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Group interpersonal psychotherapy (IPT-G) for borderline personality disorder: A randomized controlled study

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A R T I C L E I N F O

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A B S T R A C T

Recent evidence supported the notion that add-on group therapy should be provided to individuals with borderline personality disorder (BPD) who already undergo individual psychotherapy. The present 20 week-study was aimed to evaluate the efficacy of the adjunction of group interpersonal psychotherapy (IPT-G) to individual interpersonal psychotherapy adapted for BPD - revised (IPT-BPD-R) in comparison with individual IPT-BPD-R alone in a group of BPD patients. In addition, demographical and clinical characteristics that can be considered predictors of response to add-on group therapy were investigated. Forty-six patients were randomly assigned to 1) IPT-BPD-R plus IPT-G or to 2) IPT-BPD-R in the waiting list for IPT-G. Patients were assessed at baseline and after 20 weeks with: the Clinical Global Impression Scale, Severity item (CGI-S); the Social Occupational Functioning Assessment Scale (SOFAS); the Satisfaction Profile (SAT-P); the Borderline Personality Disorder Severity Index (BPDSI); the Modified Overt Aggression Scale (MOAS); the Childhood Trauma Questionnaire - Short Form (CTQ-SF); the Inventory of Interpersonal Problems (IIP-32); and the Reading the Mind in the Eyes Test (RMET). Statistical analyses included: ANOVA for repeated measures to compare score changes of the rating scales within groups (trial duration) and between groups (treatment modalities), and multiple regression analysis to identify which clinical factors are significantly and independently related to the difference of BPDSI score between baseline and week 20 (Δ BPDSI). The significance level was $P \leq 0.05$. Both significant within-subjects effects (duration) and between-subjects effects (treatment modalities) were found for the following rating scales: MOAS; BPDSI items “feelings of emptiness”, “outbursts of anger,” and “affective instability”; RMET; SAT-P items “work” and “sleep, food, free time”; and IIP-32 scale “domineering/controlling”. At the multiple regression analysis BPDSI item “impulsivity”, RMET, and the subscale “socially inhibited” of the IIP-32 were significantly and independently related to Δ BPDSI score. In conclusion, the add-on of IPT-G produced higher improvement in core BPD symptoms, social cognition, a dysfunctional interpersonal style, and subjective quality of life. Subjects who were less impulsive, less socially inhibited, and with higher abilities in social cognition obtained greater benefits from the adjunction of group therapy.

Clinical trials registration number: ACTRN12623000002684, Australian New Zealand Clinical Trials Registry (ANZCTR).

1. Introduction

Borderline personality disorder (BPD) is a severe psychiatric disorder characterized by considerable difficulties in managing emotions and impulses, quick changes of mood, unstable relationships, and disturbed sense of self and identity (Lieb et al., 2004). Lifetime prevalence of the disorder has been estimated at around 5.9 % (Grant et al., 2008) and may rise to 6.4% in adult primary care setting (Gross et al., 2002; Sansone and Sansone, 2011; Mendez-Miller et al., 2022). The complexity, clinical heterogeneity, and severe functional impairment of BPD patients require particular care in the diagnostic process and early therapeutic intervention, with a significant use of resources of the mental health services. In the last twenty years, several sets of guidelines and systematic reviews of the treatment of BPD have been published. With some minor differences, guidelines agree that psychotherapy is the first line treatment of the disorder, and drug treatment only plays an adjunctive role during crisis episodes or in the presence of comorbidities (APA, 2001, 2005; NHRMC, 2012; NICE, 2018; Stoffers-Winterling et al., 2012,

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2020, 2022; Storebø et al., 2020). So, recent investigations on BPD samples mainly focused on psychotherapy.

A range of BPD-specific psychotherapies can be delivered in individual or group formats, or in a combination of these two treatment modalities to better address the challenges of BPD treatment. Structured and manualized psychotherapies have been designed to treat core symptom dimensions, such as interpersonal relationship disturbance, mentalization deficits, or self-harm conducts. Among psychotherapeutic interventions, models that have obtained more evidence of efficacy in BPD are dialectical behaviour therapy (DBT) and mentalization-based treatment (MBT). These therapies have a duration of about 12 months with weekly individual sessions and can include additional group therapy sessions. In recent years, interpersonal psychotherapy adapted for treating BPD patients (IPT-BPD) was presented as an addition to the available therapeutic tools and its efficacy was studied in combination with medications (Bellino et al., 2010, 2015; Bozzatello and Bellino, 2016) and as a single treatment (Bozzatello and Bellino, 2020).

Some studies investigated the efficacy of add-on interventions to complement ongoing individual psychotherapies with group sessions: DBT-skill training, emotion regulation group, manual-assisted cognitive therapy, psychoeducation, and systems training for emotional predictability and problem-solving. The quality of the evidence of efficacy for some add-on treatments was good, with moderate-quality evidence of beneficial effects by the DBT-group on the primary outcomes of BPD severity and psychosocial functioning (Storebø et al., 2020). In addition, some investigations suggested that group therapy might be more effective than individual therapy for reducing BPD symptom severity (Storebø et al., 2020). Regarding IPT, the group format has been studied in major depression (Klier et al., 2001; Reay et al., 2012; Young et al., 2016), in bipolar disorder (Bouwkamp et al., 2013; Hoberg et al., 2013), in post-traumatic stress disorder (Campanini et al., 2010; Krupnick et al., 2008), and in substance use disorder (Johnson and Zlotnick, 2008). As far as we know, there is only one study that compared interpersonal group psychotherapy with individual dynamic psychotherapy in a group of patients who met BPD criteria (Marziali and Munroe-Blum, 1995). The authors stated that the total study cohort showed significant improvements in all major outcomes.

