

The efficacy of Motivational Intervention and Cognitive-Behavioral Therapy for Pathological Gambling

Eficacia de la intervención Motivacional y la Terapia Cognitivo-conductual para el tratamiento del Juego Patológico

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Abstract

The aim of the current study is to determine the effectiveness of an individual psychological intervention based on the motivational interview and cognitive-behavioral therapy for the treatment of pathological gambling. A sample of 18 participants, diagnosed of pathological gambling and without any other associated comorbidity, were assessed, attended at the publicly-funded Gambling and Behavioral Addictions Unit (Consorci Sanitari de Terrassa). Median age was 46 years ($SD = 12$). All the patients achieved abstinence and completed follow-up. The *Screen for Gambling Problems* (NODS), *Quality of Life Enjoyment and Satisfaction* (Q-LES-Q), *Impulsive Behavior Scale* (UPPS-P), *Sheehan Disability Inventory* (SDI), *Beck Depression Inventory* (BDI) and *State-Trait Anxiety Inventory* (STAI) were administered pre- and posttreatment. Results showed that patients significantly reduced the problems related to gambling behavior according to the NODS score ($p < .000$). Regarding impulsive behavior (UPPS-P), we found significant differences in negative urgency ($p < .001$), positive urgency ($p < .001$), (lack of) premeditation ($p < .029$) and (lack of) perseverance ($p < .048$). Some relevant aspects of quality of life as assessed by the Q-LES-Q had improved. In conclusion, the study shows that psychological intervention based on the motivational interview and cognitive-behavioral therapy not only significantly reduces gambling-related behavior problems but also leads to improvements in impulsivity and quality of life.

Keywords: Gambling disorder; Treatment; Motivational interview; Cognitive-behavioral therapy; Impulsivity; Quality of life.

Resumen

El propósito del presente estudio es analizar la eficacia de una intervención psicológica individual basada en Entrevista Motivacional y Terapia cognitivo-conductual en el tratamiento del Juego Patológico, y evaluar la eficacia de esta intervención psicológica sobre la impulsividad y la calidad de vida de los pacientes. La muestra se compone de 18 pacientes atendidos en la Unidad de Juego Patológico del Consorci Sanitari Terrassa, diagnosticados de Juego Patológico, y sin comorbilidad asociada. La media de edad fue de 46 años ($SD=12$). Todos ellos alcanzaron la abstinencia y se encontraban en fase de seguimiento. Se administraron pre y post tratamiento los siguientes cuestionarios: *Screen for Gambling Problems* (NODS), *Quality of Life Enjoyment and Satisfaction* (Q-LES-Q), *UPPS-P Impulsive Behavior Scale*, *Sheehan Disability Inventory* (SDI), *Beck Depression Inventory* (BDI), *State-trait Anxiety Inventory* (STAI). Los resultados muestran una reducción significativa de los problemas asociados a la conducta de juego ($p<.000$). También se encontraron diferencias significativas en la impulsividad (UPPS-P) pre-post: urgencia negativa ($p<.001$), urgencia positiva ($p<.001$), (falta de) premeditación ($p<.029$) y (falta de) perseverancia ($p<.048$). Así mismo, hay una mejoría significativa en la calidad de vida (Q-LES-Q) de nuestros pacientes en distintas áreas. En conclusión, el estudio pone de manifiesto que la intervención psicológica basada en Entrevista Motivacional y Terapia Cognitivo-conductual permite una mejora significativa del Juego Patológico que repercute no sólo en la conducta de juego sino que también implica otros aspectos como la impulsividad y la calidad de vida.

Palabras clave: Juego patológico; Tratamiento; Entrevista Motivacional; CBT; Impulsividad; Calidad de vida.

Received: May 2017; Accepted: June 2017.

