

The effectiveness of a cognitive-behavioral intervention for pathological gambling: A country-wide study

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BACKGROUND: Clinicians lack adequate data on the effectiveness of treatment for pathological gambling in low- and middle-income countries.

METHODS: We evaluated a manualized treatment program that included components of cognitive-behavioral therapy, motivational interviewing, and imaginal exposure in a sample of 128 participants diagnosed with pathological gambling. Our team recruited participants via the helpline of the National Responsible Gambling Program (NRGP) of South Africa between May 2011 and February 2012. Eligible participants, who met the DSM-IV-TR criteria for pathological gambling as assessed by the Structured Clinical Interview for Pathological Gambling (SCI-PG), were referred to practitioners who had been trained in the intervention technique. We then compared pre- and post-treatment scores obtained on the Yale-Brown Obsessive-Compulsive Scale Adapted for Pathological Gambling (PG-YBOCS), the primary outcome measure, and the Sheehan Disability Scale (SDS), the secondary outcome measure.

RESULTS: Scores obtained on the PG-YBOCS and the SDS both decreased significantly from the first to the final session ($t[127] = 23.74, P < .001, r = .9$; $t[127] = 19.23, P < .001, r = .86$, respectively).

CONCLUSIONS: The urges and disability symptoms related to pathological gambling were significantly reduced among participants completing treatment. These preliminary results hold promise for individuals with pathological gambling in South Africa and other low- and middle-income countries.

KEYWORDS: pathological gambling, cognitive-behavioral therapy, imaginal exposure, South Africa

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INTRODUCTION

The introduction of the National Gambling Act in 1996 resulted in an increase in legalized gambling opportunities in South Africa, and in turn led to a greater focus on the problems caused by excessive gambling.¹ Current estimates, derived from urban areas in 3 provinces, suggest that 1.4% of South Africans are experiencing pathological gambling, with 5.6% of regular gamblers meeting the criteria.¹ However apart from a few prevalence and diagnostic studies, there has been scant clinical research conducted in the South African setting and in low- and middle-income countries.

Internationally, cognitive-behavioral therapies, motivational interviewing, and imaginal desensitization have proven beneficial for pathological gambling.²⁻⁵ These various treatment modalities have been combined in a program developed by Grant et al,⁶ which has demonstrated promising results in the United States.⁴

The National Responsible Gambling Program (NRGP) is a South African public-private sector initiative that focuses on the prevention and treatment of problematic gambling behavior. It provided the country-wide infrastructure for the implementation of the treatment program in South Africa. The public can phone the toll-free number of the NRGP, which is manned by trained counselors. If necessary, counselors will refer clients to a treatment network comprising treatment professionals distributed across 53 towns and cities in southern Africa.

To our knowledge, this is the first evaluation of a specific country-wide treatment program targeted at individuals with pathological gambling.

METHODS

Description of intervention

This study evaluated the therapy program developed by Grant et al,⁶ termed IDMI (imaginal desensitization plus motivational interviewing), to treat patients with pathological gambling. The manualized treatment program consists of 6 sessions, with an additional optional family session. IDMI includes imaginal exposure, a form of cue exposure therapy that aims to extinguish the urges associated with the triggers to gamble. Practitioners also use motivational interviewing and behavioral interventions. Each session focuses on providing the patient with specific skills, which the patient is expected to practice between

sessions. Homework from the previous week is reviewed at the beginning of each session. If homework has not been completed, the practitioner explores this issue with the patient. The patient is provided with a workbook⁷ that provides psychoeducation about disordered gambling, the material covered in each session, as well as worksheets that need to be completed between sessions.

The sessions are structured as follows:

Session 1: Education and Motivational Enhancement. In this session, the practitioner provides education about pathological gambling. Education includes the biological underpinnings of pathological gambling, patient responsibilities in responding to their illness, and current knowledge on treatment. An overview of the treatment program is given, and a basic introduction to cognitive-behavioral treatment provided. The practitioner also evaluates the patient's motivation, applies motivational interviewing, and discusses the importance of self-monitoring and practicing skills between sessions. A diary tracking daily behavior is introduced for this purpose. Financial planning is initiated as well, with the clinician asking the patient to monitor his or her weekly and monthly spending.

Session 2: Financial and Trigger Planning. At the beginning of the session, the practitioner reviews the completed diary from the past week with the patient to better understand the gambling behavior, and its associated feelings and thoughts. The main focus of this session is on financial spending. The practitioner also reviews the patient's spending pattern over the past week and asks the patient to continue recording spending habits over the next few weeks to develop a realistic budget. The patient is provided with guidance in developing an individualized budget in the hope that by developing a budget the patient will become more aware of his or her spending patterns. The clinician also discusses strategies for reducing the impulse to gamble, and where appropriate the patient may decide to involve a family member, friend, or financial advisor to assist with the management of finances. Finally, the practitioner asks the patient to continue completing the daily diary as well as the financial spending and budget forms.

