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Retaining Pathological Gamblers in Cognitive Behavior Therapy Through Motivational Enhancement

A Pilot Study

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Treatment for pathological gambling is in its infancy. Several cognitive and behavioral interventions have shown promise, but high attrition and relapse rates suggest that gamblers requesting treatment are not uniformly committed to change. This article describes an exploratory study with 9 severe pathological gamblers—in their majority horse race bettors—who were recruited from a community treatment center. The gamblers were treated with a hybrid intervention consisting of motivational enhancement and cognitive behavior therapy. All gamblers were retained in treatment and during a 12-month follow-up period. This retention rate was significantly higher than that of a control group of gamblers who received treatment as usual in the same community setting. Of the gamblers who received the experimental treatment, 6 maintained total abstinence during the 12-month follow-up period, 2 were significantly improved, and 1 remained unimproved. In addition to changing their gambling behavior, many clients made successful lifestyle changes. The possible benefits of combining a motivational intervention with cognitive behavior therapy are discussed.

Keywords: pathological gambling; motivational interviewing; motivational enhancement; cognitive behavioral therapy; adults

Compared to other addictive behaviors, treatment-outcome research on pathological gambling is in its infancy. As recent reviews of the current literature have shown (Blaszczynski & Silove, 1995;
Kassinove, 1996; Lopez Viets & Miller, 1997; National Research Council, 1999), treatments include approaches as diverse as psychoanalysis, behavior modification, cognitive therapy, pharmacotherapy, supportive therapy, marital therapy, and self-help groups. Most claims about effectiveness are based on anecdotal reports, single case studies, and uncontrolled trials.

The exceptions are a handful of better controlled studies that have reported favorable outcomes with behavioral and cognitive behavioral interventions (e.g., Echeburua, Baez, & Fernandez-Montalvo, 1994, 1996; McConaghy, Armstrong, Blaszczynski, & Allcock, 1983; McConaghy, Blaszczynski, & Frankova, 1991; Sylvain & Ladouceur, 1992; Sylvain, Ladouceur, & Boisvert, 1997). However, due to high attrition rates and loss of participants during follow-up, even these studies are not without problems. To illustrate, Echeburua et al. (1994, 1996) compared behavior therapy with group cognitive restructuring and a combined treatment. Of 64 excessive slot machine players, 14 (22%) dropped out from treatment and 15 (23%) relapsed during follow-up. In a study by McConaghy and colleagues (1991), only 63 (53%) of 120 gamblers treated with desensitization, relaxation, aversion, or exposure could still be contacted at 12-month follow-up. In a randomized, controlled trial by Sylvain et al. (1997), of 56 pathological gamblers (mostly video-poker players) who met eligibility criteria for the study, 40 entered treatment and were randomized to cognitive behavior therapy \( n = 22 \) or a wait list \( n = 18 \). Eight clients dropped out from treatment and 3 from the wait list. Only 9 gamblers (i.e., 41% of the 22 gamblers who had initiated treatment and 64% of the 14 who completed treatment) could be assessed at 12-month follow-up, with 8 being improved or abstinent.

Although these data may seem discouraging, they should not be construed as an indictment of behavior therapy or cognitive behavior therapy, because many pathological gamblers who complete treatment seem to benefit. The problem is that a large number either drop

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out from treatment, especially during the first two sessions (Echeburua et al., 1994), or are lost to follow-up, which often indicates that they have relapsed.

PATHOLOGICAL GAMBLERS’ MOTIVATIONAL AMBIVALENCE

High dropout and relapse rates are likely an indication of gamblers’ intrinsic ambivalence about changing a behavior that is, by its very nature, extremely exciting but also very costly. Such dual contingencies lie at the heart of all so-called addictive behaviors (e.g., substance abuse, deviant sexual behavior, binge eating, pathological gambling). Through the reinforcing as well as punishing consequences that follow such behaviors, individuals often become trapped in an approach-avoidance conflict. They experience a great deal of motivational ambivalence, which expresses itself in repeated episodes of self-indulgence and abstinence. From an intervention perspective, it is therefore imperative to decrease this ambivalence and engage clients in the treatment process.

One method that has shown to be useful in tipping clients’ motivational balance toward a healthy level of self-regulation is Miller and Rollnick’s (1991) “motivational interviewing” approach. Motivational interviewing is conceptually based on Prochaska and DiClemente’s (1982) transtheoretical model of change. It holds that addicted individuals cycle back and forth through different stages of readiness to change, ranging from precontemplation (I don’t have a problem) to contemplation (Maybe I do have a problem); preparation (I am going to change); action (I am quitting); and maintenance or relapse. Ambivalent clients can be engaged in the treatment process if the therapist respects their current level of readiness (Miller & Rollnick, 1991). By treating clients with empathy and giving them objective, nonjudgmental feedback on the impact their addiction has on their lives, clients may begin to evaluate their situation more realistically and less defensively. Greater problem awareness, in turn, may result in increased motivation and greater commitment to change (Miller & Rollnick, 1991; Miller & Sovereign, 1989; Miller, Zweben, DiClemente, & Rychtarik, 1992).
Brief motivational interventions have led to positive results with substance abusers in residential (Brown & Miller, 1993) and outpatient treatment (Project MATCH Research Group, 1997), with alcohol-using pregnant women (Handmaker, Miller, & Manicke, 1999); and with adolescents who smoke cigarettes (Colby et al., 1998) or use alcohol (Monti et al., 1999). In the area of pathological gambling, there is only one published study to date that has examined the efficacy of a brief motivational enhancement intervention. Hodgins, Currie, and el-Guebaly (2001) assigned 102 self-identified problem gamblers to one of the following three conditions: a workbook-based, self-help treatment either with or without an initial motivational telephone interview and a wait-list control. The motivational enhancement manipulation had an immediate positive effect in that, after 1 month, gamblers in this condition were more improved than those in the other two. However, the effect dissipated over the 12-month follow-up period. Hence, the motivational enhancement intervention either was insufficient to improve behavior in the long run, or a higher dose of the motivational intervention is required to achieve longer lasting results.

