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## Group therapy with Pathological Gamblers: results during 6, 12, 18 months of treatment

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## Introduction

Pathological Gambling is characterized by significant problems in personal, family, social dimensions, and frequently it is associated with employment and financial difficulties, legal problems and psycho-physiological distress.

Numerous factors are implicated in the aetiology, development and maintenance of the disorder. Within the individual factors, personality disorders, personality traits, neuroticism, psychoticism influence the development of Pathological Gambling.

The disorder is also characterized by the presence of loss of control, with high impulsivity, sensation seeking and novelty seeking, traits that induce the risk activity acceptance of gambling (Blaszczynski & Steel, 1998; Ladouceur et al. 2001; Petry, 2001; Toneatto 2004)

Equally, anxiety and depression symptoms are a very common finding among gamblers and, in some cases, these may prompt to gaming in order to alleviate them.

About the therapy there are several psychological interventions by treating Pathological Gamblers (like Gamblers Anonymous, Psychoanalysis, Behaviour Therapy, Cognitive Therapy, Motivational Therapy, Multimodal Therapy, Group Therapy, Self-help manual) and they benefit from treatment but, few studies analyse the changes along treatment and the influence of it on clinical symptomatology, temperament and character.

The aim of this study was: to compare the psychopathological differences in a sample of Pathological Gambling matched with a control group, and to evaluate the changes in symptomatology, character and personality, during the 18 months of Group Therapy.

**Methods**

Sixty-three out-patients referred to the Therapy Centre for ex-pathological gamblers and family members (Campoformido, Udine- Italy), who satisfied DSM- IV (APA, 994)or PG were matched with 52 control subjects compared for socio-demographic variables (sex, age, gender, employment, social and marital status, level of education) (table I).

All subjects gave informed consent after the procedures were explained to them.

The inclusion criteria were:

- a primary diagnosis of PG
- a duration of PG at list for one year
- age between 18- 70

The Exclusion criteria were:

- presence of psychopathology (psychosis, major depression, manic episode, bipolar disorder)
- neurological disorder and medical illness
- personality disorders
- alcohol and drug abuse

**Assessment**

At time 0, the PG and controls were assessed with a psychometric battery of assessor and self-rating scales

In the Pathological Gamblers group, assessments were administered as well as after 6, 12, 18 months of treatment.

The psychological tests used were:

- the Brief Psychiatric Rating Scale (BPRS) (Overall & Gorham, 1962): a clinical Interview that consists of 18 items, each of 4 point scale, that allow to explore the presence of psychopathology (depression and schizoaffective symptoms).
- the South Oaks Gambling Screen (SOGS) by (Lesieur & Blume, 1987; Gheradri, Lesieur, Blume, 1992) is 20-item self-report questionnaire used to measure pathological gambling severity according to DSM-III-R criteria. Scores greater than 5 are used to identify probable pathological gamblers.
- the Beck Depression Inventory (BDI) by Beck et al., (1961): is a 21-item self-report measure of depression symptoms rated on a 4-point scale. Items are rated from 0, indicating the symptom is absent to 3, indicating that the symptom is severe. The BDI total score is derived by summing the individual item ratings.
- the State - Trait Anxiety Inventory) (STAI-Y1; STAI-Y2) by Spielberger et al., 1983), is a 40-item inventory comprising separate self-report scales for measuring state and trait

anxiety in a four item scale. In responding to the 20 state anxiety items (STAI-Y1), subjects are instructed to report the intensity of their anxiety feelings at the moment. The instructions for the 20 trait-anxiety (STAI-Y2) items require to report how often they have generally experienced anxiety.

- the Barratt Impulsiveness Scale-11 (BIS-11) by Barratt & Stanford, 1995; Fossati et al., 2001). Is a 30-item self-report questionnaire designed to measure impulsiveness (Patton et al., 1995). All items are measured on a 4-point scale (I = Rarely/ Never; 2 = Occasionally; 3 = Often; 4 = Almost Always/Always). Four generally indicates the most impulsive response. but some items are scored in reverse order to avoid a response bias. The items are summed and the higher BIS-11 total score indicates the higher the Impulsiveness level.