Session 3: Behavioral Interventions. During the next session, the practitioner reviews the diary and various financial forms the patient completed over the past week. The focus of this third session is to help the patient identify triggers for his or her gambling behavior. External (eg, places, events, people) and internal (eg, emotions)

triggers are identified. Strategies for reducing or avoiding these triggers are discussed. At this step in the process, the clinician also introduces problem-solving skills for managing triggers and assists the patient in finding alternative leisure activities.

Session 4: Imaginal Exposure. At this point, practitioners review homework at the beginning of the session, focusing on the daily diary, management of triggers, problem solving, and engaging in leisure activities. This session focuses on imaginal exposure. The practitioner asks the patient to close his or her eyes for approximately 20 minutes, and to provide a detailed description of a typical scene leading up to a gambling episode. This description should include external stimuli (eg, sounds, smells, sights), feelings, triggers, thoughts, and mood before, during, and after the gambling episode. The therapist records these details. During the imaginal exposure, the practitioner asks the patient to rate his or her urges to gamble on a scale from 0 to 100. After describing the scene, the patient is asked to describe the negative consequences resulting from gambling. This process, called *negative mood induction*, hopes to introduce stimuli that are incompatible with the pleasurable aspects of the impulsive behavior. Following the description of the negative consequences, the practitioner asks the patient to describe an alternative scenario, describing healthy coping.

Imaginal exposure is a form of *cue exposure therapy*, which has the goal of extinguishing the feared or learned response. The therapist should audiotape the script including the patient's description, negative consequences, and coping mechanisms and then ask the patient to listen to this tape 4 times daily, and to record his or her urge ratings, until there is a $\geq 50\%$ reduction in peak urge ratings. Patients also still continue to complete their daily behavior diary, and to implement the healthy coping strategies and leisure activities discussed during the third session.

Session 5: Impulsive Beliefs – Cognitive Therapy. The therapist reviews the patient's homework, including engagement with imaginal exposure, the daily behavior diary, and the implementation of problem solving, coping mechanisms, and leisure activities. This session focuses on identifying errors in thinking. The patient is guided to identify his or her thoughts before, during, and after an episode of impulsive behavior, using an *ABC log*. This log assists the patient in identifying triggers (activating events), their associated beliefs (and the degree of certainty in this belief), and the consequences/behavior

and degree of urge to engage in this behavior. The patient is then asked to dispute these impulsive beliefs, by identifying evidence for and against his or her impulsive beliefs. Finally, the practitioner asks the patient to rate the effectiveness of disputing the evidence, and to rerate his original belief and urge.

Session 6: Relapse Prevention. Once again, the therapist reviews homework and the progress to date. He or she also re-administers the original scales to determine the degree of improvement. The therapist also discusses relapse prevention, identifies potential future triggers with the help of the patient, and reviews the importance of on-going practice of the various techniques learned during therapy.

Session 7: Family Involvement (recommended but optional). Therapists can add a family session to a previous session, after meeting alone with the patient, or it can be added on at the end of treatment. This session provides the patient with the opportunity to inform the family of his or her gambling behavior in a supportive environment. The family session also involves educating the family about pathological gambling and its treatment. Therapists should also discuss debt-related concerns and inform the family that the patient will be working on payment plans. Families should be advised against "bailing out" the patient. The practitioner assesses what family members may require to cope better with this problem. In addition, manners in which the family can assist the patient to cope are discussed. Where necessary, the therapist will refer family members to external resources such as family therapy.

Training of therapists

All therapists attended a 3-day training session on the use of the therapy and were allowed to contact the PI with follow-up questions. For this study, we used results from 15 selected therapists who were willing to share their data for analysis. All the therapists had a background in working with pathological gambling. Nine therapists were PhD psychologists, 5 were counseling psychologists, and 1 was a PhD social worker.

Participants

We recruited participants via the National Responsible Gambling Program (NRGP) of South Africa. All individuals phoned the helpline and subsequently were referred for treatment with a registered psychologist or social worker who had been trained in the intervention

technique. Prior to referral, psychiatrists screened all participants for eligibility. To be included in the treatment program, participants had to meet the DSM-IV-TR criteria for pathological gambling,⁸ as assessed by the Structured Clinical Interview for Pathological Gambling (SCI-PG). For the purposes of the study, we included only those individuals scoring ≥ 5 on the SCI-PG. Although the recruitment and treatment of individuals via the NRGF is on-going, this paper presents preliminary findings relating to participants recruited between May 2011 and February 2012. All participants provided written, informed consent to participate in the study, which the University of Cape Town's Faculty of Health Science's Ethics Committee approved.