The hypothesis of the present study is that adding group IPT therapy to individual psychotherapy has the effect to improve clinical response in BPD patients. This study has a twofold objective: (1) to evaluate the efficacy of the adjunction of IPT-G to individual IPT-BPD in comparison to individual IPT-BPD as a single treatment in a group of patients with BPD; (2) to investigate what demographical and clinical characteristics predicted response to add-on therapy with IPT-G in the subgroup of patients who received the association of individual and group treatment.

2. Materials and methods

2.1. Participants

Forty-six consecutive outpatients with a diagnosis of BPD according to the Diagnostic and Statistical Manual of Mental Disorders, 5th Edition (DSM-5) criteria (American Psychiatric Association, 2013) were recruited. Patients attended the Center for Personality Disorders of the Department of Neuroscience at the University of Turin, Italy. All participants were aged between 18 and 60 years. An expert clinician (P.R.) made the diagnosis, which was confirmed with the Structured Clinical Interview for DSM- 5 Clinical Version and Personality Disorders (SCID-5-CV and SCID-5-PD) (First et al., 2015; 2016). Exclusion criteria were the following: 1) a diagnosis of dementia or other cognitive disorders, schizophrenia or other psychotic disorders, or bipolar disorders, 2) a co-occurring major depressive episode and/or substance abuse, and 3) the administration of psychotropic medications in the 3 months preceding the beginning of the study.

The trial was carried out by the recommendations of the Ethics Committee: Comitato Etico Interaziendale A.O.U. Città della Salute e della Scienza di Torino - A.O. Ordine Mauriziano - A.S.L. Città di Torino (approval code: 0142486). The principles of the Declaration of Helsinki were followed. Written informed consent was obtained from all subjects. The trial was registered in the Australian New Zealand Clinical Trials Registry (ANZCTR) and allocated the code: ACTRN12623000002684. The group of 46 BPD patients was randomly assigned to 1) IPT-BPD-Revised (IPT-BPD-R) + IPT-G (N = 24 patients) or 2) IPT-BPD-R + waiting list for group psychotherapy (N = 22 patients). Patients who were allocated to IPT-G received this treatment after 5 months of individual IPT-BPD-R (see Fig. 1). Research Randomizer (Urbaniak and Plous, Social Psychology Network Wesleyan University, Middletown, CT), a free web-based service for randomization, was used. The two groups were matched for gender, age, and level of education.

Individual psychotherapy and group psychotherapy were provided by therapists who were certificated by the Italian Society for Interpersonal Psychotherapy according to the international guidelines for IPT training and had at least 5 years of experience practicing IPT-BPD.

Sessions of psychotherapy were supervised by a senior psychotherapist (S.B.) with particular care to check for fidelity to the manual.

2.2. Measures

All patients were assessed at baseline (t0, start of the IPT-G phase) and after 20 weeks (t1) (end of the IPT-G phase) with the following assessment instruments:

- the Clinical Global Impression Scale, Severity item (CGI-S) (Guy, 1967);
- the Social Occupational Functioning Assessment Scale (SOFAS) (Goldman et al., 1992);
- the Satisfaction Profile (SAT-P) (Majani and Callegari, 1998);
- the Borderline Personality Disorder Severity Index (BPDSI) (Arntz et al., 2003; Italian version: di Giacomo et al., 2018);
- the Modified Overt Aggression Scale (MOAS) (Kay et al., 1988; Italian version: Margari et al., 2005);
- the Childhood Trauma Questionnaire - Short Form (CTQ-SF) (Bernstein et al., 2003; Innamorati, 2016);
- the Inventory of Interpersonal Problems (IIP-32) (Horowitz et al., 2000; Lo Coco et al., 2018);
- the Reading the Mind in the Eyes Test (RMET) (Baron-Cohen et al., 2001; Vellante et al., 2013);
- the Group Questionnaire (GQ) (Bormann et al., 2011; Giannone et al., 2020).

The CGI is a clinician-rated instrument for the assessment of illness and consists of three different measures: severity of illness, global improvement, and efficacy index. In this study, we considered the scale severity of illness. It is a seven-point scale ranging from 1 (normal) to 7 (extremely ill).

The SOFAS is a clinician-rated scale to measure impairment in social and occupational areas. It is independent of the psychiatric diagnosis and the severity of the patient's symptoms. The score is ranged between 0 and 100. Higher scores indicate better functioning.

The SAT-P is a self-administered questionnaire published in Italian language that consists of 32 scales providing a satisfaction profile in daily life and can be considered as an indicator of subjective quality of life. The SAT-P considers five different factors: "psychological functioning"; "physical functioning"; "work"; "sleep, food, and free time"; "and social functioning". The SAT-P asks the patient to evaluate his satisfaction in the last month for each of the 32 life aspects on a 10 cm analogical scale ranging from "extremely dissatisfied" to "extremely satisfied".

