



Shorter communication

Cognitive-behavioural treatment of pathological gambling in individuals with chronic schizophrenia: A pilot study

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ABSTRACT

The current study aimed to test the clinical effectiveness of a cognitive-behavioural program (CBT) specifically adapted for pathological gamblers with chronic schizophrenia, carried out in a naturalistic setting of community Mental Health Centres. Forty-four pathological gamblers with chronic schizophrenia were assigned either to a standard drug therapy for schizophrenia (control group) or to cognitive-behavioural therapy for pathological gambling plus a standard drug therapy for schizophrenia (experimental group). Psychological treatment comprised a 20-session program including psycho-education, stimulus control, gradual exposure and relapse prevention. Therapeutic success was defined as abstinence or the occurrence of only 1 or 2 episodes of gambling during the follow-up period. While the patients treated in the experimental group showed a rate of success of 73.9%, only 19% of the participants belonging to the control group gave up gambling at the 3-month follow-up. The CBT group also did better than the control group in the number of gambling episodes and in the amount of money spent on gambling. However, the improvement of the experimental group was weaker at the 6- and 12-month follow-up. These findings support the beneficial effects of CBT as adjunctive therapy for patients with dual diagnoses (schizophrenia and pathological gambling).

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Introduction

Patients with dual diagnoses are highly prone to adverse outcomes in several domains: increased rates of hospitalization, violence, victimization, homelessness, and nonadherence to medication; and poor overall response to pharmacologic treatment (Green, Drake, Brunette, & Noordsy, 2007). Many psychiatric populations have high rates of pathological gambling (PG), including those with schizophrenia (Crockford & el-Guebaly, 1998). According to the data of the only cross-sectional study in an outpatient setting of individuals with schizophrenia/schizoaffective disorder and problem/pathological gambling, there are higher rates of pathological gambling in schizophrenic populations (10%) than in the non-schizophrenic population (1–5%). These patients also have greater alcohol use severity, higher depression scores and more outpatient mental health care utilization (Desai & Potenza, 2009). Co-occurring PG contributes substantially to the financial costs and

emotional burden of schizophrenia for patients, their families, and the mental health system. These data are consistent with findings from community samples in which increased odds of problem gambling have been reported among individuals with schizophrenia/schizoaffective disorder (Cunningham-Williams, Cottler, Compton, & Spitznagel, 1998). However, the extent to which individuals with schizophrenia display the symptoms of pathological gambling has hardly been investigated in the current literature.

Schizophrenia and pathological gambling may therefore coexist. There is a bidirectional relationship between these mental disorders. Individuals with schizophrenia have positive symptoms (delusions, hallucinations or disorganized thinking) and may present an optimistic bias in the perception of risk. These psychological processes specific to psychosis may be relevant to PG. Sometimes, depressive symptoms present in individuals with schizophrenia may also increase vulnerability to gambling problems if people are gambling to relieve stress or to avoid affective symptoms (Desai & Potenza, 2009). In turn, the negative consequences of PG in these people, such as getting into debt or undergoing pressure from creditors, may trigger acute psychotic episodes (Borras & Huguelet, 2007).

Co-occurring addictions are often underdetected and undertreated, which can complicate the treatment of schizophrenia. The

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presence of PG and psychotic symptoms poses special diagnostic and treatment challenges, including mental health, hospitals and primary care settings. In this context, the personal, family and social problems of these patients increase and contribute to relapse, reduce gains of the specific schizophrenia treatment, or patients give up the therapy. This increases the number of hospitalizations and the cost of treatment, so there is a need for comprehensive assessment and integrated intervention that addresses the multiple problems associated with these co-occurring disorders (Ziedonis, Steinberg, Smelson, & Wyatt, 2009).

