Note: A sufficient number of participants was not retained to establish adequate power for the analyses used in this study. As such, the following analyses are considered as exploratory.

2. The SOGS has a possible range of 0-20, with each item indicative of a problematic gambling behavior. Therefore, increasing SOGS scores indicate increasing severity of problematic behavior. Analysis for this hypothesis sought to examine the predictive relationships between SOGS scores and Number of Comorbid Axis I diagnoses, Age, Sex, Income, Employment, Time in Treatment, DASS-21 Total Score, and number of Positive Urinalysis Tests during the study period. First, a Pearson correlation matrix was computed and analyzed for these potential predictors to determine what factors would be included into a multiple regression model. Time in treatment, Income, and DASS-21 total score were found significantly correlated at the bivariate level and were included in the regression model. Multiple regression analysis was then conducted to analyze these factors and determine the significance of their predictive relationships. Variables were entered into a stepwise likelihood ratio model as this is the suggested model for hypotheses that lack theoretical or empirical support to guide model specifications (Field, 2005). Two different regression analyses were
conducted to examine predictor variables for Initial SOGS scores and SOGS scores taken at follow-up.

Experimental Hypotheses: Data from only the participants meeting criteria for the treatment-access phase (n=37) were used to examine experimental phase hypotheses.

3. Hypothesis Three asserted that participants would disclose a higher number of PG symptoms, as measured by the SOGS, over the computer versus a face-to-face interview. A paired-samples t test was conducted to compare SOGS scores obtained via the computer in each treatment access phase to those obtained during the recruitment phase in face-to-face interviews.

4. A mediation effect was anticipated between disclosure of gambling behavior in therapy sessions, exposure to the computer-hosted treatment program, and reductions in SOGS scores. Specifically, increased disclosure would lead to increased use of the treatment and larger reductions in SOGS scores. In addition, direct relationships would be found between use of the treatment program and reductions in SOGS scores, use of the treatment and increased disclosure in therapy sessions, and increased disclosure in therapy sessions and reductions in SOGS scores.

**Disclosure** was measured dichotomously (D1; did the participant voluntarily disclose gambling behavior in this week’s session?), and as a continuous numeric variable, expressed by the ratio of minutes spent discussing gambling behavior divided by the length of the session, in minutes (D2). This calculation was used to control for varying therapy session lengths. **Exposure** was defined as number of treatment modules completed. **Symptom Reduction** was defined as change scores on the SOGS. The following mediation model was applied for this hypothesis, as adapted from Baron and Kenny (1986):
Step 1: Show that the initial variable is correlated with the outcome. Use Symptom Reduction as the criterion variable in a regression equation and Exposure as a predictor (estimate and test path c). This step establishes that there is an effect that may be mediated.

Step 2: Show that Exposure is correlated with the mediator, Disclosure. Use Disclosure as the criterion variable in the regression equation and Exposure as a predictor (estimate and test path a). This step essentially involves treating the mediator as if it were an outcome variable.

Step 3: Show that the mediator affects the outcome variable. Use Symptom Reduction the criterion variable in a regression equation and Exposure and Disclosure as predictors (estimate and test path b). It is not sufficient just to correlate the mediator with the outcome; the mediator and the outcome may be correlated because they are both caused by the initial variable, Exposure. Thus, the initial variable must be controlled in establishing the effect of the mediator on the outcome.

Step 4: To establish that Disclosure completely mediates the Exposure-Symptom Reduction relationship, the effect of Exposure on Symptom Reduction controlling for Disclosure (path c’) should be zero. The effects in both Steps 3 and 4 are estimated in the same equation.

If all four of these steps are met, then the data are consistent with the hypothesis that Disclosure completely mediates the Exposure-SOGS score relationship, and if the first three steps are met but the Step 4 is not, then partial mediation is indicated. Meeting these steps does not, however, conclusively establish that mediation has occurred because there are other (perhaps less plausible) models that are consistent with the data.

However, analysis was stopped at step one for this hypothesis, as a significant correlation was not found between the variables. Thus, mediation analysis was thus not appropriate.

5. A repeated-measures MANOVA was conducted to examine response to treatment between treatment-access groups, as indicated by SOGS scores at different points in the study. Use or non-use of the treatment program was a covariate in this analysis. This analysis examined whether the second treatment group, which had longer knowledge of the presence of the treatment program, would respond more favorably than the first treatment group. In addition, this analysis also evaluated...
whether SOGS scores for the first treatment group showed greater initial decreases while the second group waited for access to the treatment program. Finally, this analysis also examined whether use of the treatment program had an effect on SOGS scores for both groups. Separate repeated-measures ANOVAs were conducted to examine Timeline-Followback (TLFB) scores for hours spent gambling, the amount of money wagered, and number of gambling outings between groups. Separate analyses were run due to the lower number of participants who provided TLFB data versus SOGS data, but the same effects were examined as in the MANOVA. Condition was defined as placement in the first or second treatment-access group (1 vs. 2).

6. A Pearson correlation matrix was computed and analyzed for all potential predictors of PG to examine the relationships between predictor variables and response to the computer-hosted intervention. Response to the intervention was measured by the SOGS change score, as calculated by the difference between scores taken during recruitment and at the end of each respective treatment-access phase. As a supplementary analysis, and because a significant effect was found, a multiple regression analysis was conducted for the time period between initial screening and the end of the follow-up period. Variables found significant at the bivariate level were included in the multiple regression, and predictors included only initial SOGS score and initial DASS-21 total score. Variables were entered into a stepwise likelihood ratio model as this is the suggested model for hypotheses that lack theoretical or empirical support to guide model specifications (Field, 2005).
Method

Site Information

Participants were recruited from the UPC Jefferson Clinic, which is associated with Wayne State University in Detroit, Michigan. Specifically, participants were UPC Jefferson Clinic opioid substitution patients who, by definition, meet criteria for Opiate Dependence. Substitution Maintenance therapy at the UPC Jefferson Clinic is a treatment in which patients receive regular doses of methadone, buprenorphine, or LAAM (levo-alpha-acetyl-methadol) with the intent of replacing the previous opiate drug of abuse, typically heroin. Methadone is the most commonly prescribed replacement medication at UPC Jefferson. The function of these medications is threefold; to reduce cravings for heroin, to prevent physiological withdrawal symptoms, and to block the desired effects of the previous drug of abuse.

New patients at the UPC Jefferson Clinic are required to take all daily doses of methadone at the clinic and under the supervision of a staff member. Patients’ urine is tested during each initial daily appointment for the presence of cocaine, phencyclidine (PCP), amphetamines, barbiturates, other opiates, benzodiazepines and delta-9-tetrahydrocannabinol (THC). As patients progress in treatment, they are allowed to take doses home, contingent on 30 days of continuous negative urinalysis test results. If patients’ urine tests positive for these drugs, they are required to attend additional group therapy sessions in order to re-earn the right to take methadone doses home. Patients’ urine is also tested for methadone and methadone metabolites to ensure that they are ingesting take-home doses as prescribed. Buprenorphine and LAAM are always ingested under observation, generally three times a week.
Participants

Participants were patients of the UPC Jefferson Clinic’s Opiate Substitution Maintenance treatment program. As of August 6, 2007, the Jefferson Clinic was providing Substitution Maintenance for approximately 170 adults. Previous studies of PG at this site (Ledgerwood & Downey, 2002; David Ledgerwood, personal communication, August 6, 2007) indicated that approximately 17% of UPC’s patients met criteria for Probable Pathological Gambling (level 3) and 11% met criteria for Potential Pathological Gambling (level 2). Therefore, approximately 150-180 participants were expected to participate in the initial screening process, and approximately 45-65 were expected to meet inclusion criteria for the treatment phase of this study. Inclusion criteria for the treatment phase were a score of 3+ on the SOGS and enrollment in the UPC Jefferson substitution maintenance program for greater than one month.

This population was chosen because it was believed that they presented an ideal opportunity to study the gambling behavior and response to treatment of adult substance abusers. This conclusion was made chiefly because patients regularly come to the clinic and are accustomed to participating in research studies. As such, high levels of compliance and retention were expected. In addition, the patients are familiar with each other, regularly interact while at the UPC Jefferson Clinic, and tend to communicate freely about treatment issues and experiences. Therefore, it was anticipated that they would discuss the gambling treatment program with each other, which would, theoretically, enhance awareness and utilization while reducing possible stigma. Unanticipated and complicating issues pertaining to the population will be revisited, however, in the Discussion section.
Informed Consent and Ethical Treatment

Human subjects review was completed at the UPC Jefferson Clinic, Eastern Michigan University, and Wayne State University to ensure safety and protection of the participants. These reviews examined the proposed study’s research-related risks to participants as well as informed consent and confidentiality. All human subjects reviews were completed prior to the commencement of participant recruitment and data collection to ensure the safety and protection of those involved in the study.

All participants were ensured ethical treatment based on the Federal Guidelines for the Protection of Human Subjects (www.ohrp.gov). Informed consent (Appendix A) for the experimental portion of the study was obtained from participants enrolled in the treatment phase of the study. Participants who simply completed the SOGS screening did not sign informed consent agreements, consistent with policy at the UPC Jefferson Clinic and the Wayne State university Human Investigation Committee (WSU HIC), which states that screenings do not require informed consent. HIPPA consent (Appendix B) was obtained before any examination of client records was conducted. This study was determined not to be beyond minimal risk to participants by the WSU HIC. However, because the primary investigator (PI) handled and examined sensitive data, such as clinical charts containing diagnoses, urinalysis results, and other confidential information, the study was nonetheless treated as if it did exceed minimal risk to participants. Participants were informed of all risks and benefits of involvement with this study during the informed consent process. Referrals to appropriate professional services were available at any time during the study, should participants have experienced some emotional or psychological discomfort, though none were necessary. Participants were
informed of the expected benefits of the study and made aware that the information might be disseminated at professional conferences, the PI’s dissertation, and the broader scientific literature. Participants were also told that the principal investigator would furnish results at the conclusion of the study, if requested.

Identification and Group Assignment

All UPC Jefferson patients who were screened with the SOGS were given a unique identification number. For those enrolled in the treatment portion of the study, the number identified their responses to questionnaires, use of the computer-hosted treatment, and participation in biweekly therapy sessions. In order to ensure that patients were not screened twice, they were asked their name at the time of screening. Names were matched with ID numbers and a master list was kept locked in the main office of the clinic in the event that a participant forgot his or her number. The main office contained a computer with the records of each patient of the UPC Jefferson Clinic. These records included a picture of the patient. Most patients were well-known enough to be recognizable, but their identities could be verified by checking the computer, if necessary. In addition, informed consent documents, with printed names and signatures, were numbered, but these were kept on a separate floor of the UPC Jefferson Clinic, in a locked room within a locked file cabinet. Names and identification (ID) numbers were not paired in any other instance. Participants were identified by the initials GS (Gambling Study) and a number corresponding to the order in which they were initially screened. Therefore, identification numbers ranged from GS1 through GS126.
Measures

*National Opinion Research Center DSM Screen for Gambling Problems (NODS; Gerstein, et al., 1999).*

The National Opinion Research Center DSM-IV Screen for Gambling Problems (NODS; Gerstein et al., 1999) was developed as a telephone screening tool and is based upon DSM-IV criteria. The NODS is similar to the DIGS (Winters, Specker, & Stinchfield, 2002; see Table 3) in that its items are based on DSM-IV criteria, but it is not structured in the same way. The NODS addresses all 10 DSM-IV criteria, but only six are asked in different forms. These different forms are designed to increase the specificity of the measure, and the participant generally has to answer “yes” to both forms to meet criteria for the item. Therefore, there are 17 items on the NODS but scores only range from 0-10, corresponding to the 10 DSM-IV criteria for PG. Scores of one to two indicate “at risk,” three or four indicate a “problem gambler,” and five to ten indicate “pathological gambling.” In addition, each item is answered for lifetime occurrence and past-year occurrence. This results in two separate 0-10 scales.

The NODS must be administered in an interview format, and a self-report version has not been developed. As such, it is generally not used as a quick screener, like the SOGS or Lie/Bet Questionnaire, but rather is typically used as a diagnostic tool. The NODS has not yet seen extensive use, and psychometric information is sparse. However, test-retest validity was found to be very high (.99, .98; Gerstein, 1999), as was internal consistency (.84; Hodgins, 2002).

The NODS was used as a diagnostic tool after patients were screened with the South Oaks Gambling Screen and determined to be probable pathological gamblers.
NODS was not used to examine treatment-outcome, however. The NODS is attached as Appendix C.

*South Oaks Gambling Screen (SOGS; Lesieur & Blume, 1987).*

The South Oaks Gambling Screen (SOGS; Lesieur & Blume, 1987) is probably the most commonly used instrument for assessing PG. The SOGS is designed to be self or clinician-administered and contains 20 yes/no items drawn from DSM-III criteria. Items assess for behaviors such as returning to win back lost money, lying about gambling behaviors, gambling more than intended, borrowing or arguing about money, and feeling guilty about gambling or feeling the need to cut down on gambling. “Yes” answers are given a score of 1 and “No” answers are given a score of 0. Total scores can therefore range from 0 to 20. Though cutoffs vary between individual published studies, 0, 1, or 2 typically indicate no gambling problems, 3-4 typically indicates potential pathological gambling (level 2), and 5 or higher typically indicates probable pathological gambling (level 3). The SOGS is not designed for use as a diagnostic tool, which explains why scores of 5+ are considered indicative of “probable” PG and not outright PG. Lesieur and Blume (1987) state that they designed the SOGS as a rapid screening tool for gambling behavior but formal diagnosis should depend upon a clinical interview. As such, the NODS was used as a diagnostic tool for the purposes of this study.

The SOGS provides rich detail about a person’s gambling behavior and its consequences through several multiple-choice items that are not ultimately factored into the scoring algorithm. Participants are asked the frequency with which they participate in various gambling activities, the maximum amount they have bet in one day, and whether either or both parents had a gambling problem. Despite not being used to formulate the
total score, these details are nonetheless useful for research or clinical applications of the SOGS. Specifically, they may be used for correlation or regression analyses in order to examine correlational or predictive relationships between these variables and scores on the greater SOGS.

The SOGS was used to monitor changes in symptoms over time as participants progressed through the study. The SOGS is commonly used in this manner and has been shown to be sensitive to changes in symptomatology over time (Sylvain, Ladouceur, & Boisvert, 1997). In addition, the SOGS has adequate internal consistency (.97) and test-retest reliability (.71). The SOGS was administered two ways. First, the PI or a trained assistant administered the SOGS face-to-face during the recruitment and screening phase, during the sixth week of each treatment-access period, and during the last week of the follow-up period. Participants also had the opportunity to complete the SOGS as part of the first module of the computer-hosted intervention. The SOGS is attached as Appendix D.

*Timeline Follow-Back (TLFB; Sobell, Maisto, Sobell, Cooper, Cooper, & Saunders, 1980).*

The TLFB procedure (Sobell et al., 1980) was originally designed to assess alcohol consumption in an interviewer-administered format. The interviewer uses calendar prompts to assess on how many days the participant consumed alcohol and how much alcohol was consumed on those days. Taber et al. (1987) proposed that the TLFB might be used to assess gambling behavior in the same way as it is used to assess alcohol consumption. Therefore, they used the same calendar prompts to assess gambling behavior. Independent collateral reports were found to be highly correlated with
individual reports, and the TLFB procedure was described as a reliable and valid method of assessing gambling behavior. The PI or a trained assistant administered the TLFB face-to-face during the recruitment and screening phase, during the sixth week of each treatment-access period, and during the last week of the follow-up period. Participants also had the opportunity to complete the TLFB as part of the third module of the computer-hosted intervention. The TLFB is attached as Appendix E.

Depression, Anxiety, and Stress Scales – short version (DASS-21; Lovibond & Lovibond, 1995).

The Depression, Anxiety, and Stress Scales – short version (DASS-21) is a 21-item questionnaire used to briefly assess for symptoms of depression, anxiety, and stress. The DASS-21 is the abbreviated form of the DASS-42. DASS-21 items are scored on a zero to three scale with zero indicating “Did not apply to me at all,” one indicating “Applied to me to some degree, or some of the time,” two indicating “Applied to me to a considerable degree, or a good part of time,” and three indicating “Applied to me very much, or most of the time.” Total scores for each subscale range from 0 through 21 with higher scores indicating increased difficulty in that area. The DASS-21 does not use cutoff scores for mild, moderate, or high levels of depression, anxiety, or stress; rather, increasing scores reflect a continuum of severity.

Using a clinical sample of adults diagnosed with mood and anxiety disorders, Antony, Bieling, Cox, Enns, and Swinson (1998) found each subscale of the DASS-21 to have adequate internal consistency. Cronbach's alphas in that study were .94 for Depression, .87 for Anxiety, and .91 for Stress subscales. The same study found each subscale to have strong concurrent validity, as evidenced by significant correlations with
the Beck Depression Inventory (BDI; Beck, Rush, Shaw, & Emery, 1979; Depression $r = .79$, Anxiety, $r = .62$, Stress, $r = .69$) and State-Trait Anxiety Inventory Trait subscale (STAI-T; Spielberger, 1983; Depression, $r = .71$, Anxiety, $r = .55$, Stress, $r = .68$). The DASS-21 is attached as Appendix F.

Computer-hosted Intervention

A computer kiosk was installed in a small room adjacent to the waiting room of the UPC Jefferson Clinic prior to the start of screening. A printer was attached to the computer so that participants could print verification of their completion of each individual treatment module. Internet access was disabled to minimize the opportunity for distractions and non-treatment time spent on the computer by any individual participant. Reducing these distractions was intended to maximize the number of participants who were able to access the computer during their assigned six-week period.

The computer-hosted intervention used in this study was based upon a face-to-face CBT protocol designed by Nancy Petry, PhD. That protocol was used in one previous-treatment-outcome study that produced significant reductions in time and money spent while gambling (Petry et al., 2006; see Table 4). The treatment protocol for that study was initially adapted to an interactive website, based upon detailed instructions provided by Dr. Petry. Subsequently, the protocol was converted to a computer-hosted format for this study. Using the protocol as a computer program rather than a website removed the necessity of having Internet access for the computer kiosk and prevented participants from using the computer for anything other than its intended purpose. Screenshots of the program are attached as Appendix G.
The full protocol consisted of ten modules, each of which was designed to parallel one session of face-to-face CBT. Based upon tests by research team members, and reports from individual therapy clients of the PI, each module requires an average of 10-35 minutes to complete. The first module was a self-assessment of gambling problems, including the full SOGS, plus additional questions to assess approximately how much money had been wagered in the past year. A summary at the end of the module provided a SOGS score and an estimate of the annual amount of money wagered by the user. Participants who met criteria for level two or three (3-4, 5+ scores on the SOGS, respectively; Lesieur & Blume, 1987) gambling were encouraged to complete additional modules. Participants who met criteria for level one gambling were given the option but not encouraged to continue.

The second module contained elements of MET (Miller, Zweben, DiClemente & Rychtarik, 1992) and was intended to enhance motivation to complete the entire treatment program. Items in the second module included questions such as “what are all of the benefits of gambling? What are all of the negatives?” The program also prompted the participant to list the good things that would happen if he or she were to stop gambling.

The third module was designed to develop self-observation skills. The program prompted the participant to remember and disclose gambling wins and losses, age of gambling onset, and additional feelings about gambling. In addition, the third module employed a calendar on which the participant was prompted to enter the days that gambling occurred in the past three months and the amounts wagered on those days. This feature was based upon the TLFB (Taber et al., 1987; see Table 3). The computer
automatically calculated the amounts and provided the participant with a record of their behavior.

The fourth module was designed to help participants identify triggers for gambling behavior. The computer prompted the participant to enter the times, places, moods, feelings, and other people that are around when gambling occurs. This module also asked the participant to list people, places, or situations that make it more difficult to gamble.

The fifth module was designed to help participants gain an awareness of when and why they gamble. This module contained many questions that were designed to help the participant identify the exact feelings that were present during gambling. The computer automatically scored all responses and prompted the participant to choose three situations that were most problematic. The participant was then prompted to list activities that can take the place of gambling. For example, if the response to one of the questions indicated that the participant liked to gamble because he or she enjoyed being around people, an alternative activity might have been to go to a party, or do something else that is social.

The sixth module was designed to teach strategies to cope with thoughts and urges to gamble. The computer prompted the participant to list alternative activities or people who can be accessed when the urge to gamble occurs. In addition, the computer asked the participant to list the negative consequences of gambling and the positive consequences of not gambling.

The seventh module was designed to help identify alternative activities and the appropriate times to do them. For example, the computer asked participants to list things
that can be done on payday, when the participant was alone, or otherwise experienced an urge to gamble. The program asked the participant to choose activities that require planning and activities that could be done spontaneously.

The eighth module was designed to foster the challenging and changing of irrational thoughts that are related to gambling. For example, the computer helped participants challenge thoughts such as “I’ve been losing all night so I’m due for a win.” This module also explained how wins, or near wins, help to maintain bad gambling behavior by creating an illusion of control.

The ninth module was designed to help participants reduce the financial stress caused by gambling. This section allowed the participant to enter monthly income and monthly expenses into a calculator that calculates available money or debts. It also asked participants to list ways to increase income and decrease expenses. At the end of the ninth module, participants were prompted to make a plan to set aside money to repay debts.

The tenth and final section was aimed at teaching strategies for preventing a relapse into bad gambling habits. It asked participants to list potential obstacles that may get in the way of stopping gambling, as well as possible strategies to overcome these obstacles. It also taught participants that a small lapse does not mean that they have failed by prompting them to remember the great progress that they had already made. This action was designed to help prevent full relapse. Participants were encouraged to work through previous modules again, whenever they felt the need, and a list of local treatment providers was provided if the participant felt the need for additional treatment.

Summaries of each module could be printed off after completion of each module. These summaries were designed to be reminders of the content of the module and
participants were encouraged to retain them as a reminder of their progress. Most data entered into the program were saved in a database and was not erased when the participant logged out of the program. Therefore, participants could return at any time to complete a module or print an additional copy of their summary. Exceptions of saved data were entries into the SOGS component of module one and the TLFB component of module three.

Procedure

Initial recruitment and screening took four weeks, during which time 125 patients were screened with the SOGS. Recruitment was done by the PI and/or trained assistants. The SOGS was administered orally. Patients who scored two or lower were told that they did not meet criteria to participate further and were given $5 cash for completing the interview. Patients who scored three or higher were asked how long they had been in treatment at the UPC Jefferson Clinic. Those who had attended for one month or longer were told about and invited to participate in the treatment portion of the study. One patient had started at UPC during the week she was screened, but she had been transferred from another clinic where she was a patient for over one year. This is not uncommon and is usually done for budgetary reasons or so that the patient may participate in research studies pertaining to their individual demographics. Given that the one-month criterion was included to reduce attrition, this patient was allowed to participate despite not strictly meeting the criterion. For those who met criteria and agreed to participate, informed consent was obtained and documented by a signature on an informed consent form (Appendix A). Participants had the opportunity to ask questions before signing the informed consent agreement and were also informed that
they may leave the study at any time and without penalty. HIPAA consent was also obtained (Appendix B) before patients were then administered another oral interview consisting of a full explanation of the study timelines, demographics questionnaire (Appendix H), NODS, DASS-21, and the TLFB. HIPAA consent was necessary so that patient charts could be accessed, from which urinalysis results and diagnostic information could be obtained. A full explanation of informed consent procedures is contained within the Informed Consent and Ethical Treatment section of this paper (p. 46).

