Effectiveness of Day Hospital Mentalization-Based Treatment for Patients with Severe Borderline Personality Disorder: A Matched Control Study

Dawn L. Bales,[1,6] Reinier Timman,[2] Helene Andrea,[3,4] Jan J. V. Busschbach,[1,2] Roel Verheul[1,5] and Jan H. Kamphuis[1,5]*

[1] Viersprong Institute for Studies on Personality Disorders, Center of Psychotherapy De Viersprong, Halsteren, The Netherlands

[2] Section of Medical Psychology and Psychotherapy, Erasmus Medical Center Rotterdam, Rotterdam, The Netherlands

[3] GGZ Breburg, Tilburg, The Netherlands

[4] Tranzo Scientific Centre for Care and Welfare, Faculty of Social and Behavioral Sciences, Tilburg University, Tilburg, The Netherlands

[5] Department of Psychology, University of Amsterdam, Amsterdam, The Netherlands

[6] Expertisecentrum MBT-NL, Bergen op Zoom, The Netherlands

The present study extends the body of evidence regarding the effectiveness of day hospital Mentalization-Based Treatment (MBT) by documenting the treatment outcome of a highly inclusive group of severe borderline personality disorder (BPD) patients, benchmarked by a carefully matched group who received other specialized psychotherapeutic treatments (OPT). Structured diagnostic interviews were conducted to assess diagnostic status at baseline. Baseline, 18-month treatment outcome and 36-month treatment outcome (after the maintenance phase) on psychiatric symptoms (Brief Symptom Inventory) and personality functioning (118-item Severity Indices of Personality Problems) were available for 29 BPD patients assigned to MBT, and an initial set of 175 BPD patients assigned to OPT. Propensity scores were used to determine the best matches for the MBT patients within the larger OPT group, yielding 29 MBT and 29 OPT patients for direct comparison. Treatment outcome was analysed using multilevel modelling. Pre to post effect sizes were consistently (very) large for MBT, with a Cohen's d of -1.06 and -1.42 for 18 and 36 months, respectively, for the reduction in psychiatric symptoms, and ds ranging from 0.81 to 2.08 for improvement in domains of personality functioning. OPT also yielded improvement across domains but generally of moderate magnitude. In conclusion, the present matched control study, executed by an independent research institute outside the UK, demonstrated the effectiveness of day hospital MBT in a highly inclusive and severe group of BPD patients, beyond the benchmark provided by a mix of specialized psychotherapy programmes. Interpretation of the (large) between condition effects warrants cautionary caveats given the non-randomized design, as well as variation in treatment dosages. Copyright © 2014 John Wiley & Sons, Ltd.

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Psychotherapy has been identified as the 'treatment of first choice' for patients with borderline personality disorder (BPD) (American Psychiatric Association, 2001). Several controlled trials provide support for the effectiveness of various psychotherapeutic treatments for BPD, such as Dialectical Behavior Therapy (DBT) (e.g., Linehan et al., 2006), Schema-Focused Therapy (SFT) (e.g., Giesen-Bloo et al., 2006), Transference-Focused Psychotherapy (TFP) (Clarkin, Levy, Lenzenweger, & Kernberg, 2007), Systems Training for Emotional Predictability and Problem Solving (Blum et al., 2008), Cognitive Behavior Therapy (CBT) (Davidson et al., 2006) and Mentalization-Based Treatment (MBT) (Bateman & Fonagy, 2009). That said, there still is quite a limited body of evidence for the efficacy of specific psychotherapy treatment packages, with most brands not having published sufficient individual studies to allow for pooled effect sizes, as was noted in the most recent pertinent Cochrane meta-analysis (Stoffers et al., 2012). This also specifically applies to MBT.