However, there is no controlled research in the treatment of pathological gambling in individuals with chronic schizophrenia. In the only two case reports (Borras & Huguelet, 2007; Potenza & Chambers, 2001), the patients' psychotic and gambling disorders seem to be controlled with the serotonin/dopamine antagonist treatment and PG-targeted psychosocial intervention. Although a number of psychological interventions and some medications are effective in the treatment of pathological gambling, cognitive-behavioural treatments (CBT) seem to be particularly promising for psychotic patients as they attempt to alter the gamblers' behaviours and cognitions (Echeburúa & Fernández-Montalvo, 2005; Echeburúa, Fernández-Montalvo, & Báez, 2001; George & Murali, 2005; Grant & Potenza, 2007). However, most studies have excluded patients with psychotic disorders.

The main aim of this controlled trial is to test the clinical effectiveness of a cognitive-behavioural program specifically adapted for pathological gamblers with chronic schizophrenia, with posttreatment and 3-, 6-, and 12-month follow-up assessments, and carried out in a naturalistic setting of community Mental Health Centres. Adaptation of CBT for these individuals dually diagnosed with PG and chronic schizophrenia took into account several aspects: the active role of the therapist to help patients fulfil the self-reports; the presence of a co-therapist (a family or staff member) in order to enhance motivation for treatment, to encourage patients to carry out in vivo exposure tasks and to check information provided by patients; and the implementation of the program in the stabilization phases of the schizophrenia.

Method

Participants

The sample for this study consisted of patients diagnosed with chronic schizophrenia who were receiving pharmacological treatment at several Mental Health Centres in Barcelona (Spain) between 2000 and 2005. The criteria for the inclusion to the study were the following: a) being in treatment for chronic schizophrenia b) meeting an additional diagnosis of pathological gambling (PG) according to the DSM-IV-TR and having a score equal to or above 4 on SOGS; c) aged 18–65 years; and d) taking part in the study voluntarily, after having been properly informed of its characteristics.

After screening the 71 patients who came to the therapeutic program for individuals with dual diagnosis (chronic schizophrenia and pathological gambling), the sample was reduced to 44 subjects, according to the inclusion criteria. Excluded subjects (27) did not meet the criteria for admission because they had poor medication adherence at the beginning of the study (17) or they did not meet properly the diagnosis of PG (10). A flow diagram of participants through each stage of the trial is provided in Fig. 1.

The characteristics of the participants allocated to each of the two interventions are displayed in Table 1. The average age of participants was 38.45 (SD = 7.053). Most of them were men (93.2%), single (81.8%) and with family support (72.8%). Even though 22.7% of the sample were inpatients in mental institutions, most lived with their

relatives. Their educational level was rather low (72.8% with only primary school). As regards employment status, most were pensioners (86.4%) and their socioeconomic level was low (93.2%).

Experimental design

A multigroup experimental design with independent measures in the treatment factor and with multiple and repeated measures of assessment (pretreatment, posttreatment and 1-, 3-, 6- and 12-month follow-up) was used. Following the assessment phase, participants were consecutively assigned to either the experimental or the control group. Thus, the resulting modalities were the following: a) experimental group ($n = 23$): cognitive-behavioural therapy for PG and standard drug therapy for schizophrenia; and b) waiting list control group ($n = 21$): only standard drug therapy for schizophrenia. For ethical reasons only two measurements (pretreatment and 3-month follow-up) were conducted in the control group.

Assessment measures

The *Structured Clinical Interview* is an instrument designed with the objective of assessing, in an initial interview, PG according to the DSM-IV criteria, as well as some relevant additional information: the amount of money spent on gambling and the number of times involved weekly in gambling activities. The data on interrater reliability obtained with this interview in this study were satisfactory ($\kappa = .91$).

The *South Oaks Gambling Screen (SOGS)* (Lesieur & Blume, 1987; Spanish version by Echeburúa, Báez, Fernández-Montalvo, & Páez, 1994) is a reliable and valid, 20-item, self-report screening instrument. It assesses gambling symptoms over a person's life-time. In the Spanish version this assessment tool has a test-retest reliability of .98 and the internal consistency is .94. In our study the internal consistency was .96. The convergent validity with DSM-IV criteria is .92. The range is from 0 to 19. A score of four or more on the Spanish version of the SOGS indicates probable PG. This tool is used only in the first assessment because this measure is not sensitive to therapeutic change.