The BPDSI is a semi-structured clinical interview assessing the frequency and severity of specific BPD symptoms. The interview consists of eight items scored on a 10-point frequency scale (0 = never; 10 = daily), including "abandonment," "interpersonal relationships," "impulsivity,"

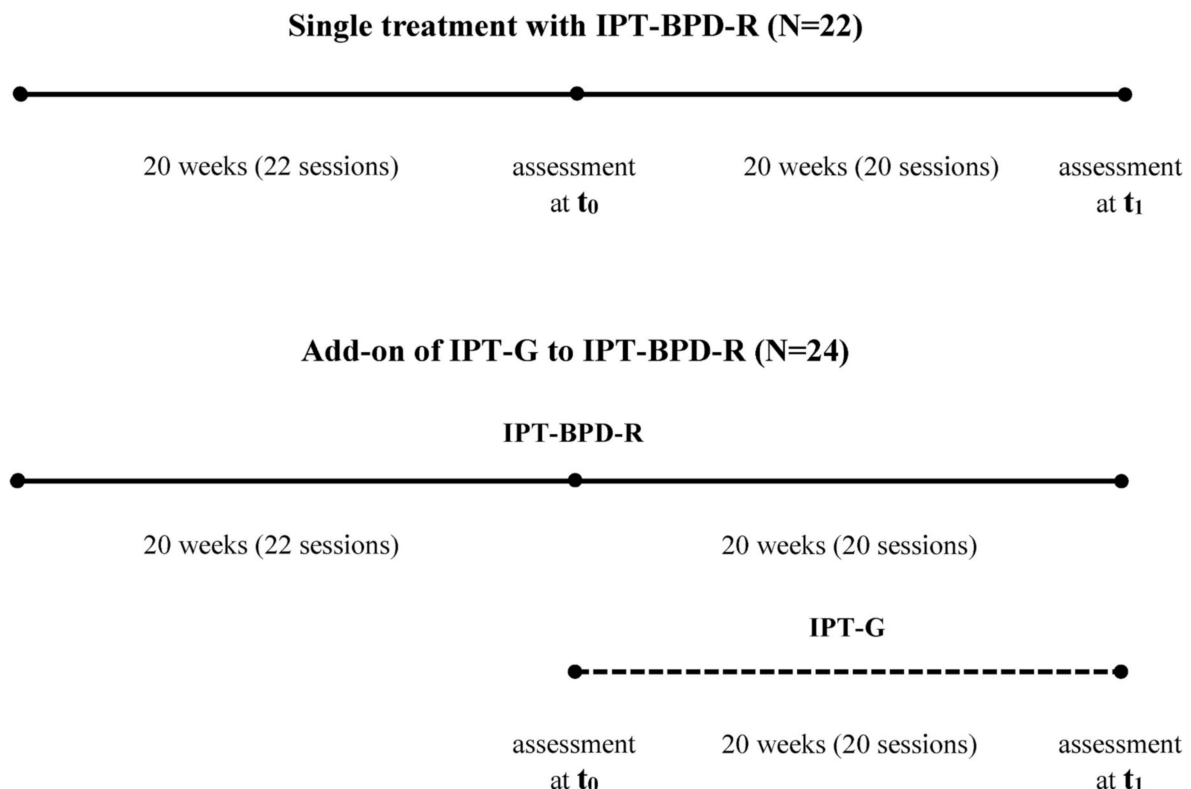

Fig. 1. Treatment phases and assessment timepoints.

"parasuicidal behavior," "affective instability," "feelings of emptiness," "outbursts of anger," "dissociation and paranoid ideation," and of one item scored on a four-point severity scale, concerning "identity." The total score is the sum of the nine averaged criteria scores (range 0–90). The index, but also the separate criteria, possess adequate reliability as well as discriminant, concurrent, and construct validity both in the original version and the Italian translation (di Giacomo et al., 2018).

The MOAS is a clinician-rated scale consisting of four subscales for different types of aggression (verbal aggression, aggression against objects, aggression against others, and self-aggression). The subscales are rated on a 5-point scale (score 0–4). Higher scores for each subscale reflect the higher severity of a subject's aggressiveness. The scale showed a good level of validity both in the original version and the Italian translation (Margari et al., 2005).

The CTQ-SF is a retrospective instrument to evaluate abuse and neglect experiences in childhood. It is a standardized measure to detect a positive history of trauma exposure. CTQ-SF consists of 28 items and five subscales that investigate five different types of childhood trauma: emotional abuse, physical abuse, sexual abuse, emotional neglect, and physical neglect. There is one additional scale to explore the tendency to minimization or denial. Each item is scored on a 5-point frequency scale (1 = never true; 5 = very often true). Scoring for each subscale is ranged between 5 and 25. Higher scores indicate more severe exposition to traumatic events. Scoring for the scale minimization/denial is ranged between 0 and 3. The scale was valid in the original version and in the Italian translation (Innamorati, 2016).

The IIP-32 is a self-report instrument that identifies the patient's most salient interpersonal styles. It contains 32 statements describing common interpersonal problems, identified by eight subscales: Domineering/controlling, Vindictive/self-centered, Cold/distant, Socially inhibited, Nonassertive, Overly accommodating, Self-sacrificing, Intrusive/needy. Raw subscale scores are obtained by calculating the sum of the eight-item responses for each of the eight scales. All items are rated 0–4. A scoring sheet provides a conversion of raw scores to standard T-scores. Each T-score represents the relative salience of the interpersonal difficulty in the domain described by a subscale. Validity was demonstrated both in the original version and the Italian translation (Lo Coco et al., 2018).

