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Outcome of mentalization-based and supportive psychotherapy in patients with borderline personality disorder: a randomized trial

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Jørgensen CR, Freund C, Bøye R, Jordet H, Andersen D, Kjølbye M. Outcome of mentalization-based and supportive psychotherapy in patients with borderline personality disorder: a randomized trial.

Objective: This study presents data from a randomized outcome study comparing mentalization-based and supportive psychotherapy for patients with borderline personality disorder (BPD).
Method: Eighty-five SCID-II diagnosed borderline patients were randomized to either i) 2 years of intensive (twice weekly) combined (individual and group), mentalization-based psychotherapy (MBT) or ii) 2 years of less-intensive (biweekly) supportive group therapy. Treatment outcome was assessed using a battery of self-report questionnaires, SCID-II interviews and therapist-rated global assessment of functioning (GAF).
Results: Fifty-eight patients completed 2 years of treatment. Significant changes in both treatment groups were identified for several outcome measures, including self-reported measures of general functioning, depression, social functioning and number of diagnostic criteria met for BPD, as outlined by the SCID-II interview. General linear modelling was used to compare treatment outcome in the two groups. Only GAF showed a significantly higher outcome in the MBT group. A trend was found for a higher rate of recovery from BPD in the MBT group. Pre-post effect sizes were high (0.5–2.1) and for the most part highly significant in both groups.
Conclusion: The study indicates that both MBT and supportive treatment are highly effective in treating BPD when conducted by a well-trained and experienced psychodynamic staff in a well-organized clinic.

Key words: borderline personality disorder; psychotherapy; treatment outcome

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Significant outcomes

- Patients with borderline personality disorder profit significantly from both intensive mentalization-based psychotherapy (MBT) treatment and less-intensive supportive group therapy
- Effect sizes were very high in both treatment groups
- Compared with supportive group treatment, changes in therapist-rated global assessment of functioning were significantly higher in the MBT treatment group. Differences in outcome were non-significant on all other outcome measures.

Limitations

- The study did not include systematic monitoring of the two compared treatment modalities
- Randomization of the patients was skewed; two-thirds of the patients were randomized to MBT treatment and one-third to supportive group treatment.
- Treatment outcome was primarily tested with self-report symptom measures. The study did not include assessments of change, which tap into more complex levels of functioning (reflective functioning, attachment style, etc.).

Introduction

Borderline personality disorder (BPD) represents a substantial health problem, particularly among women. It is marked by chronic instability, identity disturbance, severe subjective distress, self-destructive behaviour and low levels of functioning in a broad range of areas, including dysfunctional relationships, unemployment, continuous dependency on welfare systems, poverty and general underachievement in terms of education, work, etc. (1). Psychosocial functioning and particularly vocational functioning is often substantially compromised in BPD patients (2). The prevalence of BPD is estimated at approximately 1–1.5% in the general population and up to 20% among psychiatric in-patients (3, 4). Comorbidity with other personality disorders, severe symptom disorders (depression, bipolar disorder, PTSD and anxiety disorders), alcohol/drug abuse and behavioural disorders (eating disorders, self-destructive behaviour) is substantial (5), and the lifetime risk of suicide is estimated to be up to 10% (5).

Historically, BPD has been viewed as a disorder, which is notoriously difficult to treat, evidenced by high levels of patient drop-out during therapeutic interventions, etc. (6, 7). In the last 10–15 years, a number of studies have supported the efficacy of different forms of specialized long-term psychotherapy. Based on these studies, BPD patients appear to recover more rapidly (and in part more spontaneously) than previously anticipated on most symptomatic dimensions, except general levels of adaptive functioning (social and occupational) (8). There is a growing consensus that intensive, focused and highly structured long-term psychotherapy is the most suitable treatment for severely disturbed BPD patients. However, no single treatment model has been established as the primary treatment of choice. Some empirical support has been found for at least four comprehensive treatment models: transference-focused psychotherapy (TFP) (9, 10), dialectical behaviour therapy (DBT) (11), mentalization-based treatment (MBT) (12) and schema-focused therapy (SFT) (13). In addition to this, Systems Training for Emotional Predictability and Problem Solving (STEPPS), a 20-week group-based program for BPD out-patients, has gained some empirical support (13–16).

At present, there is minimal empirical evidence to indicate which of the four comprehensive treatment models is most effective. Our knowledge concerning the effectiveness of the four treatment models in clinical practice (outside their respective centres of development) is still limited and therefore further studies are needed. Bateman and Fonagy (17) noted that when treatments are evaluated by the researchers who designed and developed them, there is a risk of bias (allegiance). Consequently, replication by independent groups is urgently required.

To date, eight randomized outcome studies have been conducted outside the sites of the development of the respective BPD treatment models. Koons et al. (18) and Verheul et al. (19) compared DBT (6 and 12 months respectively) with treatment as usual. Carter et al. (20) compared 6 months DBT with TAU and waiting list. All three studies found that DBT was superior to TAU on some but not all outcome measures. McMain et al. (21) compared 1-year DBT with a manualized version of general psychiatric management as described in the APA practice guidelines for BPD treatment (22). They found no significant differences between the two groups. Similarly, Feigenbaum et al. (23) found practically no significant differences in outcome between 1year of DBT and TAU. In a comparison of the effectiveness of 3 years of TFP and SFT, Giesen-Bloo et al. (24) found that significantly more patients in SFT recovered or showed reliable clinical improvement on a BPD severity index compared with patients in TFP. However, this study has been criticized for insufficient integrity checks (indicating inadequate therapist adherence) of the delivered TFP treatment (25). Pribe et al. (26) studied the effectiveness of DBT in a randomized controlled design. Finally, in a comparison of 1-year TFP with psychotherapy in the community, Doering et al. (27) found that TFP was superior on selected outcome measures like BPD symptomatology, psychosocial functioning and personality organization. Overall, the results indicate that intensive therapeutic interventions are more effective than treatment as usual for patients with BPD (18–20); however, the question of whether any one therapeutic intervention model provides greater clinical advantage to BPD patients than the other intervention models remains unclear. Furthermore, one of the four comprehensive treatments models outlined earlier, mentalization-based therapy, has not yet been the subject of a randomized outcome study outside the centre in which it was developed. Therefore, a randomized outcome study investigating the efficacy of mentalization-based therapy for BPD is required.