Mentalization-Based Treatment is a psychodynamic treatment rooted in attachment and cognitive theory

*Correspondence to: Jan H. Kamphuis, University of Amsterdam (UvA), Department of Psychology, Weesperplein 4, 1018 XA Amsterdam, The Netherlands.
E-mail: J.H.Kamphuis@uva.nl

(Bateman & Fonagy, 2009). It aims to strengthen patients' capacity to understand their own and others' mental states in attachment contexts in order to address their difficulties with affect regulation, impulse control and interpersonal functioning, which act as triggers for acts of suicide and self-harm. The available empirical evidence supporting MBT originated from a randomized controlled trial (RCT) in the UK, comparing the effectiveness of psychoanalytically oriented treatment in a day hospital setting (later labelled MBT) to standard psychiatric care for patients with severe BPD (Bateman & Fonagy, 1999). Treatment outcome results were significantly better for the MBT group than for the general psychiatric care group in terms of reductions in depressive and anxiety symptoms, social and interpersonal problems, suicide attempts, acts of self-harm, number of days in hospital and use of psychotropic medications. The superiority of MBT persisted during the 5-year follow-up period (Bateman & Fonagy, 2001, 2008). Health service utilization costs by MBT patients were demonstrated to be similar during treatment, whereas the costs were substantially lower than in the control condition after treatment completion (Bateman & Fonagy, 2003). In a Dutch cohort study (Bales & Bateman, 2012), we showed that manualized day hospital MBT can also be effectively implemented in an independent treatment institute outside the UK with comparably favourable results. In the most recent published trial, Bateman and Fonagy compared an intensive outpatient variant of MBT to structural clinical management (Bateman & Fonagy, 2008). Their conclusion was that structured treatments improve outcomes for individuals with BPD and that, with a focus on specific psychological processes, MBT shows additional benefits in comparison to structured clinical support.

To date, no study has directly compared the effectiveness of day hospital MBT to the effectiveness of other psychotherapeutic treatments (OPT) for BPD patients. In the original UK trials, the control groups did not receive formal psychotherapy, but Treatment As Usual and Structured Clinical Management both aimed at symptom management only. The present study compared the clinical benefits of day hospital MBT to those observed in carefully matched patients who completed other psychotherapeutic interventions that presume to address underlying vulnerabilities (e.g., affect regulation and identity problems) and improve quality of life (by enhancing social and interpersonal functioning). Moreover, most of extant outcome research describes carefully controlled groups in academic settings, leaving data about the effectiveness of treatment packages in 'real world samples' scarce. While randomized controlled effect studies clearly represent the gold standard for treatment evaluation, randomization is not always practically feasible. Quasi-experimental designs offer fewer controls for the internal validity of the study, but such designs may optimize external validity by presenting data from real life settings (as opposed to tightly controlled academic settings).

In sum, the present matched control study, executed by an independent research institute outside the UK, compares the clinical benefits of day hospital MBT to those observed in a more stringent comparison condition (i.e., diverse specialized psychotherapy programmes) in samples that presumably have high ecological validity.

METHOD

The Medical Ethical Committee of the Erasmus Medical Center Rotterdam and the institutional review board of the Viersprong Institute for Studies on Personality Disorders (VISPD) approved of this study. All participants gave their informed consent. Patients who declined participation were not disadvantaged in any way by their decision and remained eligible for MBT treatment regardless of their participation status. The MBT treatment was conducted at 'de Viersprong', the Netherlands Institute for Personality Disorders. De Viersprong offers highly specialized outpatient, day hospital and inpatient psychotherapy for personality disorders, and was the first treatment centre in the Netherlands to implement day hospital MBT. The institute offers tertiary care for treatment refractory patients with severe and complex personality disorders that are often complicated by psychiatric comorbidity. All patients in the OPT group participated in the Study on the Cost-Effectiveness of Personality Disorder Treatment (SCEPTRE) (Bartak, 2010). Between July 2003 and April 2006, participants were recruited from six mental healthcare centres in the Netherlands for the SCEPTRE study (i.e., de Viersprong, Halsteren; Altrecht, Utrecht; Zaans Medical Center, Zaandam; De Gelderse Roos, Lunteren; GGZWNB, Bergen op Zoom; Arkin, Amsterdam). These institutions offer specialized outpatient, day hospital and/or inpatient psychotherapy for patients with personality disorder. Within SCEPTRE, 175 patients were diagnosed with BPD (based on the Structural Clinical Interview for DSM disorders [SCID-II]), and these patients were selected for the OPT reference group in this study.

