TREATMENT OUTCOME OF 18-MONTH, DAY HOSPITAL MENTALIZATION-BASED TREATMENT (MBT) IN PATIENTS WITH SEVERE BORDERLINE PERSONALITY DISORDER IN THE NETHERLANDS

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Psychoanalytically oriented day hospital therapy, later manualized and named mentalization-based treatment (MBT), has proven to be a (cost-) effective treatment for patients with severe borderline personality disorder and a high degree of psychiatric comorbidity (BPD) in the United Kingdom (UK). As to yet it has not been shown whether manualized day hospital MBT would yield similar results when conducted by an independent institute outside the UK. We investigated the applicability and treatment outcome of 18-month, manualized day hospital MBT in the Netherlands by means of a prospective cohort study with 45 Dutch patients with severe BPD and a high degree of comorbid Axis I and Axis II disorders. Outcomes were assessed each six months. Symptom distress, social and interpersonal functioning, and personality pathology and functioning all improved significantly, with effect sizes between 0.7 and 1.7. Suicide attempts, acts of self-harm, and care consumption were also significantly reduced. The results indicate that MBT can effectively be implemented in an independent treatment institute outside the UK. This study also supports the clinical effectiveness of manualized day hospital MBT in patients with severe BPD and a high degree of psychiatric comorbidity.

Borderline personality disorder (BPD) is among the most prevalent mental disorders in the general population (Torgersen, Kringlen, & Cramer, 2001) and mental health care settings (Zimmerman, Rothschild, & Chelminski, ...
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2005), and is associated with high societal costs (Soeteman, Hakkaart-van Roijen, Verheul, & Busschbach, 2008) and a low quality of life (Soeteman, Verheul, & Busschbach, 2008). In the last decade, psychotherapy has been identified as the treatment of first choice for patients with BPD (American Psychiatric Association, 2001; Zanarini, 2009). Controlled trials provide support for the effectiveness of various forms of psychotherapeutic treatments, such as Dialectical Behavior Therapy (DBT; Linehan et al., 2006), Schema-Focused Therapy (SFT; Giesen-Bloo et al., 2006), Transference-Focused Psychotherapy (TFP; Clarkin, Levy, Lenzenweger, & Kernberg, 2007; Levy et al., 2006), Systems Training for Emotional Predictability and Problem Solving (STEPPS; Blum et al., 2008), and Cognitive Behavior Therapy (CBT; Davidson et al., 2006). Another potentially effective treatment that is repeatedly mentioned in various practice guidelines for BPD (American Psychiatric Association, 2001; Dutch Multidisciplinary Clinical Guideline of Personality Disorders, 2008; National Institute for Health and Clinical Excellence, 2009) as well as in the Cochrane review (Binks et al., 2006), is referred to as psychoanalytically oriented day hospital therapy. The empirical evidence for this treatment originated from a randomized controlled trial (RCT) in the United Kingdom (UK), comparing the effectiveness of this program with standard psychiatric care for patients with severe BPD (Bateman & Fonagy, 1999). Major reductions were reported in depressive and anxiety symptoms, social and interpersonal problems, suicide attempts, and acts of self harm. In an 18-month follow-up study, patients continued to improve on nearly all outcome measures (Bateman & Fonagy, 2001). Health service utilization costs were demonstrated to be similar during treatment, whereas the costs were substantially lower compared to the control condition after treatment completion (Bateman & Fonagy, 2003). Binks et al. (2006) concluded that, although the available RCT provides suggestive evidence, the therapy remains “an experimental treatment with too few data to really allow anyone to feel too confident of the findings” and that “more well-designed studies are both justifiable and urgently needed” (p. 1).

The day hospitalization program referred to in the guidelines and review mentioned above was based on the theoretical assumption that enhancing mentalization improves symptoms and functioning of patients with BPD (Bateman & Fonagy, 2004). Mentalizing is the imaginative mental activity that enables us to perceive and interpret human behavior in terms of intentional mental states (e.g., needs, desires, feelings, beliefs, goals, purposes, and reasons) (Allen, Fonagy, & Bateman, 2008; Bateman & Fonagy, 2006). The essential ingredients and key principles were subsequently manualized and named Mentalization-Based Treatment (MBT; Bateman & Fonagy, 2004, 2006). More recently, it was demonstrated that the previously reported improvements were sustained up to five years after treatment completion (Bateman & Fonagy, 2009). Additional evidence can be derived from a RCT comparing an outpatient variant of MBT with structural clinical management (Bateman & Fonagy, 2008).

However, as yet it has not been shown whether the manualized day hospital program of MBT would yield similarly favorable results as demonstrated in the original trial of psychoanalytically oriented, partial hospitalization
treatment (Bateman & Fonagy, 1999), nor have independent institutes outside the UK reported outcome findings of this treatment.

This study aims to investigate the applicability and treatment outcome of manualized day hospital MBT in a clinical population of Dutch patients with severe BPD with a wider range of psychiatric comorbidity.