One important issue when conducting empirical investigations of psychological therapies for BPD is the ability to keep BPD patients in treatment. The Doering et al. (27) and Verheul et al. (19) studies experienced significantly lower drop-out rates from the experimental treatment (DBT and

TFP respectively) compared with TAU. Conversely, Feigenbaum et al. (23) experienced significantly higher drop-out from the experimental treatment (DBT) compared with TAU.

The present study is the first randomized trial of MBT that has not been conducted by its developers. Moreover, only one randomized study to date has looked at the outcome of long-term (psychodynamic) supportive therapy in borderline patients. Clarkin et al. (28) found that 1 year of TFP, DBT and supportive treatment was generally equivalent with respect to broad positive change in borderline patients.

Aims of the study

The aim of the study was to investigate and compare the outcome of 2 years of mentalization-based psychotherapy and 2 years of supportive group therapy in patients with borderline personality disorder (BPD).

Material and methods

This study presents data from a randomized outcome study at the Clinic for Personality Disorders, Aarhus University Hospital, Risskov. The clinic specializes in the assessment and psychotherapeutic treatment of BPD using modern psychoanalytic principles. The outcome of long-term intensive, combined mentalization-based psychotherapy was compared with less-intensive supportive group therapy in a randomized and partly controlled design. Patients in both groups were offered 2 years of out-patient treatment.

111 BPD patients took part in the study. Following participant consent procedures and initial diagnostic assessments, patients were randomly assigned to either i) combined, mentalization-based psychotherapy or ii) supportive psychotherapy. The combined treatment consisted of 45-min sessions of individual psychotherapy carried out weekly over an 18-month period and 1½-h weekly sessions of group psychotherapy over 18–20 months (starting approximately 3 months after the individual therapy). Supportive treatment consisted of one and a half hours of supportive group therapy every fortnight. Patients in both groups also participated in a psycho-educational program with group-based psycho-education once a month for 6 months (patients in both treatment arms were allowed to attend the psycho-educational program more than once) and were offered medical treatment in accordance with APA recommendations (21). Treatment was offered under the Danish health care system and none of the participants paid for the treatment. All patients were asked to answer a battery of outcome questionnaires every 3 months and outcomes were assessed more thoroughly at intake and 24 months.

Patients

Patients were referred to the clinic for personality disorders from psychiatric wards, out-patient clinics, community psychiatric units and psychiatrists in private practice in the Central Jutland Region. Most patients were recruited from the greater Aarhus area, which has a population of approximately 0.5 million. Potential subjects were screened through clinical interviews, including present state examination (PSE) (29) and semistructured SCID-II interviews (30). PSE- and SCID-II interviews were conducted again after 24 months. All SCID interviews were video-recorded and interviewers demonstrated satisfactory reliability (intra-class coefficient (ICC) for BPD = 0.84, $P < 0.0005$). Axis I (current and lifetime) comorbidity was examined through PSE interviews and systematic examination of medical records. All patients received written and oral information about the study and provided written informed consent for participation. The study was approved by the regional research ethics committee of the Central Jutland Region.

All patients met DSM-IV criteria for BPD as assessed by SCID-II. Patients who also met the diagnostic criteria for antisocial or paranoid PD at the time of assessment were excluded from the randomization. Patients with severe substance abuse (on a daily basis) requiring specialist treatment were also excluded. Only patients older than 21 years and with a global assessment of functioning (GAF) score above 34 were included in the randomization. Randomization was conducted by an individual outside the clinic. Two-thirds ($n = 74$) of the 111 patients included in the study were randomized to combined treatment, while one-third ($n = 37$) were offered supportive group therapy. Most patients were allocated to a waiting list before they started treatment. Mean time from first assessment interview to start in treatment was 290 days (SD = 186 days) in the combined MBT group and 276 days (SD = 136 days) in the supportive group. Six patients refused to participate in the study after the randomization procedure. One of these patients completed treatment but had to be excluded from the analysis owing to missing data. Efforts were made to follow the development of those patients who started treatment but dropped out prematurely. These efforts were successful for three patients in the supportive group.

Treatment and therapists

The overall theoretical framework of the clinic is primarily based on mentalization theory (12) and attachment theory (31). In addition to this, the clinic has integrated ideas from object relations theory (9). The main supervisor (last author) and one of the therapists were trained by Anthony Bateman in London. This training included a 3-day advanced course for MBT trainers. Subsequently, all other participating MBT therapists were trained by these two 'MBT trainers'. All therapists received ongoing theoretical training in the MBT treatment model, including theoretical and clinical seminars with Dr. Anthony Bateman once or twice a year.

In the combined MBT, the focus of attention was the patient's relationship with the therapist and with other people, including other group members. In accordance with the MBT treatment manual (12, 32), the overall aim of the treatment was to develop the patient's ability to mentalize (establish a mentalizing stance, resembling the concept of de-centring in cognitive therapy) and develop more adaptive interpersonal behaviours by working through chains of interpersonal events and emotions, using mentalizing functional analysis (33), stop-stand-and-rewind techniques, etc. Therapists focused on the dominant object relations conveyed in the patient's relationship with the therapist and others, stimulated mentalization through the therapeutic process and focused on non-mentalizing modes of functioning (psychic equivalence and pretend mode). Transference was seen as essential for understanding the patient, but interpretation of transference was substantially reduced. Similarly, confrontation and interpretation of defences were reduced. Transferences and defences were primarily used to locate conflicting affects and points of intervention. The combined mentalization-based psychotherapies (involving individual and group therapy, and psycho-education) were essentially conducted by six experienced interdisciplinary psychotherapists (two psychiatrists, one psychologist, two occupational therapists and one nurse), all with substantial training in psychodynamic psychotherapy. The average age of therapists and number of years working with personality disordered patients were 51.7 (SD = 7.5) and 14.0 (SD = 3.5) respectively. On average, the therapists had worked with psychiatric patients for 22.7 (SD = 12.1) years.