- the Temperament Character Inventory (TCI) by Cloninger et al. 1993, Svrakic et al., 1993): TCI measures four dimensions of temperament and three dimensions of character. The temperament dimensions are Novelty Seeking (NS), Harm Avoidance (HA), Reward Dependence (RD) and Persistence (P). The character dimensions are Self-Directedness (SD), Cooperativeness (CO), and Self-Transcendence (ST).

Administration/evaluation of the tests was made by another psychologist (PP) who did not take part in the treatment.

None of the Pathological Gamblers were undergoing psychotherapy and had attempted suicide.


**Therapy**

A very experienced group therapist administered the treatment (RDL).

The first two sessions focused on the personal information, problems, supplied the tests and explanations of rules to the entrance in group, the composition of the group, and to the setting therapy (residence centre, duration and timetables of frequency, duties and rules to respect, between which those relative to the absences at the sessions and the management of the money by others). The last scope of the encounter was "the change in the life style", and the purpose of the treatment was "total abstinence of gaming".


**Treatment**

The encounters consisted of 2 hours per weekly session (with the single suspension of 3 weeks in the course of the year), and were oriented also to the relatives, whose participation to the group is considered of great importance to the ends of a good resolution of the therapy.

During therapy the participants discussed the problem related to gambling, the couple, family and interpersonal relationship,

The setting aims to modify the relations with oneself and within the family members.

Dialogue was the operating instrument used in order to make the awareness of what had not been easily explained orally, while the analysis of the conflict individual-group enabled to understand and later to manage the interpersonal relations (De Luca, 2002, 2006).

**Statistical methods**

For the comparison between PG patients and control groups independent two-tailed t-test were used.

Results were expressed as means and standard deviation.

A non parametric correlation was calculated by the Spearman coefficient (rho).

Person's product moment method was used to compute the parametric correlations.

In order to identify the clinical and demographic variables which predicted PG a step-wise regression analysis was conducted.

The dependent variables in the regression analysis included SOGS and BIS-11, while the independent variables included: STAI, BDI, TCI, and demographic variables (sex, age, marital status, education, onset and duration of illness, pharmacotherapy).

**Results.**

Compared to the control group, the PG had higher scores levels of depression, state and trait anxiety and impulsivity (Table II).

In temperament, pathological gamblers scored high in Novelty Seeking and Reward Dependence than controls; and in character, they scored higher on Self-Transcendence and lower in Self-Directedness and Cooperativeness (Table II).

No differences were observed in Harm Avoidance (HA) and Persistence (P).

During the 6 month period 30 gamblers (47.6%) dropped-out.

After 6 months the Pathological Gamblers in treatment (PGT) (n=33) didn't gamble and they have higher scores in Reward Dependence (p = .02) and Cooperativeness (p = .04) compared to those who interrupted the treatment (Table. III).

No difference was observed to the categorical variables between the two groups.

During group psychotherapy, progressive and substantial reduction in depression, state and trait anxiety, impulsivity, and lower scores in Harm Avoidance, Reward Dependence, Self-Directedness and Cooperativeness were observed (Table IV).

After 18 months of therapy, the gamblers still showed more signs of depression, anxiety and impulsiveness (not at pathological level), higher Novelty Seeking and Self-Transcendence but lower Self-Directedness and Cooperativeness (Table V).

The step-wise regression analysis with SOGS dependent variable showed only impulsivity weak predictor (BIS-11) (t=.06; β=.25; p = .046); instead, when the impulsivity was the dependent variable the major predictors were low scores in Self-Directedness (t = -3.61, β = -.39, p = .00l) and Reward Dependence (t = -2.61; β =-.26, p = .0l), and high score in Novelty Seeking (t = 3.28; β = .36, p = .002).

After therapy, step-wise regression analysis with impulsivity dependent variable show the only predictor was state anxiety (STAI-Y1 score) (t = 2.77; β = .44; p = .009).

Therefore, after therapy state anxiety was the predictor of impulsivity.


**Discussion**

A study by Kim & Grant, (2001), in PG group, using Tridimensional Personality Questionnaire (Cloninger, 1987), found high levels of Novelty Seeking on impulsiveness and extravagance and low level of Harm Avoidance.