**METHOD**

**STUDY POPULATION**

Participants were recruited from a consecutive series of patients referred to the Center of Psychotherapy De Viersprong, a Dutch institute offering specialized outpatient, day hospital, and inpatient treatment for personality disorders. De Viersprong has a last resort function for treatment of refractory patients with severe and complex personality disorders, often complicated by psychiatric multi-morbidity, who have typically had a history of unsuccessful treatments.

Between August 2004 and November 2009 intake clinicians were instructed to refer the most severe BPD patients to the MBT program ($n = 61$). Patients were only excluded if they met DSM-IV criteria for schizophrenia or intellectual impairment (IQ < 80). The WAIS was administered when intellectual impairment was suspected. None of the 61 patients met exclusion criteria.

As part of the standard intake procedure, DSM-IV diagnoses were obtained in the majority of patients ($n = 49$) by the semi-structured interview ratings on the SCID-I for Axis I (First, Spitzer, Gibbon, & Williams, 1997; Dutch translation by Groenesteijn, van Akkerhuis, Kupka, Schneider, & Nolen, 1999), and on the SCID-II (Ekselius, Lindstrom, von Knorring, Bodlund, & Kullgren, 1994; Dutch translation by Weertman, Arntz, & Kerkhofs, 2000) or SIDP-IV (Pfohl, Blum, & Zimmerman, 1997; Dutch translation by De Jong, Derks, van Oel, & Rinne, 1996) for Axis II disorders. Of those, 39 patients met diagnostic criteria for BPD, and were included. Twelve patients did not complete a diagnostic interview during the intake procedure due to logistical reasons, or because of mental states interfering with the interview (e.g., heavy withdrawal symptoms, dissociative states, and psychotic symptoms). However, in all patients the Borderline Personality Disorder Severity Index (BPDSI; Giesen-Bloo, Wachters, Schouten, & Arntz, 2010) was administered at start of treatment. Six patients with a BPDSI score above 20, considered to be the clinical cut-off for BPD (Nadort et al., 2009), were also included. Thus, the sample consisted of 45 diagnosed BPD patients (see Figure 1).

At baseline, these 45 patients had a mean age of 30.1 (SD = 6.5), and 71.1% was female. Educational level for 37.8% of the patients was low, intermediate for 55.5% of the patients, and high for 6.7% of the patients. Eighty percent of the patients were unemployed. Most patients (91.1%) had at least one comorbid Axis-I diagnosis; 66.7% had more than 1 Axis-I disorder. The highest prevalence was found for substance use disorders (79.2%), anxiety disorders (42.2%), mood disorders (35.6%), and eating
disorders (33.3%). The percentage of patients with more than one comorbid axis II diagnosis was also considerable (62.2%), with the highest prevalence for avoidant personality disorder (22.2%), paranoid personality disorder (17.8%), dependent personality disorder (15.6%), and antisocial personality disorder (6.7%).

TREATMENT PROGRAM

The treatment program 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.

The day hospital program, covering five days per week and four and a half hours per day, 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 program is ended with a social hour and community meeting. Once a week a psychiatrist member of the MBT team fulfills medication consults upon request of the patients. There were two treatment groups consisting of nine patients each. The operationalized treatment goals were: (1) to engage the patient in treatment; (2) to reduce psychiatric symptoms; (3) to improve social and interpersonal functioning; (4) to decrease the number of self-destructive acts and suicide attempts; and (5) to stimulate adequate care consumption and prevent reliance on hospital admissions and prolonged inpatient care (Bateman & Fonagy, 2006). To achieve these goals, all program components specifically focus on the enhancement of the patient’s mentalizing capacity, i.e., the mental process of understanding self and others in relation to mental states such as thoughts, desires, intentions.
and feelings. The theoretical assumption is that enhancing mentalization improves symptoms and functioning of patients with BPD (Bateman & Fonagy, 2004).

The Dutch program was conducted by a team of eight therapists with varying degrees of clinical experience, ranging from junior psychologists and social nurses to highly experienced clinical psychologists and psychotherapists. During the first two years after start of implementation, the program director (D. 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, U.K. Afterwards, the program director was appointed licensed MBT trainer in The Netherlands. All therapists were extensively educated, trained, and supervised by one of the developers of MBT (A. Bateman) and/or the appointed trainer (D. Bales).

Adherence to the MBT treatment model was monitored in several ways. First, in the daily group reflections after the group therapy, the therapists were continuously stimulated to reflect on their adherence during the session; i.e., which of their interventions had enhanced mentalizing, which interventions had not, and what would have been alternative interventions? Second, the weekly team supervision focused on case material to increase comprehension of mentalizing theory and therapist competency in working with MBT principles and the intervention spectrum. Third, on a regular basis taped sessions were assessed by supervisors at the unit using the adherence scale as described by Bateman & Fonagy (2004, 2006). During the first two years adherence was quarterly rated good to excellent (overall 83–97% positive scores) by Bateman, based on observation of group session and tapes.

OUTCOME MEASURES

Treatment outcome was measured at start of treatment (T0), six months (T1), 12 months (T2), and 18 months (T3), in the areas corresponding to the treatment goals; i.e., (1) treatment commitment; (2) symptom distress; (3) social and interpersonal functioning; (4) personality pathology and functioning; (5) suicide attempts and self-harming behavior; and (6) care consumption. Assessments were conducted by a treatment-independent research assistant, trained and employed by the Viersprong Institute for Studies on Personality Disorders (VISPD).