Patients

Between August 2004 and January 2008, 41 patients were referred to day hospital MBT. Inclusion criteria were (a) meeting DSM-IV diagnostic criteria of BPD (based on SCID-II/Structured Interview for DSM-IV Personality [SIDP-IV] ratings), (b) minimum age of 18 years and (c) willingness and ability to give informed consent. Exclusion criteria were minimal, consisting of (a) meeting

criteria for schizophrenia (based on SCID-I), (b) intellectual impairment (IQ <80, based on Wechsler Adult Intelligence Scale) or (c) organic brain disorder. As part of the standard intake procedure, DSM-IV axis II diagnoses were measured using a semi-structured diagnostic interview, i.e. the SCID-II (Ekselius, Lindström, von Knorring, Bodlund, & Kullgren, 1994; Weertman, Arntz, & Kerkhofs, 2008) or the SIDP-IV (Pfohl, Blum, & Zimmerman, 1997). Due to temporary staffing problems, five of the 41 patients were not interviewed. Axis II assessment could not be completed for seven patients because their mental state acutely interfered with the administration of the interview (e.g., acute severe withdrawal symptoms, dissociative states and/ or psychotic symptoms). A final total of 29 of the referred patients met the inclusion criteria.

Treatment outcome was assessed at several time points. In the MBT group, assessments were conducted at start, and 6, 12, 18, 24, 30 and 36 months after the start of treatment. In the OPT group, 107 patients (61.1%) received follow-up assessments at the start and end of treatment, at 6 and 12 months follow-up, and again at 36 months after treatment assignment. The remaining 68 patients (38.9%) received assessments at treatment assignment, and at 12, 24 and 36 months after treatment assignment. These timing differences within SCEPTRE were due to logistic differences between treatment centres. Time was modelled in months before or after the start of treatment.

Treatment Conditions

Mentalization-Based Treatment in Day Hospital

The MBT programme consists of a maximum of 18 months manualized day hospital MBT, continued by a maximum of 18 months of maintenance mentalizing (group) therapy. This study reports on the treatment outcome of the day hospital phase (18 months) and of the maintenance therapy (after 36 months). The mean treatment duration of the day hospital was 15.5 months (SD = 3.8 months; range 3.9–20.0 months).

Within mentalizing theory, BPD is considered as a relational problem resulting from a developmental vulnerability to losing mentalizing, primarily in interpersonal relationships as a result of unmanageable emotional arousal. Central to MBT is enhancing the mentalizing capacity within everyday interpersonal interactions and specifically within the context of an attachment relationship. Its basic premise is that enhancing mentalizing process will improve symptoms and functioning of patients with BPD. Treatment goals of MBT are as follows: (a) to engage the patient in treatment; (b) to reduce psychiatric symptoms; (c) to improve social and interpersonal functioning; (d) to decrease the number of self destructive acts and suicide attempts; and (e) to stimulate adequate care consumption and prevent reliance on hospital admissions and prolonged inpatient care (Bateman & Fonagy, 2006). To achieve these goals, all programme components specifically focus on the enhancement of the patient's mentalizing capacity, i.e. the mental process of understanding self and others in terms of mental states such as thoughts, desires, intentions and feelings. Accordingly, the day hospital programme included implicit mentalizing groups (i.e., daily group psychotherapy and weekly individual psychotherapy, and individual crisis planning from a mentalizing perspective) and explicit mentalizing groups (i.e., art therapy twice a week, mentalizing cognitive group therapy and writing therapy). The week programme is ended with a social hour and community meeting. Psychiatrists provided medication consultation when indicated. A more detailed description of the MBT principles, interventions and programme components are beyond the scope of the present paper but are provided in Bateman and Fonagy (2006) and Bales and Bateman (2012).

Other Psychotherapeutic Treatments

The psychotherapeutic treatments in the OPT group consisted of a variety of treatment settings, durations and theoretical schools that are deemed representative for specialized care for PD in the Netherlands (Bartak, 2010, for a more detailed discussion of the SCEPTRE sample frame). All of these treatment programmes presume to remedy underlying vulnerabilities (e.g., affect regulation and identity problems) and improve quality of life (by enhancing social and interpersonal functioning), and are explicitly not limited to symptom management. Of the 175 patients in OPT, 68 (38.9%) were assigned to an inpatient setting (average treatment duration 9.8 months, SD 4.9 months), 66 (37.7%) were assigned to a day hospital setting (average treatment duration 11.8 months, SD = 6.1 months) and 41 (23.4%) were assigned to an outpatient setting (average treatment duration 18.7 months, SD = 14.4 months). Patients with diagnoses of ADHD, bipolar disorder, psychotic disorders and substance use disorders (SUD) were excluded. Psychiatrists provided auxiliary medication when indicated.

