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Comparative Effectiveness of Three Therapeutic Modalities in the Psychological Treatment of Pathological Gambling: Long-Term Outcome

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The aim of this paper was to test the comparative effectiveness of three therapeutic modalities: a) individual stimulus control and exposure with response prevention; b) group cognitive restructuring; and c) a+b in the treatment of pathological gambling with slot machines. An additional waiting-list group was used to evaluate the spontaneous evolution of the non-treated gamblers. The sample consisted of 64 patients selected according to DSM-III-R criteria. A multigroup experimental design with repeated measures (pretreatment, posttreatment and 1, 3, 6 and 12–month follow-up) was used. Most treated patients gave up gambling as well as improved, albeit more slowly, in family/social and psychological functioning. The success rate was higher in the individual treatment compared both to group and combined treatment. There was also an improvement in gambling in the control group between the pretreatment and the 6–month follow-up and there was no difference between the combined treatment and control group. Individual stimulus control and exposure with response prevention appears to be a cost-effective therapy for pathological gambling. Implications of this study for clinical practice and future research in this field are discussed.

Introduction

Pathological gambling is a behavioural disorder that has begun only in recent years to be the object of study from a psychopathological and therapeutic perspective. According to the DSM-IV (American Psychiatric Association, 1994), the syndrome is characterized by emotional dependency

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on gambling, loss of control, and interference with normal functioning in daily life. At the same time, other associated clinical problems are not uncommon, such as depression, the risk of suicide and abusive consumption of alcohol (Echeburúa, 1993; McCormick and Ramírez, 1988).

The prevalence of pathological gambling ranges from 0.5% to 1.5% of the adult population in several countries (e.g., Allcock, 1986; Volberg and Steadman, 1988), but in Spain this percentage could be even greater, with a rate of up to 1.7% of pathological gamblers and an additional 3% of subjects at risk (Becoña, 1992, 1993; Legarda, Babio and Abreu, 1992). The growing and uncontrolled expansion of slot machines and bingo halls in Spain is, for the most part, responsible for this problem. The outcome of the above has been an impressive increase in the demand for treatment.

The addictive power of slot machines is very high. In the first place, they are very widespread and the cost of betting is low. In the second place, the time lapsed between placing the bet and its outcome is very brief. Third, the intrinsic functioning of these machines provides a certain *illusion of control.* And finally, the lights, the music and the clinking of the coins arouse emotional tension and great psychophysiological activation (Echeburúa, 1992; Echeburúa and Báez, 1994a).

The increase in the demand from gamblers for clinical assistance gives great importance to the therapeutic approach. From this point of view, the situation is, however, less than satisfactory. Except for the studies by the McConaghy group (Blaszczynski, McConaghy and Frankova, 1991; McConaghy, Armstrong, Blaszczynski and Allcock, 1983, 1988), there is hardly any controlled clinical research on the differential effectiveness of therapies with clear criteria for success and systematic follow-ups. The suggested treatments vary from intensive programs, such as the inpatient programs carried out together with alcoholics (Taber, McCormick, Russo, Adkins and Ramírez, 1987), to proposals based on simple techniques—relaxation or imagined desensitization—which can be applied to a great number of patients and do not require a large investment of time or money (McConaghy, Blaszczynski and Frankova, 1991).

At the present time, the treatment has changed from the multimodal programs employed during the decade of the 1980s (e.g., González, 1989; Taber *et al.*, 1987) to some more specific cognitive-behavioural or pharmacological interventions, but there still does not exist a choice therapy for the treatment of pathological gambling (Echeburúa and Báez, 1990, 1994b). Actually, the heterogeneousness of the therapeutic techniques suggested up to now reveals a lack of accurate knowledge. In fact, studies on the comparative effectiveness in the long-term among such differentiated therapeutic approaches are not available. In addition, the programs presented are excess-

ively generic and hardly detailed, especially from two points of view: the selection of patients and the types of gambling involved (Blaszczynski, 1993).

For these reasons, in this study we have put special emphasis on making the sample of patients homogeneous with strict criteria for admission and on limiting the study to pathological gamblers whose dependency is on slot machines.

The main aim of our research is to compare different programs of intervention for dependency on slot machines – the type of gambling with the greatest addictive capacity and for which the greatest therapeutic assistance is demanded – and to contribute in this way to the search for a choice therapy for this psychopathological disorder. The therapeutic goal chosen is complete abstinence from gambling, which seems to be the most adequate for obtaining control in the long-term (Blaszczynski *et al.*, 1991; Echeburúa and Báez, 1990).

In the selection of treatments tested, the following criteria were taken into account: they are psychological therapies, they are applied on an outpatient basis, each has a sound theoretical background, and none has sufficient empirical support in its application to this disorder. Thus, we compared exposure with response prevention treatment, along with evaluating the simultaneous application of both therapeutic modalities. The reason for selecting the stimulus control and exposure with response prevention treatment was that this therapeutic approach has proven to be successful in other addictive behaviours, like alcohol dependence (Drummond and Glautier, 1994). On the other hand, cognitive restructuring seems to be an appropriate treatment since cognitive distortions play an important role in the gambling behaviour of pathological gamblers (Griffiths, 1994). A waiting-list control group was used, the objective of which was to record the behaviour of non-treated pathological gamblers over a period of six months, thus obtaining more reliable conclusions about the efficacy of the treatments.

With respect to the type of outcome measures used, we relied on self-reports, since it is not practical to use objective measures in the evaluation of this disorder. Nevertheless, the data obtained from the patients have been corroborated with information obtained from family members. Collaborative reports have been shown to increase the validity of the evaluation (Blaszczynski *et al.*, 1991; Lesieur and Blume, 1987).

Method

Subjects

The sample for this study consisted of patients who sought treatment at the Program of Pathological Gambling at the Rentería Mental Health Centre (Basque Country) during the period from February 1990 to May 1992.