The RMET has been widely used to assess the theory of mind or the ability to recognize the thoughts and feelings of others. This test includes 36 photographs of male and female eyes depicting emotional states. For each photograph, participants are asked to choose the emotional state that best describes the eye's expression, choosing between one of four possible emotions. The sum is given by the number of correct answers (maximum 36). This test showed to be valid in the original version and in the Italian translation (Vellante et al., 2013).

The GQ is a self-report questionnaire and was developed to quantify three dimensions of relations in group therapy from the participant's point of view. These dimensions are the relationship between the patient and group therapist, the relationship between the patient and other patients, and the relation to the group as a whole. The sentences of the questionnaire define: "positive bonding" (i.e., "I felt that I could trust the group leaders during today's session", "I felt that I could trust the other group members during today's session"), "positive working" (i.e. "The group leaders and I agree about the things I will need to do in therapy", "The other group members and I agree about the things I will need to do in therapy"), and "negative relationship" (i.e. "The group leaders did not always understand the way I felt inside", "The other group members did not always understand the way I felt inside"). The questionnaire includes 30 items with a seven-point Likert scale from 1 (do not at all agree) to 7 (agree very much). On each dimension, for each given subscale, a mean score is calculated. This questionnaire showed validity both in the original version and the Italian translation (Giannone et al., 2020).

The assessment was performed by an investigator (C.B.) who received training sessions on psychometric instruments before start investigation. At the end of the trial, we also assessed how many patients still fulfilled the diagnostic criteria for BPD. A clinical assessment was performed and Structured Clinical Interview for DSM-5 – Personality Disorders (SCID-5-PD) was re-administered.

2.3. Treatments

2.3.1. Individual interpersonal psychotherapy adapted for borderline personality disorder-revised (IPT-BPD-R)

We proposed a revision (IPT-BPD-R) (Bellino et al., 2016) of Markowitz's adaptation of IPT to BPD (2005) in an attempt to overcome some limitations of this model that emerged during clinical practice. IPT-BPD-R consists of 10 months of therapy divided into two phases of 22 sessions (20 weeks) and 20 sessions (20 weeks). The sessions' duration is 60 min. In the first phase (22 sessions), the aims are to build a therapeutic alliance, limit self-destructive behaviors, and achieve initial symptom relief. The continuation phase (20 sessions) aims to maintain a valid therapeutic alliance, address distorted interpersonal dynamics, and develop more adaptive interpersonal skills. The original four problematic areas of IPT are maintained: (1) complicated grief; (2) role transition; (3) role dispute; and (4) interpersonal deficits. At the end of the 42 sessions, three additional sessions can be provided if a patient presents serious difficulties during the termination phase. Two weekly contacts by phone with the therapist are allowed in situations of crisis, as well as admissions to the hospital for a brief period of 7–10 days. During the hospitalization, IPT-BPD-R continues if the patient's clinical conditions allow it. Our revised model of IPT-BPD also provided an intervention of interpersonal counseling (Menchetti, 2014) for patients' family members in order to help them to understand and deal with the disorder of their relative. Only outpatients who were not hospitalized during the intervention were included in this study.

The efficacy of IPT-BPD-R was evaluated in a sample of BPD patients and positive findings were published in our previous studies (Bozzatello and Bellino, 2020; Bozzatello et al., 2021).

2.3.2. Group IPT

This treatment consists of weekly sessions of interpersonal group therapy provided by a senior therapist and a co-therapist.

The sessions' duration is 60 min. Each group consists of 6 participants. The overall duration of treatment is 20 weeks. An individual session is scheduled before the start of the group therapy for each participant. During this first session, the therapists explain the characteristics of the intervention, a therapeutic contract is drawn up, and the patient's expectations concerning the goals of the treatment are gathered. In addition, the patient is asked to indicate which IPT area he/she is focusing on in individual psychotherapy.

The structure of group therapy is the following:

- Initial phase (1–5 sessions): intervention is focused on setting rules, fostering a nonjudgmental and containing/comforting environment. In this phase, diagnosis and clinical picture are addressed, promoting the interaction of all members. The therapist relates BPD symptoms to problems in interpersonal relationships.
- Intermediate phase (6–15 sessions): in turn, each patient explains his/her interpersonal difficulties and symptoms that have occurred over the past week. Therapists, performing interventions of clarification and confrontation, propose connections between the patient's interpersonal problematic area and clinical manifestations. In addition, therapists solicit feedback from other components of the group. Interpersonal relationships among group members are discussed to improve patients' awareness of dysfunctional interactions and to promote problem-solving abilities.

In the IPT group therapy, each participant's interpersonal problem area was maintained (grief, interpersonal contrast, interpersonal deficit, or role transition). In all participants to group therapy we also focused on interpersonal problems related to role transition from "patient" to "healthy subject".

- Conclusive phase (16–20): the topic of the conclusion of therapy is addressed; impressions of the usefulness of therapy, the improvements achieved, and the difficulties still existing for each member are discussed.

2.4. Statistical analysis

Statistical analysis was performed with the Statistical Package for the Social Sciences, SPSS, version 28 for Windows (SPSS, Chicago, IL, USA).