The supportive group treatment focused primarily on the individual in the group. Aggression and anxiety were actively regulated by the therapists and interventions were tailored around supportive techniques (verbalizing and understanding interpersonal behaviour, etc.). Patients were encouraged to reflect upon each other's problems and give advice to other group members. Attention was generally focused on how to solve specific problems and relational conflicts outside the group, including the development of behavioural strategies to avoid non-adaptive and self-destructive behaviour. In some cases, the patients were given specific advice about more adaptive ways to handle specific problems and interpersonal conflicts. Similarly, therapists supported the patient's ability to stick to 'good decisions'. Interpretations of transferences and defences were not used. Compared with the MBT group, and partly dictated by the lower treatment intensity, the overall focus of the supportive treatment was more on the patient's current reality and conscious subjective experiences in and outside the group. A short 'manual' or outline of the basic principles of the supportive group treatment (written in Danish) is available from the first author (34). Post hoc analyses based on medical records showed that patients in supportive group treatment had a relatively limited use of other psychiatric services while in treatment. In the course of the 2 years of supportive group treatment, 15 patients (of the 27 starting in treatment) received an average of 1.8 individual sessions with the group therapists (SD = 0.8), eight patients had an average of 2.5 phone consultations with one of the group therapist (SD = 2), six patients had an average of 1.3 sessions with all therapists in the clinic (team meetings) (SD = 0.5) and eight patients had an average of 1.5 consultations with their family and/or professional network organized by the group therapists (SD = 0.8). Two patients were hospitalized once for 4 and 5 days respectively. One patient was hospitalized six times for a total of 33 days. Four patients were received once (but not hospitalized) by the psychiatric emergency unit. The supportive groups were conducted by two experienced psychotherapists (one psychiatrist in training as a dynamic group therapist, and one nurse with 3 years of formal training in dynamic group therapy). One of the therapists was aged 60 years, had worked with psychiatric patients for 37 years and for the last 15 years specialized in personality disordered patients. The other therapist was aged 48 and had worked with psychiatric patients for 10 years, devoting the last 2 years to personality disordered patients.

Treatment integrity was monitored by means of intensive supervision conducted by a highly experienced supervisor, trained in psychoanalytic and mentalization-based psychotherapy (the last author). Supervision was given in 2-h group

sessions that met once a week. Group therapies (MBT and supportive) were supervised separately, once a fortnight by an external psychoanalyst and group psychotherapist. Once a week, the therapists presented video recordings of their individual therapy sessions as part of the supervision.

Measures

Level of functioning at intake was tested using a range of self-report measures with well-established reliability and validity. Subjective experience of symptoms was measured using the Revised Symptom Check List 90 (SLC-90-R) (35). This questionnaire assesses the current level of mental symptoms divided into nine subscales. SCL-90-R, Global Severity Index (GSI) represents the mean of all 90 items and is an overall measure of pathology level. Depression and anxiety symptoms were measured using the Beck Depression Inventory (BDI-II) (36), State-Trait Anxiety Inventory (STAI) (37, 38) and Beck Anxiety Inventory (BAI) (39). Social adjustment and interpersonal function were measured using the Social Adjustment Scale, Self Report-version (SAS-SR) (40) and the Inventory of Interpersonal Problems (IIP) (41). Patients were asked to answer SCL-90-R, BDI and BAI every 3 months. All other self-report measures were answered at baseline and termination.

The GAF (42) was used to evaluate the overall severity of disturbance. A split version of the GAF was used with separate ratings of symptoms and social function (43). Based on clinical assessment interviews carried out by one of the therapists, the patient's symptoms and social functioning were presented to the team, and the GAF score was then assessed by team consensus. The team was not blind to treatment group when making these ratings as most patients were known by the team. An independent rater (first author) GAF-rated 20 patients based on extensive notes from assessment interviews and the reliability of the GAF rating was analysed using Cronbach's alpha. The reliability was very high, Cronbach's alpha = 0.97 for GAF-F and 0.95 for GAF-S (both Ps < 0.0005). SCID-II interviews were conducted 24 months after treatment was initiated and the number of diagnostic criteria met for BPD was used as a measure of outcome.

Analysis

Some patients periodically refused to answer the questionnaires issued and in some cases the questionnaires were not answered at the appointed time resulting in selective loss of data. To calculate mean and standard deviations at selected points in time (baseline, 6 months, etc.), the outcome data were aggregated (e.g. baseline data are based on aggregated data delivered from time of assessment interview through 30 days into the treatment, 6-month scores on data from questionnaires answered from 136 to 230 days after treatment was initiated, etc.). The demographic and clinical characteristics of the two groups at intake were compared using t-tests, Fisher's exact test and chi-square tests. To analyse change over time in the two groups, linear regression analyses were conducted for each of the outcome measures. Based on those patients who started in treatment, separate pre-post effect sizes were calculated for the two groups (excluding those patients who never started treatment). Finally, differences in outcome between the two groups were analysed using a general linear model with patient and treatment group as factors, and time as independent variable. All analyses (unless otherwise specified) were based on all available data from patients who started treatment ($n = 58 + 27$, see Fig. 1) rather than on only those patients who completed 24 months of treatment. Data were thus analysed using a maximum likelihood approach. Standardized residuals were analysed and tested separately for all outcome measures using Kolmogorov–Smirnov tests. With the exception of GAF scores, and BAI scores in the MBT group, all outcome data were normally distributed (all Ps > 0.05) and thus followed a Gaussian curve. The distribution of GAF scores was unimodal but positively skewed. In interpreting the reported GAF data, one must thus keep in mind that our GAF data were not normally distributed. Because of the abnormal distribution of our GAF data, we did a separate analysis based on GAF data subjected to logarithmic transformation. The log-transformed GAF data were normally distributed (did not differ significantly from normal distribution, $P = 0.281$ for GAF-F, $P = 0.183$ for GAF-S) and were used to compare GAF treatment outcome in the two groups (using a general linear model). All statistical analyses were carried out using SPSS 15.0, except general linear modelling, calculated with 'R'.