In our 2 Italian studies (Savron, Pitti, De Luca, Guerreschi, 2001; Savron, Pitti, De Luca, 2003) using TPQ and other questionnaires, we observed higher Novelty Seeking, Anxiety Sensitivity, Emotional Inhibition, anxiety and depression, and lower Reward Dependence compared to control groups.

Recently, Martinotti et al., (2006) using Temperament Character Inventory (Cloninger, 1994) in 27 PG have found higher Novelty Seeking and Self-Transcendence and lower Self-Directedness and Cooperativeness, in comparison with controls subjects.

We have observed the same results, with exception of Reward Dependence score, that in our sample results higher in PG compared to controls.

Nordin & Nylander, (2007), with TCI, have observed in 38 PG matched to controls, high Novelty Seeking and Harm Avoidance, low Self-Directedness, and less score in Cooperativeness and higher Self-Transcendence.

In our study, as expected, and in agreement with other studies, pathological gamblers scored high on the temperament Novelty Seeking, with high impulsiveness, rigidity, extravagance and disorganised behaviour.

In Novelty Seeking temperament subscale of TCI, the pathological gamblers scored higher than controls on excitability (NS 1), impulsivity (NS 2), extravagance (NS 3) and disorderliness (NS 4). HA and its subscales are known to be state-dependent.

They were also higher on RD 1 (sentimentality).

In character Self-Directedness scale, Pathological Gamblers scored lower than controls on responsibility (SD 1), purposefulness (SD 2), resourcefulness (SD 3), self acceptance (SD 4) and incongruence (SD 5).

They were also less tolerant (CO 1), less empathic (CO 2), less helpful (CO 3) and wit more dishonest behaviour (CO 5), than controls on Cooperativeness.

Furthermore, in the Self-Transcendence scale, pathological gamblers scored higher on self-concentration (ST 1) and spirituality and magical thinking (ST 3) compared to controls.

In synthesis, Pathological Gamblers, generally scored high on Novelty Seeking, high on Harm Avoidance, low on Self-Directedness (SD), Cooperativeness (CO) and high on Self-Transcendence (ST).

This profile is similar to that of those with personality disorders and mixed drug abuse.

Instead, in our sample of gambling, compared with control group, we have observed high Reword Dependence, probably related to different sub-groups of heterogeneous PG.

Considering the differences between the PG who continued treatment from those who drop out, the gambling of the first group was more sentimental and collaborative, with availability, altruism and compassion. So, the high Reword Dependence and Cooperativeness justify their presence in treatment group.

After 18 months of therapy, we observed significant improvements in anxiety and depression, impulsiveness and harm avoidance, but no change in Novelty Seeking.

Others are the considerations that should be made with our players as a results of therapy.

The increased score of Self Transcendence, during therapy, led to consider that the group therapy increased individual capacity to get estranged or to have more magical thinking, and to feel part of the world and things.

Whilst, the reduction of the scores on Self-Directedness and Cooperativeness , contrary to what we had expected, found a plausible explanation assuming that the work group reduced the ability to manage itself and also formed a greater dependence on choices made in a group within group.

Such data is confirmed by observations made during the group therapy, in which players themselves acknowledged on the one hand the presence of security and dependence on the group, and the other, difficulties and fear in mental anticipation in consideration of the end of the therapy. These data, however, in absence of others similar studies , represent an hypotheses on which further studies would be necessary.

**Conclusion**

There are obvious limitations to this study:

- it was an open trial (it is a naturalistic design), the results obtained could be non specific and the design of the study did not allow to discriminate whether the therapeutic results were the

consequence only of a psychotherapeutic strategy, natural recovery or presence of family members;

- the absence of waiting list gamblers control;
- 47.6 % of drop-out;

However there are several factors to indicate the validity:

- the treatment was provided by the same therapist;

- a careful screening of subjects;

- assessment at  pre treatment and during treatment;

- a criteria of PG;

- a duration of current episode of illness;

 -the use of self rating and assessor rating scales;

Nevertheless, this study provides important information: group therapy was effective in producing psychological modification of patients.


The results of this study confirm the presence of specific psychological state and trait characteristics in subjects with PG.

The study defined the psychopathological differences in the gamblers and control group and identified the characteristics in gamblers that continued group therapy. (Drop-out group displayed less score in Reward Dependence and Cooperativeness).