At the completion of the initial interview, participants were told that they would be randomly assigned to one of two groups at the end of the recruitment period. They were also informed of where group assignments would be posted. All participants were paid $5 in cash for participation immediately after completion of the screening interview, as well as for other participation in this study, as described later. Other studies in the addiction literature have found that delaying reinforcement reduces its effect upon behavior (Bickel & Marsch, 2001; Bickel & Johnson, 2003), so reinforcement for participation was provided immediately. In addition, payment as low as $2 has been demonstrated to be a sufficient level of reinforcement in a previous study at this site (Ledgerwood & Downey, 2002).

Patients enrolled in the treatment portion of the study were given a 3x5 index card with their identification number and were told not to disclose their ID number to anyone not affiliated with the study. Participants were instructed to keep this card for reference and told that their number will determine their group assignment. Participants assigned to the treatment phase of the study were told that they were to use their ID number as a user ID for the computer program. In addition, they were told that they could check their
number at the main desk or with the PI if they forgot or lost their card. Participants who did not meet inclusion criteria were not given an identification card and were informed that they should not use the computer when it was installed.

After recruitment was complete, therapists were surveyed about disclosure rates, duration of sessions, and durations of discussions centering on gambling behavior with their clients over four weeks previous to recruitment. A de-identified version of this survey is attached as Appendix I, of which therapists received four copies corresponding to the previous four weeks. Afterwards, therapists were asked to fill out a similar survey to track disclosure rates and session durations each week for the next 18 weeks. These surveys were distributed every Friday for the duration of the study, and in-person reminders were made, as appropriate, to encourage therapists to return completed questionnaires. In addition, a separate survey was distributed to examine whether disclosure occurred during group therapy sessions. This survey addressed only these patients who had filled out an informed consent form. It is attached as Appendix J.

The computer kiosk was installed prior to the start of the recruitment period and was pointed out to patients upon completing the initial interview. During the baseline month, patients meeting inclusion criteria were randomly assigned to one of two treatment-access groups, through use of a computer program. At the end of the screening and recruitment period, all available participants in the first group were reminded of their assignment and informed that they had six weeks to complete all ten modules of the program. The second group was also informed of their start date at this time. Both groups had six weeks in which to complete all ten modules, and groups did not overlap. Therefore, the treatment-access phase of this study lasted 12 weeks. This allowed
comparison of the group receiving treatment to the group not receiving treatment at the end of the first six-week period, approximating a randomized controlled study. At twelve weeks, comparisons between groups exposed early and late were possible.

It is possible, given that patients come to the UPC clinic for either 6, 3, or 2 days per week, that not all patients had equal access to the computer-hosted intervention. However, even patients at the clinic for only two days still had ten hours per week when the intervention was available to them. Participants were told that they would only receive payment for completing three modules per week. This was intended to limit the amount of time any individual spent on the computer each week, thereby permitting sufficient access for all.

The PI or a trained assistant was available each week to remind participants of their assignment and ID number, as appropriate. A list of ID numbers and assignments was posted near the computer, in the waiting room, and on a large color-coded calendar that was posted on the door to the room containing the kiosk.

Summaries were provided at the conclusion of each treatment module and participants were instructed to print these summaries in order to exchange each for $2 in cash. Participants received an additional $5 for completing the SOGS and DASS-21 during the final week of each treatment-access period. The SOGS was also part of the first treatment module, but participant entries were not recorded by the computer; they were recorded by hand when possible. This point is relevant to the analysis of hypothesis three and will be discussed in the Discussion section.
Method: Therapist Observations of Disclosure

Participants

The Jefferson Clinic employs eight full-or part-time therapists, each of whom carries a caseload of 10-20 patients. Therapists meet with their assigned patients biweekly and attend weekly treatment team meetings. These treatment team meetings include all available therapists and the clinical director. Prior to the onset of data collection, the PI attended one of these meetings to explain the upcoming study and obtain therapists’ informed consent.

A raffle with monetary or tangible awards was proposed to encourage therapists to participate in the study. This raffle was designed to include eight awards of increasing value so that all therapists would be compensated for their participation. In the originally proposed design of the study, therapists were to receive one raffle ticket for each completed survey and one additional ticket for completing surveys in consecutive weeks. Completing surveys in three consecutive weeks would have earned one ticket the first week, three the second week, and four the third week, for example. In this way, therapists would have been encouraged to adhere to the study methodology but not be punished for small lapses. However, the Wayne State University Human Investigation Committee (WSU HIC) decided that a raffle was inappropriate because it might incentivize therapists to provide data that benefitted the PI. Therefore, all therapists were compensated with a $20 gift card at the end of the study, regardless of whether they provided surveys or not. Because this new WSU HIC requirement allowed therapists to be compensated regardless of their level of their participation, the PI and assistants made extra effort to remind therapists to turn in surveys each week, despite them having very limited incentive to do
It was explained to therapists that compensation was earned for participation and was not meant to entice them to discuss gambling with their patients. They were informed that they should try not to alter their behavior in any way in order to maintain the naturalistic integrity of their sessions.

**Measures**

The weekly surveys given to therapists (see Appendices E and L) consisted of four items for each of the therapists’ clients. Therapists were asked if their client disclosed gambling behavior, whether the discussion was therapist or client initiated, and for how many minutes the discussion lasted. In addition, the duration of the session, in minutes, was asked. Surveys for each therapist were unique and each asked only about those patients assigned to the therapist. Therapists had the option of marking a box to indicate that any particular client did not attend session in that week. In that way, it was apparent if clients missed sessions or dropped out of the study completely.

**Procedure**

Therapists were surveyed at the end of each week of the study to determine if and for how long each of their clients disclosed gambling behavior during their biweekly session. The retrospective/baseline survey was distributed on the Friday before the beginning of the first treatment-access period. This survey asked about treatment content for the previous four weeks. Weekly surveys were distributed at the end of the first week of the first treatment-access period. Surveys continued to be distributed once weekly for the duration of the study. In this manner, baseline data were collected after recruitment but before treatment-access, and response to treatment-access could be examined during the rest of the study. Surveys continued to be distributed for four weeks after treatment-
access was discontinued for both groups. A total of 19 surveys could have been collected from each therapist.

Results

Participants

Though over 150 patients were expected to complete the screening interview, only 125 people were screened with the SOGS during the recruitment period. Conversations with the clinic director and receptionist revealed that approximately 120-130 patients were enrolled the UPC Jefferson clinic at the time recruitment began in June of 2008. Of the 125 people screened, 42 (34%) met inclusion criteria and were administered the initial interview consisting of the NODS, DASS-21, TLFB, and a demographics questionnaire. Three of these participants were subsequently removed from the study when it was revealed that they were not clinic patients. An additional two were removed shortly into the first treatment phase because they lied to study personnel and completed the first three treatment modules on three consecutive days, earning $18 for completing nine modules. It was later found, when comparing experiences between all research assistants, that these same two individuals completed the screening interview multiple times using false names, earning $5 each time. Their removal left 17 participants in the first treatment group and 20 in the second. Five additional participants were lost from each group through the course of the study because they left the UPC Jefferson Clinic and could not be contacted for further data collection. According to an independent-samples t test, initial groups were relatively heterogeneous and did not differ significantly according to SOGS scores (M = 10.06 for group 1, M = 10.75 for group 2, p = .726).
Those recruited for the treatment phase of the present study (n=37) were 59.5% male, 73% African-American, 16.2% Caucasian, and 2.7% Latino. Participants’ ages ranged from 25 to 62 (M = 50.12, SD = 9.92), and mean length of treatment was 11.3 weeks (SD = 10.62, range = 0-48). Treatment groups differed significantly in age (M = 46.18 for Group 1 vs. 53.60 for Group 2, \( p = .021 \)) but were not statistically different in any other demographic categories. Full demographics for the treatment sample are presented in Table 4, and demographic information broken down by treatment group is presented in Table 5.

The only demographic information obtained for the entire clinic population was sex, which was relatively congruent with the treatment phase sample at 62.4% male and 37.6% female. It is unclear, however, if the treatment sample is representative of the clinic population across other demographic factors.
Table 4  
*Demographic Information.*

<table>
<thead>
<tr>
<th>Demographic Information</th>
<th>% (n)</th>
<th>Demographic Information</th>
<th>% (n)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Race/Ethnicity</td>
<td></td>
<td>Yearly Income</td>
<td></td>
</tr>
<tr>
<td>Black</td>
<td>73 (27)</td>
<td>less than $5,000</td>
<td>16.2 (6)</td>
</tr>
<tr>
<td>White</td>
<td>16.2 (6)</td>
<td>$5,000-9,999</td>
<td>18.9 (7)</td>
</tr>
<tr>
<td>Hispanic</td>
<td>2.7 (1)</td>
<td>$10,000-24,999</td>
<td>29.7 (11)</td>
</tr>
<tr>
<td>Other</td>
<td>8.1 (3)</td>
<td>$25,000-49,999</td>
<td>24.3 (9)</td>
</tr>
<tr>
<td>Gender (treatment sample)</td>
<td></td>
<td>$50,000-74,000</td>
<td>2.7 (1)</td>
</tr>
<tr>
<td>Female</td>
<td>40.5 (15)</td>
<td>$75,000-99,000</td>
<td>0.0 (0)</td>
</tr>
<tr>
<td>Male</td>
<td>59.5 (22)</td>
<td>Greater than $100,000</td>
<td>2.7 (1)</td>
</tr>
<tr>
<td>Gender (total sample)</td>
<td></td>
<td>Prefer not to say</td>
<td>5.4 (2)</td>
</tr>
<tr>
<td>Female</td>
<td>37.6 (44)</td>
<td>Employment Status</td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>62.4 (73)</td>
<td>Unemployed</td>
<td>37.8 (14)</td>
</tr>
<tr>
<td>Age</td>
<td></td>
<td>Retired/disability</td>
<td>27.0 (10)</td>
</tr>
<tr>
<td>25-29</td>
<td>7.1 (3)</td>
<td>Full-time</td>
<td>18.9 (7)</td>
</tr>
<tr>
<td>30-39</td>
<td>7.1 (3)</td>
<td>Part-time</td>
<td>8.1 (3)</td>
</tr>
<tr>
<td>40-49</td>
<td>16.2 (6)</td>
<td>Unemployed/Student</td>
<td>8.1 (3)</td>
</tr>
<tr>
<td>50-59</td>
<td>62.5 (22)</td>
<td>Live in Detroit</td>
<td></td>
</tr>
<tr>
<td>60-62</td>
<td>7.1 (3)</td>
<td>Yes</td>
<td>86.5 (32)</td>
</tr>
<tr>
<td>Relationship Status</td>
<td></td>
<td>Months attended UPC</td>
<td></td>
</tr>
<tr>
<td>Currently Single</td>
<td>54.1 (20)</td>
<td>3 months or less</td>
<td>22.9 (8)</td>
</tr>
<tr>
<td>Married/living with partner</td>
<td>21.6 (8)</td>
<td>4-6 months</td>
<td>8.6 (3)</td>
</tr>
<tr>
<td>Divorced/Separated</td>
<td>24.3 (9)</td>
<td>7-10 months</td>
<td>17.1 (6)</td>
</tr>
<tr>
<td>Widowed</td>
<td></td>
<td>11-15 months</td>
<td>29.8 (10)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>16 months or more</td>
<td>22.9 (8)</td>
</tr>
</tbody>
</table>
Table 5
Demographic Information for Treatment Groups.

<table>
<thead>
<tr>
<th>Demographic Information</th>
<th>Group 1</th>
<th>Group 2</th>
<th>Demographic Information</th>
</tr>
</thead>
<tbody>
<tr>
<td>Race/Ethnicity</td>
<td>% (n)</td>
<td>% (n)</td>
<td>% (n)</td>
</tr>
<tr>
<td>Black</td>
<td>64.7%(11)</td>
<td>80%(16)</td>
<td>less than $5,000</td>
</tr>
<tr>
<td>White</td>
<td>23.5%(4)</td>
<td>10%(2)</td>
<td>$5,000-9,999</td>
</tr>
<tr>
<td>Hispanic</td>
<td>0%(0)</td>
<td>5%(1)</td>
<td>$10,000-24,999</td>
</tr>
<tr>
<td>Other</td>
<td>11.8%(2)</td>
<td>5%(1)</td>
<td>$25,000-49,999</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>$50,000-74,000</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>$75,000-99,000</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Greater than $100,000</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Prefer not to say</td>
</tr>
<tr>
<td>Sex</td>
<td></td>
<td></td>
<td>Employment Status</td>
</tr>
<tr>
<td>Female</td>
<td>41.2%(7)</td>
<td>40%(8)</td>
<td>Unemployed</td>
</tr>
<tr>
<td>Male</td>
<td>58.8%(10)</td>
<td>60%(12)</td>
<td>Retired/disability</td>
</tr>
<tr>
<td>Age*</td>
<td></td>
<td></td>
<td>Full-time</td>
</tr>
<tr>
<td>25-29</td>
<td>17.6%(3)</td>
<td>0%(0)</td>
<td>Part-time</td>
</tr>
<tr>
<td>30-39</td>
<td>11.8%(2)</td>
<td>5%(1)</td>
<td>Unemployed/Student</td>
</tr>
<tr>
<td>40-49</td>
<td>23.5%(4)</td>
<td>5%(1)</td>
<td>5.9%(1)</td>
</tr>
<tr>
<td>50-59</td>
<td>29.4%(5)</td>
<td>85%(17)</td>
<td>10%(2)</td>
</tr>
<tr>
<td>60-62</td>
<td>11.8%(2)</td>
<td>5%(1)</td>
<td></td>
</tr>
<tr>
<td>Relationship Status</td>
<td></td>
<td></td>
<td>Months attended UPC</td>
</tr>
<tr>
<td>Currently Single</td>
<td>70.6%(12)</td>
<td>40%(8)</td>
<td>3 months or less</td>
</tr>
<tr>
<td>Married/living with</td>
<td>11.8%(2)</td>
<td>30%(6)</td>
<td>4-6 months</td>
</tr>
<tr>
<td>partner</td>
<td></td>
<td></td>
<td>7-10 months</td>
</tr>
<tr>
<td>Divorced/Separated</td>
<td>11.8%(2)</td>
<td>25%(5)</td>
<td>11-15 months</td>
</tr>
<tr>
<td>Widowed</td>
<td>5.9%(1)</td>
<td>5%(1)</td>
<td>16 months or more</td>
</tr>
<tr>
<td>Live in Detroit</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>82.4%(14)</td>
<td>90%(18)</td>
<td></td>
</tr>
<tr>
<td>No</td>
<td>17.6%(3)</td>
<td>10%(2)</td>
<td></td>
</tr>
</tbody>
</table>

*p < .05

Hypothesis 1: Prevalence of PG

The SOGS was administered to 119 patients of the UPC Jefferson Avenue Clinic as a screening instrument for the treatment phase of the study. Six non-patients completed screening, but their data was not included in any analyses. Of the 119 patients who were screened, 40.3% (43) scored zero, one, or two, which indicates PG is unlikely; 12.6% (15) scored three or four, indicating potential PG; and 47.1% (61) scored five or higher, which indicates probable PG. A prevalence rate higher than that found by Ledgerwood and Downey (2002; 11.3% 3-4, 17.7% 5+) was expected. However, the rate found in this
study was substantially higher than expected, and perhaps higher than what might be considered to be reasonable. In a similar population to that used in the present study, Weinstock, Blanco, and Petry (2006) reported lifetime prevalence of PG to be 52.7%, but a similarly high rate has not been reported in any other published studies. Also, the rate obtained in the present study was for current PG, which would naturally be lower than lifetime rates. These discrepancies will be outlined in more detail in the Discussion section of this paper.

The NODS was administered to those who scored three or higher on the SOGS and were recruited for the treatment phase of this study, allowing for a comparison of SOGS and NODS past-year scores (NODS-PY). Incremental scores were significantly correlated ($r = .634, p < .001$), but categorical agreement between the SOGS and NODS was low. According to a chi-square analysis, the relationship between SOGS and NODS categories was not significant, $\chi^2 (2, N = 37) = 2.849, p = .241$ (see Table 6).

Table 6
*Percentage Agreement Between SOGS and NODS Scores.*

<table>
<thead>
<tr>
<th>NODS-Past Year</th>
<th>SOGS 0,1,2 = No PG</th>
<th>SOGS 3,4 = Potential PG</th>
<th>SOGS 5+ = Probable PG</th>
</tr>
</thead>
<tbody>
<tr>
<td>0,1,2 = At risk</td>
<td>0%</td>
<td>60%</td>
<td>29.7%</td>
</tr>
<tr>
<td>3,4 = Problem Gambling</td>
<td>0%</td>
<td>0%</td>
<td>13.5%</td>
</tr>
<tr>
<td>5+ = Pathological Gambling (PG)</td>
<td>0%</td>
<td>40%</td>
<td>56.8%</td>
</tr>
</tbody>
</table>
Hypothesis 2: Predictors of PG Severity

The second hypothesis anticipated that PG severity, as measured by SOGS scores, would be significantly associated with several variables, including comorbid diagnoses, age, sex, time in treatment, employment status, income, DASS-21 total score, and concurrent drug use, as indicated by positive urinalysis tests. A multiple regression model was used to determine which of these factors were predictors of PG severity. First, the correlation matrix of all potential predictors was inspected to identify significant zero-order correlations. Those variables significantly associated with PG were considered for inclusion in the regression model. The correlation matrix of all candidate predictors is shown in Table 7.

Table 7
Correlation Matrix for Predictor Variables of PG Severity.

<table>
<thead>
<tr>
<th>Variable</th>
<th>1.</th>
<th>2.</th>
<th>3.</th>
<th>4.</th>
<th>5.</th>
<th>6.</th>
<th>7.</th>
<th>8.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Initial SOGS score</td>
<td>-</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Age (years)</td>
<td>-.066</td>
<td>-</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Time in treatment</td>
<td>.391*</td>
<td>.296</td>
<td>-</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Sex</td>
<td>.006</td>
<td>-.365*</td>
<td>.015</td>
<td>-</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Employment</td>
<td>-.080</td>
<td>.381*</td>
<td>.076</td>
<td>-.136</td>
<td>-</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. Income</td>
<td>-.386*</td>
<td>.223</td>
<td>.117</td>
<td>.229</td>
<td>.383*</td>
<td>-</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. DASS total score</td>
<td>.485**</td>
<td>-.184</td>
<td>-.038</td>
<td>.053</td>
<td>-.225</td>
<td>-.285</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>8. Comorbid diagnoses</td>
<td>-.012</td>
<td>-.226</td>
<td>-.061</td>
<td>.299</td>
<td>-.208</td>
<td>.041</td>
<td>-.004</td>
<td>-</td>
</tr>
</tbody>
</table>
| 9. Positive urinalysis         | -.180| -.093| -.424*| -.188| -.298| -.314| .173| -.161|}

Note. \( n = 37 \)

** \( p < .01 \)

* \( p < .05 \)

As shown in column 1 of Table 8, PG severity is most strongly correlated with total scores on the DASS-21, length of time in treatment, and income, respectively. Income was negatively correlated, meaning that lower incomes were associated with higher scores on the SOGS.

All predictors with significant correlations to PG severity (DASS-21 total scores, time in treatment, income) were included in the initial regression model. They were
entered based upon the strength and frequency of previously documented relationships to gambling behavior, of which the DASS-21 appeared strongest, followed by time in treatment, and then income. Multicollinearity was low and ranged from 1.014 to 1.109. This regression model revealed that DASS-21 total score, t=3.318, \(p < .01\), time in treatment, t= 3.462, \(p < .01\), and income, t=-2.166, \(p < .05\) were significant predictors of scores on the SOGS. Regression coefficients are presented in Table 8.

Table 8. **Regression Coefficients for DASS-21 Total Score, Income, and Time in Treatment as Predictors of PG Severity.**

<table>
<thead>
<tr>
<th>Step</th>
<th>(b)</th>
<th>SE (b)</th>
<th>(\beta)</th>
<th>(R^2)</th>
<th>(\Delta R^2)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>.174</td>
<td>.051</td>
<td>.508</td>
<td>.258</td>
<td>.258**</td>
</tr>
<tr>
<td>2</td>
<td>.179</td>
<td>.046</td>
<td>.524</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>.191</td>
<td>.062</td>
<td>.411</td>
<td>.427</td>
<td>.169**</td>
</tr>
<tr>
<td>3</td>
<td>.151</td>
<td>.045</td>
<td>.440</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>.206</td>
<td>.059</td>
<td>.442</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>-.972</td>
<td>.449</td>
<td>-.289</td>
<td>.502</td>
<td>.075*</td>
</tr>
</tbody>
</table>

\(\text{**} = p < .01, \quad \text{*} = p < .05\)

According to Model 1, DASS-21 total scores at the initial interview accounted for 25.8% of the variance in PG severity, as measured by SOGS scores. The inclusion of Time in Treatment into Model 2 resulted in an additional 16.9% of the variance being explained. Model 3, the final model, included Income and accounted for 50.2% of the variance in PG severity. Only DASS-21 total scores remained as significant predictors of initial SOGS scores (\(R^2 = .179\)) when this analysis was rerun using transformed variables.
(Log10 + 1). Transformation and reanalysis was completed as a supplemental exploratory procedure because the continuous variables were not normally distributed.

As shown earlier, the DASS-21 is strongly correlated with initial SOGS scores and accounted for 25.8% of their variance. As Depression, Stress, and Anxiety are three separate constructs with demonstrated relationships to PG, each of their predictive relationships to SOGS scores was examined in an additional regression model. As before, and using the same variables, a correlation matrix of all potential predictors was inspected to identify significant zero-order correlations. Those variables significantly associated with PG were considered for inclusion in the regression model. The correlation matrix of all candidate predictors is shown in Table 9.

Table 9
Correlation Matrix for Predictor Variables of PG Severity Using DASS-21 Subscales.

<table>
<thead>
<tr>
<th>Variable</th>
<th>1.</th>
<th>2.</th>
<th>3.</th>
<th>4.</th>
<th>5.</th>
<th>6.</th>
<th>7.</th>
<th>8.</th>
<th>9.</th>
<th>10.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Initial SOGS score</td>
<td>-</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. DASS Depression</td>
<td>.428**</td>
<td>-</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. DASS Anxiety</td>
<td>.479**</td>
<td>.741**</td>
<td>-</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. DASS Stress</td>
<td>.397*</td>
<td>.704**</td>
<td>.646**</td>
<td>-</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Age (years)</td>
<td>-.066</td>
<td>-.246</td>
<td>-.069</td>
<td>-.173</td>
<td>-</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. Time in treatment</td>
<td>.391*</td>
<td>.036</td>
<td>.072</td>
<td>-.126</td>
<td>.296</td>
<td>-</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. Sex</td>
<td>.006</td>
<td>-.054</td>
<td>.003</td>
<td>.080</td>
<td>-.365*</td>
<td>.015</td>
<td>-</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8. Employment</td>
<td>-.080</td>
<td>-.212</td>
<td>-.082</td>
<td>-.297</td>
<td>.381*</td>
<td>.076</td>
<td>-.136</td>
<td>-</td>
<td></td>
<td></td>
</tr>
<tr>
<td>9. Income</td>
<td>-.386*</td>
<td>-.327*</td>
<td>-.271</td>
<td>-.172</td>
<td>.223</td>
<td>.117</td>
<td>.29</td>
<td>.383*</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>10. Comorbid dx’s</td>
<td>-.012</td>
<td>.011</td>
<td>-.147</td>
<td>.112</td>
<td>.226</td>
<td>-.061</td>
<td>.299</td>
<td>-.208</td>
<td>.041</td>
<td>-</td>
</tr>
<tr>
<td>11. Positive urinalysis</td>
<td>-.180</td>
<td>.186</td>
<td>.168</td>
<td>.111</td>
<td>.093</td>
<td>-.424*</td>
<td>-.188</td>
<td>-.298</td>
<td>-.314</td>
<td>-.161</td>
</tr>
</tbody>
</table>

Note. n = 37, dx’s = diagnoses
** p < .01
* p < .05

As shown in column 1 of Table 10, PG severity is most strongly correlated with DASS Anxiety, DASS Depression, DASS Stress, length of time in treatment, and income. As before, all predictors with significant correlations to PG severity were included in the initial regression model. They were entered based upon the strength and frequency of previously documented relationships to gambling behavior, of which the
DASS Depression appeared strongest, followed by DASS Anxiety, DASS Stress, time in treatment, and then income. Multicollinearity was relatively high between DASS-21 subscales, and Depression and Stress were consequently removed through the regression analysis. With only Anxiety, Time in Treatment, and Income left in the model, multicollinearity was low, and ranged from 1.005 to 1.106. This regression model revealed that DASS Anxiety, \( t = 2.778, p < .01 \), time in treatment, \( t = 2.988, p < .01 \), and income, \( t = -2.211, p < .05 \), were significant predictors of scores on the SOGS. Regression coefficients are presented in Table 10.