A CASE FOR COGNITIVE-MOTIVATIONAL BEHAVIOR THERAPY (CMBT)

It has been suggested that motivational interviewing is a therapist style rather than a treatment per se and therefore can be used to complement interventions guided by another rationale (Miller et al., 1992). We reasoned that motivational interviewing might be an ideal addition to Sylvain et al.'s (1997) gambling-specific cognitive behavior therapy. The latter intervention is effective for gamblers who are retained in treatment and offers several advantages: It is theory-based, empirically supported by basic research (Ladouceur & Walker, 1996) and applied research (Sylvain & Ladouceur, 1992; Sylvain et al., 1997), and it corrects gambling-specific cognitive errors believed to be instrumental in maintaining pathological gambling (such as the illusion that one can control random events). The main disadvantage of this treatment is its relatively high attrition rate, which suggests that motivational fluctuations may not be accorded sufficient attention. We therefore hypothesized that more clients might be retained in
treatment by adding motivational enhancement procedures to the cognitive behavioral treatment. The motivational techniques might help clients to resolve their ambivalence about treatment, and the cognitive behavioral techniques would then give them the necessary tools to combat their gambling addiction.

As a CMBT had not been used to treat pathological gambling, we developed an intervention that combined critical elements of Miller and Rollnick’s (1991) motivational interviewing approach with Sylvain et al.’s (1997) gambling-specific cognitive behavior therapy. We set out to accomplish two goals. First and foremost, we sought to improve client retention. Second, we replicated Sylvain et al.’s treatment with a different population of gamblers because in our geographic region the predominant form of gambling is betting on horses. Our cognitive-motivational behavioral treatment was submitted to a pilot-test with 9 pathological gamblers recruited from a treatment center for problem gamblers. Retention and posttreatment outcomes for these nine cases were compared to those of 12 pathological gamblers who, during the same time, received treatment as usual (TAU) at the center.

METHOD

RESEARCH PARTICIPANTS

Experimental condition. For the experimental treatment, 11 clients (1 woman, 10 men) ranging in age from 27 years to 56 years ($M = 43.2$ years) were referred to our treatment program by a local Center for Problem Gambling (hereafter Center) and evaluated by experienced clinicians. All but one met the Diagnostic and Statistical Manual of Mental Disorders (4th ed.) (DSM-IV) (American Psychiatric Association, 1994) diagnosis of pathological gambling. The woman (a pathological quick-draw gambler) and one man (a casino gambler who only met criteria for problem gambling) decided not to begin treatment. The remaining nine gamblers (six Caucasian males and three African American males with a mean age of 43.8 years) who enrolled in treatment all met at least 7 of 10 DSM-IV criteria for patho-
logical gambling and scored 9 or higher on the South Oaks Gambling Screen (SOGS). Therefore, they were considered severe pathological gamblers (Lesieur & Blume, 1987). Pertinent demographic and clinical information on each gambler is presented in Table 1.

Comparison group. Due to the exploratory nature of the present study and fiscal constraints, it was not feasible to conduct a randomized, controlled trial. To have a comparison group, the results obtained with the experimental clients were compared to data retrieved from clinical archives of 12 male clients who received TAU at the Center during the same time period. These individuals requested services on days when the liaison person for the present project was unavailable. They were assigned to a Center therapist. These nonrandomized control clients were comparable to the experimental group in severity of their gambling problem (their mean SOGS score prior to treatment was 14.8 [range 9-19], and they met, on average, 7.5 of 10 DSM-IV criteria for pathological gambling [range 6-9]). They were also similar in relevant demographics (10 Caucasians, 1 Native American, and 1 African American with a mean age of 44.3 years and an age range of 30-59).

MEASURES

Diagnosis of pathological gambling. The presence of the disorder was assessed in three ways for the experimental group and in two ways for clients in the control condition. To be eligible for the study, all measures had to yield a diagnosis of pathological gambling.

First, clients completed the SOGS (Lesieur & Blume, 1987). It is the most widely used diagnostic instrument and is considered valid and reliable for detecting pathological gambling (Ladouceur, 1996; Lesieur & Blume, 1987; Volberg & Banks, 1990; Volberg & Steadman, 1988). The SOGS is routinely administered to Center clients. A score of ≥5 on 20 items is considered evidence for pathological gambling.