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Pathological gambling (PG) is a “persistent and maladaptive gambling behavior that generates clinically significant distress”, according to the *Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition* (DSM-5; American Psychiatric Association [APA], 2013). Given the current evidence, PG is classified in the DSM-5 in the chapter of *Substance-related disorders and addictive disorders* although, until the previous version of the DSM (APA, 2000), it was placed in the chapter of *Impulse control disorders* (Fauth-Bühler, Mann, & Potenza, 2016). Its prevalence ranges between 0.4 and 1.6% (Grant, Odlaug, & Chamberlain, 2016) and it is often associated with negative consequences in the patient’s different life areas: a high percentage of unemployment (14% of patients with PG have lost their jobs at least once in their lifetime), economic difficulties (19%), social isolation, disconnection from their social support network, and impact on the family (54% are divorced) (Gerstein, Volberg, & Toce, 1999; Scherrer et al., 2005). Given the high prevalence and impact of this disorder, is important to develop policies of gambling regulation in order to prevent gambling addiction (Chóliz & Sáiz-Ruiz, 2016a; Chóliz & Sáiz-Ruiz, 2016b).

The construct of high impulsivity has been described as an indicator of vulnerability both for the origin and maintenance of PG (Hodgins et al., 2015). Moreover, impulsivity plays an important role in the response to treatment, as well as in the likelihood of dropping out of treatment (Ramos-Grille et al., 2013, 2015; Álvarez-Moya et al., 2011).

In relation to treatment, there is sufficient evidence about the effectiveness of cognitive-behavioral treatments (CBT) for PG (Toneatto & Ladoceur, 2003) and, in terms of the body of studies, a growing trend that supports the use of interventions based on the motivational interview (MI) (Cowlshaw et al., 2012; Thomas et al., 2015; Yakovenko, Quigley, Hemmelgarn, Hodgins, & Ronksley, 2015). Most of the published studies have focused on identifying changes only in gambling behavior. There are few studies that have examined the effect that the treatment for PG has on other aspects, such as impulsivity and the patients’ quality of life, nor are there any studies that have examined the efficacy of a psychological intervention combining MI and CBT. The purpose of this study is to investigate the efficacy of a combined intervention based on MI and CBT in the treatment of gambling, and to assess the efficacy of the psychological intervention on patients’ impulsiveness and quality of life.

Material and methods

Design

This is a quasi-experimental pre- and posttreatment study that includes patients treated in the Pathological Gambling and Behavioral Addictions Unit of the Consor-

ci Sanitari de Terrassa (CST) during the year 2014. The study was performed following the latest version of the Helsinki Declaration (WMA, 2013). The Ethics and Research Committee (Spanish acronym = CEIC) of the CST approved the study, and we obtained the participants’ informed consent.

Participants

The total sample is made up of 18 participants over 18 years of age, diagnosed of PG, who had reached the therapeutic goal of gambling abstinence and, therefore, had finished the treatment. Exclusion criteria were patients with another type of behavioral addiction ($n = 6$; compulsive shopping, internet addiction, or sex addiction), patients still in treatment for not having reached gambling abstinence ($n = 21$), and patients who had dropped out of treatment or follow-up ($n = 5$).

Procedure

The participants underwent a first session with a semi-structured interview format in which we collected sociodemographic data (sex, age, educational level, marital status, and job status), relevant clinical information (comorbidity with another mental disorder, use/abuse of illegal substances), as well as information about gambling behavior (age of onset, duration of the problem, gambling frequency, time spent gambling, amount of money spent on gambling per week), and PG symptoms based on DSM-IV-TR (APA, 2000) criteria. All the participants with a confirmed diagnosis of PG were included in a program of individual treatment that combines MI with a CBT approach.

The treatment program is protocolized, and most of the techniques are based on MI, stimulus control, cognitive restructuring (understanding the concept of chance, as well as detecting and modifying false beliefs about gambling), and relapse prevention. The treatment is divided into two phases: a first phase aimed at achieving gambling abstinence, where we used MI techniques oriented to enhancing the patient’s discourse of change and the feeling of self-efficacy about initiating behavioral change. The second phase of treatment is aimed at maintaining abstinence from gambling, using CBT techniques such as stimulus control, cognitive restructuring, and relapse prevention. The treatment lasts 6 months, with weekly or bi-weekly 40-minute individual sessions. After treatment, the patients begin a follow-up period of 6 months, with monthly visits. If the patient does not reach the therapeutic goal of gambling abstinence, this period is maintained until it is reached. On another hand, if the therapeutic goal is reached, then a longer follow-up period is initiated, consisting of just three visits at 3, 9 and 21 months. The assessment was conducted at two moments: prior to the start of treatment (pre-treatment) and after the first phase of the 6-month follow-up period (post-treatment).