The gamblers didn't gamble but after 18 months of therapy still displayed some significant differences compared to the control group.

The reduction of depression, anxiety, impulsivity and harm avoidance lend support to the efficacy of Group Therapy in the treatment of Pathological Gambling.

The regression analysis confirm the relation between state anxiety and impulsivity on PG.

Before the treatment, the impulsivity represents the predictive factor of the gravity of the PG, while, after therapy, the state anxiety is the only variable that predicts the impulsivity.

The findings of this study lend support to the previous investigations on Group Therapy management of PG patients, and we can say that a trial of Group Therapy treatment appears to be an adequate choice for patients who have the problem of gambling.

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**Tab. I . Socio-demographic data on gamblers and group control**

| | PG (n = 63) | CS (n = 52) | |
|---|---|---|---|
| **Sex** | Male 53<br>Female 10 | Male 45<br>Female 7 | |
| **Age** | 41.90 ± 9.9 (range 21-69) | 42.30 ± 9.32 (range 25-70) | |
| **Education**<br>Secondary School<br>High school<br>Degree | 38<br>19<br>6 | 36<br>13<br>2 | |
| **Marital status**<br>Married<br>Single<br>divorced | 25<br>34<br>5 | 20<br>25<br>4 | |
| **Social level**<br>middle-lower<br>middle-upper | 32<br>31 | 26<br>26 | |
| **Smokers** | 48 | 44 | |
| **Drinkers** | 6 (no pathological) | 4 (no pathological) | All differences were not statistically significant. |
| **Pharmacotherapy** | (5 antidepressant, 8 benzodiazepine) | (2 antidepressant, 5 benzodiazepine) | |
| **Duration of the disorder** | 5.27 (± 4.00) Range 1-20 | | |
| **Mean age onset of** | 36.03 (± 9.68) Range 19-64 | | |

| PG | | | |
|---|---|---|---|

**Tab. II. Score Differences on PG and CS –Ith measurement**

| | PG (n=63) | | CS(n=52) | | | | Sig. |
|---|---|---|---|---|---|---|---|
| | MEAN | SD | MEAN | SD | t | df | |
| **SOGS** | 11.03 | 3.21 | 0.00 | | | | |
| **BDI** | 16.90 | 8.29 | 3.76 | 3.69 | 11.28 | 89.08 | .000 *** |
| **STAI Y-1** | 53.57 | 11.77 | 33.71 | 10.22 | 9.54 | 113 | .000 *** |
| **STAI Y-2** | 51.00 | 10.45 | 34.73 | 7.58 | 9.37 | 113 | .000 *** |
| **BIS-11** | 71.90 | 10.30 | 51.19 | 8.36 | 11.66 | 113 | .000 *** |
| **TCI - NS** | 26.00 | 5.36 | 16.92 | 4.52 | 9.68 | 113 | .000 *** |
| **TCI - HA** | 16.92 | 5.92 | 16.23 | 5.10 | .66 | 113 | NS |
| **TCI - RD** | 14.57 | 3.09 | 13.36 | 2.59 | 2.23 | 113 | .027 * |
| **TCI - P** | 4.04 | 1.50 | 3.92 | 1.29 | .47 | 113 | NS |
| **TCI - SD** | 15.87 | 6.01 | 23.34 | 4.45 | -7.66 | 11.80 | .000 *** |
| **TCI - CO** | 22.33 | 5.19 | 25.30 | 4.05 | -3.45 | 113 | .001*** |
| **TCI - ST** | 15.36 | 6.41 | 11.28 | 6.80 | 3.30 | 113 | .001 *** |

\* p<.05;  \*\* p<.01;  \*\*\* p<.001

**SOGS** = South Oaks Gambling Screen; **BDI** = Beck Depression Inventory; **STAI- Y1** = State-Trait Anxiety Inventory Y-1(state); **STAI- Y2** = State-Trait Anxiety Inventory Y-2 (trait); **BIS** = Barrat Impulsiveness Scale; **TCI** = Temperament  Character Inventory (**NS**: Novelty Seeking; **HA**: harm Avoidance; **RD**: Reward Dependence; **P**: Persistence; **SD**: Self-Directedness; **CO**: Cooperativeness; S**T**: Self-Transcendence)