Therapists and Adherence

Mentalization-Based Treatment was conducted by a team of therapists with varying degrees of clinical experience, ranging from junior psychologists and social nurses to highly experienced clinical psychologists and psychotherapists. During the first 2 years after the start of implementation, the programme director (and first author, Dawn Bales) and one of the social nurses received intensive on-the-job training by A. Bateman and his staff in St. Ann's

Hospital in London. Afterwards, the programme director was appointed as the licensed MBT trainer for the Netherlands. All therapists were extensively educated, trained and supervised by Bateman and/or Bales. Adherence to the MBT treatment model was monitored by daily post-session supervision on adherence, as guided by the Bateman & Fonagy adherence scale (Bateman & Fonagy, 2006). Moreover, weekly team supervision focused therapists on the accurate use of the MBT intervention spectrum. Based on the observation of group sessions and tapes during the first 2 years, adherence was quarterly rated 'good to excellent' by Bateman.

All psychotherapists in the OPT condition were licensed psychiatrists or psychologists with extensive (M = 14.9 years; SD = 10.1) postgraduate clinical experience. The treatments under study can be considered highly representative of specialized psychotherapeutic practice in the Netherlands.

Outcome Measures

Two domains of treatment outcome were assessed (a) psychiatric symptoms and (b) personality functioning. For the MBT condition, assessments were conducted by treatment-independent research assistants, trained and employed by the VISPD. For the OPT condition, assessments were conducted at the respective setting, again by independent raters.

Psychiatric Symptoms

General psychiatric symptom distress was measured with the widely used Brief Symptom Inventory (BSI) (Derogatis & Melisaratos, 1983). We used the Global Severity Index, i.e. the mean score of the 53 comprising items of the BSI (range 0–4). Higher scores are indicative of greater symptom severity.

Personality Pathology and Functioning

Changes in (mal-)adaptive personality functioning were measured using the 118-item Severity Indices of Personality Problems (SIPP-118) (Verheul et al., 2008). The SIPP-118 measures 16 facets of (mal-)adaptive personality functioning coalescing into five higher-order domains: Self-control, Identity Integration, Responsibility, Relational Capacities and Social Concordance, with lower scores reflecting more maladaptive levels of personality functioning. Favourable psychometric properties have been found for the SIPP-118, as well as evidence for (cross-national) validity (Arnevik, Wilberg, Monsen, Andrea, & Karterud, 2009; Verheul et al., 2008)

Analytic Strategy

Baseline Differences

Baseline demographic and clinical characteristics of patients in MBT and OPT conditions were calculated and tested for significant differences using the Fisher's exact test for dichotomous variables and Student's t-tests for continuous variables.

Matching

Two clinically relevant differences in demographical variables between MBT and OPT patients were observed, i.e. (1) a history of inpatient treatment and (2) currently having paid work or going to school. The total sample was divided into four groups based on these characteristics. Within these groups, patient pairs were matched on the smallest difference in propensity score (see below). To enable all MBT patients to be matched, no limit was set on the score differences.

Propensity Scores

A propensity score can be defined as the conditional probability of assignment to one of two treatment groups given a set of observed pre-treatment variables. Pre-treatment characteristics related to outcomes were considered potential confounders (Brookhart et al., 2006) and were therefore included in the propensity score calculation. For pre-treatment variables, two to eight values (1.0% to 3.8%) were missing, and these values were imputed using the expectation maximization method. Pre-treatment variables were used as covariates in a logistic regression with group membership (MBT versus OPT) as outcome. The probabilities for group membership reflect the propensity score for each individual patient. For the determination of the characteristics related to outcome, we calculated change scores by subtracting the baseline scores from the mean of the follow-up scores. The relations of these outcomes were determined with Student's t-tests for dichotomous variables and with Pearson correlations for continuous variables.