According to the criteria for admission to the study, the patients had to: a) meet the diagnostic criteria of pathological gambling according to the DSM-III-R (American Psychiatric Association, 1987); b) have a score equal to or above 8 in the South Oaks Gambling Screen (SOGS) (Lesieur and Blume, 1987) in order to prevent from false positive patients; c) not be suffering from another psychopathological disorder; and d) gamble primarily with slot machines. The adoption of the last two requirements responds to the goal of focusing on "pure" gamblers (unafflicted by other clinical disorders) and on a homogeneous sample regarding the type of gambling involved.

After screening the 142 subjects who came to the therapeutic program for pathological gambling during this period—84% of whom played the slot machines—the sample of patients was reduced to 64 subjects. The main reasons for exclusion from the study of the 78 other gamblers were the following: a) they suffered from another serious behavioural disorder (mainly alcholism, psychosis or bipolar disorder) (n=31); b) they mainly gambled in ways other than with slot machines (n=19); c) they received a score of less than 8 on the SOGS (n=8); and d) they refused treatment (n=9).

Regarding the most significant demographic characteristics of the sample selected (n=64), the mean age is 35 years (SD=11) and there was a ratio of 4:5 men to women, which is similar to the ratio presented in other studies (McConaghy *et al.*, 1991; Saiz-Ruiz, Moreno and López-Ibor, 1992). The socioeconomic level of the sample was middle- to lower-middle class.

As can be seen in Table 1, gambling behaviour is characterized in mean

TABLE 1. Gambling characteristics of research sample

	Total (N=64)	Individual treatment (N=16)	Group treatment (N=16)	Combined treatment (N=16)	Control group (N=16)
Gambling frequency	6.5 times/week	5.5 times/week	7.1 times/week	7.8 times/week	5.3 times/week
Money invested in gambling	9,961 pts/week	8,968 pts/week	10,375 pts/week	11,343 pts/week	9,156 pts/week
Time invested in gambling	5.8 hours/week	5.6 hours/week	7.1 hours/week	5.9 hours/week	3.4 hours/week

values as being frequent (6 times/week), entailing a considerable amount of money invested (10,000 pts./week, approx. $100 US at current rate of exchange), and involving a substantial amount of time (6 hours/week).

Experimental design

The design utilized is a multigroup experimental design with repeated measures. A waiting-list control group was used in order to evaluate the spontaneous remission of non-treated patients. The assessment of all the subjects in the experimental groups was carried out at pretreatment, at intratreatment, at posttreatment, and at 1–, 3–, 6– and 12–month follow-ups. The subjects of the control group were only assessed at pretreatment and at the 6–month follow-up.

Patients were randomly assigned to the four groups. The treatment modalities used were the following: a) individual stimulus control and exposure with response prevention; b) group cognitive restructuring; c) combined treatment of A+B; and d) the waiting-list control group.

Assessment measures

Interviews. A structured interview on the gambling history was carried out (45 minutes) only in the first assessment, the objective of which was to gather data relating to the beginning and subsequent development of the gambling problem.

Assessment of dependency on gambling. The assessment tools, related directly to pathological gambling, were the South Oaks Gambling Screen (SOGS) (Lesieur and Blume, 1987) and the Gambling Dependent Variables Questionnaire (Echeburúa and Báez, 1994a).

The SOGS is a screening questionnaire composed of 20 items which are related to, among other things, gambling behaviour, loss of control, the sources for obtaining money and the emotions involved. The range is from 0 to 20. According to Lesieur and Blume (1987), a score higher than 5 (the cut-off point) serves to identify probable pathological gamblers. In this study, however, a score of 8 was used as the cut-off point in order to increase the specificity of the questionnaire. This tool is used only in the first assessment because it is not a test sensitive to therapeutic change.

According to its authors, the four-week test-retest reliability is .71 and the internal consistency is .97. From the perspective of convergent validity, the correlation with the clinical assessment of pathological gambling according to the diagnostic criteria of the DSM-III-R is .94, and it is .60 with the assessment by a patient's family member.

The Gambling Dependent Variables Questionnaire consists of 5 items related to the amount of money, the frequency, and the time dedicated

weekly to gambling on average. The patient's perception of the seriousness of the frequency, time and money invested in gambling is also evaluated, along with the frequency of thoughts about gambling and the subjective need to play: this is called the patient's subjective indicator. The scores vary from 0 (nothing) to 4 (very much) on a Likert-type scale, and the range of the questionnaire is from 0 to 20. Two formats of this questionnaire were used (one version for the patient and another one for the family) in all the assessments.

Assessment of associated psychopathological symptoms. In addition to gambling-related measures, other psychopathological indicators habitually associated with gambling were evaluated: depression, anxiety and lack of adaptation to daily life. Tools were used that have been shown to be sensitive to therapeutic change.

The Beck Depression Inventory (BDI) (Beck, Ward, Mendelsohn, Mock and Erbaugh, 1961) consists of 21 items and measures the intensity of symptoms of depression. The range of scores is from 0 to 63. The coefficient of reliability by the split-half method is .93. From the perspective of convergent validity, the correlation to the clinical evaluation of depression varies from .62 to .66.

The State-Trait Anxiety Inventory (STAI) (Spielberger, Gorsuch and Lushene, 1970) consists of 20 items related to anxiety-trait and another 20 related to the anxiety-state. The range of scores is from 0 to 60 on each scale. The test-retest reliability is .81 for anxiety-trait, and, as to be expected, quite a bit lower for the anxiety-state (.40). Its internal consistency varies from .83 to .92.

The anxiety-trait scale is not included in this study. A brief therapeutic intervention can not have as one of its goals the modification of a stable variable of personality.

The Adaptation Scale (Echeburúa and Corral, 1987) reflects the extent to which gambling affects different areas of daily life: work, social life, free time, marital adjustment, and family adjustment. This tool, with 6 items that range from 1 to 6 on a Likert-type scale, is also composed of a global subscale which reflects the degree of global inadaptation to daily life. The range of the total scale is from 6 to 36 (the higher the score, the greater the inadaptation).