Table 10
Regression Coefficients for DASS-21 Anxiety Subscale score, Income, and Time in Treatment as Predictors of PG Severity

<table>
<thead>
<tr>
<th>Step</th>
<th>b</th>
<th>SE b</th>
<th>( \beta )</th>
<th>( R^2 )</th>
<th>( \Delta R^2 )</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>DASS Anxiety</td>
<td>.484</td>
<td>.147</td>
<td>.498</td>
<td>.248</td>
</tr>
<tr>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>DASS Anxiety</td>
<td>.459</td>
<td>.136</td>
<td>.472</td>
<td></td>
</tr>
<tr>
<td></td>
<td>For how many months have you attended UPS Jefferson?</td>
<td>.166</td>
<td>.065</td>
<td>.357</td>
<td>.375</td>
</tr>
<tr>
<td>3</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>DASS Anxiety</td>
<td>.373</td>
<td>.134</td>
<td>.384</td>
<td></td>
</tr>
<tr>
<td></td>
<td>For how many months have you attended UPC Jefferson?</td>
<td>.186</td>
<td>.062</td>
<td>.399</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Annual Household Income</td>
<td>-1.033</td>
<td>.467</td>
<td>-.307</td>
<td>.460</td>
</tr>
</tbody>
</table>

** \( = p < .01 \)
* \( = p < .05 \)

According to Model 1, DASS Anxiety scores at the initial interview accounted for 24.8% of the variance in PG severity, as measured by SOGS scores. The inclusion of Time in Treatment into Model 2 resulted in an additional 12.7% of the variance being explained. Model 3, the final model, included Income and accounted for 46.0% of the variance in PG severity. Only DASS-21 Depression subscale scores remained as significant predictors of initial SOGS scores (\( R^2 = .170 \)) when this analysis was rerun.
using transformed variables ($\text{Log10} + 1$). Transformation and reanalysis was completed as a supplemental exploratory procedure because the continuous variables were not normally distributed.

As will be outlined in the Discussion section, the abnormally high prevalence of PG, as indicated by initial SOGS scores, may reflect invalid data. SOGS scores after the follow-up period are, theoretically, less vulnerable to overreporting and were therefore used in a second regression analysis. As with the first regression analysis, a correlation matrix of all potential predictors was inspected to identify significant zero-order correlations with final SOGS scores. Time in treatment was the only variable with a significant correlation to final SOGS scores ($r = .523, p < .01$) and accounted for 27.4% of the variance in final SOGS scores. The correlation matrix of all candidate predictors is shown in Table 12. Time in treatment was not found to be a significant predictor when this analysis was rerun using transformed variables ($\text{Log10} + 1$). Transformation and reanalysis was completed as a supplemental exploratory procedure because the continuous variables were not normally distributed. No variables correlated significantly with final SOGS scores after transformation.

Table 11
Correlation Matrix of Predictor Variables for PG Severity (Follow-up Data).

<table>
<thead>
<tr>
<th>Variable</th>
<th>1.</th>
<th>2.</th>
<th>3.</th>
<th>4.</th>
<th>5.</th>
<th>6.</th>
<th>7.</th>
<th>8.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Final SOGS score</td>
<td>-</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Age (years)</td>
<td>.109</td>
<td>-</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Time in treatment</td>
<td>.523**</td>
<td>.296</td>
<td>-</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Sex</td>
<td>-.109</td>
<td>-.365*</td>
<td>.015</td>
<td>-</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Employment</td>
<td>.275</td>
<td>.381*</td>
<td>.076</td>
<td>-.136</td>
<td>-</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. Income</td>
<td>.270</td>
<td>.223</td>
<td>.117</td>
<td>.229</td>
<td>.383*</td>
<td>-</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. DASS total score</td>
<td>.226</td>
<td>-.184</td>
<td>-.038</td>
<td>.053</td>
<td>-.225</td>
<td>-.285</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>8. Comorbid diagnoses</td>
<td>a</td>
<td>-.226</td>
<td>-.061</td>
<td>.299</td>
<td>-.208</td>
<td>.041</td>
<td>-.004</td>
<td>-</td>
</tr>
<tr>
<td>9. Positive urinalysis</td>
<td>-.050</td>
<td>-.093</td>
<td>-.424*</td>
<td>-.188</td>
<td>-.298</td>
<td>-.314</td>
<td>.173</td>
<td>-.161</td>
</tr>
</tbody>
</table>

Note. $n = 27$. a = analysis was not possible for this variable because Comorbid Diagnoses was constant for all participants in the analysis.

** $p < .01$

* $p < .05$
Hypothesis 3: Interview vs. Computer-hosted SOGS Scores

Hypothesis 3 asserted that SOGS scores obtained through the computer-hosted treatment program would be significantly higher than those obtained in face-to-face interviews. Analysis of this hypothesis used data from far fewer participants than other hypotheses because comparatively fewer participants completed the first treatment module relative to those who did face-to-face interviews. Most participants did not complete any modules at all and, therefore, only data from 13 participants were used in the analysis of this hypothesis. The mean score for computer-obtained SOGS scores (M=11.23) was higher than the mean obtained face-to-face for these participants (M=10.69), but the difference was not statistically significant. Table 12 shows descriptive statistics for use of the treatment program, by group.

Table 12
Usage Statistics for Number of Completed Modules of the Computer-hosted Treatment Program by Treatment Condition.

<table>
<thead>
<tr>
<th></th>
<th>Group 1 All participants</th>
<th>Group 2 All participants</th>
<th>Group 1 Treatment users</th>
<th>Group 2 Treatment users</th>
</tr>
</thead>
<tbody>
<tr>
<td>Participants</td>
<td>17</td>
<td>20</td>
<td>6</td>
<td>11</td>
</tr>
<tr>
<td>Median</td>
<td>0</td>
<td>2</td>
<td>8.5</td>
<td>10</td>
</tr>
<tr>
<td>Mode</td>
<td>0</td>
<td>0</td>
<td>10</td>
<td>10</td>
</tr>
<tr>
<td>Mean (SD)</td>
<td>2.76 (4.13)</td>
<td>3.65 (4.40)</td>
<td>7.83 (2.64)</td>
<td>6.64 (3.88)</td>
</tr>
<tr>
<td>Range</td>
<td>0-10</td>
<td>0-10</td>
<td>3-10</td>
<td>2-10</td>
</tr>
<tr>
<td>Total</td>
<td>47</td>
<td>73</td>
<td>47</td>
<td>73</td>
</tr>
</tbody>
</table>

Note. SD = Standard Deviation

Hypothesis 4: Mediation Effect for Treatment Outcome

Hypothesis 4 anticipated that significant relationships would exist between exposure to the computer-hosted treatment, discussions of gambling behavior in counseling sessions, and reductions in SOGS scores over time. To analyze this hypothesis, this mediation model as designed by Baron and Kenny (1986) was planned:
However, a significant correlation was not found between any variables in the directions depicted (A: $r(15) = .320, p = .210$; B: $r(27) = -.251, p = .190$; C: $r(14) = .296, p = .266$). Sixty-one of 105 group therapy questionnaires (58.1%) were returned, as well as 52 of 136 (38.33%) individual therapy questionnaires. Overall, 42.75% of surveys were returned and only five discussions of gambling were reported. These relatively low rates, as well as other limiting factors to the analysis of this hypothesis, will be outlined in the Discussion section of this paper.

**Hypothesis 5: Response to Treatment, by Group**

Hypothesis 5 predicted that the second treatment group, having had longer knowledge of the presence of the treatment program, would utilize it with greater frequency and therefore respond more favorably to the treatment than the first group. This favorable response would be measured by reductions in SOGS and TLFB scores from baseline to follow-up. Means and Standard Deviations for SOGS and TLFB data are presented in Table 14.

A repeated-measures MANOVA was first conducted to compare SOGS scores between groups at four different time points: initial screening, end of the first treatment period (week 6), end of the second period (week 12), and end of the follow-up period (week 16). Use of the treatment program was a covariate in this analysis.
A significant main effect for time was not found, $F(3,72) = 1.134, p = .341$, and there were no significant interaction effects between time and use of the treatment, $F(3,72) = .439, p = .691$, or group assignment, $F(3,72) = .772, p = .514$. In addition, no difference was found between groups based on use of the treatment, $F(1,24) = .047, p = .831$, or group assignment, $F(1,24) = .855, p = .364$. SOGS scores over time are depicted in Figure 2, Use or Non-use of the treatment program is depicted in Figure 3, and Use or Non-use of the treatment program by groups is depicted in Figure 4.

Table 13
Descriptive Statistics for SOGS and TLFB Data.

<table>
<thead>
<tr>
<th></th>
<th>Mean Group 1</th>
<th>Mean Group 2</th>
<th>SD Group 1</th>
<th>SD Group 2</th>
<th>$n$</th>
</tr>
</thead>
<tbody>
<tr>
<td>SOGS Initial</td>
<td>9.25</td>
<td>11.53</td>
<td>4.07</td>
<td>4.96</td>
<td>27</td>
</tr>
<tr>
<td>SOGS week 6</td>
<td>6.58</td>
<td>8.40</td>
<td>5.82</td>
<td>4.32</td>
<td></td>
</tr>
<tr>
<td>SOGS week 12</td>
<td>7.50</td>
<td>7.20</td>
<td>4.05</td>
<td>5.07</td>
<td></td>
</tr>
<tr>
<td>SOGS follow-up</td>
<td>4.92</td>
<td>6.00</td>
<td>3.80</td>
<td>5.33</td>
<td></td>
</tr>
<tr>
<td>TLFB Hours Initial</td>
<td>41.15</td>
<td>8.23</td>
<td>68.28</td>
<td>6.90</td>
<td>10</td>
</tr>
<tr>
<td>TLFB Hours wk. 6</td>
<td>41.35</td>
<td>11.14</td>
<td>75.10</td>
<td>13.62</td>
<td></td>
</tr>
<tr>
<td>TLFB Hours wk. 12</td>
<td>82.85</td>
<td>11.16</td>
<td>123.49</td>
<td>17.40</td>
<td></td>
</tr>
<tr>
<td>TLFB Hours wk. 16</td>
<td>35.13</td>
<td>5.82</td>
<td>51.22</td>
<td>8.97</td>
<td></td>
</tr>
<tr>
<td>TLBF Wagered initial</td>
<td>767.00</td>
<td>393.89</td>
<td>1045.92</td>
<td>261.26</td>
<td>18</td>
</tr>
<tr>
<td>TLBF Wagered wk. 6</td>
<td>2124.89</td>
<td>428.17</td>
<td>1485.70</td>
<td>544.86</td>
<td></td>
</tr>
<tr>
<td>TLBF Wagered wk. 12</td>
<td>872.72</td>
<td>737.67</td>
<td>943.75</td>
<td>782.08</td>
<td></td>
</tr>
<tr>
<td>TLBF Wagered wk. 16</td>
<td>1562.00</td>
<td>342.22</td>
<td>2826.66</td>
<td>323.70</td>
<td></td>
</tr>
<tr>
<td>TLFB Outings initial</td>
<td>26.88</td>
<td>23.11</td>
<td>7.04</td>
<td>11.36</td>
<td>17</td>
</tr>
<tr>
<td>TLFB Outings wk. 6</td>
<td>30.38</td>
<td>20.89</td>
<td>16.47</td>
<td>16.47</td>
<td></td>
</tr>
<tr>
<td>TLFB Outings wk. 12</td>
<td>29.19</td>
<td>23.67</td>
<td>14.30</td>
<td>18.12</td>
<td></td>
</tr>
<tr>
<td>TLFB Outings wk. 16</td>
<td>22.00</td>
<td>16.33</td>
<td>15.42</td>
<td>16.21</td>
<td></td>
</tr>
</tbody>
</table>
Figure 2. SOGS scores by treatment group.

Figure 3. SOGS scores by treatment use/nonuse.
Repeated measures ANOVAs were also conducted to compare the number of hours spent gambling, amount of wagers made, and number of gambling outings, as indicated by TLFB scores. The same four time points as the previous MANOVA were used: initial screening, end of the first treatment period (week 6), end of the second period (week 12), and end of the follow-up period (week 16). The first treatment group spent more hours gambling at all four time points, but there was no significant effect for treatment condition, $F(1,8) = 1.337, p = .281$. In addition, a significant main effect for time was not found, $F(3,24) = 2.288, p = .104$. Hours gambled in week 12 for group one appears considerably elevated (see Figure 4), but this is due to one outlier participant who claimed to gamble more than 200 hours between week 6 and week 12. When removed, hours still make a noticeable jump between week 6 and week 12, but the low number of

Figure 4. SOGS scores by group and treatment use.
participants in the analysis prevents a significant difference from being detected (see Figure 5).

There was a significant main effect for treatment condition when examining the amount of money wagered, $F(1,16) = 5.107, p = .038$, but there was no significant main effect for time, $F(3,48) = 1.136, p = .344$ (see Figure 6). Finally, though the first treatment group gambled more frequently throughout the study period, there was no significant main effect for treatment condition, $F(1,15) = 1.922, p = .186$, or time $F(3,45) = .983, p = .409$, on number of gambling outings (See Figure 7). There were no significant interaction effects for any of the three ANOVA analyses. Results did not change when these analyses were rerun using transformed variables ($\log_{10} + 1$).

Transformation and reanalysis was completed as a supplemental exploratory procedure because the continuous variables were not normally distributed.

![Figure 5. Hours spent gambling in the past month](image)
Figure 6. Hours spent gambling in the past month (outlier removed)

Figure 7. Amount of money wagered in the past month.
Hypothesis 6: Predictors of Treatment Response

The final hypothesis predicted that indicators of PG severity would be negatively correlated with response to treatment, as measured by change on the SOGS from initial screening to the end of the follow-up period. Change scores were calculated by subtracting initial SOGS scores from SOGS scores taken at Follow-up. Therefore, positive numbers indicated a rise in SOGS scores through the study, and negative numbers indicated a drop in SOGS scores. Overall, scores dropped appreciably for both groups (M = -5; see Figure 2).

The initial correlation matrix included additional variables, in order to allow supplementary analysis of other predictors of SOGS change. Variables entered into the correlation matrix were initial SOGS and NODS scores, comorbid diagnoses, income, employment status, sex, age, DASS-21 total scores, time in treatment, group assignment, and concurrent drug use, as indicated by positive urinalysis tests. Group assignment was
also examined as a possible predictor of change. A multiple regression model was used to determine which of these factors were significant predictors of SOGS score change. First, the correlation matrix of all potential predictors was inspected to identify significant zero-order correlations. The correlation matrix of all potential predictors is shown in Table 14.

Table 14
Correlation Matrix for Predictor Variables of Changes in SOGS Scores

<table>
<thead>
<tr>
<th>Variable</th>
<th>1.</th>
<th>2.</th>
<th>3.</th>
<th>4.</th>
<th>5.</th>
<th>6.</th>
<th>7.</th>
<th>8.</th>
<th>9.</th>
<th>10.</th>
<th>11.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Initial to Follow-up</td>
<td>-</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. SOGS Initial Score</td>
<td>-.588**</td>
<td>-</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Age</td>
<td>.012</td>
<td>-.066</td>
<td>-</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Sex</td>
<td>-.331</td>
<td>.006</td>
<td>-.365</td>
<td>-</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Time in Treatment</td>
<td>-.027</td>
<td>.391*</td>
<td>.296</td>
<td>.015</td>
<td>-</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. Employment</td>
<td>.269</td>
<td>-.080</td>
<td>.381*</td>
<td>-.136</td>
<td>.076</td>
<td>-</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. Income</td>
<td>.409*</td>
<td>.386*</td>
<td>.223</td>
<td>.229</td>
<td>.117</td>
<td>.383*</td>
<td>-</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8. DASS total score</td>
<td>-.244</td>
<td>.485**</td>
<td>-.184</td>
<td>.053</td>
<td>-.038</td>
<td>-.225</td>
<td>-.285</td>
<td>-</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9. Comorbid diagnoses</td>
<td>a</td>
<td>-.012</td>
<td>-.226</td>
<td>.299</td>
<td>-.061</td>
<td>-.208</td>
<td>.041</td>
<td>-.004</td>
<td>-</td>
<td></td>
<td></td>
</tr>
<tr>
<td>10. Positive urinalysis</td>
<td>.155</td>
<td>-.180</td>
<td>-.093</td>
<td>-.188</td>
<td>-.424*</td>
<td>-.298</td>
<td>-.314</td>
<td>.173</td>
<td>-.161</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>11. Group Number</td>
<td>-.111</td>
<td>.071</td>
<td>.378*</td>
<td>-.012</td>
<td>.095</td>
<td>.196</td>
<td>-.053</td>
<td>.102</td>
<td>-.030</td>
<td>-.058</td>
<td>-</td>
</tr>
<tr>
<td>12. Initial NODS-PY</td>
<td>-.112</td>
<td>.634**</td>
<td>.080</td>
<td>-.256</td>
<td>.265</td>
<td>-.049</td>
<td>-.298</td>
<td>.529**</td>
<td>.071</td>
<td>-.035</td>
<td>.211</td>
</tr>
</tbody>
</table>

Note. a= could not be computed because comorbid diagnoses was constant in that analysis. n = 37

**p < .01,  
*p < .05

As shown in Table 15, change in SOGS scores through the study is most strongly correlated with initial SOGS scores and income. High initial SOGS and NODS scores, number of comorbid diagnoses, age, and number of positive urinalysis tests were expected to have significant negative correlations to change in SOGS scores, but only initial SOGS scores correlated significantly. However, the correlation was in the opposite of the expected direction. Specifically, it was expected that those with lower baseline SOGS scores would show the most change, as elevated severity is generally associated with resistance to change. To the contrary, those with highest scores showed more change.
In the supplementary analysis, a regression analysis was conducted to identify other predictors of SOGS change. Income was positively correlated, meaning that lower incomes were associated with larger drops in SOGS scores over time. Group assignment was not found to be significantly correlated with change in SOGS scores.

The initial SOGS Score was hypothesized to have the strongest predictive relationship to change in SOGS scores and was entered first into the multiple regression analysis, followed by Income. Multicollinearity was low at 1.047. Initial SOGS Scores were found to be significant predictors of change in SOGS scores, \( t=3.330, p<.01 \), but Income was not found to be a significant predictor in this analysis. Regression coefficients are presented in Table 15.

Table 15

<table>
<thead>
<tr>
<th>Step</th>
<th>Variable</th>
<th>( b )</th>
<th>SE ( b )</th>
<th>( \beta )</th>
<th>( R^2 )</th>
<th>( \Delta R^2 )</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Initial SOGS Score</td>
<td>-.696</td>
<td>.191</td>
<td>-.588</td>
<td>.346</td>
<td>.346**</td>
</tr>
<tr>
<td>2</td>
<td>Initial SOGS Score</td>
<td>-.621</td>
<td>.186</td>
<td>-.525</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Income</td>
<td>1.176</td>
<td>.624</td>
<td>.297</td>
<td>.430</td>
<td>.084</td>
</tr>
</tbody>
</table>

** \( p < .01 \)

According to Model 1, Initial SOGS Score at the initial interview accounted for 34.6% of the variance in SOGS change scores. An additional 8.4% of the variance in SOGS scores was accounted for when Income was added into Model 2. However, this increase was not statistically significant. Only Initial SOGS Score remained a significant predictors of SOGS change \( (r^2 = .287) \) when this analysis was rerun using transformed variables, \( (\log_{10} + 1) \). Transformation and reanalysis was completed as a supplemental exploratory procedure because SOGS scores were not normally distributed.
Discussion

Interpretation of Results

The first hypothesis posited that the prevalence rate of probable PG, as indicated by SOGS scores, would be higher than both that of the general adult population (3.4%; APA, 2000) and a previous study at the UPC Jefferson Clinic (11.3% 3-4, 17.7% 5+; Ledgerwood & Downey, 2002). As predicted, the prevalence rate was found to be higher than both other rates, but so much higher that it might indicate invalid data. The prevalence rate of probable PG (SOGS 5+) found in this study was 47.1 percent, and 12.6 percent scored three or four, indicating potential PG. During the interviews, study personnel asked follow-up questions to the SOGS in an attempt to verify that the participant had provided valid information. Examples included asking participants about their favorite/primary type of gambling, or asking to see a lottery ticket if they indicated frequent lottery play. All participants answered readily during this probing and most were able to produce lottery tickets when asked, so none drew suspicion among study personnel.

The only other published study with a similarly high rate of PG was Weinstock, Blanco, and Petry (2006), who found the lifetime prevalence of PG in a methadone-maintenance population to be 52.7%. However, the high rate found in the present study was for current PG which, as in any disorder, must be equal to or less than the lifetime rate and is most commonly lower. Both studies had similar methodology of using the SOGS to screen participants for inclusion into treatment studies. Therefore, more gamblers than non-gamblers may have been attracted to the screening, which would have increased the rate of PG. Desire to be included in these treatment studies may have also
influenced responses to the SOGS, and artificially inflated the rate of PG. Weinstock, Blanco, and Petry (2006) raised the possibility of a rate as low as 11.7% in their study, which is more consistent with other studies in the literature. As such, the accuracy of the substantially higher rate of probable PG found in the present study is questionable.

One possible explanation for the high rate found in the present study is overreporting, due to compensation-seeking. Though participants over-report symptoms of problematic gambling on the SOGS, they may also gamble frequently enough that their SOGS responses appear valid to interviewers, which might explain why the overreporting was not detected. Specifically, the majority of participants in this study reported playing the lottery several times per week and were able to show tickets as proof, but this does not necessarily indicate problematic gambling. Therefore, participants may play the lottery frequently and carry lottery tickets but not have borrowed money from a loan shark, argued over money spent gambling, felt guilty about gambling, or made repeated efforts to cut down or stop gambling, as they reported in the interview. Inaccurate reporting is not uncommon in research using substance dependent samples, especially in the absence of collateral assessment. Alterman, Snider, Cacciola, and Brown (1996) found that “fake good” and “fake bad” profiles on the Personality Assessment Inventory (PAI) translated to response styles on the Addiction Severity Index (ASI) and Diagnostic Interview Schedule (DIS) in a methadone maintenance population. “Fake good” and “fake bad” profiles are generated when a respondent tailors answers to present a desired image of self. With regard to the PAI, a respondent with a “fake bad” profile responded with the intent of exaggerating symptoms, also known as malingering. This is consistent with the theory that participants in the present study overreported
symptoms in order to exaggerate their gambling behavior and gain entry into the treatment phase of the study, as will be discussed later. In addition, additional studies have shown that perceived consequences can affect responses on measures of addictive behaviors (Hser et al., 1992; Magura et al., 1987; Myers, 1983).