One-way analysis of variance (ANOVA) or chi-square test was performed to compare baseline characteristics (demographic and clinical) of the two treatment groups. Comparison of score changes at the end of the trial between the two groups was calculated for each rating scale with the analysis of variance for repeated measures.

In the group of patients who received the association of IPT-BPD-R and IPT-G a linear regression analysis including continuous clinical variables was performed. The dependent variable was the difference in BPDSI score between baseline and week 20 (Δ BPDSI).

All variables that were found significant at the linear regression were included in a multiple regression analysis (stepwise backward) to identify which factors were significantly and independently related to Δ BPDSI and could be considered predictors of response to add-on treatment.

The significance level was $P \leq 0.05$.

3. Results

Forty-six patients were randomly assigned to 1) IPT-BPD-R plus IPT-G (N = 24) or to 2) IPT-BPD-R in the waiting list for IPT-G (N = 22).

Five patients discontinued the treatment in the first month of the trial for non-adherence to study protocol: three (12.5%) in the group who received individual and group psychotherapy and two (9.09%) in the group who received individual psychotherapy alone. Forty-one patients completed the trial: 21 patients (51.22%) received IPT-BPD-R + IPT-G, and 20 patients (48.78%) received IPT-BPD-R as a single treatment. Four groups received IPT-G. Each group was composed of six participants. Among 21 patients who completed treatment with the add-on of IPT-G, 6 were males and 15 were females, while among 20 patients in the waiting list for IPT-G, 7 were males and 13 were females. Demographics of completers are reported in Table 1.

At the one-way ANOVA and the Chi-square test, no statistically significant differences were found between the two treatment arms in the demographic and clinical characteristics at baseline. The results are presented in Tables 1 and 2.

Results of the ANOVA for repeated measures to evaluate for each rating scale the effects of trial duration (within-subjects effects) and treatment modalities (between-subjects effects) are displayed in Table 3.

We found a significant within-subject effect for the following rating scales: CGI-S ($P < 0.001$); BPDSI total score ($P < 0.001$) and items "dissociation and paranoid ideation" ($P = 0.04$), "interpersonal relationships" ($P < 0.001$), and "parasuicidal behavior" ($P < 0.001$); SAT-P total score ($P < 0.001$) and item "psychological functioning" ($P < 0.001$); SOFAS ($P < 0.001$); IIP-32 scales "socially inhibited" ($P < 0.001$), "self-sacrificing" ($P < 0.001$), "overly accommodating" ($P = 0.04$), "vindictive/self-centered" ($P = 0.03$), and "non-assertive" (P =

Table 1
Comparison with the ANOVA or the χ2 test of demographic variables at baseline between BPD patients who received IPT-BPD-R and add-on therapy with IPT-G and BPD patients who received IPT-BPD-R as single treatment.

Variable	BPD Patients IPT-BPD-R + IPT-G	BPD patients IPT-BPD-R	ANOVA/ χ2	P
Age, y	32.89 ± 10.64	33.11 ± 10.51	− 0.06	0.90
Men/women, n	6/15	7/13	0.14	0.71
Level of education, y	14.67 ± 2.02	15.06 ± 2.26	− 0.54	0.40

[a] Values are mean ± SD unless otherwise noted.
Abbreviations: BPD = borderline personality disorder.

Table 2
Comparison with the ANOVA of the baseline values of clinical rating scales between BPD patients who received IPT-BPD-R and add-on therapy with IPT-G and BPD patients who received IPT-BPD-R as single treatment.

Measure	BPD Patients IPT-BPD-R + IPT-G	BPD Patients IPT-BPD-R	F	P
BPDSI	40.67 ± 9.88	37.36 ± 5.91	1.487	0.231
MOAS	19.94 ± 1.66	18.83 ± 3.71	1.342	0.255
CGI-S	4.39 ± 0.78	4.11 ± 0.68	1.308	0.261
SOFAS	56.11 ± 6.98	59.44 ± 6.16	2.309	0.138
SATP	32.70 ± 6.32	35.56 ± 4.66	2.383	0.132
RMET	23.56 ± 2.06	23.39 ± 3.85	0.026	0.872
CTQ-SF	57.39 ± 16.00	53.50 ± 16.85	0.504	0.483
IIP-32 d/c	56.39 ± 16.49	48.28 ± 9.45	3.279	0.079
IIP-32 v/s	39.50 ± 9.37	41.67 ± 9.79	2.234	0.144
IIP-32 c/d	41.33 ± 16.78	33.17 ± 10.39	3.082	0.088
IIP-32 s.i.	53.67 ± 21.14	36.33 ± 17.29	3.575	0.067
IIP-32 n.a.	48.17 ± 16.29	45.67 ± 6.84	3.761	0.061
IIP-32 o.a.	50.17 ± 13.63	51.67 ± 13.73	3.391	0.074
IIP-32 s.s.	50.33 ± 10.06	48.17 ± 12.84	0.320	0.575
IIP-32 i/n	44.50 ± 20.43	45.67 ± 18.24	0.033	0.858