Second, clients completed a self-report questionnaire assessing the 10 DSM-IV criteria for pathological gambling (American Psychiatric Association, 1994). The instrument has been developed by the New
### TABLE 1
Descriptive Information on Gamblers Participating in the Experimental Treatment

<table>
<thead>
<tr>
<th>Participant</th>
<th>Ethnicity</th>
<th>Type of Gambling</th>
<th>Years Gambled</th>
<th>$ Total Accumulated Debt(^a)</th>
<th>$ Lost During 3 PreTx Months</th>
<th>PreTx SOGS Score</th>
<th>PreTx DSM-IV Criteria</th>
<th>Comorbid Axis I Diagnoses</th>
<th>Past Axis I Diagnoses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gambler 1</td>
<td>Caucasian</td>
<td>Sports betting</td>
<td>10</td>
<td>65,000</td>
<td>10,000</td>
<td>16</td>
<td>9</td>
<td>MDD; dysthymia; cocaine abuse</td>
<td>None</td>
</tr>
<tr>
<td>G2</td>
<td>Caucasian</td>
<td>Horses</td>
<td>15</td>
<td>30,000</td>
<td>4,500</td>
<td>9</td>
<td>7</td>
<td>MDD; dysthymia; social phobia; features of paraphilia NOS</td>
<td>Alcohol dependence; dysthymia</td>
</tr>
<tr>
<td>G3</td>
<td>African American</td>
<td>Horses</td>
<td>30</td>
<td>3,000</td>
<td>600</td>
<td>17</td>
<td>8</td>
<td>MDD; marijuana abuse</td>
<td>Binge eating disorder; MDD</td>
</tr>
<tr>
<td>G4</td>
<td>Caucasian</td>
<td>Horses; craps</td>
<td>20</td>
<td>55,000</td>
<td>5,000</td>
<td>20</td>
<td>8</td>
<td>None</td>
<td>None</td>
</tr>
<tr>
<td>G5</td>
<td>Caucasian</td>
<td>Blackjack</td>
<td>6</td>
<td>Unknown(^b)</td>
<td>50,000</td>
<td>15</td>
<td>7</td>
<td>None</td>
<td>MDD</td>
</tr>
<tr>
<td>G6</td>
<td>Caucasian</td>
<td>Horses</td>
<td>10</td>
<td>18,000</td>
<td>2,000</td>
<td>12</td>
<td>8</td>
<td>Dysthymia; GAD; features of paraphilia NOS</td>
<td>None</td>
</tr>
<tr>
<td>G7</td>
<td>Caucasian</td>
<td>Horses</td>
<td>20</td>
<td>65,000</td>
<td>1,600</td>
<td>19</td>
<td>10</td>
<td>None</td>
<td>Alcohol and cocaine dependence; marijuana abuse; MDD</td>
</tr>
<tr>
<td>G8</td>
<td>African American</td>
<td>Horses; casino games</td>
<td>24</td>
<td>0</td>
<td>1,100</td>
<td>19</td>
<td>8</td>
<td>PTSD; MDD; panic disorder with agoraphobia</td>
<td>Alcohol and marijuana abuse; binge eating disorder</td>
</tr>
<tr>
<td>G9</td>
<td>African American</td>
<td>Horses</td>
<td>3</td>
<td>22,000</td>
<td>2,500</td>
<td>16</td>
<td>8</td>
<td>None</td>
<td>None</td>
</tr>
</tbody>
</table>

**Mean** 15.3 15.9 8.1

**NOTE:** PreTx = pretreatment. SOGS = South Oaks Gambling Screen. MDD = major depressive disorder. GAD = generalized anxiety disorder. PTSD = post-traumatic stress disorder. NOS = not otherwise specified. DSM-IV = Diagnostic and Statistical Manual of Mental Disorders, 4th ed.

\(^a\) Debt from loans (banks, family, friends) and credit cards and money embezzled (car loans and mortgages not included).

\(^b\) Client did not disclose amount.
York Council for Problem Gambling and is routinely administered to Center clients. Scoring positive on ≥ 5 of 10 criteria warrants a diagnosis.

Third, for the clients in the experimental treatment condition, the diagnosis was confirmed through a clinical interview conducted by an experienced clinician. During the interview, quantitative and qualitative information about gambling was also obtained (e.g., onset of pathological gambling, preferred modes and patterns of gambling, and wins and losses).

Assessment of gambling behavior. The gambling behavior of clients receiving the experimental treatment was assessed in two ways. First, at pretreatment a Time-Line Follow-Back (TLFB) was used to obtain an estimate of gambling episodes and the amount of money won and lost during the 3 months prior to treatment. (The TLFB was modeled after the procedure for assessing alcohol abuse patterns developed by Sobell & Sobell, 1992.)

Second, throughout treatment, the research participants kept daily self-monitoring records on gambling activities, if any occurred, and money won or lost. These records were examined in every treatment session and became an integral part of the intervention.

Readiness for change. Modeled after the Readiness Ruler (CASAA Research Division, 1995), the clients receiving the experimental treatment were asked two questions regarding their readiness to change their gambling behavior and their readiness to quit gambling, each on a scale from 1 (not ready to . . . ) to 10 (trying to . . . ). These measures were employed at pretreatment and after Session 3.

Comorbid psychopathology. At pretreatment, trained doctoral students administered the Structured Clinical Interview for DSM-IV Axis I Disorders (SCID-I; First, Gibbon, Spitzer, & Williams, 1996) to clients receiving the experimental intervention to identify comorbid, current (last month) Axis I disorders and past (lifetime) Axis I disorders. The SCID-I version employed here was designed for use with nonpsychotic psychiatric populations. Its reliability and validity have been well documented (Onstad, Torgersen, & Kringlen, 1991; Segal, Hersen, & Van Hasselt, 1994).
Second, a dimensional assessment of depression and anxiety was also conducted with self-report measures the experimental clients completed at pretreatment and posttreatment. One was the Beck Depression Inventory (BDI; Beck, Steer, & Garbin, 1988; Beck, Ward, Mendelson, Mock, & Erbaugh, 1961); the other was the Spielberger State-Trait Anxiety Inventory (STAI; Spielberger & Vagg, 1984). Both measures are widely used and have solid psychometric properties.