The research team collected demographic and clinical data on 222 individuals. The drop-out rate from treatment was 32% ($n=72$). Another 10% ($n=22$) of participants completed treatment, but their follow-up data was not collected. Only those individuals who had completed the full treatment and for whom both the Sheehan Disability Scale (SDS) and Yale-Brown Obsessive Compulsive Scale Adapted for Pathological Gambling (PG-YBOCS) scores were available pre- and post-treatment were included in the analysis. Therefore, we confined our analysis to 58% of the original sample ($n=128$). The median number of sessions required to complete the treatment was 8. The total number of contact sessions ranged from 4 to 12 and depended on individual circumstances. Using the independent t test, the Mann-Whitney U test and the chi-square test, we compared the sample of 128 to those participants who dropped out of treatment or for whom the relevant data was missing. No significant differences were detected between the two groups in terms of the demographics listed in the **TABLE**.

Instruments

The Structured Clinical Interview for Pathological Gambling (SCI-PG). The SCI-PG is a structured interview used to diagnose pathological gambling in patients, based on the DSM-IV-TR. The SCI-PG has demonstrated excellent test-retest and inter-rater reliability and concurrent and discriminant validity in the diagnosis of pathological gambling in treatment-seeking individuals.⁹

The Mini-International Neuropsychiatric Interview (MINI). The MINI is a short, structured diagnostic interview¹⁰ that has been used in a variety of international settings.^{11,12} We used it to assess psychiatric comorbidity in this study.

The Yale-Brown Obsessive Compulsive Scale Adapted for Pathological Gambling (PG-YBOCS). The PG-YBOCS was adapted for pathological gambling from the Yale-Brown Obsessive Compulsive Scale, and has been used to assess symptoms severity in a number of studies of pathological gambling.^{4,13} It is a 10-item, clinician-administered questionnaire that measures the severity of pathological gambling symptoms on a 5-point scale. The scale consists of an urge/thought subscale (items 1 to 5) and a behavior subscale (items 6 to 10), providing an indication of dysfunction and distress in these domains. Higher scores reflect greater severity of pathological gambling, with the total score ranging from 0 to 40. The PG-YBOCS has demonstrated good inter-rater reliability, internal consistency, sensitivity to change in pathological gambling severity, as well as convergent, discriminant, and content validity.¹⁴ We employed it as the primary outcome measure in this study.

The Sheehan Disability Scale (SDS). The SDS is a brief self-report tool used to assess the functional impairment of patients in 3 domains, namely work/school, social, and family life. Each of the 3 response items is scored on a 10-point Likert scale. The SDS has demonstrated good internal and test-retest reliability, convergent and divergent validity, and is sensitive to treatment effects.^{15,16} We used this scale as a secondary outcome measure in this study.

Data analysis

Data analysis was conducted with the statistical package SPSS, version 20. The research team used the dependent t test to compare changes in scores obtained on the PG-YBOCS and the SDS. The difference in scores obtained on each scale prior and post-intervention was tested for the assumption of normality using the Kolmogorov-Smirnov test.¹⁷ The assumption of normality for the difference in scores was met for both the SDS, $D(128) = 0.05$, $P = .20$, and the PG-YBOCS, $D(128) = 0.07$, $P = .20$.

RESULTS

Baseline data

The 128 participants included 50 females (39.1%) and had a mean age of 44.0 (SD = 11.8). The majority of participants were employed (77%). The median number of years for which gambling had posed a problem was 5,

TABLE
Demographics of sample

Demographics N = 128	n	% of sample/IQR
Median age (IQR)	44.0	32.0 to 50.75
Sex		
Female	50	39.1%
Male	78	60.9%
Marital status		
Married	59	46.1%
Single	33	25.8%
Divorced/widowed	36	28.1%
Highest level of education		
Below high school	3	2.3%
High school	70	54.7%
College/technical school	29	22.7%
University	26	20.3%
Employment		
Employed	99	77.3%
Unemployed	23	18.0%
Retired	6	4.7%
Gambling history		
Median number of years of problematic gambling (IQR)	5.0	3.0 to 10.0
First degree relative with a perceived gambling problem	49	38.3%
Median score on SCI-PG prior to treatment (IQR)	7.00	6.0 to 8.0
Gambling activity		
Casino slots	78	60.9%
Tables	38	29.7%
Horses	16	12.5%
Internet	10	7.8%
Lotto, dice, soccer ⁶	2	1.6%
Diagnosed with comorbid psychiatric condition	50	39.1%

IQR: interquartile range; SCI-PG: Structured Clinical Interview for Pathological Gambling.

with casino slots being the most popular form of gambling activity (61%). Thirty-nine percent of participants had been diagnosed with a comorbid psychiatric condition at some point (TABLE).