[a] Values are mean ± SD unless otherwise noted.
Abbreviations: BPDSI = Borderline Personality Disorder Severity Index; CGI-S = Clinical Global Impression Severity; CTQ = Childhood Trauma Questionnaire; IIP-32 d/c = Inventory of Interpersonal Problems Domineering/Controlling; IIP-32 v/s = Inventory of Interpersonal Problems Vindictive/Self-centered; IIP-32 c/d = Inventory of Interpersonal Problems Cold/Distant; IIP-32 s.i. = Inventory of Interpersonal Problems Socially Inhibited; IIP-32 n.a. = Inventory of Interpersonal Problems Non-assertive; IIP-32 o.a. = Inventory of Interpersonal Problems Overly Accommodating; IIP-32 s.s. = Inventory of Interpersonal Problems Self-sacrificing; IIP-32 i/n = Inventory of Interpersonal Problems Intrusive/Needy; MOAS = Modified Overt Aggression Scale; RMET = Reading the Mind in the Eyes Test; SAT-P = Satisfaction Profile; SOFAS = Social and Occupational Functioning Assessment Scale.

0.04).

We found both a significant within-subjects effect and between-subjects effect for the following rating scales: MOAS (for both effects $P < 0.001$); BPDSI items "feelings of emptiness" (respectively $P < 0.001$ and $P = 0.003$), "outbursts of anger" (for both effects $P = 0.002$), and "affective instability" (respectively $P < 0.001$ and $P = 0.04$); RMET (respectively $P < 0.001$ and $P = 0.04$); SAT-P items "work" (respectively $P = 0.04$ and $P = 0.03$), and "sleep, food, free time" (respectively $P = 0.016$ and $P = 0.04$); IIP-32 scale "domineering/controlling" (respectively $P = 0.04$ and $P = 0.03$). For all the above-mentioned scales, results calculated in the subgroup receiving IPT-G were superior to those obtained in the subgroup on the waiting list.

No significant effects were found either within subjects or between subjects for the following rating scales: BPDSI items "abandonment," "impulsivity", and "identity"; SAT-P items "physical functioning", and "social functioning"; and IIP-32 scales "cold/distant", and "intrusive/needy".

In the linear regression analysis, performed in the subgroup of patients who received the association of IPT-BPD-R and IPT-G, the following clinical variables were found significantly related to the Δ BPDSI score: the BPDSI items "impulsivity" ($P = 0.04$), and "interpersonal relationships" ($P = 0.024$); the RMET ($P = 0.016$); the scale "socially inhibited" of the IIP-32 ($P = 0.011$). At the multiple regression analysis variables that were significantly and independently related to Δ BPDSI score were the BPDSI item "impulsivity" ($P = 0.003$); the RMET ($P = 0.002$); and the subscale "socially inhibited" of the IIP-32 ($P = 0.03$). B value is negative for the BPDSI item "impulsivity", and the IIP-32 scale "socially inhibited". The results of the multiple regression are described in Table 4.

4. Discussion

The present randomized controlled study evaluated the efficacy of the adjunction of IPT-G to individual IPT-BPD-R in comparison to individual IPT-BPD-R as a single treatment in a group of patients with a diagnosis of BPD. In addition, demographical and clinical characteristics which can predict treatment response in the subgroup of patients who received the association of individual and group treatment were investigated.

To the best of our knowledge, no trials have estimated the effects of add-on treatment with group IPT in BPD patients. A single study compared group IPT with individual dynamic psychotherapy in a sample of BPD patients (Marziali and Munroe-Blum, 1995). Therefore, it is rather difficult to compare our results with data in the literature.

Regarding the comparison between the two treatment groups, the results of our study suggested that (1) IPT-G plus IPT-BPD-R, and (2) IPT-BPD-R as a single treatment, can both be proposed as efficacious interventions. Individual IPT-BPD-R in monotherapy and the add-on of IPT-G to individual BPD-BPD-R had a similar efficacy on global symptoms, symptoms related to BPD psychopathology, social and occupational functioning, subjective perception of quality of life, and several dysfunctional interpersonal styles. These findings are consistent with the conclusions of the study performed by Marziali and Munroe-Blum (1995) stating that the total study cohort (both patients who received group IPT and patients treated with individual psychodynamic therapy) showed significant improvements in all major outcomes.

Nevertheless, in the present study, the effects produced by the two treatment strategies presented significant differences in favor of the add-on of IPT-G for several outcome measures. Among symptom domains, we found that the association of IPT-G with individual IPT-BPD-R was significantly superior in improving aggression, feelings of emptiness, outbursts of anger, and affective instability. In addition, patients who received the addition of group therapy showed a significant improvement in the domain of social cognition, in the dysfunctional interpersonal style "domineering/controlling", and in the quality of life in terms of subjective satisfaction at work and in sleep/eating/free time rhythms. By our results, the reduction of aggressive behaviors after group psychotherapy was observed in previous studies of DBT and MBT performed as single-group therapies or in combined individual and group interventions (Soler et al., 2009; Neacsiu et al., 2010; Bateman et al., 2016). In our study, BPD patients who were treated with the association of IPT-G showed a higher improvement in three core symptoms: feelings of emptiness, outbursts of anger, and affective instability. This is a meaningful result that has been found in other trials that provided add-on group psychotherapies in BPD patients, such as dialectical behavior therapy-skills training and emotion regulation group (Gratz and Gunderson, 2006; Soler et al., 2009; Gratz et al., 2014; Kramer et al., 2016; Stoffers-Winterling et al., 2022). While other forms of psychotherapy, such as DBT and STEPPS, involve explicit instruction and training in emotional regulation skills, this is not a component of IPT. Nevertheless, the observed enhancement in emotional regulation in patients treated with IPT may be attributed to improvements in interpersonal relationships, a primary focus of interpersonal intervention. In IPT-G, there is an additional effect related to the experiential learning of interpersonal relationships within the group. This experience induces improvements in the ability of mentalization and has a positive effect on the regulation of emotional responses. Our subgroup of BPD patients treated with IPT-G achieved a significant improvement in their social cognition and in the attitude to dominate and control interpersonal relationships. A high score on the IIP-32 scale "domineering/controlling" indicates that the person has difficulties relaxing control and is prone to influence and manipulate other people with hostile or even aggressive attitudes (Horowitz et al., 2000). This interpersonal style may frequently be found in patients with BPD (Bellino et al., 2016). It can be hypothesized that the improvement in the above-mentioned relational style is related to the group context. Patients involved in group therapy