Longitudinal Analyses

Multilevel models, also known as mixed models, were used for the evaluation of the course of the outcome variables over time. These models make optimal use of incomplete repeated measures records with unbalanced time points. Moreover, this method compensates for potential bias caused by missing data that are contingent on the effects incorporated in the model (Little, 1987). Time was modelled in months before or after the start of the treatment. In a first step, saturated models were postulated with intercept and slope (time) as random variables. For within group analyses, time was defined as level 1, and patients as level 2. Time, quadratic

timeand logarithm of time were entered as fixed effects. For between-group analyses, we added group, and interactions between group and time to the fixed effects. The covariance structure was based on the deviance statistic using restricted maximum likelihood (Verbeke & Molenberghs, 1997). Next, following an iterative procedure, non-significant fixed time effects were excluded from the model until a parsimonious final model was obtained that did not differ significantly from the saturated model. Statistical significance was determined with the deviance statistic using ordinary maximum likelihood (Singer & Willett, 2003). When removing non-significant effects, it was respected that interaction effects may be nested under their respective main effects (Hox, 2002). Cohen's d effect sizes (Cohen, 1992) were calculated using the estimated pooled standard deviations from the models.

Analyses were based on the 'intention to treat' principle. Accordingly, patients who prematurely ended treatment were followed up and included in the outcome analyses.

RESULTS

Baseline Characteristics

Table 1 shows percentages, means and standard deviations at baseline for the MBT and OPT conditions. As compared with OPT patients, MBT patients had significantly less often paid work or study (17% versus 48%), more often a history of inpatient treatment (31% versus 10%), significantly lower scores on the SIPP-118 scales Responsibility and Social concordance, and a higher average number of borderline traits (6.9 versus 6.2). The difference in the total propensity score was also significant. Combined, the clinically relevant pre-treatment scores suggest that patients in the MBT condition exhibited personality dysfunction of equal or greater severity.

Matching

Propensity scores were then calculated to statistically equalize the treatment conditions; for a more full discussion of the propensity score method for non-randomized designs in psychotherapy research, see (Bartak et al., 2009). All but two pre-treatment characteristics (i.e., being married and having a narcissistic personality disorder) were related to outcome and therefore included in the computation of propensity scores. As indicated by the analysis of baseline characteristics, patient matching occurred according to (a) having a paid job (or not) and (b) having a history of inpatient treatment (or not). Although a significant difference in propensity scores remained after

matching, the matching was nevertheless successful in removing all other significant baseline differences between the matched MBT and OPT groups.

Treatment Outcome Over Time

Parameter estimates of the final parsimonious mixed models are available from the first author. For the purpose of interpretation, the estimations at start, 18 months and 36 months, as well as the pooled standard deviations and effect sizes derived from the between-group mixed models, are presented in Table 2. Patients in both conditions improved at 36 months on all outcome indices. The MBT group showed large effect sizes on all outcome variables at 36 months (Cohen d range 0.81–2.08; median 1.36). Psychiatric symptoms were reduced by a large within effect size after 18 months ($d = -1.06$) of treatment, and this reduction was extended at 36 months ($d = -1.42$), at the end of the follow-up period (Figure 1). The matched OPT group also improved over time, with a moderate reduction in psychiatric distress ratings at 18 months ($d = -0.35$), that was also extended at 36 months ($d = -0.57$). For the domains of personality functioning, generally moderate improvements were observed (median $d = -0.47$). (Figure 2).

Overall, a comparison of effect sizes indicates that superior outcome was consistently achieved in the MBT group, which is confirmed by an inspection of the between-group effect sizes (MBT versus OPT). More specifically, large between effects were for reduction in psychiatric symptoms (-0.71 and -0.85, at 18 and 36 months, respectively), and moderate to large between effect sizes for improved domains of personality functioning (ranging from 0.45 to 0.88 at 18 months, and 0.34 to 1.09 at 36 months). The between-group difference was not significant on relational functioning.