Therapeutic modalities

Stimulus control and gradual "in vivo" exposure with response prevention. The control of stimuli refers basically to maintaining control of money and to avoiding *situations or routes of risk*. As treatment advances, the control of stimuli is gradually faded.

The gradual *in vivo* exposure with response prevention forces the subject to experience the desire to gamble and to learn to resist this desire in a gradually more self-controlled way. The aim of the systematic exposure to cues and situations of risk is to make them lose their power to induce urge and gambling behaviour.

These two techniques were used jointly in an individual therapy format. The control of stimuli can stop gambling behaviour, but if planned exposure is not carried out, the probability of relapse in the relatively near future is greater. A detailed diary of the sessions, along with the corresponding homework, is included in Echeburúa and Báez (1994b).

Group cognitive restructuring therapy. Each group, led by a therapist, consisted of five or six participants. The general aims of the group sessions were: to facilitate contact with other people who are in the same situation as the patient, to provide the opportunity to communicate difficulties with gambling to other people who have a similar problem (thus lying or self-deception is less probable), to look for common solutions, and to give mutual support. After the presentation of the treatment rationale, patients were trained to identify the cognitive distortions, mainly the ones related to the "illusion of control" on gambling behaviour and to the memory bias about gains and losses, to question and to substitute them by other more realistic thoughts related both to gambling behaviour and to their own dependence on gambling.

The diary of the sessions, with the specific objectives for each one, the method employed and the corresponding homework are included in Echeburúa and Báez (1994b).

Combined treatment. The patients assigned to this experimental condition received both of the above-described treatments simultaneously. In contrast to the previous modalities, the patients in this modality came two times a week to the Mental Health Centre. Although the number of hours of treatment was double, the total duration of the program (six weeks) was the same.

Procedure

The program of assessment and treatment, conducted jointly by the director of the research project—the first author of this paper—and the therapist, was tested on a pilot-study basis with a sample of eight patients before actually beginning the study.

Assessment. In the selection phase, an interview based on the diagnostic criteria of the DSM-III-R and the SOGS were used as screening tests in order to determine which subjects would take part in the study. The patients

who met the criteria for admission were randomly assigned to one of the four modalities according to when they arrived at the Mental Health Centre.

The pretreatment assessment tools were applied to the patients selected, and the content of the therapy was explained to them. The following evaluations—always in the framework of a personal interview—took place during posttreatment and in the 1–, 3–, 6– and 12–month follow-ups. In addition to these global evaluations, during intratreatment (the third week) the gambling indicators were measured by the Gambling Dependent Variables Questionnaire. Finally, the control group was evaluated at the pretreatment and at the 6–month follow-up.

Treatment. The therapist who carried out the assessment and treatment of all of the patients—the second author of this paper—is a clinical psychologist with nine years of experience in cognitive-behavioural treatment of numerous psychopathological disorders at a Mental Health Centre. Before undertaking this study, she received specific training in the clinical problems of pathological gambling.

The general characteristics of the therapeutic procedure in each one of the clinical modalities are described in Table 2.

TABLE 2. Characteristics of therapeutic modalities

Treatment	Modality	Duration	Weekly sessions	Total hours
Stimulus control and gradual *in vivo* exposure with response prevention	Individual	6 weeks	1	6.5
Group cognitive restructuring therapy	Group	6 weeks	1	6
Combined treatment	Individual + Group	6 weeks	2	12.5

For ethical and motivational reasons, the patients assigned to the control group were kept on the waiting list only until the 6–month follow-up.

Results

The total sample was made up of 64 subjects, 16 of whom were randomly assigned to each one of the four modalities. The patients demonstrated a strong dependency on gambling. The average score on the SOGS was 11.5 (SD=2.2), with a range from 8 to 18.

The distribution of the sample followed a normal curve in all the measures. The four groups were homogeneous before treatment as regards demographic variables and psychopathological measures. In the SOGS—

the central measurement of the seriousness of gambling in the pretreatment—the results of the ANOVA were: F (3,60)=0.37 (n.s.).

Once the differential characteristics of the patients who dropped out of the study (n=14) were analysed in all the variables, only age differentiated them significantly from the rest (t=2.28; p<.05). The mean age of the subjects who dropped out (M=40.54; SD=11.96) was greater than that of those who continued (M=33.43; SD=10.39).

From the perspective of validity of the subjects' self-reports, the correlation between the family member's assessment and the patient's subjective indicator, albeit significant (r=.39; p<.01), accounted for only 16% of the overall variance.

Rate of success and failure: comparison among the groups

In this study "therapeutic success" was defined as abstinence or the occurrence of only 1 or 2 episodes of gambling during the 12 months (6 months in the control group) following therapy, provided that the total amount of money spent was not greater than a week's worth of gambling in the phase prior to treatment. From a strict point of view, in the rate of "failures" both the failures and the drop-outs were included.

The differences among the groups began to appear at the 6–month follow-up. In this evaluation, the patients treated in the experimental conditions (n=39) showed, as a group, a rate of success (59%) higher than that of the patients who did not receive treatment (n=12) in the control group (25%). This difference was statistically significant: X^2 (50)=2.42 (p<.05).

Comparing the different therapeutic modalities among themselves in this

TABLE 3. Rate of success and failure in the 6– and 12–month follow-ups in the therapeutic modalities (N=64)

	6–month follow-up			
	Individual treatment n=16	Group treatment n=16	Combined treatment n=16	Control Group n=16
Success (n=32)	12 (75%)	10 (62.5%)	6 (37.5%)	4 (25%)
Failure (n=32)	4 (25%)	6 (37.5%)	10 (62.5%)	12 (75%)
	12–month follow-up			
	Individual treatment n=16	Group treatment n=16	Combined treatment n=16	
Success (n=23)	11 (68.8%)	6 (37.5%)	6 (37.5%)	
Failure (n=25)	5 (31.3%)	10 (62.5%)	10 (62.5%)	

6–month follow-up period, the results are shown in Table 3. The individual therapy was not different from the group treatment (X^2=0.60; n.s.) and was significantly better than either the combined treatment (X^2=1.98; $p<.05$) or the control group (X^2=2.77; $p<.01$). On the other hand, the group therapy was similar to the combined treatment (X^2=1.40; n.s.) and significantly better than the control group (X^2=2.21; $p<.05$). Finally, between the combined treatment and the control group there were no significant differences (X^2= 0.70; n.s.).