Results

85 (58 + 27) patients started treatment. The remaining 26 patients never started treatment or refused to participate in the study after randomization. As a result, there was an overall drop-out rate of 43% (48 of 111) from the intention to treat group. 58 patients completed 2 years of treatment. 22 patients dropped out of treatment and five

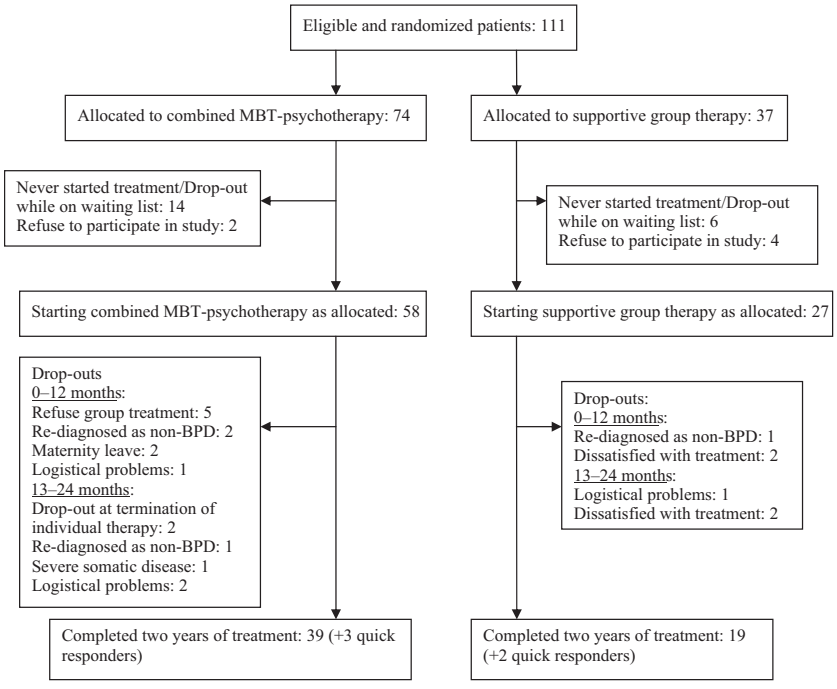

Fig. 1. Patient flow and reasons for drop-out in randomized trial with borderline personality disorder patients.

patients ('quick responders') terminated the course after <2 years (after 8, 18, 19, 21 and 22 months) because they did not have a need for further treatment. Reasons for drop-out are listed in Fig. 1. Four patients were re-diagnosed as non-BPD and referred to other clinics that specialized in the respective disorders; symptoms that were interpreted as signs of BDP at the time of assessment were retrospectively re-interpreted as signs of other disorders when the therapists learned more about the patients (one schizophrenia, one schizotypal disorder, one chronic depression and one Asperger's syndrome). These patients remained part of the sample until the time of their re-diagnosis when the collection of data was stopped. Sixteen of the 58 patients starting combined treatment terminated prematurely (excluding the quick responders), meaning that there was a drop-out rate of 28% for patients starting in this treatment. The drop-out rate in the group of patients starting supportive group therapy was 22%. The level of attrition from the two groups was not significantly different (Fisher's exact test, $P = 0.79$).

Essential demographic and clinical characteristics at intake are reported in Table 1. In the group of patients allocated to MBT treatment, 53 (72%) met diagnostic criteria for depression (nine in remission at the time of assessment), 27 (37%) met criteria for anxiety disorder, 14 (19%) met criteria for an obsessive–compulsive disorder and 36 (49%) for a (previous or current) eating disorder. On Axis II, 48 (65%) met criteria for at least one personality disorder other than borderline, 16 (22%) for avoidant PD. In the supportive therapy group, 28 (76%) met criteria for depression (eleven of these were in remission at assessment), 9 (24%) met criteria for anxiety disorder, 5 (14%) for an obsessive–compulsive disorder and 14 (38%) for an (past or current) eating disorder. 32 (86%) met criteria for at least one other personality disorder, 10 (27%) for avoidant PD. None of the differences in comorbidity between the randomized groups were significant (Fisher's exact test, $P > 0.3$).

In line with prior BPD studies, most of the patients were burdened by relatively severe socioeconomic problems. Almost half of them were living alone, while one-quarter had several successive partners. A substantial proportion of the patients (over 65%) were on social security. Compared with the Danish population in general, the level of education in the group of patients was very low. *T*-tests, Fisher's exact tests and chi-square tests were conducted on all clinical and demographic data at intake. Three significant differences between the two groups were identified at intake (patients starting treatment). First, the number of patients on permanent social security (pension) was significantly higher ($P < 0.04$) in the supportive group, and second, axis I comorbidity was significantly higher ($P < 0.02$) in the MBT treatment

Table 1. Demographic and clinical characteristics at intake of patients with borderline personality disorder (BPD) (n = 111) and patients starting combined mentalization-based treatment (MBT) (n = 58) or supportive group treatment (n = 27)