Treatment modalities

Control group (standard drug therapy for schizophrenia)

Patients assigned to this group continued to be treated with the standard drug treatment (antipsychotics and mood stabilizers and/or benzodiazepines) for schizophrenia prescribed by the psychiatrist of the Mental Health Centre and adjusted on an individual basis. Patients visited the psychiatrist regularly once per month approximately, although the psychiatrist provided support when necessary. None of the participants sought alternate treatments for PG while on the waiting list.

Experimental group (cognitive-behavioural therapy for PG and standard drug therapy for schizophrenia)

There are two components involved in the treatment: 1) a standard drug treatment for schizophrenia, such as it has been above described; and 2) a cognitive-behavioural therapy for PG both in an individual and group format. This psychological treatment comprised a 20-session program, including: a) psycho-educative explanations about the nature and the features of the disorder (1st session); b) stimulus control, referred basically to maintaining control of money (not taking money, except what is strictly necessary, and reporting all expenses to a co-therapist i.e., a family or staff member), to avoiding routes of risk as well as gambling friends. As treatment advances, the control of stimuli is gradually faded, except avoiding gambling friends (2nd–8th

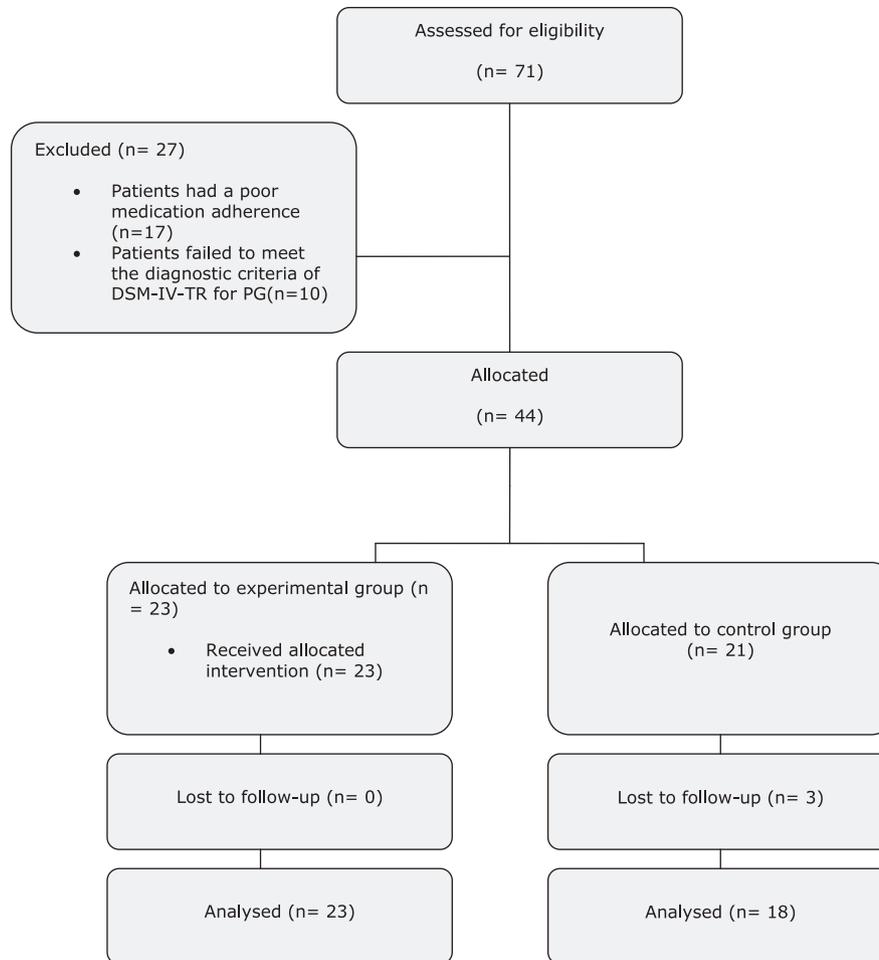


Fig. 1. Flow diagram of progress through the stages of the study.