**PROCEDURE**

The research was approved by the Institutional Review Board of the University at Albany and the board of the research site, a treatment center for problem gamblers. To protect clients’ rights and ensure data safety, a certificate of confidentiality for the study was obtained from the National Institute of Mental Health. In addition, Center clients routinely provide informed consent for their assessment data to be used for statistical and research purposes. With the clients’ consent, the data of those who received TAU were retrieved from archives. Those enrolled in the cognitive-motivational behavioral treatment provided additional written consent to participate in the experimental treatment.

When a client requested services for a gambling problem at the Center, on days when a project liaison person was available, the client was invited to participate in the study (2 males refused; 1 male and 1 female started the assessment but then refused to enter treatment; and 9 males entered the experimental treatment). Two experienced, university-affiliated clinicians with expertise in standardized assessments and manualized treatments conducted the experimental intervention; no client was assessed and treated by the same clinician. Clients were treated free of charge. They received a token honorarium of a total of $25 for participating in the preassessments and postassessments (checks were sent to their place of residence). All assessments were audiotaped and independently evaluated by a trained doctoral student to support the diagnoses (reliability was 100%). During the pretreatment assessment, data on the clients’ gambling activities and monetary wins and losses during the past 3 months were obtained with a modified TLFB procedure.
During treatment, clients kept a record of gambling activities, if any occurred, including wins and losses. The records were reviewed at each treatment session. The sessions were conducted individually and typically lasted 60 minutes but occasionally up to 90 minutes. To generate momentum, during the first 2 weeks, clients were seen twice per week; thereafter, sessions were conducted weekly and in the final phase, biweekly. Clients attended a mean number of 16 sessions. All but Gambler 8 and Gambler 9, who had no partners, attended one session with their spouse or girlfriend. During follow-up, 3 clients (Gambler 1, Gambler 5, and Gambler 6) attended Gamblers Anonymous (GA) meetings and 2 (Gambler 2 and Gambler 5) were referred for couples counseling. Face-to-face assessments were conducted at pretreatment and posttreatment. For the 3-, 6-, and 12-month follow-up assessments, questionnaires were mailed and followed up by a telephone interview. In seven of the nine cases, self-reports could be verified with a significant other.

TAU clients, who served as nonrandomized controls, went through the Center’s regular intake procedure (brief interview, SOGS, DSM-IV questionnaire on pathological gambling). These clients were treated by experienced, master’s-level Center therapists with a 12-step, insight-based or eclectic orientation. For statistical and research purposes, the Center collects pretreatment SOGS and DSM-IV scores on all clients; the same assessments are repeated in 3-month intervals and at posttreatment, if clients complete treatment.

ASSESSORS AND THERAPISTS

Two licensed, clinical psychologists, each with more than 10 years of clinical experience, administered the gambling-specific, structured clinical interview and the treatment. Gambling-specific weekly supervision sessions were provided by a therapist certified in treating pathological gamblers. Two trained doctoral students conducted all reliability and treatment fidelity checks.

As described above, the TAU was implemented by master’s level, Center therapists, each with at least 8 years of experience in treating addictive behaviors and gambling problems.
TREATMENT

The CMBT implemented in this study was manualized and consisted of three parts, described in detail in Wulfert, Blanchard, and Martell (2003). A brief summary of important treatment components is presented below. (As all our clients were male, we will use masculine pronouns throughout.)

Phase 1. Treatment is initiated with a motivational enhancement intervention spread over the first two to three sessions. Its aim is to decrease client defensiveness, increase problem awareness, and strengthen commitment to change by using the five basic principles of motivational interviewing: expressing empathy, developing discrepancy, avoiding argumentation, rolling with resistance, and supporting self-efficacy. (The principles and strategies of motivational interviewing are described in detail by Miller & Rollnick, 1991, and Miller et al., 1992.)

To accomplish this aim, the therapist provides a summary of the assessment results to increase the client’s awareness of the extent of his gambling problem. Feedback is given using empathic and reflective statements. To prevent defensiveness, the therapist provides normative information in an objective, nonjudgmental way (“On the gambling problem assessment you scored higher than 98% of adults in the United States. That means that less than 2% of adults would score the same or higher than you. What are your thoughts about this?”). Therapist and client explore the pros and cons of gambling and the benefits and adverse effects that gambling has on the client’s life. By weighing the negative and positive consequences, the client is expected to become more acutely aware of his ambivalence about quitting. Increased awareness together with normative information are hoped to lead to self-motivational statements and the expressed desire to change. The therapist emphasizes that the client has the responsibility and choice to change or continue as before. When the client is ready, a realistic change plan is formulated with a detailed description of the changes the client wants to make and how they will be attained. Phase 1 is concluded with the client’s formal commitment to follow the treatment plan.
Although we believe that total abstinence is the safest choice, we do not impose this goal if a client wants to learn to control his gambling habit. However, we suggest that the client, for a limited time, try a period of abstinence to find out what it is like to break an old habit and live without gambling. If a client refuses, we help him to develop a change plan with specific limits and parameters (e.g., limiting the frequency of gambling and the amounts wagered and openly discussing this plan with his spouse or significant other). We also provide steps to follow if the plan fails.

**Phase 2.** Once the client is committed to changing his behavior, we proceed with Phase 2 of CMBT. The main part of this phase consists of a gambling-specific cognitive therapy developed by Ladouceur and colleagues (e.g., Bujold, Ladouceur, Sylvain, & Boisvert, 1994; Sylvain et al., 1997). Although these sessions are now geared toward cognitive restructuring and behavioral problem solving, the therapist continues to maintain a motivational interviewing style. The therapist refrains from lecturing or forceful persuasion and provides information in an objective, compassionate, and nonjudgmental way to allow the client to realize the extent of his misperceptions and superstitious beliefs regarding gambling.