Conversely, participants may have accurately endorsed SOGS items but the items themselves are not necessarily accurate indicators of true PG in this population. For example, it may be more common for an individual of low SES, with few financial resources to spare, to feel guilty about gambling. Repeated efforts to cut down or stop gambling or arguments over money spent gambling may also be more common in this population and for the same reason. However, Stinchfield (2002) found that the SOGS displayed satisfactory validity and was significantly correlated to DSM-IV PG criteria in a sample of treatment-seeking gamblers. The NODS, which is based upon DSM-IV (APA, 1994) criteria, is generally regarded as a much better diagnostic tool for PG than the SOGS, which is based upon DSM-III (APA, 1980) criteria. However, as the SOGS was found to correlate strongly with DSM-IV criteria (Stinchfield, 2002), it may be inferred that the SOGS and NODS would correlate highly as well. This study found relative incongruence between SOGS and NODS scores (see Table 7), which again suggests that the differences are likely attributable to the population under study. Incongruence with the NODS paired with the difference in rates found between this study and Ledgerwood and Downey’s (2002) study that used the same screening measure (SOGS) at the same site (UPC Jefferson Clinic) further suggests that invalid data were provided for the SOGS in the present study.
Ledgerwood and Downey (2002) paid patients of the UPC Jefferson Clinic $2 after completion of the SOGS, administered in oral form. The methodology used was essentially identical to that used in the present study but without the possibility of responses earning placement in another phase of the study that paid more money. Weinstock, Blanco, and Petry (2006) used the SOGS to screen for inclusion into treatment studies and reported a lifetime rate of PG at 52.7%, which is roughly congruent with the 47.1% rate found in the present study. This suggests that the desire to be included in the treatment phase of this study, to make money or otherwise, may have encouraged patients to over-report symptoms of PG.

Besides responses unlocking additional earning potential, another difference between the present study and Ledgerwood and Downey (2002) was that the previous study was conducted before the construction of three major casinos in Detroit. At the time of screening for the present study, these three casinos were fully operational and were reportedly attended by several participants. However, it is not likely that these casinos alone would account for a 266% increase in prevalence of probable PG. Jacques, Ladouceur, and Ferland (2000) found that the rate of probable PG in a general adult sample increased 61% one year after a new casino was built in a Canadian town. This increase (1.1% to 1.8%) was not statistically significant, however. Longer-term observations are not available for this population, but a 266% increase is unlikely, much less an increase to a 47.1% prevalence rate, as found in the present study.

Therefore, it remains unclear whether the higher rate of probable PG obtained in this study is due to overreporting, unique cultural factors that affect the accuracy of the SOGS, or the effect of new casinos that have been built nearby. It is likely that a
Combination of all of these factors account for the increase. The absence of collateral information or additional controlled research makes it impossible to determine the reason at this time. Future research ideas to address this issue will be discussed in the Future Research section of this paper.

Hypothesis two examined predictive factors of PG severity, as indicated by SOGS scores. Analysis revealed that lower incomes, longer treatment histories, and higher DASS-21 total scores were significant predictors of PG severity. Throughout the study, participants frequently reported daily lottery gambling, which they viewed as a potential source of income. This “subsistence gambling” is consistent with income as a predictor of PG severity. Incomes for the majority of participants were generally low (64.8% < $25,000/year) and reports of daily gambling were common. An Australian study by Abbot, Palmisano, and Dickerson (1995) found that higher amounts of disposable income predicted gambling behavior in an adolescent sample who gambled for entertainment, which is opposite of what was found in the present study. As such, participants with lower incomes, but who also gamble at a high rate, are likely doing so for a reason other than entertainment. In addition, Shaffer, Freed, and Healea (2002) found that the rate of PG among homeless persons was significantly higher than that of the general adult population and concluded that this elevated rate was due to a “psychoeconomic driving force that encourages gambling among the poor” (p.1115). Therefore, it is logical to conclude that participants with low incomes gambled at a high rate because they needed, rather than wanted, the money that is possibly gained through gambling.

Conceptualizing DASS-21 total or subscale scores as predictors of SOGS severity is complicated because depression (Bergh & Kuhlhorn, 1994; Grant & Kim, 2001; Grant,
Stinson, Hasin, et al., 2005; Ibanez et al., 2001), stress (Clarke, Tse, Abbot, Townsend, Kingi, et al., 2007; Matheson, Young, & Anisman, 2008), and anxiety (Biddle, Hawthorne, Forbes, & Coman, 2005; Grant & Kim, 2001; Grant et al., 2005; Ibanez et al., 2001) are all documented causes as well as effects of problematic gambling. This presents a classic “chicken and egg” question of which variable is truly predictive of the other. Nonetheless, the regression analyses revealed a strong relationship between SOGS and DASS-21 scores, which is important to recognize because it informs treatment decisions for therapists treating PG. In particular, anxiety was shown to be the strongest predictor of SOGS severity, accounting for nearly 25% of the variance in initial SOGS scores. In general, depression is usually more strongly correlated with PG (Grant & Kim, 2001; Ibanez et al., 2001), so it is possible that a population-specific factor accounts for the effect of anxiety found in this study. Specifically, financial worries caused by low SES might be more prominent than depression in this population. As such worries could conceivably fuel gambling behavior, they may warrant close attention by therapists working with this population.

Finally length of treatment history as a predictor of PG severity is interesting because one might expect a participant with a long treatment history to be more stable and better able to control secondary behavioral issues like problematic gambling. However, longer treatment histories as predictors of PG severity may indicate the trade of one addiction for another, which has been previously observed as the development of PG after treatment for alcoholism (Blume, 1994). In addition, behavioral theory asserts that, in the absence of stronger reinforcers, weaker reinforcers gain strength (Skinner, 1969). According to this theory, in the absence of opiates, gambling might become more
attractive to adults in recovery. Longer periods of abstinence would then predict a stronger behavioral response to gambling opportunities. Conversely, longer treatment history may simply reflect greater severity of addiction that is complicated by greater comorbidity, including PG.

In addition, though the most commonly documented iatrogenic effects of methadone-maintenance therapy are methadone dependence and toxicity (Caplehorn, 1998, Fouchet, 1974), the clinic environment itself can have a negative effect on patients. Specifically, concentrating opiate-dependent or polysubstance-dependent adults together can foster an environment where patients can obtain illicit substances from each other more easily than if they were not concentrated. This phenomenon was evidenced in the present study as observations of patients attempting to buy drugs from each other or, on one occasion, from a research assistant. There have also been cases of UPC Jefferson Clinic patients selling take-home methadone doses, which necessitated a change from testing patients’ urine for methadone to testing for methadone metabolites. This change was made to ensure that patients had ingested and metabolized methadone, rather than pouring a small amount into their urine sample and selling the rest (Gary Rhodes, personal communication August 6, 2007). Conceivably, other negative behaviors such as gambling might be learned from other patients due to the close proximity within a methadone clinic, and a longer treatment history increases exposure and risk. Therefore, longer periods of methadone-maintenance therapy may be highly beneficial towards managing illicit opiate use but increase the attractiveness of previously lesser reinforcing behaviors like gambling.
Income and employment had weak associations with time in treatment, which is not consistent with other studies that have demonstrated the employment-related benefits of methadone-maintenance therapy (Graham-Bafus, Allen, & Gordon, 1984; Simpson, 1981; Snyder, 2007). Specifically, longer time in treatment was associated with higher rates of employment and higher incomes in these studies. Therefore, typical methadone-maintenance patients experience economic improvements over time that make “subsistence gambling” less attractive, but the opposite was found in this study in which longer treatment histories predicted more severe gambling symptomatology. However, the average time in treatment for those in the treatment phase of the present study was 11.3 weeks, which is appreciably less than the 51.1 week average found by Ledgerwood and Downey (2002) at the same site. Therefore, it is possible that the sample used for the present study simply had not been in treatment long enough to experience employment-related benefits of methadone-maintenance therapy. It is also possible that longer treatment histories indicate a stronger addiction to opiates that could be associated with more problematic gambling. This would help explain the correlation between time in treatment and SOGS scores, and also suggest that this correlation might be expected to weaken over time as patients begin to benefit from therapy.

Overall, income, DASS-21 scores, and time in treatment accounted for over 50% of the variance in SOGS scores which is a highly notable percentage. Though causal relationships cannot be fully inferred from the analysis used in this study, the relationships between PG and these factors are strong enough that they warrant close attention from treatment providers. Specifically, it appears that potentially problematic behaviors like gambling can be primed to intensify after the cessation of heroin use but
before the secondary benefits of methadone-maintenance therapy emerge. Additional stress, depression, and anxiety that are present at this time may be driving forces behind gambling, or secondary sequelae, but should nonetheless be addressed in adjunctive counseling.

The supplementary analysis for Hypothesis Two examined predictors of final SOGS scores, in response to the possibility of initial SOGS scores being invalidated, as discussed in the interpretation of Hypothesis One. In this analysis, Time in Treatment was the only factor with a significant correlation to final SOGS scores \( r = .523, p < .01 \) that accounted for 27.4% of the variance in final SOGS scores. It is notable that income correlated in the opposite direction with final SOGS scores than with initial SOGS scores \( .270 \) vs. \( -.386, p < .05 \), indicating that lower incomes were significantly correlated at the initial interview but not at follow-up. As explained earlier, the promise of monetary compensation may have induced overreporting of SOGS symptoms, and lower incomes may have acted as an establishing operation for this theoretical dishonesty. The final interview, with no potential of unlocking additional compensation, was much less vulnerable to overreporting than the initial interview. However, given the design of the study and confounds with the presence of treatment, possible reactions to the presence of study personnel, and the effect of time, it cannot be inferred whether initial or follow-up SOGS scores are most accurate for this population. However, it is notable that treatment history appears to predict PG severity regardless of the potential for compensation.

The third hypothesis was limited by a low number of participants who used the computer-hosted treatment, compounded by an overlooked computer-program error that did not automatically record SOGS scores. Nevertheless, computer-hosted SOGS scores
were still recorded, by hand, for 13 participants, but this low number did not allow enough power to detect statistical differences between computer-hosted scores and those taken face-to-face. Interpretation is further limited when one considers that most participants needed assistance using the treatment-program and had an assistant reading prompts and entering responses to SOGS items into the computer program. Because of this, though scores were calculated by the computer, the actual interview operated in much the same way as a face-to-face interview. All of those confounds notwithstanding, however, scores were higher when taken via the computer, as predicted. This might suggest a small amount of disinhibitory influence by the computer, though the lack of statistical difference between scores suggests that differences may also be attributable to chance.

The fourth hypothesis was also limited by a low number of participants who used the computer-hosted treatment, and this limited the power to detect relationships between exposure to treatment, disclosure of gambling in therapy, and reductions in SOGS scores. Very few participants (five) discussed gambling in therapy sessions throughout the four-month study period, though none did in the month preceding the study. This increase was not statistically significant, but important to recognize, nonetheless. However, only 42.75% of therapist surveys were returned, which limits the inferences that can be made into the disclosure rates during the study period.

The lack of correlation between exposure to the treatment program and reductions in SOGS scores is notable because, as will be discussed later, SOGS scores dropped significantly from the initial interview to the end of the follow-up period. Although this reduction was not apparently related to treatment, it is possibly informative of the
population. Reductions that are unrelated to treatment suggest an initial inflation of scores that reduces with disincentive to lie, regression to the mean, a small sample size that prevents detection of the relationship, or a “Hawthorne effect” of study personnel raising awareness of the problematic nature of gambling that might have been previously regarded as normal.

Another possible explanation of high SOGS scores that dropped gradually over time is that participants responded accurately at the initial interview, but then minimized their symptoms in subsequent interviews because they did not want to be asked to engage in treatment of their gambling behaviors. This theory is consistent with the low level of treatment-access by the majority of participants (see Table 11) and the low rates with which they discussed gambling behavior in their required biweekly counseling sessions. It is also consistent with the methadone-maintenance literature, which shows that treatment sessions are not well attended in general and interventions are sometimes needed to boost attendance and punctuality (Rhodes, Saules, Helmus, Roll, BeShears, et al., 2003). However, this theory does not fully explain the abnormally high rate of probable PG measured at the initial interview. Rather, it aims to explain regression of SOGS scores over time and cannot be ruled out as a contributor to the data collected in the present study. In any case, this study does not possess the methodology to determine which of these theories might be most explanatory of the change in SOGS scores, but it is likely that any or all might have contributed to SOGS declines over time.

Hypothesis Five posited that the second treatment group would show greater reductions in SOGS scores than the first treatment group, due to a longer knowledge of the presence of the treatment program. This hypothesis was based upon the theory that, in
a milieu setting, stigma is reduced over time as patients discuss and become familiar with novel stimuli. Anecdotally, patients were observed discussing topics ranging from cooking tips to sexually-transmitted infections they had contracted, so it might be inferred that they felt comfortable with each other, even in the presence of study personnel.

Though a high level of familiarity was observed between patients at the UPC Jefferson Clinic, it did not translate into significantly different treatment response between treatment groups. SOGS scores and the number of hours spent gambling per month, as measured by the TLFB, decreased through the study period for both groups. However, there was no difference between groups on these measures, nor on the number of gambling outings or amount of money wagered.

A larger number of participants utilized the treatment-program in the second group, but as will be discussed in the methodological issues section, methodology was altered to encourage use and, therefore, the increase cannot be attributed to familiarity. In addition, as can be seen in Figures 5 and 7, the number of hours spent gambling and amount of money wagered actually increased, on average, during each group’s assigned treatment period and declined during the opposite group’s assigned period. However, SOGS scores decreased for each group during their assigned treatment period (see Figure 2). This difference in change may be reflective of the previously discussed SOGS reduction due to disincentive to overreport over time, or it may be reflective of participants who underreport gambling behaviors over time in order to avoid treatment discussions or other intrusions. As can be seen in Figure 3, there was no significant difference in SOGS reductions between participants who used the computer-hosted
treatment and those who did not and in fact, SOGS scores at follow-up were higher for those who used the computer-hosted treatment than for those who did not. Overall, it does not appear that the presence or use of the computer-hosted treatment made a significant impact on gambling behavior.

Finally, Hypothesis Six predicted negative correlations between response to treatment and initial SOGS and NODS scores, number of comorbid Axis I diagnoses, age, and number of positive urinalysis tests during the study period. However, only initial SOGS scores and income were significantly correlated, but the former relationship was not in the expected direction. Rather, higher initial SOGS scores were predictive of change on the SOGS, as revealed in the supplementary regression analysis. This might indicate regression to the mean, the disincentive effect already discussed because higher scores have more room to fall over time, or purposeful underreporting. As outlined earlier, use of the treatment program and group placement had no significant effect on change in SOGS scores, so it may be inferred that change is related to an inter-participant variable that was not measured in this study.

Methodological Issues

There were several significant methodological issues associated with the outcome of this study that warrant discussion. First is the effect of compensation on patient behavior within the study. The PI intended to keep the amount of potential compensation discreet, to avoid overreporting of gambling behaviors in order to gain entry into the treatment phase of the study. The intent was to present the initial interview as a screening but not have patients be aware that the results of the screening would determine whether they would be eligible for further participation. This was especially important because
patients received only $5 for the initial interview but could earn $35 more if admitted into the treatment phase. The flyers that were initially proposed advertised that a study on gambling behavior was coming to the clinic and included only information on the dates of the study. However, Wayne State University Human Investigation Committee (WSU HIC) protocol asserts that advertisements must include, among other information, the maximum amount of potential compensation. As such, patients saw that they might earn up to $40 for participation. This was likely problematic because patients at the UPC Jefferson Clinic are familiar with research studies and might conceivably know that higher scores on screening instruments increase the likelihood of inclusion in the study, thus, enabling them to earn the maximum amount of money available. Hatfield (2004) and Kimbrell and Freeman (2003) found that compensation-seeking status predicted overreporting of symptoms in a veteran population, and it is possible that this phenomenon presented in this study as well. Therefore, patients might have been inclined to lie to appear to have more severe gambling problems in order to make more money. This theory would help explain the 266% increase in prevalence as compared to a study published five years earlier that used the same questionnaire and site (Ledgerwood & Downey, 2002), as well as the 1385% higher rate than would be expected from the general adult population (APA, 2000).

In addition, obtaining accurate data about client disclosure depended upon cooperation of all therapists employed at the Jefferson Clinic. These therapists had very little investment in the success of this study and may have viewed participation as an additional burden upon an already difficult job. In the initial design, therapists would have been encouraged to participate through the raffle, as described earlier. However,
changes by the WSU HIC required that the PI could provide nothing more than frequent positive reinforcement and the promise of $20 at the end of the study. The lengths of the surveys were kept as minimal as possible so as to require minimal effort from each individual therapist. Despite these efforts, however, only 42.75% of surveys (38.33% individual, 58.10% group) were returned. It is likely that the elimination of the raffle reduced therapist adherence rates, and better returns might have been obtained with the originally proposed methodology.

Finally, because a relatively low number of participants were expected and the efficacy and acceptability of the treatment program had not yet been established, this study was originally designed to be relatively observation-oriented, rather than outcome-oriented. Specifically, this study primarily aimed to determine if the substitution maintenance population at the UPC Jefferson Clinic would use an Internet-hosted treatment, if given the opportunity. This study differed from a traditional treatment-outcome study because participants were not given treatment in a structured manner. Rather, they were assigned a time period where they could choose to use the treatment if they wished. However, it was apparent early in the treatment phase that participants were not accessing the computer treatment at a high rate and presentation of this observation alone would not have been a satisfactory outcome for the study. Therefore, the methodology was changed towards the end of the first treatment group, based on discussions with two dissertation committee members. In this changed methodology, the PI sat in the waiting room with patients from 8am until 1pm and invited those enrolled in the study to complete interviews or treatment modules with an assistant in the adjacent room. The intent of this change in methodology was to increase treatment-use rates and
was successful in slightly increasing use of the treatment program. However, the modal number of modules completed in each group remained 0 (see Table 11), and increased use was not associated with increased response to treatment.

Limitations

There were several significant limitations to the success of this study, beside the methodological changes already outlined. First, attrition and absence rates are generally high in opiate replacement programs (Leal & Galanter, 1995), and this is true of the UPC Jefferson Clinic as well (Gary Rhodes, personal communication August 6, 2007). Of the 42 patients originally who enrolled in the treatment study, only 27 remained in the study until the end of the follow-up period. This change includes five participants who were removed from the study for providing false information as well as five additional participants who left each treatment group before the end of the study. Recruitment was already lower than expected, due to an abnormally low patient count at the time the study began, and losing more participants further lowered the statistical power to determine effects within the study.

In addition, it became apparent by the end of the study that participants were actively avoiding study personnel, and this observation was verified by the UPC Jefferson Clinic primary receptionist. Rationale for this avoidance, as explained to her by participants, was that they were uncomfortable using computers, and they avoided the PI so they would not be asked to use one. Prior to the proposal of this study, computer studies had been conducted at UPC Jefferson in the past and it stood to reason that patients would be familiar and competent with computers. In addition, patients with limited general literacy have generally avoided research studies altogether at the UPC
Jefferson Clinic and should not have posed a confound to this study. However, it became apparent while working with patients through treatment modules that a large number of participants had significant trouble using the treatment program because they did not know how to use a keyboard, could not read the text on screen, or could not write responses to prompts. Anecdotally, one patient nearly abandoned the treatment program after having difficulty spelling a word in his response and continued only after the PI offered to type responses for him. Discussions with clinic patients after the study began revealed that previous studies conducted at the UPC Jefferson Clinic used a touch-screen computer, which is less technically demanding than the program and format used in this study. In order to compensate for these issues, the PI or a research assistant read items from the program to participants and then entered their responses into the computer program. Very few participants were able to use the treatment program unassisted. In this way, the computer-hosted treatment functioned more like face-to-face therapy than as a freestanding kiosk-style treatment. Studies have shown that methadone-maintenance patients tend to be averse to face-to-face counseling (Kidorf, Stitzer, Brooner, & Goldberg, 1994; Rhodes et al., 2003), so this altered delivery likely damaged motivation among participants to use the computer-hosted treatment.

In addition to becoming averse to the computer-hosted treatment, aversion also appeared to generalize to study personnel as well. Though all participants still enrolled at the site were interviewed at the 6-, 12-, and 16-week time points, it became increasingly difficult to convince them to complete interviews over time. It was also not uncommon for a participant to say that he or she wasn’t interested in “more computer stuff” when asked for an interview, and to only consent when convinced that the interview was oral
and did not involve the computer. It is likely that rates of computer use would have been significantly lower had methodology not been changed to encourage more participants to use the treatment, and the rate obtained is not indicative of what would have occurred naturally. Therefore, the hypothesized effect of increased treatment use over time was not found, but rather increased exposure appeared to create a decreased willingness to engage the treatment program or study personnel over time.

Another limitation to the study was the physical availability of the computer-hosted treatment program. UPC Jefferson staff decided shortly into the first treatment period that the room that contained the treatment computer was needed one day per week for individual therapy. Therefore, access was limited to four days during both treatment phases. However, the uncovered day was a Thursday, which is not generally a well-attended day at UPC Jefferson. Nevertheless, the inconsistent availability may have impacted use of the computer-hosted treatment program. Only three days were staffed during the follow-up period, but this was sufficient to complete all final interviews.

Finally, the low amount of monetary compensation may have limited participants’ motivation to complete interviews or use the computer-hosted treatment. The enhancing effect of adding contingency-based, monetary rewards to standard treatment has been well documented in the substance abuse literature (Higgins, Budney, Bickel, et al., 1994; Higgins, Wong, Badger, et al., 2000; Petry & Martin, 2002; Piotrowski, Tusel, Sees, et al., 1999). The literature also suggests that larger rewards further enhance this effect, as compared to smaller rewards (Petry, Tedford, Austin, Carrol, & Rounsaville, 2004; Schottenfeld, Chawarski, Pakes, et al., 2005). In addition, contingency management has
also been shown to enhance attendance and punctuality to counseling sessions that are adjunctive to methadone-maintenance therapy (Rhodes, et al., 2003).

Schottenfeld et al. (2005) compared standard methadone-maintenance therapy to methadone-maintenance therapy plus contingency management and found that those who received rewards achieved significantly longer periods of abstinence than those receiving standard treatment. Attrition rates were also lower for this condition. In addition, this study broke the contingency management condition into two 12-week periods where rewards initially escalated for each consecutive week of abstinence but then were reduced to a fixed reward for each week of abstinence. The period with escalating rewards resulted in significantly higher proportions of drug-free weeks than the period with static rewards. In addition to this study, Petry, Tedford, et al. (2004) found that cocaine-abusing adults receiving standard treatment plus contingency-management responded significantly better when the maximum reinforcement value was $240 versus those whose maximum was $80. Both of these groups responded significantly better than patients who received standard care without contingent rewards.

Funding was limited for the present study, and rewards for utilizing the computer-hosted treatment and completing interviews were far lower than the contingency-management studies discussed earlier. In addition, many studies, such as Rhodes et al. (2003), use a reward system where patients draw vouchers from a bowl that have a value between $1 and $100. The actual reward may be as low as $1, but the possibility of earning larger rewards theoretically motivates adherence to treatment. As a gambling-treatment study, the present study did not use this reward system because it approximated gambling. Rather, rewards were fixed at $2 for completing each therapy module and $5
for completing each interview. The maximum payout of $40 over the course of the study was, therefore, much lower than the maximum payouts of Schottenfeld et al. (2005; $1033.50) or Petry et al. (2004; $240 or $80).