sessions) and to signing up for the self-exclusion program; c) gradual “in vivo” exposure with response prevention, focused on experiencing the desire to gamble and learning how to resist this desire in a gradually more self-controlled way; the aim of systematic exposure to cues and situations of risk is to make the cues lose their power to induce urges and gambling behaviour; exposure tasks took place 6 days a week for a minimal time of 15–20 min; patients could not drink alcohol or other drugs during the exposure tasks; the characteristics of the application of this technique are shown in Table 2 (9th–17th sessions); and d) relapse prevention, focused on training the patient to identify high-risk situations for relapse, such as social pressure, negative emotional states (e.g., anxiety, depression and anger) and interpersonal conflicts, and providing him/her adequate strategies for coping with problematic situations (18th–20th sessions).

The cognitive-behavioural therapy used in this research was based on the manualized therapist’s guide included in Fernández-Montalvo and Echeburúa (1997). This psychological intervention program consisted of 20 weekly sessions (16 in an individual format and 4 in a group format: 1st, 18th, 19th and 20th) lasting 60 min each, led by a clinical psychologist.

Procedure

Assessment

For subjects entering the study, consent was obtained after they had been given a verbal description of the study. Participants were assessed individually using a semi-structured interview that

focused on different aspects of gambling behaviour. The patients filled in the SOGS individually. Following the assessment phase, the patients were assigned to one of the two modalities. The evaluations – always in the format of a personal interview – took place in pretreatment, posttreatment and 1-, 3-, 6- and 12-month follow-up in the experimental group and in pretreatment and at 3-month follow-up in the control group. For ethical reasons, participants who were allocated to the control group were given the opportunity to complete the treatment program at the completion of the 3-month waiting list period. All the assessments were conducted by an independent assessor who was unaware of the therapeutic modality in which the patient was involved.

Treatment

The treatment program was conducted on an outpatient basis at no charge by a clinical psychologist (the second author of this paper) with 10 years of experience in cognitive-behavioural treatment of pathological gambling. Group size in the group sessions ranged from 4 to 6 patients.

Apart from the clinical psychologist, another person was engaged to act as co-therapist to help the patient practise exposure exercises at gambling sites. The co-therapist was a family member, when the patient was living with the family, or a staff member, when the patient was living in a therapeutic apartment or was an inpatient in a psychiatric hospital. The co-therapist reported on the gambling abstinence/non-abstinence in order to check the patient’s self-report.

The study was approved by the University Ethics Committee.

Table 1
Sociodemographic characteristics of the sample.

	Full sample (N = 44)		Experimental group (n = 23) 52.27%		Control group (n = 21) 47.72%	
	n	%	n	%	n	%
Gender						
Male	41	93.2	22	95.7	19	90.5
Female	3	6.8	1	4.3	2	9.5
Age						
Under age 25	1	2.3	0	0	1	4.8
26–40 Years	25	56.8	12	52.2	13	61.9
41–50 Years	16	36.4	10	43.5	6	28.6
51–60 Years	2	4.5	1	4.3	1	4.8
Marital status						
Single	36	81.8	17	73.9	19	90.5
Married	3	6.8	3	13.0	0	0
Cohabit	2	4.5	0	0	2	9.5
Separated/divorced	3	6.8	3	13	0	0
Level of education						
Without education	2	4.5	1	4.3	1	4.8
Primary	32	72.8	16	69.5	16	76.2
Secondary	10	22.7	6	26.1	4	19.0
Professional status						
Employed	5	11.4	0	0	5	23.8
Unemployed	1	2.3	1	4.3	0	0
Retired	38	86.4	22	95.7	16	76.2
Residence						
Flats	30	72.8	13	56.5	17	81.0
Therapeutic apartments	4	9.1	3	13.0	1	4.8
Psychiatric hospital/residence	10	22.7	7	30.4	3	14.3
Living arrangements						
Alone	3	6.8	3	13.0	0	0
Parents/brothers	20	45.5	7	30.4	13	61.9
Partner and/or children	5	11.4	3	13.0	2	9.5
Other relatives	2	4.5	0	0	2	9.5
Therapeutic apartment partners	4	9.1	3	13.0	1	4.8
Psychiatric hospital partners	10	22.7	7	30.4	3	14.3
Monthly income						
<300 €	4	9.1	4	17.4	0	0
(301–600 €)	37	84.1	16	69.6	21	100
(601–900 €)	3	6.8	3	13.0	0	0
Family/social support						
None	12	27.2	9	39.1	3	14.3
Family	32	72.8	14	60.9	18	85.7