DISCUSSION

This study examined the effectiveness of an (maximum) 18-month day hospital MBT in a group of severe BPD patients, as well as the 36-month follow-up after an additional 18 months of a maintenance regimen. Psychiatric symptoms were reduced by a large within effect size after 18 months of treatment. The psychiatric symptoms reduced even further during the maintenance treatment, as assessed at 36 months. Personality functioning (as measured by the SIPP-118) improved by a large within effect size on all five higher-order domains (all ds > 0.80). These changes indicate that patients reported less symptomatic distress, as well as meaningful improvements in self-rated capacities to (a) regulate their emotions, perform self-reflection, and have a more stable self-image and self-respect (Self-control), (b) capacity for frustration tolerance and enjoyment (Identity integration), (c) trustworthiness

Table 1.   Baseline characteristics of MBT and OPT study samples

	MBT	OPT	OPT matched	MBT–OPT *p*-value	
				MBT–OPT total group	*Matched*
Female	69%	82%	86%	0.13	0.21
Lower education	86%	71%	69%	0.11	0.21
Married	10%	10%	10%	1.00	1.00
Living with:					
Partner	24%	29%	21%	0.66	1.00
Parent	17%	13%	14%	0.55	1.00
Children	14%	19%	10%	0.61	1.00
Paid work/study	17%	48%	17%	0.002	1.00
Treatment history:					
Outpatient	45%	49%	59%	0.84	0.43
Day hospital	17%	10%	14%	0.21	1.00
Inpatient	31%	10%	31%	0.004	1.00
Personality disorder:					
Antisocial	17%	7%	10%	0.15	0.71
Histrionic	3%	11%	7%	0.32	1.00
Narcissistic	3%	6%	10%	1.00	0.61
≥1 Cluster A	17%	17%	21%	1.00	1.00
≥2 Cluster B	21%	22%	24%	1.00	1.00
≥1 Cluster C	48%	58%	41%	0.42	0.79
	M (SD)	M (SD)	M (SD)	*p*	*p*
Age	30.0 (6.17)	30.3 (7.76)	30.4 (7.93)	0.84	0.84
GSI *Psychiatric symptoms*	1.79 (0.68)	1.67 (0.64)	1.67 (0.58)	0.35	0.46
SIPP-118:					
Identity integration	23.0 (7.15)	24.2 (7.25)	24.1 (7.18)	0.43	0.58
Relational functioning	24.7 (6.69)	27.2 (8.03)	24.6 (7.39)	0.13	0.97
Responsibility	27.0 (5.76)	31.3 (7.86)	29.7 (7.46)	0.01	0.14
Self-control	25.4 (6.21)	26.9 (7.34)	27.9 (7.40)	0.32	0.19
Social concordance	30.4 (6.74)	33.9 (7.16)	32.6 (8.07)	0.02	0.27
Number of BPD traits	6.90 (1.47)	6.24 (1.25)	6.79 (1.35)	0.01	0.78
Propensity score	0.33 (0.24)	0.11 (0.11)	0.22 (0.17)	<0.001	0.05

MBT = Mentalization-Based Treatment. OPT = other psychotherapeutic treatment. BPD = borderline personality disorder, GSI = Global Severity Index. SIPP = Severity Indices of Personality Problems. Significance testing followed Fisher's exact test for dichotomous variables and independent samples *t*-test for continuous variables.

and responsible industry (Responsibility), (d) to regulate their emotions and behave in a cooperative fashion (Social concordance), and (e) enjoy intimacy and enduring relationships (Relational capacities). The patients significantly continued to improve in the 18-month follow-up period. To provide a benchmark, outcome in the OPT group was assessed. While outcome in OPT was generally favourable (small to medium effects), moderate to large *between*-group effects indicated superior outcome in MBT patients on all outcome variables, except for non-significant difference in change in relational functioning.

Some cautionary comments are in order when making this comparison. Of course, the present matched control design does not offer the internal validity controls as afforded by RCTs. It is possible that other variables, not included in the extensive baseline set of patient characteristics, confound the direct comparison of MBT and OPT. Indeed, duration of treatment (akin to treatment dosage)

was inconsistent and likely slightly shorter in OPT than in MBT, so to some extent favourable differences in MBT may be due to differential dosage. Conversely, there is reason to believe that the observed differences in effect size may be conservative estimates, as for most (other) conceivable clinical variables MBT likely included more severe patients than OPT, given the respective inclusion and exclusion criteria. No specific data were available in the OPT group on pre-treatment axis I disorders, but we know that OPT, in contrast to MBT, excluded patients with diagnoses of ADHD, bipolar disorder, psychotic disorders other than schizophrenia and SUD. We therefore recommend future comparative studies to take axis I comorbidity into account.