Several participants reported to the PI that they were paid significantly more money for other studies at UPC Jefferson. Specifically, some said that they were paid $50 for a single interview as part of a podiatry study, and others said that they made more than $100 on a smoking-cessation study that used a touch-screen computer. Several UPC Jefferson patients declined the initial screening interview because it only paid $5 rather than the maximum $40, as they interpreted the advertisement to indicate. Overall, it is likely that larger rewards would have motivated participants to use the computer-hosted treatment at a higher rate and might have enhanced outcomes as well.

Generalizability

Results of this study are not likely generalizable to most other populations, due to the unique characteristics of an urban methadone-maintenance sample. Computer literacy or proficiency was very low in the population used for this study, and this negatively impacted the results. Other populations with higher levels of computer proficiency are likely to produce higher usage rates because they would likely be less resistant to use the computer. In addition, another population with higher computer proficiency would allow the treatment to be presented as intended: as a stand-alone kiosk that can be used without the assistance of a mental health provider or research assistant. This would increase perceived confidentiality and might improve usage of, and disclosure within, the treatment program. In addition, a population of higher socio-economic status (SES) might
have been less likely to overreport symptoms in order to maximize compensation, as
might have happened in this study.

Demographics for the study population are not representative of the population of the United States, or most areas within. As such, results of this study are most applicable to other urban methadone-maintenance populations.

Future Research

As this study was hindered by several methodological flaws, future research in a similar methadone maintenance population but with different methodology might produce different results. As discussed earlier, monetary compensation variables very likely had a strong impact upon the data that were obtained. Future studies should keep monetary compensation more discreet in order to minimize the effects of compensation-seeking behavior. In addition, separating compensation from performance will also help lessen this effect. If these two goals are accomplished, then larger monetary compensation would also help incentivize better participation in the study.

However, the issue of computer proficiency might be strong enough to preclude additional research within an urban methadone maintenance population. Both low SES (Rains, 2008) and minority status (Wilson, Wallin, & Rieser, 2003) have been associated with lower rates of home computer ownership and Internet access, which are factors that work against computer familiarity and proficiency. In addition, Rothbaum, Martland, and Jannsen (2008) found that higher SES was associated with greater proficiency using the Internet. Bearing these studies in mind, it is unlikely that the computer-hosted treatment will be effectively used outside of a research study by a methadone-maintenance population if it is delivered in its present format. Specifically, a touch screen
system would be more conducive to this population and has, anecdotally, been used with more success in the past. Verbal delivery of prompts and responses would be most effective in reducing the need for literacy. However, it is unclear if the treatment program used in this study would be compatible with such a format.

As the computer-hosted treatment program is still new and relatively untested, early future research might do better to focus on a different population with fewer limitations. Specifically, a computer proficient population of higher SES might avoid most of the previously described limitations of the present study. A college student population might be ideal for these reasons, and studies have identified college student populations with high enough rates of PG to make the study feasible (11% at the University of Nevada, Las Vegas; Oster & Knapp, 2001). In addition, Rains (2008) reported that younger, higher-educated, urban adults were most likely to have a broadband Internet connection in their home, and that those with these connections were more likely to use the Internet to access health information than those with other forms of Internet connections. Few, if any, participants in the present study had Internet connections in their homes and would, therefore, be unlikely to access an Internet-hosted treatment program on their own volition.

The recently completed study in Sweden of a computer-hosted treatment used a general adult population but allowed adults to call and enroll themselves if they were interested in gambling treatment (Carlbring & Smit, 2008). This methodology might be the most ideal for early tests of the computer-hosted treatment because it would utilize a population that is already motivated for treatment. Advertisements could mention that computer proficiency is required, and this might screen out those who would otherwise
struggle to use the treatment program. Otherwise, participants could be required to respond and enroll online, which would raise the likelihood of a computer-proficient participant base. Online advertisements, such as in online newspapers or via email, might also help recruit motivated and computer-proficient participants. If the program were Internet-hosted, then a link could be sent via email and participants could access treatment in the setting of their choice.

Another issue to address in future research is the relatively low number of participants enrolled in the treatment phase of this study. This was primarily due to the low population of the methadone-maintenance facility but also partially because of the fixed start-and-stop dates of the study. Patients who did not meet inclusion criteria during the recruitment phase, or who had not yet enrolled at UPC Jefferson were excluded from the study, even if they might have met criteria at a later date. Future studies should first target a larger population but also include “rolling” start dates so that participants are not limited to signing up for the study during a fixed time period that they might miss. It would be more difficult to use a waitlist condition with this methodology, but some participants could be sent to an informational website about gambling to complete exercises, rather than the treatment website, and this would allow a comparison of participants who received treatment to those who did not.

However, rather than simply addressing the shortcomings of this study with the goal of repeating it with an altered methodology, the results obtained might also be used to guide different research. For example, this study revealed that lower incomes were significantly correlated with higher scores on the SOGS. Observational data suggest that some individuals of low SES might gamble as a means of income, rather than for
entertainment or as an addictive behavior. Further studies into this phenomenon, including its etiology, predictors, and treatment, would be very beneficial. Specifically, a skills-based cognitive treatment approach might be used in a treatment study after more is known about this phenomenon. In addition, further research into the relationship between SOGS and DASS-21 scores is needed to determine the causal relationship between the constructs measured by these questionnaires. This research might be conducted using a methadone maintenance population but might be best in a more stable sample that would have fewer environmental confounds.

Overall, future research should first focus on populations who are more compatible with a computer-administered treatment format. The population used in this study was accessed because the nature of methadone maintenance meant that patients would be present at the site for at least three times per week, which would increase their exposure to the study personnel. As this was a dissertation study with a limited allotment of time, it was important to use a population that allowed sufficient access in order to ensure reliable data collection. Unfortunately, the validity of data collected is questionable, even though the population was reliable in their accessibility. Though the treatment did not show an effect in this study, it may be more effective in other populations. Future research with different methodology and a different sample will hopefully show the true utility of computer-hosted CBT treatment for PG.

**Implications**

There are few implications to be drawn from this study because the validity of data obtained is in question. For example, this study revealed a very high rate of probable PG and several significant predictors, but it is unclear what accounts for the high
prevalence. Therefore, it is unclear what the significant predictors are truly predictive of. Similarly, initial SOGS scores were identified as a significant predictor of change on the SOGS, but this might simply indicate regression to the mean, secondary to over-reporting of the symptoms it measures. The computer-hosted treatment was not able to be used as intended and approximated face-to-face therapy more than a Telehealth intervention, so the lack of apparent effect cannot be confidently attributed to the program itself. Therefore, the most powerful implications to be drawn from this study are avenues for future research and ideas for different methodology that might avoid the previously discussed limitations from repeating themselves.

Conclusion

Though significant results were found in this study, their validity is questionable due to the high likelihood that inaccurate data were obtained. In addition, unforeseen factors prevented the computer-hosted treatment from being used as intended, leaving its true utility still unexplored. The treatment was shown to have no effect on gambling behavior in this study, but it would be inappropriate to label the program as ineffective due to the significant confounds that were encountered through the duration of this study. Nevertheless, this study provided important insight into issues that should be addressed in further testing of the treatment program. Its utility and efficacy should be documented under ideal conditions before its generalizability to more difficult conditions can be tested. This study revealed some of these potential characteristics of ideal conditions. Specifically, future studies would do well to locate a literate, computer-proficient, treatment-seeking population of higher SES from which to recruit participants for further testing of the treatment. The potential of the treatment program was not validated through
this study, though neither was it hindered. Overall, important lessons were learned that will guide better research in the future.


*L’Information Psychatrique, 50, 699-703.*


Appendices
Appendix A

Informed Consent

Informed Consent for Research Participation and Participation
Effect of Computer-hosted Treatment for Problematic Gambling
Andrew E. Cameron, M.S., Doctoral Fellow – Principal Investigator
Karen K. Saules, Ph.D., Professor of Psychology – Co-investigator

1. Purpose of Study and How Long It Will Last: The purpose of this screening is to determine whether you are eligible to participate in an experimental study on the effects of using a computer program designed to address problematic gambling. We cannot tell you in advance what the eligibility criteria are, but it is anticipated that many UPC Jefferson Clinic clients were eligible. In addition, it is hopeful that the screening portion of this study will provide a better understanding of the gambling participation of UPC Jefferson Clinic clients. This screening will should only take approximately ten minutes to complete and you were paid $5 for participation. If you are eligible for the experimental portion of the study, you will have the opportunity to utilize the computer program and participate in additional interviews. You were paid for your participation, up to $40 over 12 weeks.

2. Participation Withdrawal or Refusal to Participate: Participation in this study is completely voluntary; you may choose to quit the research project at any time without any penalty. If you do decide to participate, you can change your mind at any time and withdraw from the study without negative consequences.

3. Description of Study Procedures: For this screening interview, you were asked about your gambling behavior in the last two weeks, over the past year, and during your lifetime. Questions will ask about the activities in which you may or may not participate, how much money you spend while gambling, and other questions about the consequences of gambling. In addition, you were asked questions about demographic and background information such as your age, race, marital status, income level, employment status, and duration of attendance at the UPC Jefferson Clinic. Once you have completed the survey, your participation in the screening is completed and scored and you may be asked if you agree to participate in the experimental phase of the study. You are not obligated to participate in the experimental phase of the study, but can elect to do so if interested. If you choose to participate in the experimental phase, you were asked to use a computer program that addresses gambling behaviors. There are 10 activities on the computer and you were paid $2 for completion of each. In addition, you were paid $5 to complete an interview similar to the screening interview twice during the experimental phase.

4. Confidentiality of Information Obtained: All responses and personally identifiable information were kept confidential within the confines of the UPC Jefferson Clinic or in a locked file cabinet at Eastern Michigan University. Your personal responses will only be viewed by the principal investigator, the co-investigator, or a trained assistant. At this point, any identifying information were separated from your survey responses and you were given an identification number to use throughout the study to protect your confidentiality. However, to ensure that you are using the same number throughout the study, the principal investigator will keep a log of personally identifiable information and identification numbers. Only the principal investigator will have access to this log and will store it in a secure locked cabinet separate from your individual responses. Once all data has been collected, this log were destroyed. Information from this study may be
reported or published in aggregated form, but your anonymity were maintained in any publications or presentations.

5. **Expected Risks of the Study**: There are no known or anticipated risks for participating in the study. Nevertheless, you may experience some mild emotional discomfort when completing the study, but it is not expected to last longer than it takes you to complete the study. If, however, you experience emotional reactions that are difficult for you to manage, you can contact the principal investigator for referral information.

6. **Expected Benefits of the Study/Compensation for Participation**: Your participation in this study will help us to better understand the effect of the availability of remote treatment for PG on several behavioral factors. Personal benefits of participation include a better understanding of your own behavior and possibly a reduction in negative experiences. In addition, your participation will help make a contribution to the psychological literature. In addition, there is monetary compensation associated with participation in the study, up to $.

7. **Use of Research Results**: Findings from this study may be published in psychological journals and may also be presented at professional conferences. In addition, the data being collected were used in the Principal Investigator’s dissertation, and, as such, may appear in that published document. As a participant, you are entitled to meet with the Principal Investigator to obtain the results of the study and for any other questions or concerns.

8. **Future Questions**: If, at any time, you have questions about study procedures or your participation in the study, please contact the principal investigator, Mr. Andrew Cameron (Phone: 734-487-1622; Email: acameron@emich.edu) or his Co-Investigator, Dr. Karen Saules (Phone: 734-487-4987; Email: ksaules@emich.edu).

9. **Human Subjects Review Board**: This research protocol and informed consent document have been reviewed and approved by the Wayne State University and Eastern Michigan University Human Subjects Review Committees for use from XX to XX. If you have questions about the approval process, please contact Dr. Deb de Laski-Smith (734.486.0042, Interim Dean of the Graduate School and Administrative Co-chair of UHSCR, human.subjects@emich.edu).

**CONSENT TO PARTICIPATE**: I understand my rights as a research participant and I voluntarily consent to participate in this study and follow its requirements. I additionally understand the purpose, intent, and necessity of the present study. I was given a copy of this consent form for my future reference if I desire.

If you have read all of the above and would like to take part in this study, please sign, print your name, and provide today’s date where indicated below. By doing so, you are giving informed consent for us to use your responses in this study.

If you do not wish to take part in this study, you may withdraw immediately without penalty.

__________________________
Participant Signature        Date

__________________________
Printed Name
Appendix B

HIPPA Consent Form

HIPAA DISCLOSURE AUTHORIZATION FORM

Full Name ____________________________________________

I hereby authorize ________________________________ to use or disclose my
(Recipient)

protected health information related to ________________________________ (Type of Information)

to ________________________________ for the following purpose:
(Recipient)

• I understand that I may inspect or copy the protected health information described by
this authorization.

• I understand that, at any time, this authorization may be revoked, when the office that
receives this authorization receives a written revocation, although that revocation will not
be effective as to the disclosure of records whose release I have previously authorized, or
where other action has been taken in reliance on an authorization I have signed. I
understand that my health care and the payment for my health care will not be affected if
I refuse to sign this form.

• I understand that information used or disclosed, pursuant to this authorization, could be
subject to redisclosure by the recipient and, if so, may not be subject to federal or state
law protecting its confidentiality.

__________ Date ___________________________ Signature of Individual or Representative
________________________________________ Authority or Relationship to Individual, if Representative

EXPIRATION DATE: This authorization will expire on __________________________
If no date or event is stated, the expiration date will be six years from the date of this
authorization.

COPY PROVIDED: The subject of this authorization shall receive a copy of this authorization, when signed.
Appendix C

National Opinion Research Center DSM Screen for Gambling Problems (NODS)

Obtained as a public domain instrument from:

http://govinfo.library.unt.edu/ngisc/reports/attachb.pdf

**NORC DSM-IV Screen for Gambling Problems**

The screen is set up to run first a lifetime screen for all items and then ask about the past year only for those items endorsed for lifetime.

**How to score the items:**

**Lifetime:** Add 1 point for every YES to any of the following items:

1 or 2, 3, 5, 7, 8 or 9, 10, 12, 13, 14 or 15, 16, 17

**Past year:** Add 1 point for every YES to any of the following items:

15 or 19, 20, 22, 24, 25 or 26, 27, 29, 30, 31 or 32, 33, 34

If gambler responds YES to more than one item in a response cluster (e.g., "8 or 9"), count them together as a single point.

Under the NODS typology, a gambler who scores zero points is a lifetime or past-year Type B gambler, and a gambler who scores a 1 or 2 is a lifetime or past-year Type C gambler. Scoring a 3 or 4 would mean one is a lifetime or past-year Type D gambler, which corresponds to what certain studies have called a "possible pathological gambler" or "problem gambler." A gambler who scores 5 or more on the NODS is a lifetime or past-year Type E gambler, by DSM-IV criteria, this person is a "probable pathological gambler."

**Lifetime Problems**

1. Have there ever been periods lasting two weeks or longer when you spent a lot of time thinking about your gambling experiences or planning future gambling ventures or bets?
   - YES
   - NO

2. Have there ever been periods lasting two weeks or longer when you spent a lot of time thinking about ways of getting money to gamble with?
   - YES
   - NO

3. Have there ever been periods when you needed to gamble with increasing amounts of money or with larger bets than before in order to get the same feeling of excitement?
   - YES
   - NO

4. Have you ever tried to stop, cut down, or control your gambling?
   - YES  GO TO 5
   - NO  GO TO 8

5. On one or more of the times when you tried to stop, cut down, or control your gambling, were you restless or irritable?
   - YES
   - NO

6. Have you ever tried **but not succeeded** in stopping, cutting down, or controlling your gambling?
   - YES  GO TO 7
7. Has this happened three or more times?
   YES
   NO

8. Have you gambled as a way to escape from personal problems?
   YES
   NO

9. Have you gambled to relieve uncomfortable feelings such as guilt, anxiety, helplessness, or depression?
   YES
   NO

10. Has there ever been a period when, if you lost money gambling one day, you would return another day to get even?
    YES
    NO

11. Have you ever lied to family members, friends, or others about how much you gamble or how much money you lost on gambling?
    YES  GO TO 12
    NO  GO TO 13

12. Has this happened three or more times?
    YES
    NO

13. Have you ever written a bad check or taken something that didn’t belong to you from family members or anyone else in order to pay for your gambling?
    YES
    NO

14. Has your gambling ever caused serious or repeated problems in your relationships with any of your family members or friends?
    YES
    NO

15. ANSWER ONLY IF YOU ARE IN SCHOOL. Has your gambling caused you any problems in school, such as missing classes or days of school or your grades dropping?
    YES
    NO

16. Has your gambling ever caused you to lose a job, have trouble with your job, or miss out on an important job or career opportunity?
    YES
    NO

17. Have you ever needed to ask family members or anyone else to loan you money or otherwise bail you out of a desperate money situation that was largely caused by your gambling?
    YES
    NO
Past-Year Problems

COMPLETE THIS SECTION ONLY IF YOU HAVE GAMBLED IN THE PAST YEAR.

18. [ANSWER ONLY IF 1=YES]
Since [current month][last year], have there been any periods lasting two weeks or longer when you spent a lot of time thinking about your gambling experiences or planning future gambling ventures or bets?
   YES
   NO

19. [ANSWER ONLY IF 2=YES]
Since [current month][last year], have there been periods lasting two weeks or longer when you spent a lot of time thinking about ways of getting money to gamble with?
   YES
   NO

20. [ANSWER ONLY IF 3=YES]
Since [current month][last year], have there been periods when you needed to gamble with increasing amounts of money or with larger bets than before in order to get the same feeling of excitement?
   YES
   NO

21. [ANSWER ONLY IF 4=YES]
Since [current month][last year], have you tried to stop, cut down, or control your gambling?
   YES   GO TO 22
   NO    GO TO 25

22. [ANSWER ONLY IF 5=YES]
Since [current month][last year], on one or more of the times when you tried to stop, cut down, or control your gambling, were you restless or irritable?
   YES
   NO

23. [ANSWER ONLY IF 6=YES]
Since [current month][last year], have you tried but not succeeded in stopping, cutting down, or controlling your gambling?
   YES
   NO

24. [ANSWER ONLY IF 7=YES]
Since [current month][last year], has this happened three or more times?
   YES
   NO

25. [ANSWER ONLY IF 8=YES]
Since [current month][last year], have you gambled as a way to escape from personal problems?
   YES
   NO

26. [ANSWER ONLY IF 9=YES]
Since [current month][last year], have you gambled to relieve uncomfortable feelings such as guilt, anxiety, helplessness, or depression?
   YES
   NO
27. [ANSWER ONLY IF 10=YES]
   Since [current month][last year], has there ever been a period when, if you lost money gambling
   on one day, you would often return another day to get even?
   YES
   NO

28. [ANSWER ONLY IF 11=YES]
   Since [current month][last year], have you more than once lied to family members, friends, or
   others about how much you gamble or how much money you lost on gambling?
   YES  GO TO 29
   NO   GO TO 30

29. [ANSWER ONLY IF 12=YES]
   Has this happened three or more times?
   YES
   NO

30. [ANSWER ONLY IF 13=YES]
   Since [current month][last year], have you written a bad check or taken money that didn't belong
   to you from family members or anyone else in order to pay for your gambling?
   YES
   NO

31. [ANSWER ONLY IF 14=YES]
   Since [current month][last year], has your gambling caused serious or repeated problems in your
   relationships with any of your family members or friends?
   YES
   NO

32. [ANSWER ONLY IF 15=YES]
   Since [current month][last year], has your gambling caused you any problems in school, such as
   missing classes or days of school or getting worse grades?
   YES
   NO

33. [ANSWER ONLY IF 16=YES]
   Since [current month][last year], has your gambling caused you to lose a job, have trouble with
   your job, or miss out on an important job or career opportunity?
   YES
   NO

34. [ANSWER ONLY IF 17=YES]
   Since [current month][last year], have you needed to ask family members or anyone else to loan
   you money or otherwise bail you out of a desperate money situation that was largely caused by
   your gambling?
   YES
   NO
Appendix D

South Oaks Gambling Screen (SOGS)

**SOUTH OAKS GAMBLING SCREEN**

[SOGS]

<table>
<thead>
<tr>
<th>Name:</th>
<th>Date:</th>
</tr>
</thead>
</table>

1. Please indicate which of the following types of gambling you have done in your lifetime. For each type, mark one answer: "Not at All," "Less than Once a Week," or "Once a Week or More."

<table>
<thead>
<tr>
<th>PLEASE &quot;✓&quot; ONE ANSWER FOR EACH STATEMENT:</th>
<th>NOT AT ALL</th>
<th>LESS THAN ONCE A WEEK</th>
<th>ONCE A WEEK OR MORE</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. Played cards for money</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>b. Bet on horses, dogs, or other animals (at OTB, the track or with a bookie)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>c. Bet on sport (parlay cards, with bookie at Jai Alai)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>d. Played dice games, including craps, over and under or other dice games</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>e. Went to casinos (legal or otherwise)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>f. Played the numbers or bet on lotteries</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>g. Played bingo</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>h. Played the stock and/or commodities market</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>i. Played slot machines, poker machines, or other gambling machines</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>j. Bowled, shot pool, played golf, or some other game of skill for money</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>k. Played pull tabs or &quot;paper&quot; games other than lotteries</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>l. Some form of gambling not listed above (please specify: ____________________________</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

2. What is the largest amount of money you have ever gambled with on any one-day?

- ______ Never gambled
- ______ $1.00 or less
- ______ More than $1.00 up to $10.00
- ______ More than $10.00 up to $100.00
- ______ More than $100.00 up to $1,000.00
- ______ More than $1,000.00 up to $10,000.00
- ______ More than $10,000.00
- ______ More than $100,000.00
3. Check which of the following people in your life has (or had) a gambling problem.

- Father
- Mother
- Brother/Sister
- My Spouse/Partner
- My Child(ren)
- Another Relative
- A Friend or Someone Important in My Life

4. When you gamble, how often do you go back another day to win back money you have lost?

- Never
- Most of the Times I Lose
- Some of the Time (less than half the time I lose)
- Every Time I Lose

5. Have you ever claimed to be winning money gambling, but weren’t really? In fact, you lost?

- Never
- Yes, less than half the time I lost
- Yes, most of the time

6. Do you feel you have ever had a problem with betting or money gambling?

- No
- Yes
- Yes, in the past, but not now

7. Did you ever gamble more than you intended to?

- Yes
- No

8. Have people criticized your betting or told you that you had a problem, regardless of whether or not you thought it was true?

- Yes
- No

9. Have you ever felt guilty about the way you gamble, or what happens when you gamble?

- Yes
- No

10. Have you ever felt like you would like to stop betting money on gambling, but didn’t think you could?

- Yes
- No

11. Have you ever hidden betting slips, lottery tickets, gambling money, IOUs, or other signs of betting or gambling from your spouse, children, or other important people in your life?