Data analysis

Analyses were carried out through the SPSS version 16.0 for Windows. Differences between the two groups were tested for significance with Pearson's Chi-square test for dichotomous

variables and *t*-tests for quantitative psychological features. Within-group comparisons were tested showing *z* contrasts.

Effect sizes based on Cohen's *d* for *t*-tests or on Chuprov's T^2 for Chi-square test estimated the clinical differences. The results were interpreted as small if d/T^2 values were lower than .2, medium if *d* values ranged between .2 and .5, and large if *d* values were higher than .5.

Table 2
Program of in vivo exposure in pathological gambling.

Exposure	Characteristics
1st Week of exposure	The co-therapist (a relative or a therapeutic team member) is together with the patient when he is practising exposure to a slot-machine. The patient takes money only for his daily needs.
2nd Week of exposure	The co-therapist goes with the patient to the gambling site, but stays outside waiting for him when the patient is practising exposure exercises. The patient takes money only for his daily needs.
3rd Week of exposure	The co-therapist stays at home when the patient goes to the gambling site to practise exposure exercises. If the patient is in a jam, he can phone the co-therapist. The patient takes money only for his daily needs.
4th Week of exposure	The co-therapist no longer takes part in the exposure task. The patient takes money only for his daily needs.

Results

The two groups were homogeneous regarding demographic variables, as well as in terms of number of gambling episodes [$t(42) = .757, p < .453$], amount of money spent on gambling [$t(42) = .238, p < .813$], and scores in SOGS [$t(42) = 1.196, p < .239$], in the pretreatment evaluation. There were not either any statistically significant differences in the age of the schizophrenia, $\chi^2(1) = .039, p < .844$, or in the number of previous hospital admissions, $\chi^2(1) = 1.488, p < .223$.

Rates of improvement

In this study, therapeutic success was defined as abstinence or the occurrence of only 1 or 2 episodes of gambling during the

Table 3
Analysis of differences between the two groups.

		Experimental group		Control group		<i>t</i>	df	<i>d</i>			
		Pretreatment evaluation (<i>n</i> = 23)		Pretreatment evaluation (<i>n</i> = 21)							
		<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>						
Between-group analysis of pretreatment evaluation	Number of gambling episodes in the previous month (range 4–28)	17.57	8.067	15.67	8.558	<i>t</i> = .757	42				
	Amount of money spent weekly on gambling	41.65 €	51.07	37.48 €	64.80	<i>p</i> < .453	42				
	SOGS	6.70	2.78	5.62	3.18	<i>t</i> = .238 <i>p</i> < .813 <i>t</i> = 1.196 <i>p</i> < .239	42				
Success rates in the 3-month-follow-up evaluation		3-Month follow-up		3-Month follow-up		χ^2	n	<i>T</i> ²			
	Therapeutic success	17		4					10.798***	1	.262
	Therapeutic failure	6		14							

****p* < .001.

follow-up period. In the determination of failures, both individuals whose gambling episodes exceed these criteria and the dropouts were included.

At the 3-month follow-up, the patients treated in the experimental condition showed a rate of success of 73.9% (*n* = 17), higher than that of the patients belonging to the control group (19%, *n* = 4). The CBT group did better than the control group. This difference was statistically significant, $\chi^2(1) = 10.80$, *p* < .001, with a medium effect size (*T*² = .262). Three patients in the control group (14.28%) were lost between the pretreatment evaluation and the 3-month follow-up (Table 3).