The data corresponding to the 12–month follow-up are found in Table 3. The results continue along the same lines as in the previous follow-up, with the exception that at 12 months the individual treatment was also superior to the group treatment (X^2=1.78; $p<.05$). The individual therapy, therefore, was found to be the most effective therapy.

Results of gambling dependent variables and of the psychopathological measures

The criteria for success correlated significantly in all cases ($p<.001$) to the gambling dependent variables. That is, with the frequency of gambling behaviour (r=.65), the amount of money spent (r=.66) and the time invested (r=.65). Nevertheless, frequency was the variable which proved to be the most sensitive to therapeutic change.

Between-group analysis. The means, the standard deviations and the *F*-values of the gambling dependent variables and of the psychopathological measures studied at different times in the assessment are shown in Tables 4 and 5, respectively. The only differences between the groups appeared at the 6–month follow-up.

Concerning the gambling variables, in the ANOVA of independent measures there were significant differences only in the subjective indicator (F=5.96; $p<.01$), in the family-member assessment (F=8.15; $p<.001$) and in the frequency of gambling (F=5.58; $p<.001$). The post-hoc LSD test revealed, on the one hand, the superiority of the therapeutic groups with respect to the control group in all these variables, and on the other hand, the lack of differences among the experimental groups themselves (Table 6).

Concerning the psychopathological measures, in the ANOVA there were significant differences in depression (F=5.60; $p<.01$) and in inadaptation (F= 2.68; $p<.05$), but not in anxiety (F=0.86; n.s.). In the case of depression, the therapeutic groups were significantly superior to the control group, but homogeneous among themselves; in the case of inadaptation, the only significant difference was that which existed between the individual treatment modality and the control group (Table 6).

At the 12–month follow-up the results were similar to the previous

TABLE 4. Means, standard deviations and *F*-values in gambling dependent variables

	Individual treatment		Group treatment		Combined treatment		Control group		
	M	(*SD*)	*M*	(*SD*)	*M*	(*SD*)	*M*	(*SD*)	*F*
Subjective indicator (0–20)									
Pretreatment	13.9	(2.9)	13.7	(2.6)	14.5	(2.5)	14.7	(2.1)	0.57
Posttreatment	1.6	(1.6)	1.8	(2.1)	1.8	(1.6)			0.14
6 months	2	(2.4)	1.8	(1.9)	2.4	(3.7)	7.2	(5.7)	5.96*
12 months	1.8	(2.5)	3.5	(4.1)	3.3	(4.4)			0.80
Family member assessment (0–20)									
Pretreatment	13.4	(3)	13.7	(3.1)	13.9	(2.8)	14.8	(2.6)	0.65
Posttreatment	2.1	(2.3)	2.2	(1.6)	1.9	(1.6)			0.08
6 months	2.4	(2.8)	2.7	(2.9)	4.4	(4.7)	9.9	(6.1)	8.15**
12 months	2.3	(3.6)	3.5	(3.7)	3.5	(3.9)			0.47
Frequency									
Pretreatment	5.6	(3.2)	7.1	(5.1)	7.9	(6.9)	5.3	(4.5)	0.93
Posttreatment	0		0		0				-
6 months	0.14	(0.36)	0.23	(0.4)	0.61	(0.96)	2	(2.5)	5.58**
12 months	0.3	(0.6)	1.1	(1.4)	1.4	(2.8)			1.29
Money spent (Pts)									
Pretreatment	8,968	(7,654)	10,375	(6,800)	11,344	(8,973)	9,156	(5,801)	0.36
Posttreatment	0		0		0				-
6 months	643	(1,736)	769	(2,214)	1,725	(3,498)	2,166	(2,588)	1.07
12 months	114	(279)	2,346	(5,011)	1,000	(2,683)			1.58
Time[1]									
Pretreatment	336	(353)	426	(395)	354	(222)	285	(208)	0.58
Posttreatment	0		0	0				-	
6 months	4	(11)	21	(66)	37	(63)	62	(72)	2.38
12 months	2.5	(5.5)	20.7	(50.6)	16.4	(36.4)			0.96

[1]The figures of this section are referred to weekly minutes invested in gambling
*$p<.01$ **$p<.001$

follow-up. With the disappearance of the control group, differences were not observed among the therapeutic groups either in the gambling dependent variables or in the psychopathological variables.

Within-group analysis. In Tables 7 and 8 *F*- and *t*-values are shown, at each assessment interval, of the ANOVA of repeated measures for the main

TABLE 5. Means, standard deviations and *F*-values of psychopathological variables

	Individual treatment		Group treatment		Combined treatment		Control group		
	M	(*SD*)	*M*	(*SD*)	*M*	(*SD*)	*M*	(*SD*)	*F*
Depression (BDI) (0–63)									
Pretreatment	17.6	(8.9)	19.2	(8.7)	19.6	(8.2)	21	(13.2)	0.31
Posttreatment	10	(7.2)	15.5	(11.5)	8.9	(6.6)			2.25
6 months	5.3	(5.5)	7.5	(5.4)	6.7	(7.1)	16.1	(10.3)	5.6*
12 months	6.3	(6.8)	8.8	(7.3)	6.4	(6.9)			0.55
Anxiety (STAI) (0–60)									
Pretreatment	30.2	(12.7)	35.7	(11.4)	30	(13.9)	26.6	(14.2)	0.34
Posttreatment	20.5	(11.6)	24.1	(14.7)	19	(8.1)			0.63
6 months	11.6	(12.1)	13.2	(9.5)	13.3	(9.2)	18.5	(14)	0.86
12 months	17.8	(14.1)	17.6	(12.1)	13.6	(11.8)			0.40
Inadaptation (Adaptation Scale) (6–36)									
Pretreatment	16.4	(4.2)	17.2	(4.1)	17	(4.4)	15.9	(5.3)	0.25
Posttreatment	10.2	(4.2)	13.6	(7)	12	(4.3)			1.47
6 months	7.3	(2.9)	9.1	(4.2)	9.9	(5)	12.2	(5.5)	2.68*
12 months	10.3	(5.1)	11	(4.6)	13.9	(8.7)			1.09