A central component of Phase 2 is helping the client understand the difference between risk situations and triggers for the gambling behavior. Risk situations are circumstances that provide the opportunity and motivation for gambling (e.g., getting a paycheck, feeling bored, having had an argument with one’s spouse). Triggers are problematic beliefs and cognitive biases occurring in these high-risk situations that fuel the desire and are the proximal causes of gambling (e.g., “I can feel it, today is my lucky day”; “I’ll stop at OTB [offtrack betting] for just one race; this race is a shoe-in”).

As clients get into trouble over faulty thinking rather than risky situations per se, they must recognize and correct cognitive distortions regarding their beliefs about randomness. A crucial step in treating gambling problems is for clients to comprehend the difference between luck and chance (Ladouceur, 1999). What clients view as luck are in fact the odds of a game determined by probability. The client needs to understand that chance events are independent (e.g., five
tails do not make heads more likely on the next coin toss). In contrast to games of skill such as chess, where the outcome can be influenced by knowledge, effort, and perseverance, the outcome of games of chance can neither be predicted nor controlled (pulling a lever on a slot machine has no effect on the outcome). The only sure thing is that the house always wins and that gamblers, in the long run, are bound to lose. This knowledge can be conveyed experientially using in-session experiments. (Ladouceur, for example, asked clients to predict heads or tails on 100 coin tosses and then analyzed the sequence of predictions with the client to demonstrate that there are considerable variations in outcomes in the short run but a 50:50 approximation in the long run.) This process may require many repetitions because a gambler’s deeply ingrained way of thinking and behaving is not easily changed.

Pathological gamblers, like many persons with an addiction, experience difficulties in a variety of life areas. Therefore, assertiveness skills (e.g., how to withstand pressures to gamble) and problem-solving skills training are also part of treatment. Clients learn to conceptualize their gambling behavior as a learned, maladaptive coping response in reaction to situational, interpersonal, or intrapersonal pressures. They are encouraged to replace their undesirable habit with a more adaptive approach to problem solving (e.g., resolving interpersonal conflicts and dealing with disappointment, anger, or rejection more constructively).

Phase 3. Treatment ends with two sessions of relapse prevention (Ladouceur, 1999; Marlatt & Gordon, 1985) extended over 4 weeks. We prepare clients for a possible slip or relapse. We teach them to recognize apparently irrelevant decisions that may lead to gambling (e.g., visiting an old gambling buddy to see how he’s doing; buying a racing form just to see who’s running; driving by OTB because it’s the shorter way home). We also teach them coping strategies (e.g., if you feel tempted to gamble, pause, recognize trigger thoughts, dispute them) and emergency procedures (remove yourself from the situation; call a friend, a hotline, or your therapist). At the conclusion of treatment, clients commit to returning for booster sessions should a lapse occur.
TREATMENT FIDELITY CHECKS

All sessions were audiotaped. An independent evaluator listened to 20% of the sessions to determine whether the focus of the intervention was motivational enhancement or cognitive restructuring and problem solving. Components were identified with 100% accuracy.

RESULTS

Gambling severity. The initial evaluation of the 9 clients receiving the experimental treatment showed that the men were severe pathological gamblers. On average, the men had gambled for 15 years (range 3-30). As shown in Table 2, at pretreatment their mean score on the SOGS was 16 (range 9-20), and they met an average of 8 DSM-IV criteria for pathological gambling (range 7-10). The archival data obtained for the 12 clients who received TAU indicated that they, too, were severe pathological gamblers. Their mean SOGS score prior to treatment was 15 (range 9-19) and they met a mean number of 8 DSM-IV criteria (range 6-9). Prior to treatment, there were no differences between these two groups on either SOGS, $t(19) = 0.65$, $p = .52$, or DSM-IV criteria for pathological gambling, $t(19) = 1.42$, $p = .17$.

Readiness to change. At the beginning of treatment, gamblers receiving the experimental treatment were asked to indicate, on a scale from 1 (not ready) to 10 (trying to), their readiness to change and their readiness to quit gambling. All 9 gamblers indicated at least a moderate amount of readiness to change (mean 7.6, range 5-10), but there was considerably more variation in their readiness to quit gambling (mean 6.6, range 1-10). Gambler 4 was unwilling to quit and wanted to learn to control his gambling habit; Gambler 3, Gambler 7, and Gambler 8 were unsure they would be able to quit (their readiness to quit was 4, 7, and 6, respectively). The readiness questions were repeated for all gamblers after Session 3 to assess the effects of the motivational enhancement intervention. Paired $t$ tests showed that mean readiness to change improved significantly from 7.6 to 8.8, $t(8) = -4.40$, $p < .01$. Readiness to quit also improved from 6.6 to 7.9, $t(8) = -3.02$, $p < .02$. 
Comparison of attrition rates. All 9 gamblers in the experimental condition completed treatment; none dropped out. In contrast, only 8 of 12 gamblers in the TAU group were retained, whereas 4 dropped out. This differential attrition was statistically significant, $\chi^2(1, N = 20) = 8.05, p = .005$.