Outcome data

Scores obtained on the PG-YBOCS decreased significantly from the first ($M = 22.26$, $SE = 0.79$) to the final session ($M = 3.59$, $SE = 0.44$), $t(127) = 23.74$, $P < .001$, $r = .90$, $d = 2.10$. A significant reduction in obsessions, urges, and dysfunctional behaviors related to gambling was therefore apparent.

Similarly, participants also experienced a significant reduction in symptoms of disability as indicated by scores obtained on the Sheehan prior ($M = 16.38$, $SE = 0.69$) and post-intervention ($M = 2.57$, $SE = 0.42$), $t(127) = 19.23$, $P < .001$, $r = .86$, $d = 1.70$ (FIGURE).

DISCUSSION

Main findings

To our knowledge, this is the first country-wide treatment study for pathological gambling. The results indicate that

IDMI reduces the urges and disability symptoms related to pathological gambling, and indicates that IDMI is effective in a South African context, and may benefit other countries as well, including those with relatively poor treatment resources.

We observed effectiveness for the primary outcome measure (the PG-YBOCS), and this was supported by positive outcomes on the secondary outcome measure of impairment (the SDS), indicating that both the urges and harmful behaviors related to pathological gambling, as well as the negative impacts on work, social, and family life, were reduced significantly among participants completing treatment. Although comparison of treatment effects across different studies using different interventions has notable limitations, the effect sizes seen in this study are in line with previous work⁴ or even larger than reported in other studies using cognitive-behavioral interventions.^{18,19}

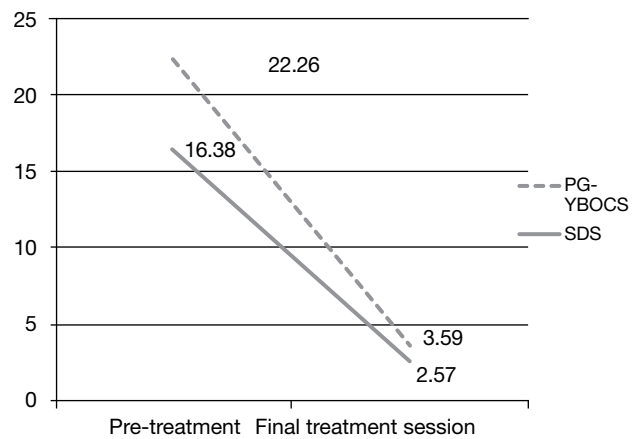
Incorporation of imaginal desensitization differs from conventional treatment in that gambling urges are elicited throughout the day and cognitive restructuring then is provided immediately with the aid of audiotapes. One theory for IDMI's effectiveness suggests that impairments in prefrontally mediated cognitive functions underlie behavioral dysregulation, namely decision making and inhibitory control in pathological gambling. (For a review of cognition in pathological gambling, see van Holst et al.²⁰) These impairments may increase the risk for making decisions that are impulsive, focused on short-term gains, and lack inhibitory control. IDMI allows the patient to experience the urge and immediately increases inhibitory control by focusing on decisions that consider both short- and long-term consequences of behavior.

The drop-out rate (32%) seen in this study is on par with that reported in a review of psychological treatment dropout among individuals with pathological gambling,²¹ and is somewhat lower than that reported in some treatment studies for pathological gambling (47% to 50%).^{22,23} The motivational interviewing element may be partly responsible for the relatively good retention rates seen in this study, and retention in treatment in turn has been associated with improved outcome.²¹

Limitations

A significant limitation is the lack of tracking over time, as the study presents preliminary results for patients who recently have completed treatment. The lack of fidelity

FIGURE
Mean scores pre- and post-treatment for the PG-YBOCS and SDS



PG-YBOCS: Yale-Brown Obsessive Compulsive Scale Adapted for Pathological Gambling; SDS: Sheehan Disability Scale.

also is of concern, with practitioners not being monitored consistently in terms of the implementation of the treatment. Another limitation is that data were obtained from only a minority of practitioners in the network. Nevertheless, this study has the advantage of being done in a real world setting, as part of South Africa's NRGF work on treatment provision.

Implications and future research

It would be interesting to determine whether the effects of treatment are sustained over time. Previous research examining imaginal desensitization found long-term benefits lasting upwards of 2 to 9 years.²⁴ If similar results are found in our sample, this would suggest IDMI might be a cost-effective therapy for pathological gambling and worth considering when resources are limited.

Future studies would benefit from the inclusion of a control group. It would be interesting to compare patients receiving this intervention to no intervention or treatment as usual. Some have suggested that gambling cannot be considered a single phenomenon,²⁵ and that different types of gamblers may respond to different forms of treatment; such hypotheses deserve further examination. Nevertheless, the preliminary findings indicate promising results for patients suffering from pathological gambling in a South African setting. ■

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