Table 3
Results of the ANOVA for repeated measures calculated in the 41 patients who completed the trial to find significant effects within subjects (trial duration) and between subjects (treatment modalities).

Scale	Treatment	Baseline mean ± sd	After 10 months mean ± sd	Within-subjects effect (duration)	Between-subjects effect (treatment)
MOAS	IPT + IPT-G	19.94 ± 1.66	2.39 ± 3.43	<0.001	<0.001
	IPT	18.83 ± 3.71	18.28 ± 4.25		
RMET	IPT + IPT-G	23.56 ± 2.06	27.06 ± 1.59	<0.001	0.040
	IPT	23.39 ± 3.85	23.44 ± 3.91		
SOFAS	IPT + IPT-G	56.11 ± 6.98	72.22 ± 8.95	<0.001	0.117
	IPT	59.44 ± 6.16	62.00 ± 5.06		
CGI-S	IPT + IPT-G	4.39 ± 0.78	3.06 ± 0.73	<0.001	0.893
	IPT	4.11 ± 0.68	3.39 ± 0.50		
BPDSI	IPT + IPT-G	40.67 ± 9.88	29.55 ± 10.24	<0.001	0.995
	IPT	37.36 ± 5.91	32.89 ± 5.50		
BPDSI emptiness	IPT + IPT-G	6.44 ± 1.74	4.35 ± 1.71	<0.001	0.003
	IPT	4.50 ± 1.40	3.79 ± 1.20		
BPDSI outburst of anger	IPT + IPT-G	3.95 ± 1.48	2.63 ± 1.40	0.002	0.002
	IPT	4.57 ± 0.90	4.23 ± 0.99		
BPDSI affective instability	IPT + IPT-G	7.84 ± 2.53	5.62 ± 2.11	<0.001	0.040
	IPT	8.64 ± 1.64	7.17 ± 1.47		
BPDSI interpersonal relationships	IPT + IPT-G	5.24 ± 1.34	3.57 ± 1.54	<0.001	0.452
	IPT	4.78 ± 1.43	4.66 ± 1.21		
BPDSI parasuicidal behavior	IPT + IPT-G	2.27 ± 1.72	1.23 ± 1.43	<0.001	0.09
	IPT	1.51 ± 1.27	0.72 ± 0.75		
BPDSI paranoid ideation	IPT + IPT-G	2.84 ± 1.46	2.15 ± 1.02	0.040	0.361
	IPT	3.33 ± 1.33	2.34 ± 1.62		
SAT-P	IPT + IPT-G	32.70 ± 6.32	36.02 ± 6.82	<0.001	0.433
	IPT	35.56 ± 4.66	36.27 ± 5.60		
SAT-P working functioning	IPT + IPT-G	18.83 ± 10.07	22.11 ± 14.65	0.040	0.030
	IPT	28.00 ± 10.27	28.17 ± 12.71		
SAT-P psicological functioning	IPT + IPT-G	50.61 ± 6.92	61.11 ± 11.95	<0.001	0.792
	IPT	56.44 ± 9.03	56.83 ± 9.73		
SAT-P sleep, food, free time	IPT + IPT-G	29.67 ± 5.93	30.33 ± 4.27	0.016	0.040
	IPT	24.00 ± 8.15	26.67 ± 5.03		
IIP-32 d/c	IPT + IPT-G	56.39 ± 16.49	54.50 ± 10.54	0.040	0.030
	IPT	48.28 ± 9.45	44.50 ± 13.56		
IIP-32 s.i.	IPT + IPT-G	53.67 ± 21.14	45.72 ± 12.04	<0.001	0.079
	IPT	36.33 ± 17.29	31.50 ± 15.36		
IIP-32 s.s.	IPT + IPT-G	50.33 ± 10.06	44.33 ± 7.12	<0.001	0.96
	IPT	48.17 ± 12.84	46.17 ± 11.75		
IIP-32 o.a.	IPT + IPT-G	50.17 ± 13.63	44.50 ± 9.18	0.04	0.35
	IPT	51.67 ± 13.73	51.17 ± 15.91		
IIP-32 v/s	IPT + IPT-G	39.50 ± 9.37	36.00 ± 5.01	0.03	0,265
	IPT	41.67 ± 9.79	40.33 ± 11.24		
IIP-32 n.a.	IPT + IPT-G	48.17 ± 16.29	36.50 ± 18.85	0.04	0.50
	IPT	45.67 ± 6.84	44.50 ± 12.36		