*$p<.01$

gambling dependent variables and the psychopathological measures of all of the groups. The description of all these measures during the whole treatment is represented by Figures 1 and 2.

In all the gambling dependent variables in the experimental groups, both an improvement between the pre- and posttreatment phases (and between the pre- and the intratreatment assessment) and a continuation of the therapeutic results up to the 12–month follow-up were seen. On the other hand, the control group also improved significantly between pretreatment and the 6–month follow-up in the variables (e.g., $t=3.34$; $p<.01$ in the patient's subjective indicator), except in gambling frequency ($t=2.17$; n.s.).

Concerning the psychopathological variables (depression, anxiety and inadaptation), the change was somewhat different. In the experimental groups a significant improvement was made between the pre- and posttreatment, which tended to increase until the 6–month follow-up. In contrast, in the control group there was no spontaneous remission of psychopathological behaviours. Regarding the 12–month follow-up, some deterioration

TABLE 6. Treatment effects (*F*-value) and between-group comparisons (post-hoc LSD test) in the 6–month follow-up

Variables	Treatment effects	Between-group comparisons LSD					
		Gr.1 vs Gr.2	Gr.1 vs Gr.3	Gr.1 vs Gr.4	Gr.2 vs Gr.3	Gr.2 vs Gr.4	Gr.3 vs Gr.4
	F(3,47)	(*p*)	(*p*)	(*p*)	(*p*)	(*p*)	(*p*)
Gambling dependent variables							
Subjective Indicator	5.96**	-	-	.01	-	.01	.01
Family member assessment	8.15***	-	-	.01	-	.01	.01
Frequency	5.58***	-	-	.01	-	.01	.01
Money spent	1.07	-	-	-	-	-	-
Time	2.38	-	-	-	-	-	-
Psychopathological variables							
Depression (BDI)	5.60**	-	-	.01	-	.01	.01
Anxiety (STAI)	0.86	-	-	-	-	-	-
Inadaptation	2.68*	-	-	.01	-	-	-

*$p<.05$
**$p<.01$
***$p<.001$

Gr.1.: Individual treatment
Gr.2.: Group treatment
Gr.3.: Combined treatment
Gr.4.: Control group

was observed in these variables, which was only significant in the case of inadaptation in the individual (t=3.77; $p<.01$) and combined (t=2.80; $p<.05$) groups.

Refusals, drop-outs, and relapses

The total number of refusals of treatment was 9 out of an initial total sample of 142 subjects (6.3%). These were patients who sought treatment due to pressure from the family or at the workplace, who demonstrated a passive rejection of any type of therapy, and who were characterized by their denial of the illness.

The number of drop-outs in all phases of the study was 14, which constituted 21.9% of the subjects who initiated treatment. There were no significant differences among the different modalities—not even between the experimental groups and the control group—regarding the different time of the therapeutic program in which the subjects dropped out, though they tended to take place, on the one hand, at the outset of treatment, and, on the other hand, in the combined and control groups.

The relapses between posttreatment and the 12–month follow-up affected 15 subjects (31.2% of the sample treated). From a qualitative point of view, the relapses appeared to be distributed through the entire follow-up period, but with a notable incidence (46.6% of the cases) during the first month.

TABLE 7. Within-group comparisons (*F*- and *T*-values) in gambling dependent variables

	Individual treatment (n=14)	Group treatment (n=13)	Combined treatment (n=12)	Control group (n=12)
Subjective indicator	F=93.89**	F=36.87**	F=76.74**	
	t	t	t	t
Pre-Post	13.26**	17.51**	14.67**	
Pre-6 months	9.68**	12.30**	8.13**	3.34*
Post-6 months	0.72	0.2	0.37	
6–12 months	0.40	1.76	0.84	
Family member assessment	F=52.29**	F=30.55**	F=20.97**	
	t	t	t	t
Pre-Post	15.40**	11.98**	16.66**	
Pre-6 months	9.13**	7.91**	6.27**	2.39**
Post-6 months	0.31	0.50	0.8	
6–12 months	0.28	0.67	0.67	
Frequency	F=37**	F=31.92**	F=14.99**	
	t	t	t	t
Pre-Post	6.94**	6.27**	4.05**	
Pre-6 months	6.03**	5.77**	3.76**	2.17
Post-6 months	1.47	1.89	2.31*	
6–12 months	1.00	2.08	1.26	
Money spent	F=15.30**	F=20.17**	F=15.23**	
	t	t	t	t
Pre-Post	4.38**	5.68**	4.65**	
Pre-6 months	3.69*	5.36**	4.51*	3.85*
Post-6 months	1.38	1.25	1.70	
6–12 months	1.32	1.35	0.41	
Time	F=12.94**	F=13.32**	F=24.07**	
	t	t	t	t
Pre-Post	4.38**	4.06**	6.01**	
Pre-6 months	3.58*	3.83**	5.75*	3.61*
Post-6 months	1.38	1.13	1.99	
6–12 months	0.97	0.00	0.50	

*p<.01 **p<.001

At the same time, the relapses were more frequent in the combined group than in the individual treatment (X^2=1.77; p<.05).