Treatment effects. First, the pretreatment and posttreatment SOGS and DSM-IV scores of the 9 clients in the experimental treatment condition were compared to those of the 8 TAU clients who had remained in treatment (the 4 dropouts were not considered). A repeated measures ANOVA showed both a significant effect for time, Hotelling’s trace $= 7.25, F(1, 15) = 108.79, p = .001$, and a significant interaction effect of time by condition, Hotelling’s trace $= 1.17, F(1, 15) = 17.61, p = .001$. Prior to treatment, the SOGS scores for the experimental group ($M = 15.9, SD = 3.6$) and the TAU group ($M = 14.0, SD = 4.2$) were comparable. At posttreatment, clients in the experimental condition had lower SOGS scores (CMBT $M = 1.2, SD = 2.9$; TAU $M = 7.8, SD = 6.3$). The same picture emerged for the DSM-IV criteria.
repeated measures ANOVA yielded a significant effect for time, Hotelling’s trace = 5.26, $F(1, 15) = 78.9, p < .001$, and for the interaction of time by condition, Hotelling’s trace = 0.94, $F(1, 15) = 14.1, p = .002$. Prior to treatment, the two groups met a similar number of DSM-IV criteria (CMBT $M = 8.1, SD = 0.9$; TAU $M = 7.5, SD = 1.2$), but posttreatment scores were lower for the CMBT group ($M = 1.3, SD = 1.7$; TAU $M = 4.8, SD = 3.0$).

As a major aim of the study was to test whether a motivationally enhanced cognitive behavioral intervention would improve retention and therefore lead to better outcomes, an intent-to-treat analysis (Fisher et al., 1990; Little & Yau, 1996) was conducted on all research participants who had initiated treatment (9 clients in CMBT and 12 clients in TAU), even if they did not complete treatment (pretreatment or last available scores were substituted for 4 TAU clients who dropped out). As before, a repeated measures ANOVA showed a significant interaction effect, Hotelling’s trace = 1.43, $F(1, 19) = 27.09, p < .001$. Pretreatment SOGS scores did not differ (CMBT $M = 15.9, SD = 3.6$; TAU $M = 14.8, SD = 3.7$), but at posttreatment the CMBT clients had lower scores ($M = 1.2; SD = 3.0$) than TAU clients ($M = 10.4; SD = 7.1$). The same was true for the DSM-IV criteria. A repeated measures ANOVA yielded a significant interaction between time and condition, Hotelling’s trace = 0.94, $F(1, 19) = 17.88, p < .001$. Pretreatment DSM-IV criteria were similar (CMBT $M = 8.1, SD = 0.9$; TAU $M = 7.8, SD = 1.0$), but after treatment the experimental condition had lower DSM-IV scores ($M = 1.3, SD = 1.7$; TAU $M = 5.4, SD = 3.2$).

**Maintenance of treatment gains in the experimental condition.** Treatment outcome across time was examined for the 9 clients in the CMBT condition. These clients were reassessed with SOGS and DSM-IV questionnaires at 3-, 6-, and 12-month follow-up. A repeated measures ANOVA on the SOGS scores revealed an overall significant effect for time yielding a Wilks’s Lambda of .040, $F(4, 5) = 29.96, p = .001$, $\eta^2 = 0.96$. Follow-up tests, adjusted for multiple comparisons, found mean differences in SOGS scores from pretreatment to posttreatment of 14.7 (95% CI = 12.0-17.3), from pretreatment to 3-month follow-up of 13.4 (95% CI = 10.8-16.1), from pretreatment to 6-month follow-up of 13.9 (95% CI = 11.3-16.5), and from pretreat-
ment to 12-month follow-up of 14.4 (95% CI = 11.9-17.0). As treatment gains observed at posttreatment were maintained, there were no differences between 3-, 6-, and 12-month follow-up scores.

A repeated measures ANOVA on the *DSM-IV* criteria for pathological gambling revealed the same pattern of results. There was a significant effect for time, Wilks’s Lambda = .020, $F(4, 5) = 60.47, p < .001, \eta^2 = 0.98$. Follow-up least significant difference tests, adjusted for multiple comparisons, found mean differences in *DSM-IV* criteria from pretreatment to posttreatment of 6.8 (95% CI = 5.3-8.3), from pretreatment to 3-month follow-up of 6.6 (95% CI = 4.7-8.4), from pretreatment to 6-month follow-up of 6.7 (95% CI = 4.7-8.6), and from pretreatment to 12-month follow-up of 7.0 (95% CI = 5.5-8.5). As more than 95% of change in *DSM-IV* criteria occurred between pretreatment and posttreatment, there were no further differences between any of the follow-up scores.

**Comorbidity.** The interviews with the SCID prior to treatment revealed considerable current and past comorbidity (see Table 1), especially regarding disorders that show self-control deficits (alcohol and other drug use, binge eating) and affective disorders (anxiety, depression). Due to limited resources available for this exploratory study, a second assessment with the SCID at the end of treatment was not feasible. However, changes in the gamblers’ psychological adjustment from pretreatment to posttreatment were examined based on the BDI and the STAI. Paired *t* tests revealed that on the BDI, mean depression scores decreased from 17.6 (pretreatment) to 9.1 (posttreatment), $t(8) = 2.301, p = .055$. On the STAI, mean state anxiety scores decreased from 49.4 (pretreatment) to 37.1 (posttreatment), $t(8) = 3.283, p = .013$. The change in mean trait anxiety scores from 46.1 (pretreatment) to 41.1 (posttreatment) was statistically nonsignificant, $t(8) = 1.320, p = .23$.