	Combined MBT Mean/*N* (SD/%) (n = 74)	Supportive group Mean/*N* (SD/%) (n = 37)	Starting MBT Mean/*N* (SD/%) (n = 58)	Starting supportive Mean/*N* (SD/%) (n = 27)
Age	29.2 (6.1)	29.0 (6.4)	29.5 (6.5)	29.7 (6.8)
Female	71 (96%)	35 (95%)	56 (97%)	25 (93%)
BPD criteria (SCID)	6.7 (1.1)	6.9 (1.3)	6.7 (1.1)	6.8 (1.3)
At least one other PD	48 (65%)	32 (86%)	42 (72%)	23 (85%)
Number of Axis I diagnoses	2.1 (1.3)	1.4 (1.1)	2.0 (1.3)	1.3 (1.0)
Civil status				
Single	37 (50%)	14 (38%)	28 (48%)	10 (37%)
Successive partners	18 (24%)	10 (27%)	12 (21%)	6 (22%)
Married/partner	19 (26%)	13 (35%)	18 (31%)	11 (41%)
Years of education				
<10	35 (47%)	13 (35%)	28 (48%)	9 (33%)
10–12	26 (35%)	19 (51%)	19 (33%)	14 (52%)
13–15	13 (17%)	3 (8%)	11 (19%)	2 (7%)
>15	0 (0%)	2 (5%)	0	2 (7%)
Work situation				
Employed	7 (10%)	2 (5%)	6 (10%)	2 (7%)
Student	12 (16%)	6 (16%)	8 (14%)	5 (19%)
Social security	53 (72%)	25 (68%)	40 (69%)	15 (56%)
Pension	1 (1%)	4 (11%)	1 (2%)	4 (15%)
Reported self-mutilation	59 (80%)	30 (81%)	48 (83%)	21 (78%)
Reported (lifetime) suicide attempt	52 (70%)	23 (57%)	42 (72%)	17 (63%)
Antipsychotic drug treatment	7 (10%)	8 (22%)	6 (10%)	6 (22%)
Antidepressive drug treatment	45 (61%)	25 (68%)	37 (64%)	20 (74%)
No drug treatment	22 (30%)	12 (32%)	17 (29%)	6 (22%)

PD, personality disorders; SCID, Structured Clinical Interview for DSM-IV personality disorders.

group. In the combined treatment group, 60% received a diagnosis of depression, 31% were diagnosed with an anxiety disorder and 45% had some form of eating disorder, compared with 46% diagnosed with depression, 19% with anxiety disorder and 32% with eating disorder in the group of patients randomized to supportive treatment. Finally, significantly ($P < 0.03$) more of the patients randomized to supportive treatment had at least one other personality disorder. In the group of patients who started treatment, this difference was no longer significant ($P = 0.27$). No significant ($P > 0.05$) differences were identified between the group of patients who dropped out while on waiting list compared with the patients who started in treatment, nor between the group of patients who completed 2 years of treatment and the patients who started treatment but dropped out prematurely. No significant differences were found between those patients with complete data and those with incomplete data (all Ps > 0.11).

Means and standard deviations for the outcome measures are reported in Table 2. Average level of disturbance decreased significantly over the course of treatment in both groups. As can be seen from Table 2, patients in both treatment modalities showed clinically significant changes on all symptom measures. In combined MBT treatment, mean GSI dropped from 1.7 (SD = 0.6) at intake to 1.2 (SD = 0.8) at 24 months. Similarly, patients in supportive treatment showed a drop in GSI mean from 2.0 (SD = 0.6) at intake to 1.4 (SD = 0.8) after 24 months. Fourteen (24%) patients in combined and four (15%) patients in supportive treatment moved from a GSI score above to a GSI score below 0.6 (cut-off for pathology) (difference ns, $P > 0.40$). Self-reported depression (BDI) decreased substantially in both groups. In the course of treatment, 22 (38%) patients in the combined treatment group and thirteen (48%) patients in the supportive treatment group moved from a BDI score above to a BDI score below 29 (cut-off for severe depression) (difference ns, $P > 0.47$). At 24 months, the mean number of diagnostic criteria for BPD met had dropped from 6.7 (SD = 1.2) at intake to 2.8 (SD = 2.5) in the combined treatment group and in the supportive treatment group from 6.9 (SD = 1.3) at intake to 3.6 (SD = 2.2) at 24 months. At termination, thirty (52%) patients in the combined treatment group and eleven (41%) patients in the supportive group no longer met the diagnostic criteria for BPD (difference ns, $P = 0.06$).

Therapist-rated global level of functioning increased significantly in the MBT treatment group. In the supportive treatment group, only the GAF-S changed significantly. Normally, a

Table 2. SCL-90-R-GSI, BDI, BAI, STAI-S/T, GAF-F/S, IIP, SAS-SR-scores and number of SCID-II BPD criteria met in patients with borderline personality disorder who received combined mentalization-based or supportive group therapy

Time	SCL-90, GSI Mean (SD)	BDI Mean (SD)	BAI Mean (SD)	IIP Mean (SD)	STAI-T Mean (SD)	STAI-S Mean (SD)	GAF-F Mean (SD)	GAF-S Mean (SD)	SCID-BPD Mean (SD)	SAS-SR Mean (SD)
Baseline										
MBT (n = 58)	1.7 (0.6)	31.5 (10.7)	18.6 (9.0)	1.7 (0.6)	60.7 (8.6)	57.2 (11.0)	46.4 (7.5)	43.0 (2.8)	6.7 (1.2)	2.6 (0.4)
Supp (n = 27)	2.0 (0.6)	37.5 (10.6)	23.7 (11.2)	1.9 (0.6)	64.9 (5.3)	63.5 (8.9)	44.6 (8.2)	43.1 (3.8)	6.9 (1.3)	2.8 (0.6)
6 months										
MBT (n = 52)	1.6 (0.7)	27.8 (11.7)	17.8 (11.4)							
Supp (n = 20)	1.5 (0.8)	29.8 (16.0)	18.0 (10.7)							
12 months										
MBT (n = 44)	1.3 (0.6)	24.6 (12.2)	14.8 (9.3)				50.5 (8.1)	48.5 (6.1)		
Supp (n = 17)	1.5 (1.0)	25.9 (16.0)	18.7 (14.9)				47.3 (9.6)	48.0 (7.7)		
18 months										
MBT (n = 41)	1.3 (0.7)	22.9 (12.7)	14.7 (10.4)							
Supp (n = 17)	1.4 (0.9)	22.4 (18.0)	17.7 (17.0)							
24 months										
MBT (n = 42)*	1.2 (0.8)	18.8 (11.5)	13.5 (10.7)	1.2 (0.6)	49.3 (11.6)	47.3 (16.0)	56.7 (11.7)	58.5 (12.6)	2.8 (2.5)	2.2 (0.5)
Supp (n = 24)†	1.4 (0.8)	22.8 (13.7)	15.6 (10.1)	1.3 (0.8)	51.6 (16.8)	50.3 (17.6)	51.3 (11.7)	54.0 (10.5)	3.6 (2.1)	2.1 (0.6)