**Tab. III. Score Differences on CS, PG drop-out – PG Group Therapy at the Ith measurement**

| | CS (n=52) | | PG drop-out (n=30) | PG- Group Therapy (n=33) | | | |
|---|---|---|---|---|---|---|---|
| | MEAN (SD) | Sig. | MEAN (SD) | MEAN (SD) | t | df | Sig. |
| **SOGS** | | anova | 10.43 (3.66) | 11.57 (2.67) | 1.40 | 52.63 | NS |
| **BDI** | 3.76 ( 3.69) | *** | 16.23 (7.91) | 17.51 (8.70) | .61 | 61 | NS |
| **STAI Y-1** | 33.71 (10.22) | *** | 52.73 (11.27) | 52.09 (14.92) | .54 | 61 | NS |
| **STAI Y-2** | 34.73 (7.58) | *** | 49.60 (10.46) | 52.27 (10.43) | 1.01 | 61 | NS |
| **BIS-11** | 51.19 ( 8.36 | *** | 72.43 (9.39) | 71.42 (11.18) | -.39 | 61 | NS |
| **TCI - NS** | 16.92 (4.52) | *** | 25.46 (5.16) | 26.48 (5.57) | .75 | 61 | NS |
| **TCI - HA** | 16.23 (5.10) | NS | 17.23 (5.65) | 16.63 (6.22) | -.40 | 61 | NS |
| **TCI - RD** | 13.36 (2.59) | * | 13.63 (3.41) | 15.42 (2.53) | 2.38 | 61 | .02 * |
| **TCI – P** | 3.92 ( 1.29) | NS | 4.20 (1.47) | 3.90 (1.54) | -.76 | 61 | NS |
| **TCI – SD** | 23.34 (4.45) | *** | 15.36 (5.39) | 16.33 (6.55) | .64 | 61 | NS |
| **TCI – CO** | 25.30 (4.05) | ** | 20.96 (4.77) | 23.57 (5.32) | 2.04 | 61 | .04* |
| **TCI – ST** | 11.28 (6.80) | *** | 15.20 (6.1) | 15.51 (6.75) | .19 | 61 | NS |

\* p<.05; \*\* p<.01; \*\*\* p<.001

**SOGS** = South Oaks Gambling Screen; **BDI** = Beck Depression Inventory; **STAI- Y1** = State-Trait Anxiety Inventory Y-1(state); **STAI- Y2** = State-Trait Anxiety Inventory Y-2 (trait); **BIS** = Barrat Impulsiveness Scale; **TCI** = Temperament  Character Inventory (**NS**: Novelty Seeking; **HA**: harm Avoidance; **RD**: Reward Dependence; **P**: Persistence; **SD**: Self-Directedness; **CO**: Cooperativeness; S**T**: Self-Transcendence)

**Tab. IV. Score Difference GP (33) on Therapy. Ith- IVth measurement**

| | I | II | III | IV | | | |
|---|---|---|---|---|---|---|---|
| | MEAN (SD) | MEAN (SD) | MEAN (SD) | MEAN (SD) | t | df | Sig. (I-IV) |
| | | | | | | | |
| **BDI** | 17.51 (8.70) | 10.66 (8.26) | 9.09 (7.08) | 6.06 (4.06) | 8.11 | 32 | .000 *** |
| **STAI Y-1** | 52.09 (14.92) | 42.12 (12.049 | 39.33 (8.93) | 37.12 (7.85) | 5.18 | 32 | .000 *** |
| **STAI Y-2** | 52.27 (10.43) | 42.33 (11.04) | 40.93 (9.65) | 38.42 (7.62) | 7.36 | 32 | .000 *** |
| **BIS-11** | 71.42 (11.18) | 64.36 (9.62) | 61.69 (8.60) | 60. 03 (8.47) | 5.71 | 32 | .000 *** |
| **TCI - NS** | 26.48 (5.57) | 24.21 (5.05) | 25.39 (4.89) | 26.15 (4.20) | .73 | 32 | .NS |
| **TCI - HA** | 16.63 (6.22) | 14.96 (5.09) | 15.24 (5.08) | 14.66 (4.31) | 3.73 | 32 | .001 ** |
| **TCI - RD** | 15.42 (2.53) | 16.12 (2.55) | 15.15 (2.57) | 14.42 (2.48) | 2.54 | 32 | .02 * |
| **TCI – P** | 3.90 (1.54) | 3.96 (1.35) | 3.87 (1.19) | 3.66 (0.85) | 1.24 | 32 | NS |
| **TCI – SD** | 16.33 (6.55) | 16.90 (6.26) | 15.54 (5.94) | 14.42 (5.10) | 3.74 | 32 | .001 *** |
| **TCI – CO** | 23.57 (5.32) | 24.12 (4.49) | 23.09 (4.88) | 21.24 (4.09) | 4.40 | 32 | .000 *** |
| **TCI – ST** | 15.51 (6.75) | 14.93 (6.46) | 15.12 (6.15) | 16.18 (5.27) | -1.24 | 32 | .NS |