Instruments

In order to assess changes in gambling behavior, we evaluated gambling frequency and the amount of money spent on gambling; at the same time, we administered the Spanish version of the *Screen for Gambling Problems (NODS)* of the *National Opinion Research Center (NORC) DSM-IV* (Becona, 2004; Gerstein et al., 1999). This 17-item questionnaire is based on DSM-IV criteria. Scores range between 0 and 10, according to the degree of severity: no gambling behavior (NODS = 0), risk of gambling (NODS = 1-2); gambling problem (NODS = 3-4) and pathological gambling (NODS ≥5). Test-retest reliability of the instrument is .98.

Changes in the quality of life and satisfaction were assessed with the *Quality of Life Enjoyment and Satisfaction (Q-LES-Q)* (Endicott, Nee, Harrison, & Blumenthal, 1993), a 93-item self-report measure, divided into 8 domains: Physical Health, Mood, Work, Activities at Home, Leisure, Social Relationships and Overall Activity in the past week. Two items measure satisfaction with medication and overall life satisfaction. It is rated on a 5-point Likert scale. High scores indicate greater satisfaction. High internal consistency and good validity have been found for this instrument (Endicott et al., 1993; Ritsner, Kurs, Kostizky, Ponizovsky, & Modai, 2002).

Impulsivity was assessed with the *UPPS-P Impulsive Behavior Scale* (Whiteside & Lynam, 2001; Cyders et al., 2007), a 59-item instrument that evaluates impulsivity as a personality trait. It includes 5 subscales: (lack of) Premeditation, understood as the tendency to act without thinking about possible consequences ($\alpha = .85$); Negative urgency, the tendency to act in response to negative emotional experiences ($\alpha = .87$); Positive urgency, the tendency to act in response to positive emotional experiences ($\alpha = .93$); (lack of) Perseverance, difficulty to persist in a task ($\alpha = .85$), and Sensation seeking ($\alpha = .86$) (MacKillop et al., 2016).

We administered the *Sheehan Disability Inventory (SDI)* (Sheehan, Hamett-Sheehan, & Raj, 1996) to assess the perceived degree of dysfunction. The SDI is a 5-item self-administered questionnaire that subjectively assesses the patient's degree of disability in three basic areas (work, social/leisure and family/home responsibilities), as well as the degree of worry or stress perceived in the past week and perceived social support. The first four items are scored on a numerical visual analogue scale ranging from 1 to 10 (0 = no disability; 10 = maximum disability) and in the case of the last item, percentages are used (0% = non-existent support; 100% = ideal support).

We also administered the *Beck Depression Inventory (BDI)* (Beck, Steer, & Brown, 2011) and the *State-Trait Anxiety Inventory (STAI)* (Spielberger, Gorsuch, & Lushene, 1982) to assess the presence of depressive and anxious symptomatology, respectively. The psychometric properties of the two instruments have been widely validated.

Statistical analysis

The statistical analysis was conducted with the Statistical Package for Social Sciences (SPSS, version 21.0 for Windows). Firstly, the prevalence rates of the main sociodemographic and clinical characteristics were estimated. The analysis of the data before and after the intervention were evaluated using the non-parametric Wilcoxon test for related samples.