As regards the within-group evolution in the experimental group, there was a marked improvement between pre- and post-treatment, which tended to remain constant in the follow-up. Even though in the 12-month follow-up the success rate is a bit lower than in the 6- and in the 3-month follow-up, these differences were not significant (*z* = 1.414, *p* < .157 and *z* = 1.342, *p* < .180, respectively) (Table 4).

Measures of gambling frequency

Regarding gambling episodes in the experimental group, the number of gambling episodes in the previous month went down in a significant way between pre- and posttreatment (*z* = 3.830, *p* < .001) and between the pretreatment and the 12-month follow-up (*z* = 3.047, *p* < .002). However, there was an increase of the gambling episodes between the 1-month follow-up and the 12-month follow-up (*z* = 2.403, *p* < .016). In turn, gambling episodes increased significantly in the control group between pretreatment and 3-month follow-up (*z* = 3.158, *p* < .002) (Table 5).

The amount of money spent weekly on gambling was reduced considerably in the experimental group between the pretreatment and the 12-month follow-up (*z* = 3.922, *p* < .001), but there was an increase of the amount of money spent between the 3- and the 12-month follow-ups (*z* = 3.924, *p* < .001). In turn, the amount of money spent between the pretreatment and the 3-month follow-up increased significantly in the control group (*z* = 3.354, *p* < .001) (Table 6).

Table 4
Success rates in the different assessments in the experimental group.

Sample (<i>N</i> = 23)	Posttreatment evaluation		1-Month follow-up		3-Month follow-up		6-Month follow-up		12-Month follow-up	
	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%
Therapeutic success	17	73.9	18	78.3	17	73.9	16	69.6	14	60.87
Therapeutic failure	6	26.1	5	21.7	6	26.1	7	30.4	9	39.13

Discussion

This study is the first controlled clinical trial to examine the effectiveness of a cognitive-behavioural program to cope with pathological gambling in individuals with schizophrenia. An improved understanding of pathological gambling behaviours among psychotic patients is needed to better understand the clinical impact of specific levels of gambling within individuals in treatment for psychotic disorders (Desai & Potenza, 2009). Gambling behaviour should be routinely investigated as part of all psychiatric assessments. Taking note of behaviours consistent with PG in individuals with schizophrenia – for example, frequent missed appointments, poor medication adherence, and financial or legal problems – and obtaining collateral information from family members, case managers, and significant others may be very helpful. Honest reporting of actual gambling is most likely to occur if the clinician establishes a nonjudgmental therapeutic alliance when assessing a patient who may have a co-occurring addiction (Green et al., 2007). The identification of problem gambling in individuals with schizophrenia by health professionals can lead to early recognition and treatment, thus limiting severe adverse consequences (Borras & Huguelet, 2007).

Cognitive and behavioural therapy is an empirically supported intervention with high rates of positive outcomes in the management of problem gambling (Dowling, Smith, & Thomas, 2007; Ladouceur et al., 2003). In this study, individuals dually diagnosed with PG and chronic schizophrenia have benefited from medication and supportive psychological treatment to cope with PG. Thus, the improvement rate in the experimental group was 73.9% (with all patients being treatment completers), versus 19% in the control group at the 3-month follow-up. Actually, control group patients worsened as to gambling episodes and amount of money spent weekly on gambling between pretreatment and the 3-month follow-up. However, the improvement of the experimental group, with specific regard to reduction of gambling episodes and of amount of money spent on gambling, tends to become weaker at 6- and 12-month follow-up. As in other studies with pure pathological gamblers (Echeburúa, Báez, & Fernández-Montalvo, 1996; Echeburúa, Fernández-Montalvo, & Báez, 2000), this modified

Table 5
Gambling episodes in the experimental and control groups.