- Yes
- No

12. Have you ever argued with people you live with over how you handle money?

- Yes
- No
13. (If you answered "Yes" to question 12) Have money arguments ever centered on your gambling?  
   _____ Yes _____ No

14. Have you ever borrowed from someone and not paid them back as a result of your gambling?  
   _____ Yes _____ No

15. Have you ever lost time from work (or school) due to betting money or gambling?  
   _____ Yes _____ No

16. If you borrowed money to gamble or to pay gambling debts, who or where did you borrow from (check "Yes" or "No" for each):

   a. From household money  
      _____ Yes _____ No

   b. From your spouse  
      _____ Yes _____ No

   c. From other relatives or in-laws  
      _____ Yes _____ No

   d. From banks, loan companies, or credit unions  
      _____ Yes _____ No

   e. From credit cards  
      _____ Yes _____ No

   f. From loan sharks  
      _____ Yes _____ No

   g. You cashed in stocks, bonds or other securities  
      _____ Yes _____ No

   h. You sold personal or family property  
      _____ Yes _____ No

   i. You borrowed on your checking accounts (passed bad checks)  
      _____ Yes _____ No

   j. You have (had) a credit line with a bookie  
      _____ Yes _____ No

   k. You have (had) a credit line with a casino  
      _____ Yes _____ No

---

The SOGS may be reproduced as long as the language is used as printed and the scored items are not revised without permission of the author.
SOUTH OAKS GAMBLING SCREEN – SCORE SHEET
[SOGS]

Scores on the SOGS are determined by scoring one point for each question that shows the “at risk” response indicated and adding the total points.

Question 1  X  Not counted
Question 2  X  Not counted
Question 3  X  Not counted
Question 4  X  Most of the time I lose or Yes, most of the time
Question 5  X  Yes, less than half the time I lose or Yes, most of the time
Question 6  X  Yes, in the past but not now or Yes
Question 7  Yes
Question 8  Yes
Question 9  Yes
Question 10  Yes
Question 11  Yes
Question 12  X  Not counted
Question 13  Yes
Question 14  Yes
Question 15  Yes
Question 16 a  Yes
Question 16 b  Yes
Question 16 c  Yes
Question 16 d  Yes
Question 16 e  Yes
Question 16 f  Yes
Question 16 g  Yes
Question 16 h  Yes
Question 16 i  Yes
Question 16 j  X  Not counted
Question 16 k  X  Not counted

TOTAL

POINTS.

(Maximum score = 20)
Appendix E

Timeline-Follow-back (TLFB) Procedure

The TLFB procedure used in this study was as follows:

1. The participant was shown a calendar of the time since the last assessment (four or six weeks). For the first interview, the participant was shown a calendar of the previous month.

2. The interviewer asked the participant on which days s/he gambled. For each day, the interviewer asked how much money was wagered on that day, how much was won or lost, and how many minutes were spent gambling.

3. Total days, minutes, and amounts gambled, as well as total amount won or lost, were shared with the participant and then recorded.
Appendix F

Depression, Anxiety, & Stress Scales – Short Form (DASS-21)

Obtained as a public domain instrument from: [www.psy.unsw.edu.au/dass/](http://www.psy.unsw.edu.au/dass/)

---

**DASS**<sub>21</sub>  
**Name:**  
**Date:**

Please read each statement and circle a number 0, 1, 2 or 3 that indicates how much the statement applied to you *over the past week*. There are no right or wrong answers. Do not spend too much time on any statement.

*The rating scale is as follows:*

- 0 Did not apply to me at all
- 1 Applied to me to some degree, or some of the time
- 2 Applied to me to a considerable degree, or a good part of the time
- 3 Applied to me very much, or most of the time

<table>
<thead>
<tr>
<th></th>
<th>Statement</th>
<th>Rating Scale</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>I found it hard to wind down</td>
<td>0 1 2 3</td>
</tr>
<tr>
<td>2</td>
<td>I was aware of dryness of my mouth</td>
<td>0 1 2 3</td>
</tr>
<tr>
<td>3</td>
<td>I couldn’t seem to experience any positive feeling at all</td>
<td>0 1 2 3</td>
</tr>
<tr>
<td>4</td>
<td>I experienced breathing difficulty (eg, excessively rapid breathing,</td>
<td>0 1 2 3</td>
</tr>
<tr>
<td></td>
<td>breathlessness in the absence of physical exertion)</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>I found it difficult to work up the initiative to do things</td>
<td>0 1 2 3</td>
</tr>
<tr>
<td>6</td>
<td>I tended to over-react to situations</td>
<td>0 1 2 3</td>
</tr>
<tr>
<td>7</td>
<td>I experienced trembling (eg, in the hands)</td>
<td>0 1 2 3</td>
</tr>
<tr>
<td>8</td>
<td>I felt that I was using a lot of nervous energy</td>
<td>0 1 2 3</td>
</tr>
<tr>
<td>9</td>
<td>I was worried about situations in which I might panic and make a fool of</td>
<td>0 1 2 3</td>
</tr>
<tr>
<td></td>
<td>myself</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>I felt that I had nothing to look forward to</td>
<td>0 1 2 3</td>
</tr>
<tr>
<td>11</td>
<td>I found myself getting agitated</td>
<td>0 1 2 3</td>
</tr>
<tr>
<td>12</td>
<td>I found it difficult to relax</td>
<td>0 1 2 3</td>
</tr>
<tr>
<td>13</td>
<td>I felt down-hearted and blue</td>
<td>0 1 2 3</td>
</tr>
<tr>
<td>14</td>
<td>I was intolerant of anything that kept me from getting on with what I</td>
<td>0 1 2 3</td>
</tr>
<tr>
<td></td>
<td>was doing</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Description</td>
<td>Score</td>
</tr>
<tr>
<td>----</td>
<td>-----------------------------------------------------------------------------</td>
<td>-------</td>
</tr>
<tr>
<td>15</td>
<td>I felt I was close to panic</td>
<td>0 1 2 3</td>
</tr>
<tr>
<td>16</td>
<td>I was unable to become enthusiastic about anything</td>
<td>0 1 2 3</td>
</tr>
<tr>
<td>17</td>
<td>I felt I wasn't worth much as a person</td>
<td>0 1 2 3</td>
</tr>
<tr>
<td>18</td>
<td>I felt that I was rather touchy</td>
<td>0 1 2 3</td>
</tr>
<tr>
<td>19</td>
<td>I was aware of the action of my heart in the absence of physical exertion</td>
<td>0 1 2 3</td>
</tr>
<tr>
<td></td>
<td>(eg, sense of heart rate increase, heart missing a beat)</td>
<td></td>
</tr>
<tr>
<td>20</td>
<td>I felt scared without any good reason</td>
<td>0 1 2 3</td>
</tr>
<tr>
<td>21</td>
<td>I felt that life was meaningless</td>
<td>0 1 2 3</td>
</tr>
</tbody>
</table>
Appendix G

Computer-hosted Intervention

Gambling is all around us, and most people place a bet from time to time. Some people, however, gamble to such a degree that it causes problem for them. It is not always easy to determine who had a gambling problem and who does not. Some people may gamble often, but rarely spend more than they can afford. Others may gamble only occasionally, but wager more than they intended to.

If interested in getting treatment for your gambling problem, please LOGIN!
Locate a therapist
- www.nlansel.org

Locate a meeting
- Gambling Anonymous

National Helpline
- 1-800-532-4700
Welcome test
Click on the links to start

<table>
<thead>
<tr>
<th>34 MCMaves</th>
<th>Username: [REDACTED]</th>
<th>Password: [REDACTED]</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Self-assessment of gambling problems</td>
<td>Enter</td>
<td>Clear</td>
</tr>
<tr>
<td>2. Developing motivation</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Developing self-observation</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Identifying triggers of gambling</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Reducing cue exposure</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. Coping with thoughts and urges to gamble</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. Increasing alternative activities</td>
<td></td>
<td></td>
</tr>
<tr>
<td>8. Changing irrational thoughts</td>
<td></td>
<td></td>
</tr>
<tr>
<td>9. Reducing financial stress</td>
<td></td>
<td></td>
</tr>
<tr>
<td>10. Reducing trait</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

LOGOUT
### First Module

One way to determine whether or not you are at risk for developing gambling problems is to take an inventory of your own gambling.

Check one box for each of the terms of gambling described below. How often have you:

<table>
<thead>
<tr>
<th>Occurrence</th>
<th>Never in my lifetime</th>
<th>At least once in my lifetime, but not in the past year</th>
<th>1-10 times in the past year</th>
<th>About monthly in the past year</th>
<th>About weekly in the past year</th>
<th>Daily or most days in the past year</th>
</tr>
</thead>
<tbody>
<tr>
<td>c. Played cards for money (including casino blackjack)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>d. Bet on horses, dogs, or other animal races or off-track betting at the track or with a bookie</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>e. Bet on sports (parlay cards, with a bookie)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>f. Played dice games (including craps, over and under, or other dice games)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>g. Played scratch tickets or pull tabs</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Cognitive Behavioral Treatment for Problem Gambling

Now for each type of gambling, indicate how much you spent on a typical day when you gambled that way in the past year:

<table>
<thead>
<tr>
<th>Amount wagered</th>
<th>$0 or gambling of this type in the past year</th>
<th>$1-$50 normally wagered</th>
<th>$51-$100 normally wagered</th>
<th>$101-$500 normally wagered</th>
<th>Over $500 normally wagered</th>
</tr>
</thead>
<tbody>
<tr>
<td>h. Outdoor activities (hiking, boating, fishing)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>i. Indoor activities (video games, table games)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>j. Gambling on the internet</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### Cognitive Behavioral Treatment for Problem Gambling

#### Sections

- Self-assessment of gambling problems
- Developing motivation
- Developing self-observation
- Identifying triggers of gambling
- Reducing time exposure
- Coping with thoughts and urges to gamble
- Increasing alternate activities
- Changing irrational thoughts
- Reducing boredom
- Reducing urges

### Now for each type of gambling, indicate how much you spent on a typical day when you gambled that way in the past year.

<table>
<thead>
<tr>
<th>Gambling Activity</th>
<th>$0-$30 usually wagered</th>
<th>$31-$50 usually wagered</th>
<th>$51-$100 usually wagered</th>
<th>$101-$500 usually wagered</th>
<th>Over $500 usually wagered</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. Played cards for money (including casino blackjack)</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>b. Bet on horses, dogs, or other animals in off-track betting at the track or with bookmaker</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>c. Bet on sports (parlay cards, with a bookmaker)</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>d. Played dice games (including crap, roll and under, or other dice games)</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>e. Played scratch tickets or pull tabs</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>f. Played the numbers or bet on lotteries (including daily, weekly, and monthly drawings)</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>g. Played bingo for money</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>h. Bet on horses, dogs, or other animals in off-track betting at the track or with bookmaker</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>i. Played slot machines, poker machines, or other gambling machines</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>j. Bowl/skated/pool/paid golf, or played some other game of skill for money</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>k. Gambled on the internet</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
**First Module**

Your most common form(s) of gambling in terms of frequency:

1. Played cards for money (including casino blackjack)

You have wagered an estimate of $250 in the past year. If you do not agree with this, please go back and change your selections and click 'Submit' button again.

If you agree with this, then click 'Next' to continue.

Next

---

**South Oaks Gambling Screen (SOGS)**

1. When you gambled in the past year, how often did you go back another day to win back money you lost?
   - Never
   - Less than half the time
   - Most of the time
   - Almost every time

2. In the past year, did you claim to be winning money gambling when you weren't actually losing?
   - Yes, in the past but not now
   - Yes, how

3. Do you feel you had a problem with gambling in the past year?
   - No

4. In the past year, did you gamble more than you intended to?
   - No
   - Yes

5. Have people criticized your gambling in the past year?
   - No
   - Yes

6. Have you felt guilty about the way you gambled or what happened to you while gambling in the past year?
   - No
   - Yes

7. In the past year, have you ever felt like you would like to stop gambling but didn’t think you could?
   - No
   - Yes

8. In the past year, have you hidden betting slips, lottery tickets, gambling money, or other signs of gambling from your spouse, children, or other important people in your life?
   - No
   - Yes

9. In the past year, have you gotten in any arguments about money that have centered on your gambling?
   - No
   - Yes

10. In the past year, have you borrowed from someone and not repaid them?
Your SOD score is 8

You might be having moderate to severe gambling problems.

You might want to explore some of the additional modules.

This is the end of module 1, please continue onto module 2.
As many as 1 in 20 adults in the United States have some degree of a gambling problem. The problem can range from very mild to moderate or severe. Based on the information you provided in Section 1, the computer generated a category for you. You may agree or disagree with this feedback. So that you can learn more about your gambling, let’s explore some of the reasons why you gamble.

**What are the benefits you get from gambling?** In other words, list what it is that you like about gambling. Think of as many reasons as you can for why you gamble.

1. I enjoy playing cards with my friends
2. I enjoy the thrill of winning a big hand
3. None
4. None
5. None

**Now, think about some of the negative gambling causes for you. Again, list as many reasons as you can think of related to the bad effects of gambling.**

1. I have some financial problems related to gambling (credit card debt, owe money to friends or relatives)
2. I sometimes use money meant for other things (recreation, savings, rent or food) so that I can gamble.
3. I sometimes borrow money from others so that I can gamble, and I may have a hard time paying them back.
4. None
5. None
6. None
7. None
8. None
9. None
10. None

Below is a list of things that can result from gambling. For a check by each one that you have experienced, even if it has only happened a couple of times.

1. People sometimes tease me about my gambling.
2. People sometimes criticize my gambling.
3. I sometimes feel1 unfulfilled about how often I gamble or how often I win or lose.
4. I participate less in other social or recreational activities because of my gambling.
5. I have work problems due to gambling (I think about gambling at work, reduce my productivity, skip work).
6. I have sleep disturbances because of gambling.
7. I have some financial problems related to gambling (credit card debt, owe money to friends or relatives).
8. People sometimes tease me about my gambling.
9. People sometimes criticize my gambling.
10. I participate less in other social or recreational activities because of my gambling.

### Modules
- Self-assessment of gambling problems
- Developing motivation
- Developing self-observation
- Identifying triggers of gambling
- Reducing the urge
- Coping with thoughts and urges to gamble
- Increasing alternate activities
- Changing irrational thoughts
- Reducing financial debt
- Reducing rules

**LOGOUT**
These are the things you like about gambling:
1. Enjoy playing cards with my friends.
2. Enjoy the thrill of winning a big hand.

These are the bad effects of gambling according to you:
1. I have some financial problems related to gambling (credit card debt, owe money to friends or relatives).
2. I sometimes bet money I meant for other things (rent, taxes, food) so that I can gamb less.
3. I sometimes have to borrow from others so that I can gamble, and I may have a hard time paying them back.
4. I have long-term problems due to gambling (I think about gambling at work, reduce my productivity, skip work).
5. I have some hidden money in gambling.
6. I have some financial problems related to gambling (credit card debt, owe money to friends or relatives).
7. I sometimes feel anxious about my gambling.
8. I sometimes feel guilty about my gambling.
9. I participate less in other social or recreational activities because of gambling.

These are the ways you gain by reducing or stopping gambling:
1. My family would be happier with me.
2. I would have more money to pay bills.

This is the end of module 2; please continue onto module 3...

---

Third Module

First, let’s explore your personal history of gambling.

Think about how old you were when you were first introduced to gambling, or a game of cards or sports or bingo with family members or friends, or the purchase of a lottery ticket.

At what age did you place your first bet? [7 years]

What was your family’s attitude toward gambling? Did either of your parents gamble, and did they ever talk with you about gambling? [Yes]

Did they teach you to gamble, or gamble with you? [Yes]

What was your biggest win in gambling? [$2,000]

How old were you when you won this amount? [15 years]

Now, think about when you started gambling fairly regularly, say a couple of times a month or so.

How old were you when you started regular gambling? [17 years]

Some people go many years with regular, or even sporadic, gambling before they develop a problem with gambling.

What age were you when you first began thinking you might have a problem with gambling or wished you weren’t gambling quite so much? [20 years]

Have you ever sought treatment for gambling? In other words, do you have a gambling problem? Do you think you need help? [Yes]
COGNITIVE BEHAVIORAL TREATMENT FOR PROBLEM GAMBLING

What was your biggest win in gambling? $1,000
How old were you when you won this amount? 25 years

Now, think about when you started gambling fairly regularly, say a couple of times a month or so.
How old were you when you first started gambling? 17 years

Some people go many years with regular, or even sporadic, gambling before they develop a problem with gambling.
What age were you when you first began thinking you might have a problem with gambling or wished you weren't gambling quite so much? 50 years

Have you ever sought treatment for gambling? In other words, have you ever seen a therapist, psychologist, social worker, doctor, priest, minister/rabbi, or any other professional to talk about your gambling? Yes/No

Have you ever gone to Gamblers Anonymous? Yes/No

Have you ever made an appointment with someone to talk about your gambling, but then later changed your mind about going? Yes/No

Did you ever think about getting help for gambling? Yes/No

Can you ever recall a treatment, or thought about getting treatment, for gambling, how old were you the first time? 26 years

How many times in total have you gone for treatment for gambling? Include the total number of times you sought help from therapists, psychologists, social workers, doctors, priests/ministers/rabbis, or other professionals? 10 times

Submit    Gear

COGNITIVE BEHAVIORAL TREATMENT FOR PROBLEM GAMBLING

Third Module

You indicated that you first started gambling when you were 7 years old. What is your memory of that event?

It was great. I got a lottery ticket for Christmas and won.

How did your family's attitude toward gambling influence your initial gambling?

They were supportive and encouraged me to scratch off all the tickets I could.

You first started gambling regularly when you were 17 years. What else was going on in your life during that time?

I was in high school.

How may have that experience been linked to your gambling when you were 17 years?

I had a lot of free time and not a lot of responsibilities.

When you were 25 years old, you had your biggest gambling win.

How did that make you feel?

Fantastic. I was on top of the world.

How did it affect your gambling over the next several months?
<table>
<thead>
<tr>
<th>MODULE</th>
<th>Question</th>
<th>Response</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>How did it affect your gambling over the next several months?</td>
<td>Yes, I gambled a lot trying to win again.</td>
</tr>
<tr>
<td>2</td>
<td>You first started questioning your gambling when you were 26 years old.</td>
<td>Why else was going on in your life at that time?</td>
</tr>
<tr>
<td>3</td>
<td>Identifying triggers of gambling</td>
<td>I was unemployed.</td>
</tr>
<tr>
<td>4</td>
<td>In what ways were these other events associated with your gambling?</td>
<td>I had a lot of time for gambling.</td>
</tr>
<tr>
<td>5</td>
<td>Reducing our expenses</td>
<td>You first thought about getting help for gambling when you were 26 years old.</td>
</tr>
<tr>
<td>6</td>
<td>Why did you seek help at that time?</td>
<td>I was running out of money.</td>
</tr>
<tr>
<td>7</td>
<td>Increasing alternative activities</td>
<td>What were you hoping to get from treatment?</td>
</tr>
<tr>
<td>8</td>
<td>What were you experiencing during treatment?</td>
<td>I wanted to stop gambling so much.</td>
</tr>
<tr>
<td>9</td>
<td>What were your experiences with GA or treatment?</td>
<td>What were your experiences with GA or treatment?</td>
</tr>
<tr>
<td>10</td>
<td>Did not like it.</td>
<td>I did not like it.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>MODULE</th>
<th>Question</th>
<th>Response</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>How long did you attend?</td>
<td>7 years</td>
</tr>
<tr>
<td>2</td>
<td>What did you learn from it?</td>
<td>Nothing much</td>
</tr>
<tr>
<td>3</td>
<td>What else was going on in your life when you were 26 years old?</td>
<td>I was having trouble finding another job.</td>
</tr>
<tr>
<td>4</td>
<td>How was that associated with your treatment experience?</td>
<td>I could not afford gas to get to meetings.</td>
</tr>
<tr>
<td>5</td>
<td>How was that associated with your gambling?</td>
<td>I had meetings made it harder to resist gambling.</td>
</tr>
<tr>
<td>6</td>
<td>If you stopped attending treatment or GA, why did you do so?</td>
<td>I could not afford regularly.</td>
</tr>
<tr>
<td>SESSIONS</td>
<td></td>
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</tr>
<tr>
<td>---</td>
<td>---</td>
<td></td>
</tr>
<tr>
<td>1. Self-assessment of gambling problem</td>
<td>I gambled more.</td>
<td></td>
</tr>
<tr>
<td>2. Developing motivation</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Identifying triggers of gambling</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Reducing cues</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Reducing negative consequences</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. Coping with thoughts and urges to gamble</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. Increasing alternate activities</td>
<td></td>
<td></td>
</tr>
<tr>
<td>8. Changing treatment thoughts</td>
<td></td>
<td></td>
</tr>
<tr>
<td>9. Reducing treatment stress</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**In retrospect, do you ever think you would have been better off continuing with treatment or GA for a longer time, or seeking treatment earlier?**

- Not at all interested
- Somewhat interested
- Moderately interested
- Very interested
- I am getting treatment now

If you are interested in receiving gambling treatment with a counselor, see [www.alivc.org](http://www.alivc.org) for information about gambling treatment services.

**Right now, how do you feel about your gambling?**

- I am comfortable with how much I gamble
- I am gambling a little more than I’d like
- I am gambling a lot more that I want to be

| View Summary | 
|---|---|
| Exit |
**Third Module Summary**

1. **Event 1:**
   - **Description:** Your memory of when you first started gambling: It was great. I got a lottery ticket for Christmas and won.
   - **Details:**
     - **Family's attitude:** Your family's attitude toward gambling influenced your initial gambling behavior: They were supportive and encouraged me to scratch all the tickets I could.
     - **Initial gambling:** The events that were going on in your life when you first started gambling regularly: I was in high school.

2. **Event 2:**
   - **Description:** How did these events influence your gambling?
   - **Details:**
     - **Initial gambling:** I had a lot of free time and not a lot of responsibilities.
     - **First big win:** When you had your first biggest gambling win, you felt: Fantastic. I was on top of the world.
     - **Continuation gambling:** The way it affected your gambling over the next several months: Oh yeah. I gambled a lot trying to win again.
     - **Events in life:** Events in your life when you first started questioning your gambling: I was unemployed.
     - **Continuation gambling:** The way these events were associated with your gambling: I had a lot of time for gambling.

3. **Event 3:**
   - **Description:** You seeked help for your gambling because:
   - **Details:**
     - **Seeking help:** I was running out of money.
     - **Reason for treatment:** You were hoping to get from your treatment: I wanted to stop gambling so much.
     - **Treatment experience:** Your experiences with GA treatment: I did not like it.
     - **Treatment duration:** You attended for: 2 years.
     - **Reasons for not attending:** You learned that: nothing much.
     - **Events during treatment:** Events in your life when you were under treatment: I was having trouble finding another job.
     - **Treatment impact:** The way these events affected your treatment experience: I could not afford gas to get to meetings.
     - **Continuation gambling:** The way these events affected your gambling: not going to meetings made it harder to resist gambling.
     - **Reasons for not attending:** You stopped attending treatment or GA because: I could not afford regularly.
COGNITIVE BEHAVIORAL TREATMENT FOR PROBLEM GAMBLING

1. The way these events affected your treatment experience:
   - I could not afford gas to get to meetings.
2. The way these events affected your gambling:
   - Not going to meetings made it harder to resist gambling.
   - You stopped attending treatment or GA because:
     - I could not attend regularly.
3. Result of stopping:
   - Gained more.
4. Your feeling about receiving treatment for gambling:
   - Somewhat interested.
5. Your feeling about your gambling:
   - I am comfortable with how much I gamble.
6. In the next several exercises, you can learn more about how and why you gamble, and ways to reduce or stop your gambling.
   - Continue

COGNITIVE BEHAVIORAL TREATMENT FOR PROBLEM GAMBLING

Let's see how much you are gambling now. In the calendar below, please enter an amount in the textbox and click the date on every day that you placed a bet, be it a $1 lottery ticket, a bingo game, a $0.25 in a slot machine, or a trip to the casino.