**Changes in lifestyle.** In addition to decreases in gambling behavior and psychological symptoms (depression, anxiety), many clients in the experimental condition, especially those who were more successful, also reported significant life changes. Relevant changes and long-
DISCUSSION

This exploratory study was the first of its kind to examine the effects of a motivationally enhanced cognitive behavioral intervention on retaining pathological gamblers in treatment to improve outcomes. Although the results obtained with this intervention require replication with a larger sample and random assignment (a randomized, controlled trial has just been initiated in our laboratory), the present study nevertheless provides preliminary evidence of the potential usefulness of increasing clients’ motivation and commitment to therapy before introducing cognitive and behavioral change strategies. Although not every client treated with the experimental intervention in this study benefited equally from treatment, all were retained not only during the active treatment phase but also through a 12-month follow-up period. This compares favorably not only to Center clients who during the same time frame had been treated with TAU (4 of 12 clients in this nonrandomized control condition dropped out from treatment) but also to other reports in the literature. For example, Sylvain et al. (1997), whose cognitive behavioral treatment we replicated in the second phase of our CMBT, lost more than half of the 22 clients in their treatment group either during treatment or follow-up. In terms of treatment outcome, Sylvain et al.’s results are identical to those obtained in the present study (in both studies, 8 of 9 clients were either abstinent or improved 1 year after treatment), but their conclusions are based on fewer than half of the clients who began treatment, whereas in the present study the findings are based on 100% of the initial sample. Combined, the results of both studies suggest that a cognitive behavioral intervention is an effective treatment for pathological gambling. However, it may be of significant advantage first to use motivational enhancement procedures to increase commitment to therapy. By preventing early drop outs, better results may be obtained because more clients will be retained and may thus benefit from cognitive behavior therapy.
The findings from this exploratory study are interesting also from several other perspectives. First, in the sparse treatment-outcome literature on pathological gambling, most research has been conducted with gamblers who play slot machines and other casino games. In contrast, 7 of the 9 gamblers who received our experimental treatment bet on horses, including 5 who did so exclusively. The cognitive behavioral intervention developed by Ladouceur and colleagues (e.g., Sylvain et al., 1997) strongly emphasized the overarching importance of correcting gamblers’ erroneous beliefs regarding randomness. This makes good sense with slot machine gamblers. However, horse race gamblers are almost uniformly convinced that successful handicapping involves a significant skill component. Even if their own behavior belies their expertise (Ladouceur, Giroux, & Jacques, 1998), this does not invalidate the possibility that skills in handicapping to some degree influence outcomes. Evidence exists that handicappers show individual differences in their ability to predict races (Walker, 1992). Indeed, approximately 5% of professional horse race bettors actually seem to make a living of it (Rosecrance, 1986). We speculate that excessive horse race gamblers, perhaps along with individuals who are addicted to sports betting, require more than cognitive therapy targeting their erroneous beliefs about randomness. A motivational intervention may well prove crucial for laying the groundwork for this class of gamblers to concede that random factors outweigh whatever skills they might have.

Second, it is apparent from the case descriptions in the appendix that several of the gamblers receiving the experimental treatment made major changes not only in their gambling habits. Some changed jobs, others ended dysfunctional relationships, established new relationships, pursued more education, or surrounded themselves with new friends who supported a gambling-free lifestyle. We speculate that these changes were instrumental in achieving long-term abstinence. If our assumption is correct, this would indicate that the treatment of pathological gamblers is a formidable task. Future research may show that cognitive behavioral strategies provide clients with tools to recognize erroneous cognitions and resist gambling-specific temptations. On the other hand, through motivational strategies, clients may take a closer look at their lives in general and recognize the
devastation their gambling has caused in many life areas. This soul-searching may provide the impetus for more radical changes in lifestyle.

Third, attendance at GA did not seem to make a difference in the clients’ long-term adjustment. Although we encouraged all clients to attend GA for aftercare, only three (Gambler 1, Gambler 5, and Gambler 6) attended meetings, whereas the majority did not follow our recommendation. Of the remaining 6, 5 were abstinent or significantly improved without GA aftercare. We recommend that future research focus on identifying variables and client characteristics that might predict what types of clients might benefit most from referrals to GA.

Last, the one clear failure (Gambler 4) never committed himself fully to treatment. From the outset, he refused to accept abstinence as a treatment goal. He viewed gambling as his only form of entertainment in life that he was not willing to renounce. His attempts to control his habit proved impossible as he was never quite able to conform his gambling behavior to self-imposed limits. Despite our best efforts to motivate this client to change, he eventually arrived at the conclusion that he was not ready to do so.

Although we are fully aware of the methodological limitations of this small exploratory study, its results are encouraging and suggest that a motivationally enhanced cognitive behavioral intervention can produce dramatic changes in pathological gambling. However, it would be premature to draw firm conclusions. Although a cognitive-motivational hybrid intervention makes sense both conceptually and intuitively, we have treated only a handful of pathological gamblers and have implemented the intervention without rigorous controls. Although the archival comparison data of gamblers who were treated with TAU in the same setting during the same time is promising, without random assignment any conclusions are necessarily speculative. It is possible that aside from our intervention, other factors that have yet to be specified may have played a role. For example, clients in CMBT knew that they were participating in research; perhaps they were trying particularly hard to be so-called good clients.

Another limitation is that we did not assess possible motivational fluctuations throughout treatment. Although all CMBT clients indicated a strong readiness to change after the motivational intervention,
continued assessments of motivational factors might have provided insight into reasons why a few clients at first had difficulty abstaining from gambling. As motivational fluctuations are common in the addictive behaviors, we recommend that future studies include repeated assessments throughout the treatment phase and possibly even during follow-up.

Finally, it is open to question whether a motivationally enhanced cognitive behavioral intervention leads to better outcomes than a treatment that consists of either component alone. We believe that an intervention combining these two elements is important, especially when treating gamblers who bet on events whose outcomes are not exclusively determined by chance (e.g., horse race and sports betting). However, empirical results do not always confirm the expected or the obvious. This was clearly evident in Project MATCH Research Group (1997), where alcohol-dependent clients treated either with motivational enhancement therapy or cognitive behavior therapy unexpectedly showed similar outcomes. We can therefore not be sure that CMBT will result in better outcomes than either one of its constituent parts alone. However, we are hopeful that future research from our laboratory and other laboratories will shed light on the questions raised by the present research.