SCL-90, Symptom Check List-90-Revised; BDI, Beck Depression Inventory; BAI, Beck Anxiety Inventory; IIP, Inventory of Interpersonal Problems; STAI-T/S, State-Trait Anxiety Inventory; Trait/State; GAF-S, global assessment of function; social function; GAF-S, global assessment of function, symptoms; SCID-BPD, structured clinical interview for DSM-IV personality disorders, borderline personality disorder; SAS-SR, Social Adjustment Scale, Self-Rating.

*All changes (baseline to 24 months) statistically significant ($P < 0.0005$). GSI: $F = 45.8$, df = 632; BDI: $F = 58.5$, df = 631; BAI: $F = 22.0$, df = 629; IIP: $F = 10.1$, df = 193 ($P = 0.002$); STAI-T: $F = 29.0$, df = 193; STAI-S: $F = 26.4$, df = 193; GAF-F: $F = 9.7$, df = 290 ($P = 0.002$); GAF-S: $F = 18.9$, df = 290; SCID-BDP: $F = 88.6$, df = 64; SAS-SR: $F = 20.5$, df = 189. Effect sizes: GSI: 0.76, BDI: 1.15, BAI: 0.53, IIP: 0.84, STAI-T: 1.15, STAI-S: 0.75, GAF-F: 1.09, GAF-S: 1.83, SCID-BPD: 2.08, SAS-SR: 0.80.

†All changes (baseline to 24 months) statistically significant ($P < 0.0005$), except BAI and GAF-F: GSI: $F = 9.3$, df = 195 ($P = 0.003$); BDI: $F = 16.0$, df = 194; BAI: $F = 2.3$, df=191 ($P = 0.13$ n.s.); IIP: $F = 8.8$, df = 73 ($P = 0.004$); STAI-T: $F = 16.4$, df=70; STAI-S: $F = 7.4$, df = 70 ($P = 0.008$); GAF-F: $F = 2.0$, df = 109 ($P = 0.2$ n.s); GAF-S: $F = 17.9$, df = 109; SCID-BPD: $F = 9.1$, df = 29 ($P = 0.005$); SAS-SR: $F = 12.5$, df = 69 ($P = 0.001$). Effect sizes: GSI: 0.90, BDI: 1.21, BAI: 0.76, IIP: 0.84, STAI-T: 1.10, STAI-S: 0.96, GAF-F: 0.68, GAF-S: 1.42, SCID-BPD: 1.85, SAS-SR: 1.09.

GAF score above 60 is used as a cut-off for mild but persistent symptoms and some non-severe difficulties in social, occupational or educational functioning. At termination, 19 of the 42 patients (45%) in the combined treatment group had a GAF-S score above 60, while 15 of 42 (36%) had a GAF-F score above 60. In the supportive treatment group, only 4 of 24 patients (17%) had GAF scores (symptom and functioning) above 60 at termination (difference between groups significant for GAF-S, $P = 0.03$, ns for GAF-F, $P = 0.16$).

Linear regression analysis showed highly significant time (number of days from assessment until 750 days after the treatment was started) by outcome interactions for all outcome measures in the combined treatment group, indicating that all reported changes were highly statistically significant (most Ps < 0.0005). All changes reported in the supportive treatment group except BAI and GAF-F were also statistically significant (most Ps < 0.008) (Fig. 2).

Moreover, 34% of patients in combined treatment and 48% of patients in supportive therapy had their medication significantly reduced or withdrawn while in treatment (difference ns, $P = 0.24$). Only 16% in combined and 7% in supportive therapy had their medical treatment intensified during the course of treatment (difference ns, $P = 0.49$).

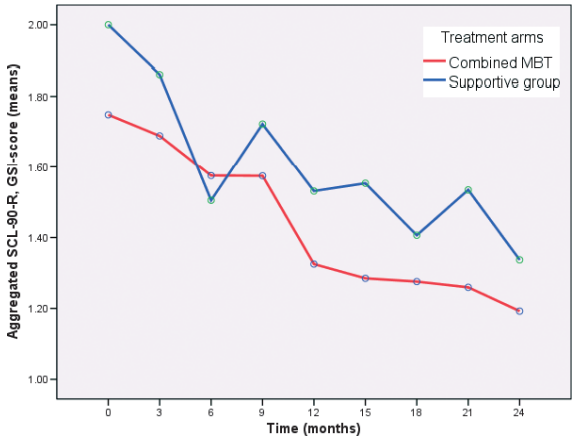

Fig. 2. Development in SCL-90-R, GSI score (Symptom Check List-90-Revised, Global Severity Index), $t(0)$–$t(24$ months), for patients with borderline personality disorder who received combined mentalization-based treatment or supportive group therapy.

The influence of axis I diagnosis on treatment outcome was analysed using a generalized linear model with outcome measures as dependent variable and the interaction between time (number of days) and the presence/absence of each axis I diagnosis (depression, anxiety, eating disorder and OCD) as essential independent variable. None of these interactions were significant (Bonferroni

corrected $P > 0.005$). Two interesting trends were found in the MBT group when focusing on SCID-II-measured treatment outcome (number of BPD criteria met): treatment outcome was lower in patients with comorbid eating disorder ($P = 0.06$), and patients with comorbid anxiety experienced higher treatment outcome ($P = 0.02$).