<table>
<thead>
<tr>
<th>October 2006</th>
</tr>
</thead>
<tbody>
<tr>
<td>Date</td>
</tr>
<tr>
<td>-------------</td>
</tr>
<tr>
<td>1</td>
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<tr>
<td>2</td>
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<td>18</td>
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<tr>
<td>19</td>
</tr>
<tr>
<td>20</td>
</tr>
<tr>
<td>21</td>
</tr>
</tbody>
</table>

Total number of days you gambled: 9

You spent: $10
The information you provided indicated that you gambled on ___ days in the past 3 months and spent $___ gambling.

Does that sound about right? Is it more or less than you thought you had gambled recently? More or Less

In retrospect, how much do you wish you had spent gambling over the past 3 months? ___

View Summary  Clear
Third Module Summary

The number of days you gambled in the past 3 months: 0
You spent $0
You thought it was that you gambled recently
In retrospect, you wish you had gambled this much in the past 3 months: $0

This is the end of Module 3. Please move on to Module 4. In the next several exercises, you can learn more about how and why you gamble, and ways to reduce or stop gambling.

Fourth Module

Certain situations are more likely to be associated with gambling than other situations. Situations that are associated with gambling are called “triggers.” Gambling is often triggered by places, people, events, times, and emotions.

List places where you are likely to gamble:
1. At the casino
2. At a friends house for poker night
3. At the racetrack
4. 
5. None

List people with whom you are likely to gamble:
1. Jack
2. Friends
3. Coworkers
4. That weird guy
5. None

List times or days when you are likely to gamble:
1. Monday
### COGNITIVE BEHAVIORAL TREATMENT FOR PROBLEM GAMBLING

#### SUNDARY
1. Self assessment of gambling problems
2. Developing motivation
3. Developing self observation
4. Identifying triggers of gambling
5. Reducing risk exposure
6. Coping with thoughts and urges to gamble
7. Increasing alternate activities
8. Changing preoccupation thoughts
9. Reducing insomnia
10. Reducing rigidity

#### LAYOUT

<table>
<thead>
<tr>
<th>Monday</th>
<th>Tuesday</th>
<th>Wednesday</th>
<th>Thursday</th>
<th>Friday</th>
<th>Saturday</th>
<th>Sunday</th>
<th>Holidays</th>
<th>in the evening</th>
<th>None</th>
</tr>
</thead>
</table>

#### List activities that make it likely that you will gamble:
1. Heading
2. Going to the movies
3. Playing cards
4. Watching sports
5. None

#### List people or places where you are likely to talk about gambling activities:
1. Jack
2. Friends
3. None
4. None
5. None

#### Feelings and emotions can also trigger gambling. Are you likely to gamble when:

1. You've had a tense or bad day?
2. You are anxious or worried?
3. You feel you've been taken advantage of?
4. You are bored?
5. You are in a social situation?
6. You feel bad about yourself or guilty?
7. You are depressed?
8. You want to feel energized or "high"?
9. You are angry?
10. Do you feel you deserve better than what you are getting?
11. Do you feel trapped or controlled?

#### List other feeling that trigger gambling for you:
1. Do not know
2. None
3. None
4. None

**Not all situations, feelings and people trigger gambling. It is important that you recognize when you are unlikely to gamble.**
## COGNITIVE BEHAVIORAL TREATMENT FOR PROBLEM GAMBLING

### TREATMENTS

1. **Self-assessment of gambling problems**
2. **Developing motivation**
3. **Developing self-observation**
4. **Identifying triggers of gambling**
5. **Reducing urges**
6. **Coping with thoughts and urges to gamble**
7. **Increasing alternate activities**
8. **Changing internal thoughts**
9. **Reducing financial stress**
10. **Reducing marital stress**

### LOGOUT

---

### Not all situations, feelings and people trigger gambling. It is important that you recognize when you are unlikely to gamble.

List the places where you are unlikely to gamble or think about gambling:

<table>
<thead>
<tr>
<th>Place</th>
<th>Person</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

List the people with whom you are unlikely to gamble or talk about gambling:

<table>
<thead>
<tr>
<th>Person</th>
<th>Activity</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

List the times or days when you are unlikely to gamble or think about gambling:

<table>
<thead>
<tr>
<th>Time/Day</th>
<th>Activity</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

---

### You should try to spend time in places where, and with people whom, you are least likely to gamble or think or talk about gambling.

List some of these places where and people with whom you should spend more time.

<table>
<thead>
<tr>
<th>Place</th>
<th>Person</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Significant other</td>
</tr>
<tr>
<td></td>
<td>Person</td>
</tr>
<tr>
<td></td>
<td>Person</td>
</tr>
<tr>
<td></td>
<td>Person</td>
</tr>
<tr>
<td></td>
<td>Person</td>
</tr>
</tbody>
</table>

---

### LOGOUT
COGNITIVE BEHAVIORAL TREATMENT FOR PROBLEM GAMBLING

Fourth Module Summary

The places where you are likely to gamble:
- At the casino
- At a friend's house for poker night
- At the racetrack

The people with whom you are likely to gamble:
- Jack
- Friends
- Co-workers
-那 who'd pay

These are the times or days you are likely to gamble:
- Monday
- Tuesday
- Any day
- In the evening

The activities that make it likely that you will gamble:
- Bowling
- Going to the casino
- Playing cards
The people or places where you are likely to talk about gambling activities:

government
insurance
police

You are likely to gamble when:

You are anxious or worried
You are in a social situation
I do not know

The place where you are unlikely to gamble:

home
parole house

The people with whom you are unlikely to gamble:

significant other
parole

The times or days when you are unlikely to gamble:

monday

The activities you engage in when you are unlikely to gamble:

sitting on the beach

Places where and people whom you should spend more time:

<table>
<thead>
<tr>
<th>Places</th>
<th>People</th>
</tr>
</thead>
<tbody>
<tr>
<td>home</td>
<td>significant other</td>
</tr>
</tbody>
</table>

Places where and people whom you should avoid:

<table>
<thead>
<tr>
<th>Places</th>
<th>People</th>
</tr>
</thead>
<tbody>
<tr>
<td>casino</td>
<td>anyone</td>
</tr>
<tr>
<td>bowling alley</td>
<td>anyone</td>
</tr>
<tr>
<td>poker around</td>
<td>other poker people</td>
</tr>
</tbody>
</table>

This is the end of module 4, please continue to module 5.
**Fifth Module**

This section will help you understand when and why you gamble, so that you can learn to stop your gambling better.

**INVENTORY OF GAMBLING SITUATIONS**

Listed below are a number of situations or events in which people gamble.

Read each item carefully, and answer in terms of your own gambling over the past year.

If you "NEVER" gambled in that situation, click under 'Never'.
If you "RARELY" gambled or thought about gambling in that situation, click under 'Rarely'.
If you "FREQUENTLY" gambled or thought about gambling in that situation, click under 'Frequently'.
If you "ALMOST ALWAYS" gambled or thought about gambling in that situation, click under 'Always'.

**OVER THE PAST YEAR I GAMBELED OR THOUGHT ABOUT GAMBLING:**

<table>
<thead>
<tr>
<th>Neatly</th>
<th>Rarely</th>
<th>Frequently</th>
<th>Always</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. When I had an argument with a friend.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. When I felt tense or nervous.</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

---

<table>
<thead>
<tr>
<th>Neatly</th>
<th>Rarely</th>
<th>Frequently</th>
<th>Always</th>
</tr>
</thead>
<tbody>
<tr>
<td>3. When I felt tense or nervous.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. When someone criticized me.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. When I would have trouble sleeping.</td>
<td></td>
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</tr>
<tr>
<td>6. When wanted to win big to show others.</td>
<td></td>
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<tr>
<td>7. When other people around me made me nervous.</td>
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<tr>
<td>8. When I would be out with friends and they wanted to gamble.</td>
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<tr>
<td>9. When I felt I was on a lucky streak.</td>
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<tr>
<td>10. When other people treated me unfairly.</td>
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<tr>
<td>11. When I would remember how great gambling was.</td>
<td></td>
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<td></td>
</tr>
<tr>
<td>12. When I felt confident and relaxed.</td>
<td></td>
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</tr>
</tbody>
</table>
### Cognitive Behavioral Treatment for Problem Gambling

**Ratings**

<table>
<thead>
<tr>
<th>Procedure</th>
<th>Rating</th>
<th>Never</th>
<th>Rarely</th>
<th>Frequently</th>
<th>Always</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Self-assessment of gambling problems</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Developing motivation</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>3. Developing self-observation</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>4. Identifying triggers of gambling</td>
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<tr>
<td>5. Reducing risk exposure</td>
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<tr>
<td>6. Coping with thoughts and urges to gamble</td>
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<td></td>
</tr>
<tr>
<td>7. Increasing alternate activities</td>
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<tr>
<td>8. Changing irrational thoughts</td>
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<tr>
<td>9. Reducing financial stress</td>
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<td></td>
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<tr>
<td>10. Reducing urges</td>
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</tbody>
</table>

**Logout**

<table>
<thead>
<tr>
<th>Procedure</th>
<th>Rating</th>
<th>Never</th>
<th>Rarely</th>
<th>Frequently</th>
<th>Always</th>
</tr>
</thead>
<tbody>
<tr>
<td>11. When I felt confident and relaxed</td>
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<tr>
<td>12. I was a new person now and could control my gambling</td>
<td></td>
<td></td>
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<td></td>
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</tr>
<tr>
<td>13. When I would pass by a convenience store, the 7-11, the casino, etc.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>14. When I felt the only way I could pay my debts was to win big</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>15. Never</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>16. Rarely</td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>17. Frequently</td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>18. Always</td>
<td></td>
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</tbody>
</table>

**Logout**

<table>
<thead>
<tr>
<th>Procedure</th>
<th>Rating</th>
<th>Never</th>
<th>Rarely</th>
<th>Frequently</th>
<th>Always</th>
</tr>
</thead>
<tbody>
<tr>
<td>19. When I felt anxious</td>
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<tr>
<td>20. When I would wonder about my self-control over gambling and would feel like making a bet to try it out</td>
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<tr>
<td>21. When other people interfered with my plans</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>22. When other people interfered with my plan</td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>23. When everything was going well in my life</td>
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<tr>
<td>24. When I was with friends and they were gambling</td>
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<tr>
<td>25. When I would start thinking about all the money I owe</td>
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<tr>
<td>26. When I felt satisfied with something I had done</td>
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<tr>
<td>27. When I felt lucky</td>
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<tr>
<td>28. When I waited to celebrate</td>
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<tr>
<td>29. When I was angry at the way things turned out</td>
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<tr>
<td>30. When I would feel a lot of pressure from family members at home</td>
<td></td>
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<td></td>
</tr>
<tr>
<td>31. When I would think that they were just going on</td>
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<td></td>
<td></td>
<td></td>
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<tr>
<td>32. When I would start to think that they were just going on</td>
<td></td>
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<td></td>
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<tr>
<td>33. When I would start to think that they were just going on</td>
<td></td>
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<tr>
<td>34. When I would start to think that they were just going on</td>
<td></td>
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<tr>
<td>35. When I would start to think that they were just going on</td>
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</tbody>
</table>
### Cognitive Behavioral Treatment for Problem Gambling

#### Session

<table>
<thead>
<tr>
<th></th>
<th>Never</th>
<th>Rarely</th>
<th>Frequently</th>
<th>Always</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1. Identifying triggers of gambling</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>2. Coping with thoughts and urges to gamble</strong></td>
<td></td>
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<td></td>
<td></td>
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<tr>
<td><strong>3. Increasing alternate activities</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td><strong>4. Changing thoughts</strong></td>
<td></td>
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<td></td>
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<tr>
<td><strong>5. Facing fear and shame</strong></td>
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<tr>
<td><strong>6. Reducing cravings</strong></td>
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<td></td>
<td></td>
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</tbody>
</table>

**Sample Questions:**

- **Question 1:** When would you feel like celebrating?
  - Never
  - Rarely
  - Frequently
  - Always

- **Question 2:** When would you start to think that just one bet would cause no harm.
  - Never
  - Rarely
  - Frequently
  - Always

- **Question 3:** When I felt confused about what I should do.
  - Never
  - Rarely
  - Frequently
  - Always

- **Question 4:** When I would meet a friend and they would suggest that we gamble, buy a ticket, go to the casino, etc.
  - Never
  - Rarely
  - Frequently
  - Always

- **Question 5:** When I was not getting along with others at work.
  - Never
  - Rarely
  - Frequently
  - Always

- **Question 6:** When I would feel that nothing was going right for me, so that it was about time that I should win at gambling.
  - Never
  - Rarely
  - Frequently
  - Always

- **Question 7:** When I would suddenly have an urge to gamble.
  - Never
  - Rarely
  - Frequently
  - Always

- **Question 8:** When I wanted to prove to myself that I could gamble a little without going overboard.
  - Never
  - Rarely
  - Frequently
  - Always

- **Question 9:** When there were fights at home.
  - Never
  - Rarely
  - Frequently
  - Always

- **Question 10:** When there were problems with people at work.
  - Never
  - Rarely
  - Frequently
  - Always

- **Question 11:** When I would be relaxed and wanted to have a good time.
  - Never
  - Rarely
  - Frequently
  - Always
The reasons why you gamble are below. Pick the top three reasons why you gamble most often:

1. When I had an argument with a friend.
2. When I would have trouble sleeping.
3. When I felt anxious.
4. When I would wonder about my self-control over gambling and would feel like making a bet to try it out.
5. When other people interfered with my plans.
6. When everything was going well in my life.
7. When I was with friends and they were gambling.
8. When I was afraid that things weren't working out.
9. When I would unexpectedly find or receive some money.

Now, think about ways that you can handle these situations without gambling. For example, if you often gamble when you have access to money, you could limit your access to money by never having more cash than you need for the day and not bringing your credit card or checkbook with you. An even more extreme example is that many people with gambling problems find it useful to turn over all their finances to their spouse or another trusted person. That way, money will not be a trigger for them to gamble.

For your top reason for gambling, think of some ways you can better manage each situation without gambling.

One event that often leads to your gambling is “1. When I had an argument with a friend.” List as many ways as you can think of to handle that situation without gambling:

1. (
2. (
3. (
4. (Another event that often leads to your gambling is “2. When other people interfered with my plans.” How might you handle that situation without gambling? List as many possibilities as you can think of.

1. (
COGNITIVE BEHAVIORAL TREATMENT FOR PROBLEM GAMBLING

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Another event that often leads to your gambling is "When other people interfered with my plans." How might you handle this situation without gambling? List as many possibilities as you can think of:

1. 
2. 
3. 
4. 
5. 

You also often gamble in response to "When I was with friends and they were gambling." What are some other possibilities for dealing with this event?

1. 
2. 
3. 
4. 
5. 

Remember that the next time you encounter these events, you have ways to handling them without gambling.

If you are having a hard time coming up with ways to manage these situations, you can learn more about coping responses in the next several sections.

View Summary  Clear

Fifth Module Summary

Remember that the next time you encounter these events, you have ways to handling them without gambling.

If you are having a hard time coming up with ways to manage these situations, you can learn more about coping responses in the next several sections.

This is the end of module 5, please continue to module 6...
### Sixth Module

Thoughts about gambling, such as urges or cravings to gamble, are normal among people trying to give up gambling.

Thoughts about gambling can be triggered by things in your environment (hearing the sports on the radio), your emotions and feelings (feeling lonely or depressed), or physical sensations (nervousness, tightness in your stomach, sweaty palms).

However, these thoughts are usually short-lived. They usually peak in a few minutes, and then go away. They will become less frequent and less intense as you learn how to cope with them. The easiest ways to deal with cravings and urges are to try to avoid them.

When thoughts about gambling do occur, however, you must find a way to cope with them. List some ways you have handled your thoughts or cravings about gambling so far:

1. Go for a walk
2. Talked away
3. gambled just a little bit
4. None

Other ways to cope with thoughts about gambling are:

1. Get involved in some distracting activity. Reading, going to a movie, and exercising are some good examples of distracting activities. Once you get involved in something else, you’ll find that your thoughts about gambling lessen and even go away.

List some activities you can do when you have thoughts or urges to gamble:

- go fishing
- go for a walk
- talk to a friend
- None

2. Talk it through! Talk to friends or family about craving when it does occur. Talking can help relieve the feeling and can restore honesty in your relationship.

List some people with whom you can talk about your gambling:

- my significant other
- my friends
- None
- None

3. Challenge and change your thoughts! When experiencing a craving, many people have a tendency to remember only the positive effects of gambling, and they often forget the negative consequences. Therefore, when experiencing craving, many people find it helpful to remind themselves of the negative consequences of gambling and the benefits of not gambling. This way, you can remind yourself that you really won’t feel better if you make “just one bet,” and that you stand to lose a lot by gambling.

Remember all those reasons you listed for NOT gambling?
Some other ways to challenge and change your thoughts are described below.

1. Think about the last time you experienced this urge. Where were you and with whom?
2. Would you have done something different?
3. What could you have done instead?
4. The next time you experience this urge, try to:
   1. Recognize it's a urge
   2. Think about a distracting activity
   3. Call a friend
   4. Remind yourself about the bad things about gambling
   5. Write down all the things you have to gain by NOT gambling
Sixth Module Summary

Some ways you have handled your thoughts or cravings about gambling so far:

I gave in
I walked away
I gambled just a little bit

Some activities you can do when you have thoughts or urges to gamble:

go for a walk
go fishing
visit a friend

Some people with whom you can talk about your gambling:

my significant other
my friends

<table>
<thead>
<tr>
<th>Negative consequences of gambling</th>
<th>Positive consequences of NOT gambling</th>
</tr>
</thead>
<tbody>
<tr>
<td>I will lose a lot of money</td>
<td>I will have extra money</td>
</tr>
<tr>
<td>I will lose time I could use for other things</td>
<td>I will have extra time for myself and family</td>
</tr>
</tbody>
</table>

a) Your most intense thought of gambling. Horrible tension in my stomach

b) The last time you had an urge, you were with. I was at the bowling alley and wanted to bet

c) You were feeling: tense

d) You said to yourself. I could lose, even though this feels like a sure thing

e) You could have done instead. I could have resisted the urge and just had fun bowling

The next time you experience a craving or an urge to gamble,

1. Recognize that it's a urge
2. Think about a distracting activity
3. Call a friend
4. Remember the bad things about gambling
5. Write down all the things you have to gain by NOT gambling
Seventh Module

Many times when gambling becomes a regular part of someone's lifestyle, they either stop doing many other activities that they used to enjoy, or they never start or develop any regular recreational activities. For example, many compulsive gamblers used to play sports, exercise, go on holidays, go out to the movies, and visit friends and relatives. As gambling increases, it takes the place of many of these other activities.

List below some activities that you used to do more, before gambling became such an important part of your life:

<table>
<thead>
<tr>
<th>Activities I can do alone</th>
<th>Activities I can do with others</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dancing</td>
<td></td>
</tr>
<tr>
<td>Fishing</td>
<td></td>
</tr>
<tr>
<td>None</td>
<td>None</td>
</tr>
</tbody>
</table>

Think of some other activities that maybe you've never tried but thought might be fun to do. Try to include activities that are free to do, as well as some that may cost money.

<table>
<thead>
<tr>
<th>Activities I can do alone</th>
<th>Activities I can do with others</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hiking</td>
<td></td>
</tr>
<tr>
<td>Scuba</td>
<td></td>
</tr>
<tr>
<td>None</td>
<td>None</td>
</tr>
<tr>
<td>None</td>
<td></td>
</tr>
</tbody>
</table>

Now think of some activities you can do alone, as well as some that are better done with other people.

<table>
<thead>
<tr>
<th>Activities I can do alone</th>
<th>Activities I can do with others</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fishing</td>
<td>Hiking</td>
</tr>
<tr>
<td>None</td>
<td>None</td>
</tr>
<tr>
<td>None</td>
<td>None</td>
</tr>
<tr>
<td>None</td>
<td>None</td>
</tr>
</tbody>
</table>

Some activities are best planned in advance, like going away for a weekend, joining a new club, or painting a house. Other activities can be done on the spur of the moment, like taking a walk, going to a movie, or doing a crossword puzzle. Below, list some activities of both types that you have done in the past or would like to do again at some point in the future.

**Activities that usually require planning**

1. Going away for the weekend
2. None
3. None
4. None

**Activities that can be done on the spur of the moment**

1. Walking for exercise
2. Renting a movie
3. None
4. None
Planned activities are good to do during your high-risk times, or times when you need to often gamble, like on the weekends or on payday. Below, list your high-risk gambling times and activities you can plan to do on those times instead.

<table>
<thead>
<tr>
<th>High-risk time</th>
<th>Go out to movies with friend</th>
</tr>
</thead>
<tbody>
<tr>
<td>Payday</td>
<td>Jogging</td>
</tr>
<tr>
<td>None</td>
<td>None</td>
</tr>
<tr>
<td>None</td>
<td>None</td>
</tr>
</tbody>
</table>

Whenever you experience a craving or urge to gamble, it is a good idea to have a couple spontaneous activities available to counteract that gambling thought. For example, if you suddenly feel an urge to gamble when you drive by a convenience store where you often bought lottery tickets, instead of stopping in the store, you can head toward the gym and work out.

<table>
<thead>
<tr>
<th>When do you experience cravings or urges</th>
<th>Alternate activity</th>
</tr>
</thead>
<tbody>
<tr>
<td>When I have money</td>
<td>Go to spouse</td>
</tr>
<tr>
<td>None</td>
<td>None</td>
</tr>
<tr>
<td>None</td>
<td>None</td>
</tr>
<tr>
<td>None</td>
<td>None</td>
</tr>
</tbody>
</table>

A balanced lifestyle is important when you are trying to stop gambling. Keeping engaged in other fun and rewarding activities will help decrease urges for gambling. And doing other activities will help you live a balanced and healthy life.
Seventh Module Summary

Some activities that you need to do more, before gambling become such an important part of your life:
- dancing
- fishing

Some other activities that maybe you’ve never tried but thought might be fun to do:
- biking
- tramp

<table>
<thead>
<tr>
<th>Activities I can do alone</th>
<th>Activities I can do with others</th>
</tr>
</thead>
<tbody>
<tr>
<td>running</td>
<td>hiking</td>
</tr>
</tbody>
</table>

Activities that usually require planning:
- going away for the weekend

Activities that can be done on the spur of the moment:
- walking for exercise
- renting a movie

You experience cravings or urges when you have money

<table>
<thead>
<tr>
<th>High risk time</th>
<th>Alternate activity</th>
</tr>
</thead>
<tbody>
<tr>
<td>everyday</td>
<td>jogging</td>
</tr>
</tbody>
</table>

A balanced lifestyle is important when you are trying to stop gambling. Keeping engaged in other fun and rewarding activities will help decrease urges for gambling. And, doing other activities will help you live a balanced and healthy life.
Eighth Module

Many gamblers experience irrational thoughts about gambling. For example, some gamblers may have a special slot machine, carry a lucky charm, or bet on a specific number. Gamblers may feel lucky, special, or desperate to win, and these thoughts may lead to urges to gamble. These thoughts may also drive continued gambling once it starts.

What are some thoughts you have about gambling that you know deep in your heart are not true?

Example: "I know that I would have to win if I stayed at that machine just a little longer."

Below are some types of beliefs you may have when you are gambling.

Overestimating chances of winning

Gamblers often believe that they have a system or a way of beating the odds. Some examples of overly confident thoughts are listed below. Check those that you have experienced, and also list your own thoughts that may show overconfidence in your ability to win at gambling.

- Gambling is a way to win money.
- I have a system that improves my chances of winning.

Others:

- I can win money in no time.
- I am better than most people, so I can win at gambling.
- The odds were made to make you win.

Many gamblers do not have accurate knowledge of the odds of winning at gambling. The chances of winning $1 million in a lottery, for example, are only 1 in 140,000,000. These chances are much lower than being struck by lightning (1/2,000,000).