Table 1. Main Sociodemographic and Gambling Behavior Variables

Sociodemographic variables	Mean (SD) or n (%)
Age	45.8 (12)
Gender (male)	18 (100%)
Marital status	
Married	12 (66.7%)
Single	3 (16.7%)
Divorced	3 (16.7%)
Educational level	
Primary studies	3 (16.7%)
Middle studies	8 (44.4%)
Secondary studies	3 (16.7%)
Higher studies	3 (16.7%)
Work status	
Active	10 (55.6%)
Unemployed	5 (27.8%)
Retired	2 (11.1%)
Disabled	1 (5.6%)
Substance use	
<i>Tobacco</i>	
No	16.7%
Ex-smoker	38.9%
Yes	44.4%
<i>Alcohol</i>	
No	33.3%
Ex-drinker	5.6%
Occasional consumption	50%
Regular consumption	11.1%
<i>Cannabis</i>	
No	94.4%
Ex-consumer	5.6%
<i>Cocaine</i>	
No	94.4%
Ex-consumer	5.6%
Gambling behavior variables	Mean (SD) or n (%)
Mean age at onset of gambling	27.28 (11.42)
Type of gambling	
Slot machines	16 (88.9%)
Online betting	2 (11.1%)
Years since onset of PG	
<1 year	2 (11.1%)
2-5 years	10 (55.6%)
6-10 years	3 (16.7%)
11-15 years	2 (11.1%)
Relapse	1 (5.6%)
Gambling frequency	
Daily	11 (61.1%)
2-4 times/week	5 (27.8%)
Once a week	1 (5.6%)
Money spent/week	
20-60€	1 (5.6%)
60-100€	7 (38.9%)
100-500€	8 (44.4%)

Table 2. Pre-posttreatment Differences in Clinical Variables related to Gambling, Quality of Life and Impulsivity

Instrument	Pre Mean (SD) or n (%)	Post Mean (SD) or n (%)	Significance p-value
NODS	6.72 (2.516)	1.33 (2.42)	.000
SDI			
Disability	16.39 (5.782)	14.22 (9)	.737
Perceived stress	3.59 (3.242)	2.39 (2.725)	.105
Perceived social support	75.56 (28.743)	77.78 (27.344)	.776
Q-LES-Q			
Physical health	44.78 (9)	47.50 (10.557)	.05
Mood	49.39 (10.793)	54.83 (11.336)	.076
Work	52.40 (9.095)	54.92 (10.942)	.213
Activities at home	35 (5.863)	41.50 (6.981)	.006
Leisure	20.39 (5.078)	21.94 (5.230)	.324
Social relations	38.61 (6.626)	43.33 (8.513)	.031
General activity	46.61 (9.243)	54.78 (9.997)	.078
Satisfaction with medication	1.72 (2.052)	1 (1.715)	.120
Global Satisfaction	3.11 (1.231)	4.11 (.758)	.014
UPPS-P			
Negative urgency	2.59 (.373)	2.10 (.504)	.001
Positive Urgency	2.18 (.580)	1.77 (.509)	.001
(Lack of) Premeditation	2.17 (.423)	2.01 (.462)	.029
(Lack of) Perseverance	2.02 (.415)	1.82 (.519)	.048
Sensation seeking	1.77 (.676)	1.66 (.494)	.288
BDI	15.11 (11.842)	6.17 (6.109)	
No depression	50%	77.8%	
Mild depression	11.1%	16.7%	
Moderate depression	27.8%	5.6%	
Severe depression	11.1%	-	.002
STAI (Pc)			
State-Anxiety	70.27	44.66	.000
Trait-Anxiety	70	48.11	.001

Note. SD = Standard deviation; Pc= Percentil; NODS = National Opinion Research Center (NORC) DSM-IV Screen for Gambling Problems (NODS); SDI = Sheehan Disability Inventory; Q-LES-Q = Quality of Life Enjoyment and Satisfaction; UPPS-P = UPPS-P Impulsive Behavior Scale; BDI = Beck Depression Inventory, STAI = State-Trait Anxiety Inventory.

Results

All 18 participants were males with a mean age of 45.8 years. Most were married (66.7%), with middle studies (44.4%) and were occupationally active (55.6%) at the time of the first visit. The participants' mean age at the onset of gambling problems was 27.28 years, with a duration of the problem of about 2-5 years; slot machines were the main gambling activity, and, at the time of the first visit, they had no comorbid psychiatric diagnoses (Table 1).