Pre-post effect sizes (Cohen's *d*) were calculated based on those patients who started treatment. In both groups, a large or very large (0.5–2.1) and in most cases highly significant (all Ps < 0.01, in the MBT group most Ps < 0.00005) effect sizes on all measures of outcome were found. Only two effect sizes, one in each group (see Table 2), were below 0.8 (cut-off for large effect sizes). In the MBT group, SCID-II-based effect size (Cohen's *d*) was 2.48 for patients without comorbid eating disorder and 1.78 for patients with comorbid eating disorder, 2.29 and 1.81 for patients without and with comorbid anxiety respectively (this apparently inconsistent finding for patients with comorbid anxiety was owing to high SDs used in calculating Cohen's *d*).

Differences in outcome between the two randomized groups were analysed using a general linear model with treatment group and patient as factors, and time as the independent variable. For self-report measures of depression, anxiety, social functioning, interpersonal function and general level of functioning, we found no statistically significant differences between the two groups (all Fs < 2.9, all Ps > 0.13). Differences across individual patients in the two treatment groups were high, indicating that some patients experienced much better outcomes than others. Only therapist-rated global level of functioning showed statistically significant differences between the two groups. Compared with patients in supportive group treatment, changes on both GAF-S and GAF-F were significantly higher in the MBT group (GAF-F: $F = 8.0$, $P = 0.005$; GAF-S: $F = 12.7$, $P = 0.0004$). Because of the abnormal distribution of the GAF data, the analyses of our GAF data were repeated using GAF data subjected to log transformation. Again, changes in both GAF-S and GAF-F were significantly higher in the MBT group compared with the supportive group (GAF-F: $F = 7.5$, $P = 0.007$; GAF-S: $F = 13.8$, $P = 0.0002$).

Discussion

Contrary to our expectations (given the higher intensity and specific focus on BPD in the MBT group), outcome of the combined MBT therapy was only superior to the less-intensive supportive group therapy on therapist-rated GAF. Our findings indicate that both intensive combined MBT treatment and less-intensive supportive group therapy lead to significant improvements on a variety of psychological and interpersonal measures. Although most patients continued to suffer from moderate levels of symptoms after 2 years of treatment, patients in both treatment modalities showed significant clinical and highly statistically significant improvements. This is evidenced by strong effect sizes on most measures, including specific borderline pathology (reflected in the number of diagnostic criteria met), self-reported state/trait anxiety, social function and depressive symptoms/comorbid depression. One could argue that the observed improvements in self-reported depressive symptoms could be the result of antidepressant medication. However, this explanation is unlikely, as a substantial proportion (39%) of the patients had their medication withdrawn or significantly reduced during the course of treatment (22% were not in medical treatment at any point), a finding in accordance with studies showing that patients receiving specialist PD services are less likely to be in drug treatment (44). Moreover, the observed improvements in levels of depression were accompanied by improvements in other areas, such as interpersonal functioning, social adjustment and general level of functioning. This finding could be interpreted as an indication that depressive symptoms in borderline patients are related to a general affective dysregulation rather than an affective disorder per se (45).

The fact that significant differences in outcome across the two treatments were not identified suggests that there could be various routes to symptom change among borderline patients. Compared with those in supportive therapy, patients in the combined treatment group received significantly more intensive therapy making it more surprising that almost all differences in outcome were statistically non-significant. Our findings suggest that long-term supportive group therapy at a relatively low intensity can have a significant effect on borderline patients. This interpretation is supported by Clarkin et al. (28), who reported significant outcomes from long-term psychodynamic supportive therapy of relatively low intensity. These outcomes are comparable with those obtained in transference-focused therapy and dialectical DBT of a higher intensity.

One could argue that the finding that medium-intensity supportive group therapy is equally effective as high-intensity mentalization-based therapy may compromise mentalization-based

therapy as an effective treatment model. However, as both treatment modalities lead to significant positive outcomes, further research is necessary. For example, the effectiveness of both treatments following treatment completion is unknown. One could speculate that supportive group therapy of lower intensity, while serving to stabilize borderline patients during treatment, may be unable to bring about more lasting changes in these patients. In contrast, the more intensive mentalization-based treatment may be accompanied by more permanent or structural changes. The rate of recovery from BPD was higher (52%) in the MBT than in the supportive group (41%) and the mean number of BDP criteria met dropped from 6.7 to 2.8 for patients in combined treatment whereas the observed drop was slightly lower for patients in supportive therapy from 6.9 to 3.5. These observed differences are only trends and not statistically significant. Thus, more direct assessments and follow-up data are needed to make more substantial conclusions about possible differences in the ability of the two treatments models to initiate more lasting or structural changes.

If patients in medium-intensity supportive group therapy – combined with medical treatment, psycho-educational groups and access to crisis management – continue to show symptomatic improvements (with larger samples and follow-up data available), this would emphasize the need to develop supportive treatment models and to conduct controlled outcome studies of less-intensive supportive therapy with BPD patients. It should also be kept in mind that the two therapists conducting the supportive treatment in this study were highly experienced and part of a highly structured clinic specializing in the treatment of BPD. Thus, the lack of significant differences in outcomes between the two groups could be related to the fact that both treatment models were practiced in a well-structured clinic by highly experienced clinicians. In addition to this, one could ask if therapist factors (personal qualities, level of experience, general therapeutic competence, etc.), the therapy being embedded in a well-organized clinic and other non-specific factors (46, 47) are at least as important and possibly more important for treatment outcome in BPD patients than more specific (in some cases manualized) technical factors – the focus of RCTs and the empirically based treatment movement – including whether patients are offered mentalization-based or supportive group therapy. One could also argue that well-trained psychodynamically oriented clinicians with knowledge of mentalization, attachment, object relations theories and extensive experience in working with PD patients have a broader and deeper understanding of BPD, which makes them better able to be flexible and creative in responding to the various needs of these patients. This could narrow the difference between the two treatment arms and in effect the differences in outcome in the two groups. Thus, the results of this study could be significant in demonstrating that a well-trained, experienced and well-supervised psychodynamic staff is very helpful in treating BPD.