Gamblers often realize that the home wins in the long run, but they forget that they still can beat these odds. They feel that someone has to win, and they may be the one. They may feel they have special knowledge or skill, such that they can improve their odds of being one of the lucky ones.

In reality, no one who gambles enough is bound to lose in the long run, because gambling is designed to have a negative overall rate of return. The rate of this return may vary by game, but the overall rate of return to the gamblers is always negative. For example, the lottery pays out only 50% of what it takes in, and slot machines pay out 85%. The more you play, the more likely you are to lose.

Selective memories

Many gamblers can easily recall their gambling wins, but they forget or minimize their many gambling losses. Some examples of selective recall are shown below. Check those that apply to you, and also write in your own unique thoughts.

- I easily forget my gambling losses.
- I remember my gambling wins.
- I can describe my gambling wins.
- I do not think about my gambling losses.
Many gamblers can easily recall their gambling wins, but they forget or minimize their many gambling losses. Some examples of selective recall are shown below. Check those that apply to you, and also write in your own unique thoughts like those that make you want to start or keep gambling.

1. I win more often than I lose when I gamble.
2. I always win on the third of the month.
3. I am more likely to win when I wear a blue shirt.
4. My common's wife won a million dollars on the lottery. That means, I can too.

Other:
1. Name
2. Name
3. Name
4. Name

The reason that you remember your wins (and other people's big wins) is because they are unusual and make a big impact on your memory. There's nothing sensational or memorable about all your other losses and their wives who buy lottery tickets, but who never win. You selectively remember the people who win big.

Similarly, when you think about wanting to gamble, you remember the few times you pulled the lever and 100's of quarters rolled out. You don't think about the thousands of times you pulled the lever and nothing rolled out.

**Predicting wins and explaining away losses**

Some gamblers feel that one win may signal another larger win. In other words, if they just won $100 on a card hand or on the slot machines, then they may think they are on a lucky streak and another even larger win may be due. Then, they keep playing. List below any thoughts you have about your abilities to predict wins:

- I'll win $2 on a scratch card, that $2 needs to be re-invested, because the next card is likely to have a bigger payout.
- I'll get 3 Aces in the last hand. I was close to a win, next hand, there must be really big.
- I'll get a major win on a slot machine. I want to bet even bigger next time.

Other:
1. Name
2. Name
3. Name
4. Name

Not only do wins or near wins seem to drive more gambling, but so do losses. Many gamblers feel that a series of losses means that a win is nearer. Examples of these types of thoughts are shown below.

- The machine on the corner hasn't paid out all week, so it is due a big win.
- I've already put $600 in that machine — it is time for it to pay out.
- I've had bad luck all season, so I'm due a big win on the Superbowl.
- I only lost today because that woman took the machine I wanted to play on tonight.

Other:
1. Name
2. Name
3. Name
4. Name

The fact is that neither wins nor losses can predict subsequent wins or losses. Each bet is an independent event, and what
The fact is that neither wins nor losses can predict subsequent wins or losses. Each bet is an independent event, and what preceded it has no impact on the next outcome. A machine that recently paid off is just as likely to pay off again as one that has not paid out at all. Similarly, in roulette or dice games, it doesn’t matter that the number 15 hasn’t come up for a long time or that a 7 hasn’t been rolled as a “hot” number. Each spin on the roulette wheel has a 1 in 37 chance, and each roll of a die has a 1 in 6 chance.

Illusion of Control

Finally, many gamblers feel that they can somehow control the outcome of gambling. They may think that they can predict the machine that is likely to pay off, or select a lottery ticket that has a better chance of winning. In fact, games are designed to make you think that you can control the outcomes. You pull the lever under the impression that the speed at which you pull may affect where the slot machine stops, or you select your favorite number on a “lucky” type of scratch cards. Thinking that your choice has some influence on the outcome.

Below, check the illusions of control you feel, and list some others:

- I like to select which slot machine I play, because I try to predict which one will pay off.
- I feel the cards I feel I have a better chance of winning.
- I prefer a specific type of scratch ticket.
- I sometimes see or feel lucky numbers that I bet on.

Thoughts:
- My lucky number guarantees victory
- Add
- Remove
- My lucky number guarantees victory
- Add
- Remove
- My lucky number guarantees victory
- Add
- Remove

In reality, not you, nor anyone else, has any control over the outcomes of gambling events. By selecting the numbers 1, 7, 25, and 4 in the lottery offers you no advantage over a random selection of numbers. The way the cars are shuffled or the dice are tossed does not influence the outcomes of the games either.

You listed the following thoughts or illusions about gambling. Now, indicate why you know they are false.

<table>
<thead>
<tr>
<th>Thought or Illusion</th>
<th>Why it isn’t rational or correct</th>
</tr>
</thead>
<tbody>
<tr>
<td>I like to select which slot machine I play, because I try to predict which one will pay off.</td>
<td>Each machine has the same odds.</td>
</tr>
<tr>
<td>I feel the cards, I feel I have a better chance of winning.</td>
<td>It does not matter who deals.</td>
</tr>
<tr>
<td>I prefer a specific type of scratch ticket.</td>
<td>All scratch tickets have odds.</td>
</tr>
<tr>
<td>I like to select which slot machine I play, because I try to predict which one will pay off.</td>
<td>Same as above.</td>
</tr>
<tr>
<td>I feel the cards, I feel I have a better chance of winning.</td>
<td>Same.</td>
</tr>
<tr>
<td>I sometimes see or feel lucky numbers that I bet on.</td>
<td>There is no such thing as a lucky.</td>
</tr>
</tbody>
</table>
### COGNITIVE BEHAVIORAL TREATMENT FOR PROBLEM GAMBLING

#### Samplers
1. Self-assessment of gambling problems
2. Developing motivation
3. Developing self-observation
4. Identifying triggers of gambling
5. Reducing risk exposure
6. Coping with thoughts and urges to gamble
7. Increasing alternative activities
8. Changing irrational thoughts
9. Reducing financial stress
10. Reducingclients

#### LOGOUT

Consider the last time you experienced one of these thoughts or deceptions about gambling. What happened before that thought, and what was the outcome? Finally, describe what was wrong about your thought or self-deception, and indicate a more rational reaction to it.

<table>
<thead>
<tr>
<th>Situation</th>
<th>Thought or self-deception</th>
<th>Outcome</th>
<th>More rational reaction to the situations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Example: found $10 unexpectedly in my pocket.</td>
<td>24/7 luck day</td>
<td>Won 10 scratch tickets, won $10, but lost that or well.</td>
<td>Spending $10 was good, but it didn’t mean I was lucky. Could have spent the money on lunch.</td>
</tr>
</tbody>
</table>

The next time you feel one of these thoughts or self-deceptions, remember what is wrong with it, and what you can do instead of gambling more in response to these feelings.

---

### COGNITIVE BEHAVIORAL TREATMENT FOR PROBLEM GAMBLING

#### Some thoughts you have about gambling that you know deep in your heart are not true!

- I was on a lucky streak.
- Some thoughts that show overconfidence in your ability to win at gambling.
  - Gambling is a way to win money.
  - I can double my money in no time.

#### Your selective memories

- I win more often than I lose when I gamble.
- I always win on the third of the month.
- I am more likely to win when I wear a blue shirt.

#### The illusion of control you feel

- My lucky shirt guarantees victory.

<table>
<thead>
<tr>
<th>Thought or Deception</th>
<th>Why it isn't rational or correct</th>
</tr>
</thead>
<tbody>
<tr>
<td>I like to select which slot machine I play, because I try to predict which one will pay off.</td>
<td>It does not matter who selects all scratch tickets, there is a certain probability of winning.</td>
</tr>
<tr>
<td>If I deal the cards, I feel I have a better chance of winning.</td>
<td>It does not matter who deals all scratch tickets, there is a certain probability of winning.</td>
</tr>
<tr>
<td>If I select which slot machine I play, because I try to predict which one will pay off.</td>
<td>It does not matter which slot machine is selected, there is a certain probability of winning.</td>
</tr>
</tbody>
</table>
I always win on the third of the month.
I am more likely to win when I wear a blue shirt.

The illusion of control you feel

My lucky shirt guarantees victory.

<table>
<thead>
<tr>
<th>Thought or deception</th>
<th>Why it isn’t rational or correct</th>
</tr>
</thead>
<tbody>
<tr>
<td>I like to select which slot machine I play, because I try to predict which one will pay off.</td>
<td>Each machine has the same odds of winning.</td>
</tr>
<tr>
<td>If I deal the cards, I feel I have a better chance of winning.</td>
<td>It does not matter who deals all scratch tickets have odds that I cannot control.</td>
</tr>
<tr>
<td>I prefer a specific type of scratch ticket.</td>
<td>There is no such thing as a lucky number anyway.</td>
</tr>
<tr>
<td>I like to select which slot machine I play, because I try to predict which one will pay off.</td>
<td></td>
</tr>
<tr>
<td>If I deal the cards, I feel I have a better chance of winning.</td>
<td></td>
</tr>
<tr>
<td>I sometimes see or feel lucky numbers that I bet on.</td>
<td></td>
</tr>
<tr>
<td>My lucky shirt guarantees victory.</td>
<td></td>
</tr>
</tbody>
</table>

The next time you feel one of these thoughts or self-deceptions, remember what is wrong with it, and what you can do instead of gambling more in response to these feelings.

Ninth Module

Many gamblers experience financial consequences from their gambling. Often, they may feel overwhelmed by debts, and the only way out appears to be to win at gambling.

However, it is important to remember that gambling is not a way to repay debts. Gambling will only serve to worsen the situation.

Taking an active approach to your financial situation is important. An active approach will help relieve financial problems, that are often triggers for relapse.

The first step in the process is to determine your monthly income.

**Income:**

- Salary or wages: $600
- Tips or commission (monthly average): 0
- Disability pension or insurance: 0
- Child support or alimony: 0
- Pension retirement benefits: 0
- Unemployment benefits: 0
- Welfare payments: 0
- Food stamps: 0
- Social security: 0
The next step involves calculating your total monthly expenses.

**Expense:**

- Rent/mortgage: $400
- Home maintenance/repair: $0
- Utilities (gas, electric, oil): $50
- Telephone: $20
- Groceries: $90
- Car payment: $150
- Car insurance: $200
- Gas: $50
- Other transportation: $0
- Clothing (Average): $10

**Calculate Total Expense:** $5654

Now you know your average monthly income and expenses. You will need to have a clear idea of what you owe, both gambling and non-gambling related.

**What is owed:**

- Bank loans (do not include mortgage): $500
- Credit card (total due, not balance): $600
- Student loans: $15000
- Other loans: $0
### Cognitive Behavioral Treatment for Problem Gambling

#### Module 1: Self-Assessment of Gambling Problems

1. Identify triggers of gambling
2. Reducing excessive gambling

#### Module 2: Developing Motivation

3. Developing new self-observation
4. Identifying triggers of gambling
5. Reducing excessive gambling

#### Module 3: Coping with Indulgence and Ways to Gamble

6. Increasing alternate activities
7. Changing irrational thoughts
8. Reducing financial stress
9. Reducing gambling

#### Module 4: Ways to Increase Income

10. Getting a second job

#### Module 5: Ways to Reduce Expenses

11. Reviewing expenses

<table>
<thead>
<tr>
<th>Original expenses</th>
<th>Revised expenses</th>
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</thead>
<tbody>
<tr>
<td>Rent/mortgage:</td>
<td>400</td>
</tr>
<tr>
<td>House maintenance/repair</td>
<td>0</td>
</tr>
<tr>
<td>Utilities (gas, electric, oil):</td>
<td>50</td>
</tr>
<tr>
<td>Telephone:</td>
<td>20</td>
</tr>
<tr>
<td>Groceries:</td>
<td>190</td>
</tr>
<tr>
<td>Car payment:</td>
<td>190</td>
</tr>
<tr>
<td>Car insurance:</td>
<td>2000</td>
</tr>
<tr>
<td>Gas:</td>
<td>50</td>
</tr>
<tr>
<td>Other transportation:</td>
<td>0</td>
</tr>
</tbody>
</table>
188

COGNITIVE BEHAVIORAL TREATMENT FOR PROBLEM GAMBLING

BENEFITS

1. Self-monitoring of gambling problems
2. Developing motivation
3. Developing self-observation
4. Identifying triggers of gambling
5. Reducing our exposure

Gut:
Other transportation:
Clothing (average):
Meals (average):
Child care:
School expenses:
Medical expenses:
Life/mortgage insurance:
Property taxes:
Cable television:
Other:

Total expense: $2,622
Total revised expense: $800

You have an estimated extra $644 per month that you can apply toward repayment of your debt.

Now consider how best to allocate your $644 per month towards your debts. Put more toward those debts that are causing you the most anxiety. It is a good idea to put some money (at least $100 per month) toward all your debts so that you can build the trust of your creditors and they can see you making progress.

Total owed

Back loans (do not include mortgage): $500
Credit cards (total if multiple): $500
Student loans: $15,000
Car loans:
Credit cards:
Other:

Total owed:

Monthly payment:

Back loans (do not include mortgage): $50
Credit cards (total if multiple): $50
Student loans: $200
Car loans:
Credit cards:
Other:

Some other tips for helping you manage your finances and reduce your risk for relapse to gambling are shown below. Check off strategies that are relevant to you or that you may consider trying.

- Cancel your credit cards.
- Cancel your ATM card.
- Make sure your salary is automatically deposited into your checking account.
- Reserve overdraft protection, so that you can't take out more money than you have.
- Eliminate your checking and savings accounts completely.
- Only carry the amount of cash you absolutely need each day ($5 for lunch).
- Tell your family and friends to NEVER lend you money.
- Sign a contract with your friends and family that they will NEVER lend you money.
- Keep a daily record of all your income and spending, for close budgeting.
- Share your budgeting record, including all receipts, with a trusted friend or partner to help you keep on track.
Some other tips for helping you manage your finances and reduce your risk for relapse to gambling are shown below.

Check off strategies that are relevant to you or that you may consider trying:

- Cancel your credit card.
- Cancel your ATM card.
- Make sure your salary is automatically deposited in your checking account.
- Arrange overdraft protection so that you can take out more money than you have.
- Reduce your spending and bank accounts completely.
- Avoid being the amount of cash you absolutely need each day (35 per month).
- Tell your family and friends to NEVER lend you money.
- Keep a daily record of all your income and spending for close budgeting.
- Share your budgeting record, including all receipts, with a trusted friend or partner to help you keep on track.
- Have a partner or trusted friend or family member manage all your finances.
- Attend GA and sign up for a precommitment relief program.
- Visit a consumer credit information centre.

Seek professional financial advice if:

- You can't decide what to do and have little or no money left to repay debts after covering basic living expenses.
- You are more than 5 months late with payments.
- Creditors are threatening you or repeatedly calling you.
- You are considering bankruptcy.

---

**Ninth Module Summary**

The financial issues you are most concerned about are:

- I need to start paying off my student loan.
- Ways to increase your income:
  - I could get a better paying job.
- Ways to reduce expenses:
  - I could travel less to reduce gas cost.
  - I could cancel cable TV.
  - I could turn the heat down.

Your estimated monthly income is $1534.

Your estimated monthly expense is $1292.

Your revised monthly expense is $390.

You have an estimated extra $564 per month that you can apply towards repayments of your debts.

This is how you plan to allocate the extra $564.

---

**Total actual/Monthly payment**
## COGNITIVE BEHAVIORAL TREATMENT FOR PROBLEM GAMBLING

### MODULES

| 1. Self-assessment of gambling problems |
| 2. Developing motivation |
| 3. Developing self-observation |
| 4. Identifying triggers of gambling |
| 5. Reducing true beliefs |
| 6. Coping with negative thoughts and urges to gamble |
| 7. Increasing alternative activities |
| 8. Changing irrational thoughts |
| 9. Reducing financial risk |
| 10. Reducing regrets |

**Example:** If I get bad off, I'm going to be in really bad financial shape, and I might be tempted to start gambling again. If my daughter still won't speak to me even after I try to pay her back, I may feel I have no reason to stop gambling.

**Question:** What are some ways you can think of now to manage these obstacles, if they occur? What are some other ways you can handle life problems, other than by gambling?

**Example:** If I get bad off, I will immediately start looking for other work. Even taking a manual job would be better than not working because if I don't work, I will have too much time on my hands. If my daughter remains distant with me, I will not get angry. I will keep paying her back for the money I owed her even if she doesn't appreciate it. If I don't get angry with her, eventually she will forgive me.

- I can apologize and try to make it nice.
- None
- None

Making major life changes can be a complex process. But, by accepting responsibility and taking small steps to achieving goals, you will be well on your way.

Problem gamblers may not always realize that gambling can be used to hide their real problems. Gambling becomes automatic and an easy way of dealing with problems. By knowing what you really want, and keeping focused on making those changes, you will be well on your way to having a happy and fulfilling life without gambling.

---

###自動化和无包方法处理问题：

通过了解你真正想要的，并集中精力做出这些改变，你将走在通往没有赌博的快乐和充实生活的方式上。

无论你多好地处理了减少或消除你的赌博，你都必须预期问题会从这里或那里的小改变中恢复过来。如果你遇到一些让你烦恼的问题，你就会从那里学习。你可以从这些失败中学习，这些失败有助于你识别你的联想和偏差情况。识别这些联想和偏差的方法是：了解这些触发因素的持续存在，并采取正确的行动。

**Below, describe a strong urge you had for gambling, an actual slip that occurred, or a slip that you can imagine happening to you in the future.**

**Example:** Bought 10 scratch tickets at the convenience store on the way home.

1. I had extra money and the urge was strong.
2. None

**What were the thoughts or events that preceded that thought or event?**

**Example:** Was distracted, had a bad day at work. Wasn’t even thinking about gambling until I already had the tickets in my hand.

1. I can make more money.
2. None

---
COGNITIVE BEHAVIORAL TREATMENT FOR PROBLEM GAMBLING

MODULES
1. Self assessment of gambling problem
2. Developing motivation
3. Developing self observation
4. Identifying triggers of gambling
5. Reducing cue exposure
6. Coping with thoughts and urges to gamble
7. Increasing alternate activities
8. Changing irrational thoughts
9. Reducing financial stress
10. Reducing relapse

LOGOUT

What were the thoughts or events that preceded that thought or event?

Example: Was distracted, had a bad day at work. Wasn’t even thinking about gambling until I already had the tickets in my hand.

1. I can make more money
2. None
3. None

What can you do to prevent gambling from happening next time if you experience a similar event or feelings?

Example: Bring only enough money for gas. Buy gas only from stores that don’t sell tickets. Think about other ways of relaxing when I have a bad day at work.

1. I can tell myself that a bird in the hand...
2. None
3. None

Congratulations,
You have made major steps in tackling your problems with gambling.
If you need more help, you can contact www.npgcweb.org.

Save & View Summary

Tenth Module Summary

Things you would like to change about yourself?

I would like to spend more time with my family.

How do you envision your life without gambling in relationship to accomplishing the goals above?

If I gambled less, I would have more time and money.

Some potential obstacles to your achieving the goals you described for yourself above:

Gambling gets in the way.

If my family gets angry with me, I do not want to spend time with them.

Some ways that you can think of to manage those obstacles:

I can apologize and try to make things right with them.

A strong urge you had for gambling, an actual slip that occurred, or a slip that you can imagine happening to you in the future.

Had extra money and there was a 2 for 1 deal on scratch tickets.

The thoughts or events that preceded that thought or event:

I can make more money.
Some potential obstacles to your achieving the goals you described for yourself above:

Gambling gets in the way.
If my family gets angry with me, I do not want to spend time with them.

Some ways that you can think of now to manage these obstacles:

I can apologize and try to make things right with them.

A strong urge you had for gambling, an actual slip that occurred, or a slip that you can imagine happening to you in the future.

I had extra money and there was a 2 for 1 deal on scratch tickets.

The thoughts or events that preceded that thought or event

I can make more money.

What you can do to prevent gambling from happening next time if you experience a similar event or feelings:

I can tell myself that a bird in the hand is better than two in the bush.

Congratulations!
You have made major steps in tackling your problem with gambling.
If you need more help, you can contact www.nadco.org.
Appendix H

Demographics Questionnaire

________________________________________________________________________
Your age: _______ years
Your sex:  □ Male    □ Female
________________________________________________________________________

Do you live in Detroit?  □ No   □ Yes
If NO, how far from Detroit do you live?   _____ miles.

For how many MONTHS have you attended the UPC Jefferson Clinic?

________________________________________________________________________
If less than one month, write 0.

________________________________________________________________________

Some people identify themselves as belonging to one or more racial or ethnic groups. Please check the box(es) below which correspond to group(s) you belong to:
White or Caucasian  □
Black or African-American  □
Hispanic or Latino  □
American Native  □
Alaskan Native  □
Asian  □
Pacific Islander  □
Middle Eastern  □
Do you consider yourself to be of any other race or ethnic group?
If so, what is it? ________________________________________

________________________________________________________________________

Marital status: (Check One Answer)
□ Married
□ Single
□ Divorced
□ Remarried
□ Widowed
□ Separated
□ Living with partner
Same Sex   ______  Opposite Sex   ________
Usual employment pattern: (Check One Answer)
- Full Time (>35 hrs/wk)
- Part Time (Regular hours)
- Part Time (Irregular hours)
- Unemployed, full time student
- Unemployed, part time student
- Retired/Disability
- Military Service

Annual household income (Check One Answer)
- ≥$100,000
- $75,000-$99,000
- $50,000-$74,000
- $25,000-$49,000
- $10,000-$24,000
- ≤$5,000-$9,999
- ≤$5,000
- Don’t know, or prefer not to say
Appendix I

Therapist Questionnaire

<table>
<thead>
<tr>
<th>Client ID:</th>
<th>Actual duration of session</th>
<th>Did not attend:</th>
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<tbody>
<tr>
<td></td>
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</table>

<table>
<thead>
<tr>
<th>Disclosed Gambling behavior:</th>
<th>Yes:</th>
<th>No:</th>
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<tbody>
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<table>
<thead>
<tr>
<th>Who initiated the conversation:</th>
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</tbody>
</table>
### Group Therapy Questionnaire

**DATE:** ____________________

**Client ID:** ____________________  **Actual duration of session:** _________  **Did not attend:** [ ]

**Disclosed Gambling behavior:**

- **Yes:** [ ]
- **No:** [ ]

**Who initiated the conversation:**

- **Therapist:** [ ]
- **Client:** [ ]
- **Other Client:** [ ]

**For how many minutes did the discussion last?** _________

---

**Client ID:** ____________________  **Actual duration of session:** _________  **Did not attend:** [ ]

**Disclosed Gambling behavior:**

- **Yes:** [ ]
- **No:** [ ]

**Who initiated the conversation:**

- **Therapist:** [ ]
- **Client:** [ ]
- **Other Client:** [ ]

**For how many minutes did the discussion last?** _________

---

**Client ID:** ____________________  **Actual duration of session:** _________  **Did not attend:** [ ]

**Disclosed Gambling behavior:**

- **Yes:** [ ]
- **No:** [ ]

**Who initiated the conversation:**

- **Therapist:** [ ]
- **Client:** [ ]
- **Other Client:** [ ]

**For how many minutes did the discussion last?** _________

---

**Client ID:** ____________________  **Actual duration of session:** _________  **Did not attend:** [ ]

**Disclosed Gambling behavior:**

- **Yes:** [ ]
- **No:** [ ]

**Who initiated the conversation:**

- **Therapist:** [ ]
- **Client:** [ ]
- **Other Client:** [ ]

**For how many minutes did the discussion last?** _________