Experimental group											
Pretreatment evaluation		Posttreatment evaluation		1-Month follow-up		3-Month follow-up		6-Month follow-up		12-Month follow-up	
M	SD	M	SD	M	SD	M	SD	M	SD	M	SD
17.57	8.067	1.5	1.518	1	2.271	1.1	2.062	3	4.163	5.55	6.968
Control group											
Pretreatment evaluation						3-Month follow-up					
M	SD					M	SD				
15.67	8.558					41.78	30.827				

Table 6
Amount of money spent weekly in gambling in the two groups.

Experimental group											
Pretreatment evaluation		Posttreatment evaluation		1-Month follow-up		3-Month follow-up		6-Month follow-up		12-Month follow-up	
M	SD	M	SD	M	SD	M	SD	M	SD	M	SD
41.65	51.07	11.45	28.758	11.40	38.084	7.80	19.174	36.75	148.098	47.11	154.796
Control group											
Pretreatment evaluation						3-Month follow-up					
M	SD					M	SD				
37.48	64.80					674.78	1373.075				

cognitive-behavioural therapy (stimulus control and gradual in vivo exposure with response prevention) has proven to be an evidence-based psychosocial intervention for patients with these dual diagnoses.

An important conclusion of this study refers to its cost-effectiveness in a naturalistic setting. External validity can be regarded as a primary strength of the study. The possibility of implementing a brief intervention for PG in schizophrenics with dual diagnoses could lead to a considerable cost saving, especially in public Mental Health Centres, which are currently very often overwhelmed by the number of patients in search of treatment.

There is growing evidence for the effectiveness of psychosocial interventions, such as motivational interviewing and cognitive-behavioural therapy in order to cope with specific needs of people with dual diagnosis. However, there are serious implementation barriers related to service organization, staffing levels, training, and – most importantly – the difficulties of engaging people with a severe mental illness and an addictive disorder in treatment (Abbou-Saleh, 2004).

Programs that combine pharmacotherapy and psychosocial treatments for PG into a single comprehensive package are most likely to have good treatment outcomes, at least with regard to treatment retention. Integrated treatment programs for dual-diagnosis patients should include staged interventions tailored to the patient's motivation for change (e.g., the use of assertive outreach to engage patients in treatment and motivational interviewing techniques to develop motivation to address addictive behaviour); comprehensive services (e.g., medication management, rehabilitation, and social support interventions); and a long-term perspective, since relapse is a common occurrence (Green et al., 2007).

A challenge for the long-term abstinence is to help the patients evaluate the cost–benefit ratio of continued gambling (decisional balance in Motivational Enhancement Therapy) and build individual goals and a supportive environment conducive to abstinence, as well as to help them learn to anticipate and cope with crises (Ziedonis et al., 2009). This research documents the need for best practice recommendations in the management of these specific co-occurring disorders that can be translated into routine clinical care.

However, there are a number of methodological and practical problems faced by researchers in this area. For instance, there is a lack of validated outcome measures for both PG and psychotic illnesses for these patients. The self-report may be particularly unreliable in these patients. It is also difficult to blind raters to treatment conditions. In terms of treatment design, there is a need for manualized treatments and assessments of treatment adherence. Since the population of mentally ill pathological gamblers is heterogeneous, it would be interesting to evaluate a patient-treatment matching strategy intended to improve the effectiveness and cost-effectiveness of treatment for these dual-diagnosed patients (Chen, Barnett, Sempel, & Timko, 2006).

This study has some limitations. In this trial, the sample size is relatively small and there is only a short-term follow-up period. In addition, the sample does not include people with schizophrenia who are not receiving care. The extent to which our findings will be replicated in studies of patients in other health care systems remains also to be determined. Further studies should include larger samples of patients with this dual pathology and a longer follow-up control in order to better investigate the best treatment modalities (Potenza & Chambers, 2001). Finally, future research should be concerned about the statistical power of the studies, take into account the control of non-specific treatment effects, implement motivational strategies for patients with poor medication adherence and design measures to study treatment fidelity in the CBT groups.

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