Abbreviations: BPDSI = Borderline Personality Disorder Severity Index; CGI-S = Clinical Global Impression Severity; IIP-32 d/c = Inventory of Interpersonal Problems Domineering/Controlling; IIP-32 v/s = Inventory of Interpersonal Problems Vindictive/Self-centered; IIP-32 s.i. = Inventory of Interpersonal Problems Socially Inhibited; IIP-32 n.a. = Inventory of Interpersonal Problems Non-assertive; IIP-32 o.a. = Inventory of Interpersonal Problems Overly Accommodating; IIP-32 s.s. = Inventory of Interpersonal Problems Self-sacrificing; MOAS = Modified Overt Aggression Scale; RMET = Reading the Mind in the Eyes Test; SAT-P = Satisfaction Profile; SOFAS = Social and Occupational Functioning Assessment Scale.

Table 4
Results of multiple regression analysis. The dependent variable is Δ BPDSI.

	Coefficient	SE	t	*P*
BPDSI impulsivity	− 0.507	0.308	− 3.615	0.003
RMET	0.553	0.408	3.837	0.002
IIP-32 s.i.	− 0.349	0.070	− 2.432	0.030

Abbreviations: BPDSI = Borderline Personality Disorder Severity Index; IIP-32 s.i. = Inventory of Interpersonal Problems Socially Inhibited; RMET = Reading the Mind in the Eyes Test.

gradually get rid of an isolated and self-referential point of view and improve their capacity to recognize the needs and emotions of others. Patients with BPD often distrust others and perceive them as unreliable or having negative intentions. Group members, by sharing their difficulties, can feel gratified in being in an atmosphere of mutual safety and trust. In addition, the perception of rejection and hostility is strictly related to impaired social cognition, that in turn is interconnected with symptoms of anger, aggression, and affective instability (Schipper and Petermann, 2013; Berenson et al., 2018). It is possible that experiencing positive relationships during the group sessions promotes social cognition and this in turn results in symptomatic improvement (Bateman et al., 2016).

Our findings showed that the addition of IPT-G was related to a significant amelioration of subjective quality of life in terms of work functioning and regularity of circadian rhythms (sleep, food, free time). Our previous study considering the impact of IPT-BPD on quality of life was designed to evaluate the efficacy of combined individual psychotherapy and pharmacotherapy in comparison with pharmacotherapy (Bellino et al., 2010). The combination of individual IPT-BPD with pharmacotherapy obtained an improvement of subjective quality of life in terms of psychological and social functioning (Bellino et al., 2010), while the advantage given by the add-on of IPT-G to individual psychotherapy concerned work functioning and satisfaction in sleep, eating, and free time. Although improvements were found in both trials in factors of subjective quality of life measured with SAT-P, the treatment approach was much different and an actual comparison of data is not possible.

The second aim of the present study was to identify which demographical and clinical characteristics can be considered predictors of

response to the add-on of group therapy. Our findings indicated that a lower degree of impulsivity, a lower level of social inhibition, and higher ability of social cognition were significantly and independently related to a better clinical response to IPT-G.

Relational stresses arising from the group context may result in acting out or early abandonment of the treatment in highly impulsive patients. Therefore, it is understandable that subjects who have greater control over impulsivity may get better benefits from group therapy. Likewise, patients who have a less socially inhibited relational style may improve more in a group setting. Subjects presenting a shy and inhibited attitude in interpersonal situations are less willing to share their thoughts and emotions and are likely to take less advantage of this intervention. A better response to IPT-G A can also be predicted by a higher level of social cognition at baseline. A possible explanation is that patients who present less severe deficits in social cognition can more easily decode the mental states of other individuals and decipher external signals. This cognitive advantage allows us to understand the relations that develop in the group with a positive impact on BPD psychopathology.

A relevant strength of this study is that it is the first controlled trial designed to assess the efficacy of IPT-G associated with individual IPT-BPD in comparison with IPT-BPD alone. This design allows us to identify what effects are actually due to the contribution of group therapy.

The present study suffers also from some limitations. The first limit is the rather small sample size. We are aware that results obtained with a low sample size should be interpreted with caution. A second possible limitation is the exclusion of subjects with co-occurring major depressive episodes to avoid a confounding effect on the outcome of the study. Given that this is a common psychiatric comorbidity, the study sample may present clinical features that are partially different from those typically found in clinical practice. A further limitation is that data on pharmacotherapies received by our patients before entering the study have not been collected and compared between the two treatment arms. This, however, was partially corrected by excluding patients who had received pharmacological interventions in the three months before enrollment.

In conclusion, data from the present study support the hypothesis that this specific type of group psychotherapy, when used in addition to individual psychotherapy, may be effective in treating some core symptoms of BPD (feelings of emptiness, outbursts of anger, and affective instability) and improving patients' quality of life, ability to mentalize, and, consequently, interpersonal functioning. It would be of considerable interest to monitor the clinical progress of these patients and further investigate the predictive factors of the response to treatment. Additionally, it would be necessary to replicate similar observations in new studies conducted with larger and culturally diverse populations in order to make the results as generalizable as possible.

Authors statement

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Declaration of competing interest

The authors declare no conflict of interest.

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