APPENDIX

Lifestyles of Gamblers Receiving the Experimental Treatment

Gambler 1 was a high school educated, blue-collar worker who engaged in illegal sports betting and played weekly card games and golf with friends, betting several hundred dollars per occasion. His wife separated from him when he became involved with drugs, but he received substance abuse treatment and quit. He stopped gambling and during the 12-month follow-up remained substance-use-free and did not gamble (his self-report was confirmed by his mother). As many of his gambling-related activities had occurred at work, he changed jobs and was very satisfied with his new employment. He was in the process of getting a divorce and had recently started dating. He became involved in GA where newfound friends supported his addiction-free lifestyle. This client had truly turned his life around.
Gambler 2 was a high school educated, technical employee who had squandered an inheritance and stole money for gambling in an attempt to recuperate his losses. He suffered from a serious medical illness and during treatment revealed paraphilic tendencies. Despite encouragement from his therapist, he made few, if any, positive lifestyle changes. During the 12-month follow-up period, his health improved, but his relationship difficulties persisted, despite couple’s counseling. He “solved” his financial problems by declaring bankruptcy. At the final follow-up assessment, he reported no desire to gamble (according to his partner, he had not resumed gambling).

Gambler 3 had a 30-year history of gambling; had suffered marital and legal problems; had undergone past court-mandated, inpatient treatment; and made many unsuccessful attempts to quit. Afflicted with a disfigurement, success at the races made him feel “socially accepted.” Before treatment, he wagered almost daily at offtrack betting (OTB) and lost around $100 per week of his modest salary. During treatment, he learned to abstain for weeks at a time. He made two significant life changes. He separated from his wife and took steps toward realizing a lifelong dream of obtaining an associate’s degree. He enrolled in a community college and completed the first two semesters with unexpected academic success, which enhanced his feelings of self-worth. He reported a gradual decrease in his interest in horse races. During treatment and through the 12-month follow-up he reported seven gambling episodes, typically during times of stress or pain. At 1-year follow-up, he had not gambled in 3 months and scored in the nonclinical range on the SOGS (3) and the DSM-IV questionnaire (3).

Gambler 4 was a college-educated, self-employed, divorced man in his early 40s with a positive family history for gambling. He lived with his wife and a child but otherwise was socially isolated. He wanted to “learn to control his habit” and refused to become abstinent. Despite awareness that he needed to expand his interests and social life, he made no significant changes in lifestyle. His attempts to conform his gambling to self-imposed limits repeatedly failed. Eventually, he decided that gambling was the “only fun in life” that he was not ready to give up. An initial improvement in his gambling behavior during treatment fully reverted during follow-up (verified by his wife).

Gambler 5 was a foreign-born, married man whose wealthy parents had sent him to the United States for a college education. Failing in his educational pursuits, he went on episodic casino binges until his wife gave him an ultimatum of treatment or divorce. Despite initial ambivalence, he engaged well in
treatment. With his therapist’s encouragement, he resumed his college studies. He also joined GA and attended meetings regularly. During follow-up, he remained abstinent (confirmed by his wife) and expected to graduate from college the following semester.

Gambler 6 was a married man with postgraduate education and a 10-year history of pathological horse race betting with almost daily trips to OTB. His wife insisted on treatment when he accumulated more debt after the family had remortgaged their home to cover previous debts. The client attended weekly GA meetings and became more actively involved in physical activities and socializing with friends who supported a gambling-free lifestyle. He reported no desire to gamble and remained abstinent during the follow-up period (verified by his wife).

Gambler 7 was a college-educated, divorced man with a 20-year history of sports betting, and then horse race betting, and almost daily trips to OTB. He worked part-time and was enrolled part-time in college courses. By the end of follow-up, he had completed his degree, was employed in a new career that he found very satisfying, and had married his fiancée. He reported abstinence during follow-up (confirmed by his wife).

Gambler 8 was a divorced, disabled veteran with high school education. He had received inpatient treatment at a VA hospital for gambling but relapsed and in addition to one to two casino trips per month, gambled 5 days per week at OTB. During treatment he stopped gambling, but at 3-month follow-up he reported having gone to OTB once a week during the past 2 months. Due to his disability and social isolation, these occasions were his main form of recreation and entertainment. He received two booster sessions. At 6-month follow-up he reported only two visits to OTB and one to a casino. He had begun to reconnect with his family of origin and his adult children. At 12-month follow-up, he reported going to OTB once a month or less and keeping amounts wagered below $100. He scored in the subclinical range on both the SOGS and DSM-IV questionnaire. This client’s self-report could not be verified as he had no significant other.

Gambler 9 was a divorced male with a high school education. He was on probation for cashing bad checks and was court-mandated into treatment. He had a history of multiple trips per week to OTB where he would wager 40% to 50% of his net income. Allegedly due to a highly irregular work schedule, the client repeatedly missed appointments and attended only seven sessions
extended over 18 weeks. During follow-up, he lost his job but found new employment. He said he had reconnected with his adult daughter to take a more active part in his grandson’s life and had plans to start a business. He reported no desire to gamble and at each follow-up scored in the nonclinical range on SOGS and DSM-IV questionnaires. His self-reports could not be verified except for calls to his probation officer, which revealed no negative information.

REFERENCES


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