Given the heterogeneity of borderline patients, it is highly unlikely that any one treatment will be equally useful for all patients and future studies should examine the possible interaction between patient, treatment, therapist characteristics and treatment intensity. Such studies would help establish which form of treatment, delivered by whom ('what kind of therapist'), would be most effective for a variety of BPD patients experiencing a variety of different problems. Results from this study support the idea that there is no 'one-size-fits-all' manualized treatment for BPD. Based on our findings and the findings of Clarkin et al. (28) and McMain et al. (21), we hypothesize that not all borderline patients need intensive long-term treatment and that some may profit from organizationally well-structured supportive therapy of medium intensity, while others need more intensive treatment. Supportive group therapy may be sufficient for a subgroup of borderline patients whereas more intensive (MBT, DBT or TFP) treatment may be necessary for another (presumably broader) subgroup of BPD patients. This argument is partially supported by the high variance in outcomes found in the present study. One could argue that the use of interpretations, MBT chain analyses and persistent focus on mental states in the here and now can be highly stressful and alienating for some BPD patients, especially in the early stages of treatment. In these patients, and in patients with severely compromised ability to construct mental representations of mental states, a more supportive approach might be more helpful.

Given the complicated nature of BPD, it is essential to establish the long-term outcomes of treatment. Therefore, the ability to maintain improvements obtained in treatment following termination is a very important variable when evaluating the effectiveness of different treatment models. Consequently we are in the process of collecting 1½- and 5-year follow-up data from the two treatment groups.

Limitations

One limitation of the study is that the two compared treatments were not based on detailed treatment manuals and our design did not include ongoing systematic monitoring of the two treatment modalities (adherence and competence ratings). However, one could argue that the idea of 'controlled treatment', based on specific manualized guidelines and continuous monitoring to ensure that the treatment offered adheres to manual guidelines, is premised on the highly theoretical and probably illusory idea that BPD therapy can be reduced to a limited set of specific technical interventions. Our more naturalistically informed design provides better generalizability to the community (effectiveness). In spite of this, it should be acknowledged that the absence of thorough adherence and competence measures makes it difficult to determine if the compared treatment models were optimally tested. Second, although treatment integrity, differentiability and our therapist's adherence to the relevant treatment models were supported and monitored through close, video-based supervision and theoretical training, one could argue that the two treatment arms were not sufficiently distinct as they were conducted in the same clinic and by the same therapists. The two supportive therapists were also conducting mentalization-based psychotherapy with patients in the MBT treatment group. We have been involved in the development of an instrument for extensive adherence rating of MBT treatment (48). However, this work was not completed at the time of the present study, but can enrich future studies. It is possible that the actual difference between the two delivered treatments is too small and that we in effect have conducted a component design study. If this is the case, our post-treatment findings suggest that outcomes are not significantly improved by adding intensive individual therapy to a group treatment, a finding that would support the 'less is more' principle (49, 50), at least for some BPD patients.

Attrition from the study is relatively high (approximately 43% of included patients with intention to treat, 26% of patients starting treatment), but comparable with most other studies in the field (6, 7). This issue is related to challenges that continually need to be addressed when working clinically and conducting research with borderline patients. At the end of treatment, we were able to collect data from approximately three-quarters (78%) of the patients who started in therapy, which is acceptable, especially when studying severely disturbed BPD patients. A substantial proportion of the patients were female BPD patients in their twenties or thirties. Therefore, it remains unclear to what extent the results presented can be generalized to the treatment of younger and/or older borderline patients and to male patients.

Outcome was tested almost exclusively by using self-report symptom measures. We are thus unable to assess possible – and from a theoretical perspective highly important – changes in more complex levels of functioning such as reflective functioning/ability to mentalize, attachment style, more structural variables like identity integration, etc. (51, 52). Changes in these aspects of BPD can be evaluated only indirectly. The absence of interview-based measures by independent assessors also resulted in the absence of blind (blind to treatment group) assessments of treatment outcome. The fact that GAF was rated by therapists, who were not blind to treatment arm and by team consensus (including the therapists treating the rated patients), could compromise the validity of the GAF ratings. And one could ask if it is a coincidence that the only significant group difference was found in one of the two therapist-rated outcome measures. In addition to this, our GAF outcome data were not normally distributed and the observed differences in GAF-rated treatment outcome between the two groups must be interpreted with caution. On the other hand, the reliability of the GAF ratings was high and the observed differences were highly statistically significant (including analyses based on normally distributed log-transformed data set), supporting the idea that our GAF data convey differences in outcome between the two groups of some clinical importance. Average level of functioning at the end of treatment is in the 51–60 range in both groups, corresponding to moderate symptoms and difficulties in functioning.

The skewed randomization of patients in to the two treatment modalities, which was dictated partly by a desire on the part of clinic's management to offer intensive treatment to as many borderline patients as possible, and partly by available treatment resources, reduced statistical power. Statistical power was further reduced by the relatively high attrition rate and by the loss of some self-report data at certain stages owing to some patients' refusal to complete all assessments at the assigned time points. Finally, we cannot rule out the possibility that individuals who would not benefit from the treatments offered were more likely to dropout, which would weaken our conclusion that both combined MBT treatment and supportive group therapy are effective in helping patients with BPD.

Declaration of interest

All six contributing authors declare the following: In the last 2 years, we have had no commercial associations or interests, which might pose a conflict of interest in general or in connection with the present study and paper.

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