\* p<.05;  ** p<.01;  *** p<.001

**BDI** = Beck Depression Inventory; **STAI- Y1** = State-Trait Anxiety Inventory Y-1(state); **STAI- Y2** = State-Trait Anxiety Inventory Y-2 (trait); **BIS**

= Barrat Impulsiveness Scale; **TCI** = Temperament  Character Inventory (**NS**: Novelty Seeking; **HA**: harm Avoidance; **RD**: Reward Dependence; **P**:

Persistence; **SD**: Self-Directedness; **CO**: Cooperativeness; **ST**: Self-Transcendence)

**TAB. V CS and  PG at the IVth measurement**

| | PG drop-out (n=30) | PG - therapy IV° (n=33) | | CS (n=52) | PG- therapy IV° (n=33) | |
|---|---|---|---|---|---|---|
| | MEAN (SD) | MEAN (SD) | t-test | MEAN (SD) | MEAN (SD) | t-test |
| | | | Sig. | | | Sig. |
| **BDI** | 16.23 (7.91) | 6.06 (4.06) | .000 *** | 3.76 ( 3.69) | 6.06 (4.06) | .009 ** |
| **STAI Y-1** | 52.73 (11.27) | 37.12 (7.85) | .000 *** | 33.71 (10.22) | 37.12 (7.85) | NS |
| **STAI Y-2** | 49.60 (10.46) | 38.42 (7.62) | .000 *** | 34.73 (7.58) | 38.42 (7.62) | .041 * |
| **BIS-11** | 72.43 (9.39) | 60. 03 (8.47) | .000 *** | 51.19 ( 8.36 | 60. 03 (8.47) | .000 *** |
| **TCI - NS** | 25.46 (5.16) | 26.15 (4.20) | NS | 16.92 (4.52) | 26.15 (4.20) | .000 *** |
| **TCI - HA** | 17.23 (5.65) | 14.66 (4.31) | .046 * | 16.23 (5.10) | 14.66 (4.31) | NS |
| **TCI - RD** | 13.63 (3.41) | 14.42 (2.48) | NS | 13.36 (2.59) | 14.42 (2.48) | NS |
| **TCI – P** | 4.20 (1.47) | 3.66 (0.85) | NS | 3.92 ( 1.29) | 3.66 (0.85) | NS |
| **TCI – SD** | 15.36 (5.39) | 14.42 (5.10) | NS | 23.34 (4.45) | 14.42 (5.10) | .000 *** |
| **TCI – CO** | 20.96 (4.77) | 21.24 (4.09) | NS | 25.30 (4.05) | 21.24 (4.09) | .000 *** |
| **TCI – ST** | 15.20 (6.1) | 16.18 (5.27) | NS | 11.28 (6.80) | 16.18 (5.27) | .001 *** |

\* p<.05;  \*\* p<.01;  \*\*\* p<.001

**BDI** = Beck Depression Inventory; **STAI- Y1** = State-Trait Anxiety Inventory Y-1(state); **STAI- Y2** = State-Trait Anxiety Inventory Y-2 (trait); **BIS** = Barrat Impulsiveness Scale; **TCI** = Temperament  Character Inventory (**NS**: Novelty Seeking; **HA**: harm Avoidance; **RD**: Reward Dependence; **P**: Persistence; **SD**: Self-Directedness; **CO**: Cooperativeness; S**T**: Self-Transcendence)