Discussion

The validity of this study is derived from the equivalence of the groups in pretreatment in all evaluative measures and from the consistency of the

TABLE 8. Within-group comparisons (*F*- and *t*-values) in psychopathological variables

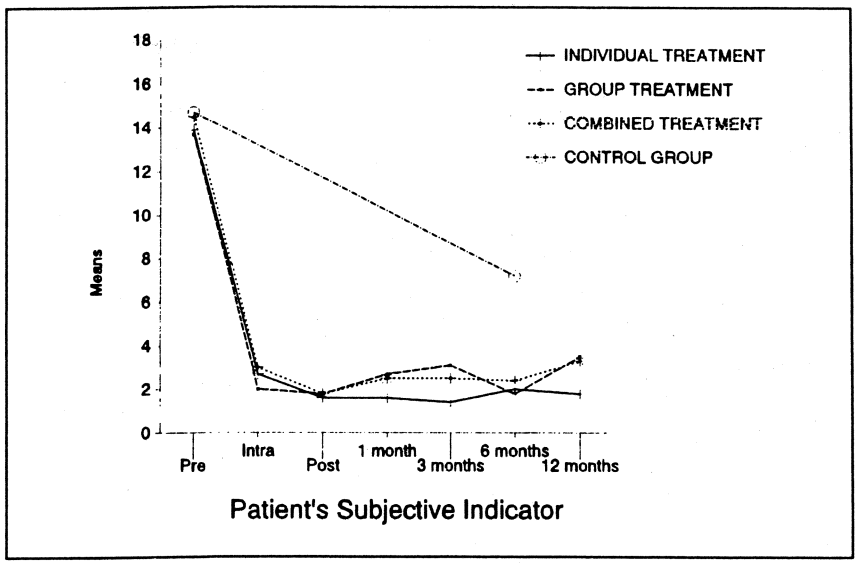
	Individual treatment (n=14)	Group treatment (n=13)	Combined treatment (n=12)	Control group (n=12)
Depression (BDI)	F=20.08***	F=12.59***	F=18.32***	
	t	*t*	*t*	*t*
Pre-Post	4.65***	1.58	4.57***	
Pre-6 months	6.78***	6.33***	4.32***	1.00
Post-6 months	4.05***	4.40***	2.15	
6–12 months	0.86	1.13	0.88	
Anxiety (STAI)	F=23.64***	F=17.41***	F=6.51***	
	t	*t*	*t*	*t*
Pre-Post	4.50***	4.21***	3.15***	
Pre-6 months	4.48***	7.02***	3.26***	1.35
Post-6 months	2.66*	3.42**	2.28*	
6–12 months	2.06	1.22	0.00	
Inadaptation	F=17.54***	F=11.74***	F=7.09***	
	t	*t*	*t*	*t*
Pre-Post	4.21***	2.14	3.15**	
Pre-6 months	7.97***	7.22***	3.48**	1.34
Post-6 months	2.72*	2.28*	1.65	
6–12 months	3.72**	1.06	2.80*	

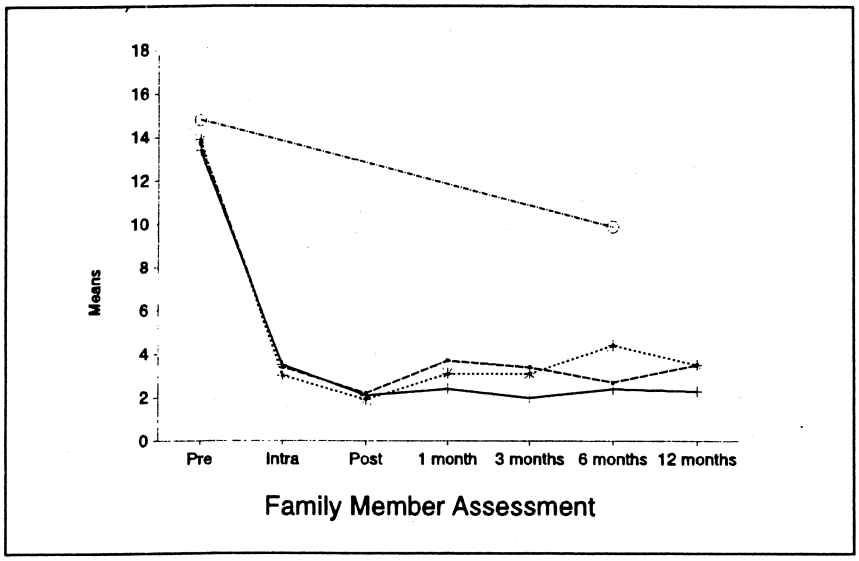
*p<.05 **p<.01 ***p<.001

results obtained in the different variables measured, as well as from the size and homogeneity of the sample, of the long-term follow-up and from the minimal loss of patients in the follow-ups, 4 (9.5%) out of the 42 subjects of the experimental groups that concluded treatment. In addition, the success of therapy has been assessed by multiple dependent variables (money, frequency, time, patient's subjective indicator and family member assessment), and appropriate tools have been designed for these assessments. On the other hand, in an attempt to avoid an overestimation of the probability of success in this study, we have included, following Blaszczynski's (1993) suggestion, the number of drop-outs in the number of failures.

As opposed to other studies (Blaszczynski *et al.*, 1991; Taber *et al.*, 1987), there was little relationship between the family member's report and the information given by the patient about his or her gambling behaviour. For this reason, the patients' self-reports were a limited procedure to obtain accurate information.