Another factor not assessed in this comparison is the relative cost-effectiveness. Day treatment MBT is a resource intensive treatment and presumably carries higher cost than OPT that may or may not be compensated for by

Table 2. Between-group estimates and effect sizes at pre-treatment, and after 18 and 36 months for MBT-matched and OPT-matched samples

Outcome	MBT group ($n = 29$)		OPT-matched group ($n = 29$)		Between groups	
	Estimate (SD)	Effect size[†]	Estimate (SD)	Effect size	Effect size	*p*-value
GSI Psychiatric symptoms						
Baseline	1.78 (0.73)		1.46 (0.73)			
18 months	1.04 (0.67)	−1.06	1.21 (0.67)	−0.35	−0.71	0.006
36 months	0.73 (0.75)	−1.42	1.04 (0.75)	−0.57	−0.85	0.018
SIPP Identity integration						
Baseline	23.0 (8.0)		26.5 (8.0)			
18 months	33.3 (8.6)	1.23	29.4 (8.6)	0.35	0.88	0.002
36 months	34.8 (10.0)	1.30	29.9 (10.0)	0.38	0.92	0.009
SIPP Relational functioning						
Baseline	25.0 (7.2)		26.9 (7.2)			
18 months	31.2 (7.6)	0.84	29.4 (7.6)	0.35	0.49	0.076
36 months	31.4 (8.7)	0.81	30.6 (8.7)	0.47	0.34	0.310
SIPP Responsibility						
Baseline	27.0 (6.9)		29.4 (6.9)			
18 months	34.8 (6.1)	1.21	34.4 (6.1)	0.76	0.45	0.007
36 months	40.2 (5.8)	2.08	36.8 (5.8)	1.16	0.92	0.007
SIPP Self-control						
Baseline	25.3 (7.7)		29.4 (7.7)			
18 months	34.4 (7.7)	1.19	31.8 (7.7)	0.31	0.88	0.001
36 months	38.8 (7.7)	1.76	34.6 (7.7)	0.67	1.09	<0.001
SIPP Social concordance						
Baseline	30.4 (7.1)		32.5 (7.1)			
18 months	36.7 (7.3)	0.87	33.1 (7.3)	0.08	0.79	<0.001
36 months	37.6 (8.1)	0.95	35.3 (8.1)	0.36	0.59	0.028

[†]Cohen's *d*.
MBT = Mentalization-Based Treatment. OPT = other psychotherapeutic treatment. GSI = Global Severity Index. SIPP = Severity Indices of Personality Problems.
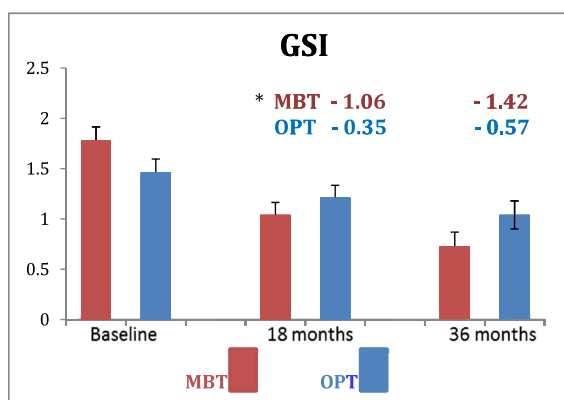
Higher scores indicate more psychological complaints
Extensions on bars indicate standard errors
MBT = Mentalization Based Treatment; OPT = Other Psychotherapy
* Cohen's d compared to baseline

Figure 1. Estimated Global Severity Index (GSI) values for MBT and OPT

fewer visits to auxiliary mental health providers (most notably the more frequent, very expensive inpatient care visits). Related to this issue is also the question whether the exclusion criteria for the other treatment models are still warranted or, alternatively, whether these treatment models can be further tailored to include the more severe cases of BPD. Day hospital MBT would certainly be less promising if other, less intensive, treatment programmes can obtain similarly favourable results in groups of severe BPD patients. To further clarify this issue, we recently started an RCT that will address the question which dosage of MBT is necessary and (cost-)effective for BPD patients in general and for various levels of severity of BPD in particular.