The results indicate that, after 6 months of treatment based on MI and CBT and 6 months of follow-up, the problems associated with gambling had decreased significantly, and the difference between the pre- and posttreatment assessments was statistically significant ($p < .000$) (NODS-pre = 6.72; NODS-post = 1.33). In addition, we found significant pre-post differences in emotional (BDI: $p < .002$) and anxious (State-A: $p < .000$, Trait-A: $p < .001$) symptomatology.

With regard to impulsivity, significant pre-post treatment differences were found in the variables: negative urgency ($p < .001$), positive urgency ($p < .001$), (lack of) premeditation ($p < .029$) and (lack of) perseverance ($p < .048$). There were no differences in the variable sensation seeking.

Lastly, the results suggest that CBT and MI-based treatment also improved other relevant aspects such as quality of life in relation to physical health ($p < .05$), activities at home ($p < .006$), social relations ($p < .031$), and overall satisfaction ($p < .014$) evaluated with the Q-LES-Q. No statistically significant differences were found when assessing the construct of quality of life with the SDI.

Table 2 shows the pre- and posttreatment differences in the clinical variables, the gambling-related variables, and the variables of quality of life and impulsivity.

Discussion

The results of our study show that the psychological intervention based on MI and CBT produces significant improvements not only in gambling behavior, which is the main goal, but also in other aspects such as impulsive behavior and patients' quality of life.

Improvements in gambling behavior not only refer to the total NODS score but also to other variables associated with gambling, such as its frequency and the patients' weekly expenditure. These results coincide with those from two recent meta-analyses, which strongly indicated the efficacy

of interventions based on MI and CBT to produce changes and improvements in gambling behavior (Cowlshaw et al., 2012; Yakovenko et al., 2015).

The results of our study also suggest that psychological treatment provides significant improvements in the general assessment of patients' quality of life, particularly in areas such as physical health, activities at home, and social relations. With the resolution of the gambling problem, the patients reported improvements in life areas that had been altered while they were actively gambling, either due to the gambling itself or to its consequences. These results corroborate the findings of the studies of Carlbring, Degerman, Jonsson, and Andersson (2012) and Pasche (2013). Although there is evidence about the positive effect of a psychological intervention on the improvement of these patients' quality of life, we are lacking studies that identify which interventions are most effective and what is the relationship between the improvement in gambling behavior and the improvement in quality of life.

Regarding impulsivity, drawing on the multifactorial model of Whiteside and Lynam (2001), and subsequently Cyders and Smith (2008), we propose that the different aspects of this model (positive urgency, negative urgency, [lack of] premeditation, [lack of] perseverance, and sensation seeking) act as risk factors for dysfunctional and maladaptive behaviors (Verdejo-García, Bechara, Recknor, & Pérez-García, 2007). In samples of PG, Michalczuk, Bowden-Jones, Verdejo-García and Clark (2011) reported that gamblers score high on all subscales, although the effect size is greater in the positive and negative urgency scales. There are few studies with samples of gamblers that analyse changes and improvements in impulsiveness after completing the treatment. In this sense, the results of our study allow us to identify improvements in the functioning of these patients, especially in positive and negative urgency. This suggests that interventions focused on identifying and coping with situations of risk, problems and/or emotions contribute to patients' greater self-efficacy, such that they perceive themselves as having a greater capacity to deal with these situations, and to do so more adaptively.

Our study has some strengths and limitations that should be discussed. The main strength is having extended the focus of study, not only centering on gambling behavior after treatment, but also on aspects such as impulsivity and quality of life. On another hand, some of the limitations are the size of the sample and the lack of a control group, which precludes identifying the effect size and generalizing the results obtained. At present, we are working to increase the sample size, as well as to determine the characteristics of the patients who remain abstinent at follow-up. This will allow us to consolidate the results and to determine the characteristics of the treatments to promote adherence.

In conclusion, our results corroborate the effectiveness of CBT in combination with MI to reduce gambling beha-

viour and show its effect on impulsiveness and quality of life in patients with PG.

Conflict of interest

The authors declare they have no conflict of interest.

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