Some of the instruments used in this study, such as the Gambling Dependent Variables Questionnaire, have been specifically designed for assessing





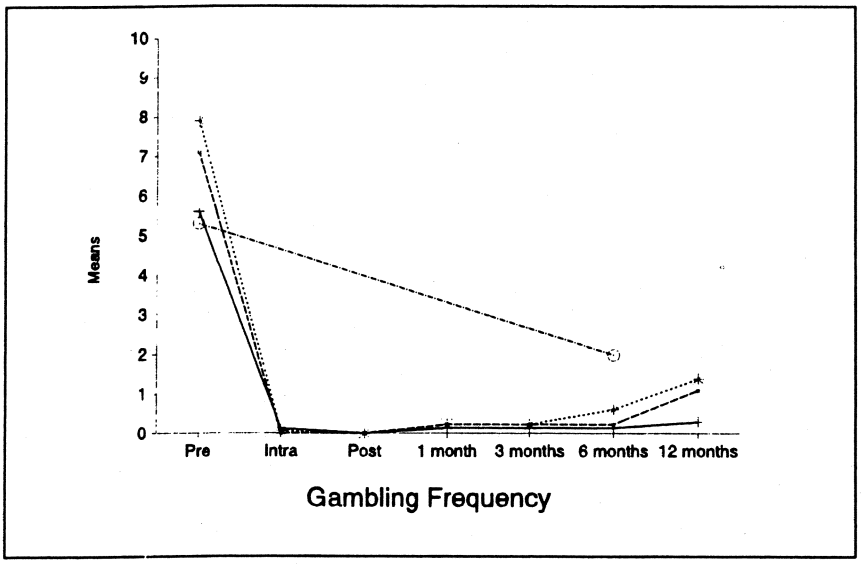
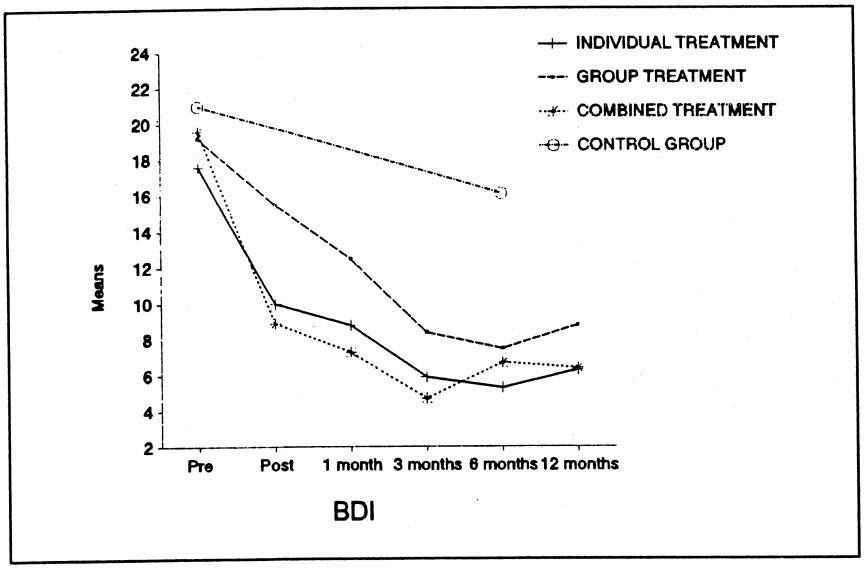
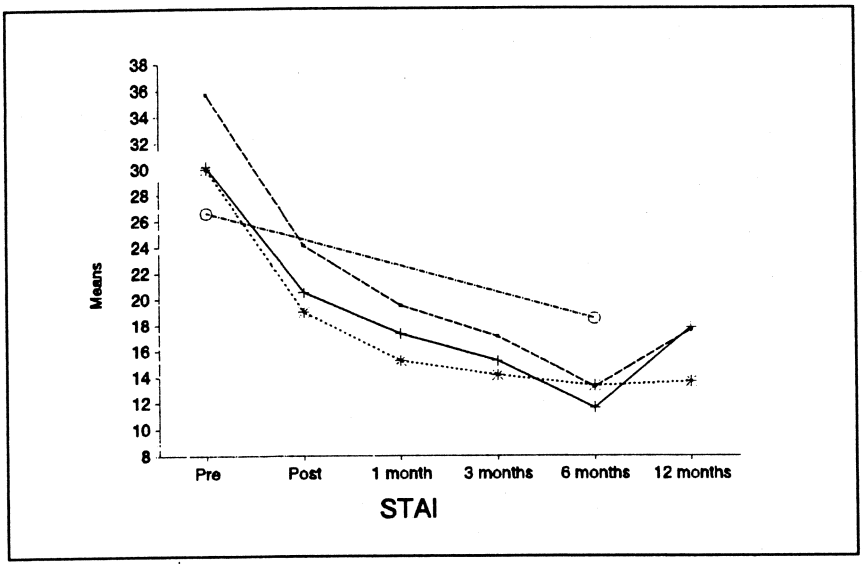


FIGURE 1. Evolution of gambling dependent variables





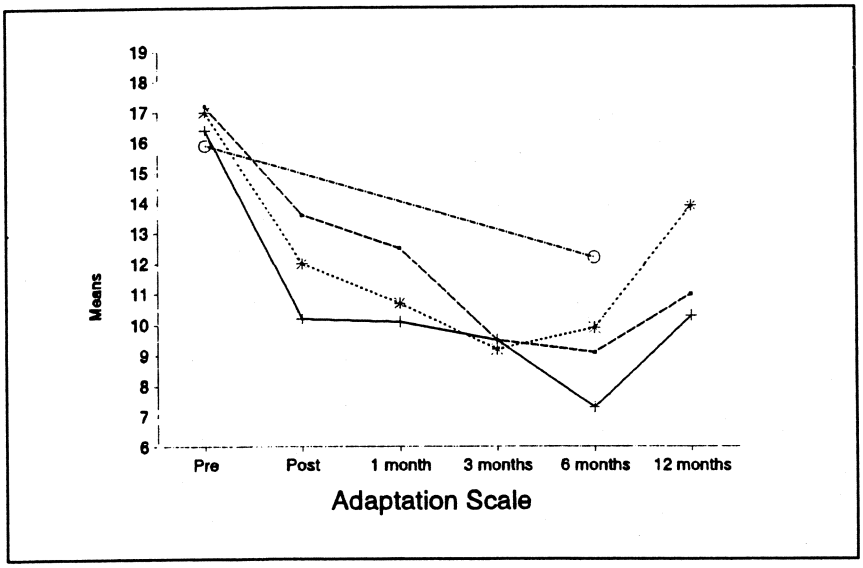


FIGURE 2. Evolution of physchopathologial variables

the gambling behaviour. These tools have shown to be sensitive to therapeutic change and so may be used in further research.