It is also important to recognize that our study does not suggest that MBT is superior in comparison to other evidence-based psychotherapies, such as DBT, SFT, TFP and CBT. Conceivably, the observed superiority of MBT relative to OPT is (partly) attributable to a higher level of treatment integrity due to ongoing training and

Higher scores indicate a better functioning
Extensions on bars indicate standard errors
MBT = Mentalization Based Treatment; OPT = Other Psychotherapy
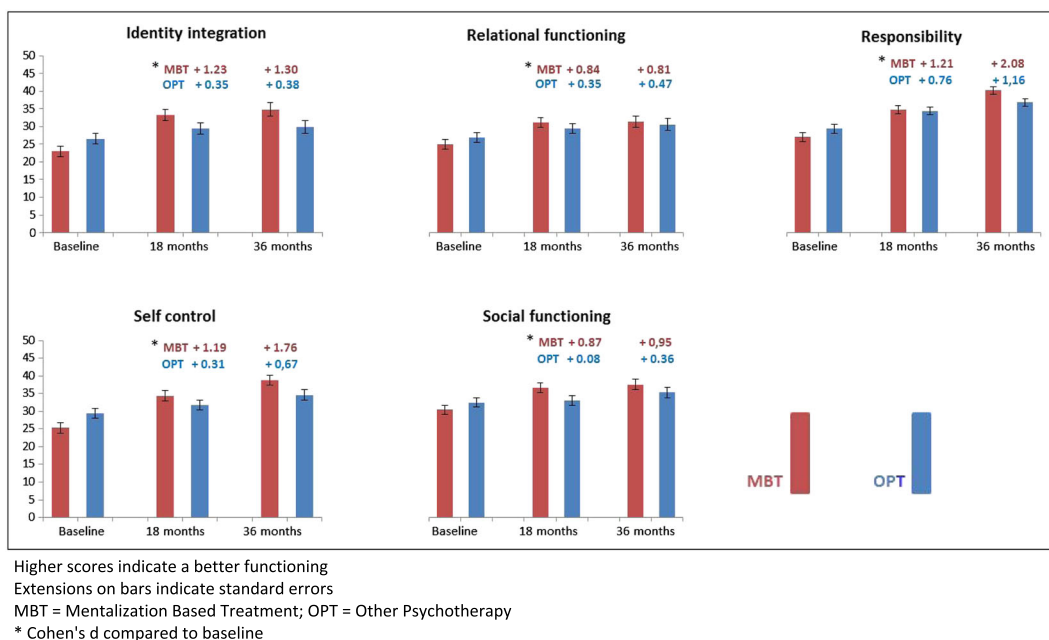* Cohen's d compared to baseline

Figure 2.   Estimated Severity Indices of Personality Problems (SIPP) domain values for MBT and OPT

supervision, adherence measurements, and quality monitoring in the MBT condition. Although many of the other evidence-based psychotherapies were included in the OPT condition, regular psychotherapeutic practice is often inspired by such treatment models rather than the consistent application thereof. Therefore, future studies should take into account the level of treatment integrity across study arms as well as the added value of quality systems aiming at enhancing treatment integrity (Hutsebaut, Bales, Busschbach, & Verheul, 2012).

Notwithstanding these limitations, a major strength of this study is its high external validity, as assignment to MBT and OPT took place in regular clinical practice instead of under experimental conditions. The BPD patients in this study are likely to be representative for BPD patients assigned to MBT or OPT in the Netherlands. Within this naturalistic setting, one of the most rigorous study designs was chosen, namely a matched control design. This methodology was possible due to highly overlapping research designs and assessment batteries across the two conditions.

Conclusion

In sum, this study documents the effectiveness of MBT day hospital treatment in a highly inclusive and severe group of BPD patients. Strong, multidimensional (encompassing both symptoms and personality functioning) effects were observed. These effects were consistently larger than those observed in a carefully matched group of BPD patients who had received other psychotherapies offered in specialized care in the Netherlands, but this conclusion warrants cautionary caveats given the non-randomized design.

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