As occurs in other studies (Blaszczynski *et al.*, 1991; Taber *et al.*, 1987), pathological gambling was shown to be a behavioural disorder amenable to successful treatment. There was a therapeutic superiority in the subjects who received treatment over the patients in the control group, both in the gambling dependent variables and in the psychopathological measures.

From the point of view of the differential effectiveness of the therapeutic modalities, the differences began to manifest themselves at the 6–month follow-up. To be specific, the program of stimulus control and exposure with response prevention showed, at the end of a year, a higher success rate than does the group therapy or the combined treatment. At the same time, the success rate of the combined treatment was no higher than that of the control group. In contrast, there were no differences among the therapeutic modalities in the improvement of psychopathological variables.

Regarding therapeutic change, the profile was the same in all the experimental conditions in gambling dependent variables: a rapid improvement between the pre- and posttreatment (especially in the first three weeks) and a continuation of the therapeutic achievements as of this moment of evaluation. There was also a spontaneous remission in the control group—albeit smaller than in the therapeutic modalities—between the pretreatment and the 6–month follow-up.

As far as the psychopathological measures were concerned, the evolutionary profile in all the experimental conditions was similar, but different from the profile registered in the gambling dependent variables. The therapeutic change was slow and constant from the pretreatment to the follow-ups; that is, there was improvement between pre- and posttreatment, an improvement which was less remarkable than in the case of gambling behaviour, but which continued with the passage of time. In the control group, on the contrary, no significant remission of the psychopathological variables took place.

The three therapeutic modalities were effective to stop quickly the gambling behaviour, but were not so in maintaining abstinence, in which the individual therapy was demonstrated to be superior. What is surprising was the inferiority of the combined treatment in comparison to individual therapy, as well as the equal inferiority of the control group by the time of the 6–month follow-up—at least in the gambling dependent variables—when compared to the combined treatment.

To sum up, a simple treatment was more effective than a combined treatment. There are several factors that could explain this finding. In the first place, optimal application of an intensive treatment, such as the

combined one, could require a greater duration, and perhaps a different format: for example, the individual sessions at the beginning and the group sessions afterwards, instead of a simultaneous application as utilized in this study, might help the patient to more adequately assimilate the skills learned. In the second place, the termination of treatment could mean in this case an abrupt halt (going from two weekly sessions of treatment to none), which could favour the appearance of subsequent relapses. In the third place, from a cognitive perspective, the expectations of improvement on the part of the patients assigned to the combined treatment could be lower if they have the perception, objectively mistaken, that their having been assigned to combined therapy is a function of their suffering from a more serious disturbance. These explanations are merely tentative and require further research.

This is the first controlled clinical research in which the program of stimulus control and exposure with response prevention for outpatients is supported by empirical evidence. The previous studies, which have obtained poor results (Greenberg and Rankin, 1982), have been limited to case studies (Arribas and Martínez, 1992) or have been referred to inpatients (McConaghy *et al.*, 1991).

The combined rate of refusals and drop-outs during the follow-up was 28.1% of the study's sample, was lower than the rates of 50% in the Greenberg and Ranking study (1982), the 70% in Gamblers Anonymous according to the study by Brown (1987) and the 30% in the study by Lesieur and Blume (1987). In this way, the outcome of this study was reasonably satisfactory.

Although the drop-out results were not significant, perhaps due to their small number, the drop-outs tended to take place before the third therapy session and to a greater degree in the combined treatment and in the control group. That is, both excess and absence of control appear to be jeopardizing. It would be a good idea, nonetheless, to test this hypothesis in subsequent studies.

If simple treatments are more effective and produce a lower number of drop-outs than combined treatments, and if therapeutic change tends to take place in the first weeks of treatment, it seems reasonable to design specific and short programs—even more than those proposed in this study—which is a very attractive idea from the point of view of costs and benefits. This is a line of research that is advantageous to be developed, especially at a time when many proposed therapy programs are multi-component (e.g., González, 1989; Lesieur and Blume, 1991; Schwartz and Lindner, 1992; Taber *et al.*, 1987).

The program of stimulus control and exposure with response prevention

presents us with one of the highest percentages of success in all the different therapeutic alternatives studied to date. Nevertheless, the specific importance of each one of the two components that make up this treatment still remains to be studied.

With the programs evaluated in this study everybody was able to give up gambling at the end of the treatment, but some individuals had problems maintaining the abstinence. From this point of view, the main research goal is to determine the factors involved in relapse and to design specific strategies directed at relapse prevention. This is the kind of research in which the authors of this study are now involved.

Finally, from a psychopathological perspective, two conclusions may be drawn. First, there was a spontaneous remission of gambling behaviour in the untreated control group between pretreatment and the 6–month follow-up. For this reason, and in contrast to other addictive disorders, gamblers' behaviour appears to be less predictable and undergoes changes attributable to different problems caused by gambling (discovery of debts or thefts, threats of divorce by the spouse, loss of job, etc.) and/or to the expectation of treatment, once their period on the waiting-list has finished.

Second, the modification of psychopathological variables, regardless of the type of treatment utilized, is slower than that of gambling-behaviour variables. This point could be explained by different reasons. On one hand, the therapies utilized in this study are not designed for the treatment of psychopathological variables and so the resistance to change is much greater in these variables. On the other hand, as a fundamental explanatory aspect, the negative consequences of gambling on one's family, social/work, and economic circumstances are directly related to anxiety and depression. For these reasons, a change in psychopathological variables was not expected to be synchronous with a change in gambling behaviour.

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