Treatment Commitment. As indicators for treatment commitment, we calculated drop-out and push-out percentages, average length of treatment, and average treatment attendance percentage. Drop-outs were defined as patients who prematurely ended treatment themselves, despite negative advice of the staff and intensive outreaching work aimed at (re)enhancing commitment. Push-outs were defined as patients who were discharged and thus forced to end their treatment, because of criminal activities within the unit (e.g., drug dealing).

Symptom Distress. General symptom distress was measured by the Global Severity Index (GSI) of the Symptom Checklist 90-R (SCL-90-R) question-
naire, using the 0–4 score range (Arrindell & Ettema, 2003). Depression was measured by the 21-item Beck Depression Inventory (BDI; total range 0–63; Beck, Steers, & Carbin, 1988). The EuroQol EQ-5D questionnaire was used to measure health-related quality of life. The five items of the EQ-5D refer to five dimensions: mobility, self-care usual activities, pain/discomfort, and anxiety/depression. The response to these dimensions (no problems/some or moderate problems/extreme problems or unable to) are weighed to arrive at a single index score ranging from 0.33 (worst imaginable health state) to 1.00 (best imaginable health state; Euroqol group, 1990; Lamers, McDonnell, Stalmeier, Krabbe, & Busschbach, 2006).

Social and Interpersonal Functioning. Interpersonal problems were measured using the 64-item Inventory of Interpersonal Problems-Circumflex version (IIP-C; range 0–5) (Horowitz, Alen, Wiggins, & Pincus, 2000). Two subscales of the 45-item Outcome Questionnaire (OQ-45) were used to assess dissatisfaction in interpersonal relationships and dissatisfaction in societal tasks (Lambert et al., 1996). The subscale Interpersonal Relationships consists of eleven items and has a score range of 0 to 44, while the subscale Social Role consist of nine items and has a score range of 0 to 36.

Personality Pathology and Functioning. Borderline symptomatology was measured using the Borderline Personality Disorder Severity Index (BPDSI), a semi-structured interview measuring the frequency of manifestations of the BPD diagnostic criteria over the previous three months (Arntz, 1999; Giesen-Bloo et al., 2010). Furthermore, changes in (mal)adaptive personality functioning were measured using the 118-item Severity Indices of Personality Problems (SIPP-118) questionnaire. The SIPP-118 measures 16 facets of (mal)adaptive personality functioning fitting into five higher-order domains, with lower scores reflecting more maladaptive levels of personality functioning: Self control, Identity Integration, Responsibility, Relational capacities, and Social Concordance (Verheul et al., 2008).

Suicide Attempts and Self Harming Behavior. The number of patients reporting suicide attempts and/or acts of deliberate self harm over the previous six months was measured by the semi-structured Suicide and Self Harm Inventory (SSHI; Bateman & Fonagy, 2004).

Care Consumption. The number of patients with additional treatments in general and also specifically the number of patients with psychiatric inpatient admissions during the last year before entry into day hospital MBT and during the MBT treatment was assessed by an additional set of questions (available upon request from the first author) in combination with the patients’ medical records.

STATISTICAL ANALYSIS

Statistical analyses were based on intention-to-treat-analysis and were performed using SPSS version 15.0. We used generalized estimating equation
(GEE) analyses to deal with the study design and the accompanying data structure. GEE takes into account that the same patients are repeatedly measured and uses all the available data, irrespective of the number of repeated measurements (Twisk, 2003). Within GEE, correction for the dependency of observations is performed by adding a within-subject correlation structure to the regression model. For the analyses we used an exchangeable correlation structure, which assumes correlations between subsequent measurements to be the same, irrespective of the time between the measurements. For each outcome measure from the five outcome domains, we performed a GEE analysis with as dependent variable the according continuous or categorical outcome and as independent variable three dummy variables indicating time. The baseline measurement was used as a reference category. To reduce variances attributed to nonrelevant factors we included age and gender as covariates in our analyses. The regression coefficient of each dummy variable was used to estimate the effect of the treatment between baseline and the follow-up. This regression coefficient was estimated for the average patient (i.e., with a mean age of 30.1, and 71.1% chance of female gender). Cohen’s effect sizes (Cohen, 1988) were calculated for the difference in the continuous outcome measures between baseline and the last measurement (T3). P-values < 0.05 were considered significant.

DATA COMPLETENESS

Data on treatment attendance and psychiatric inpatient admissions were collected in all study participants. Follow-up data for the other outcome measures were available for 34 patients (75.6%). Six (13.3%) of the 11 patients without follow-up data refused to participate in any of the measurements or did not or only partially return the assessment booklets, while the remaining five patients (11.1%) did not yet reach one of the follow-up measurement moments. Although follow-up data were far from complete, there appeared to be no differences between patients with follow-up data and those without regarding their baseline characteristics. Furthermore, to check the robustness of the longitudinal statistical analyses, we repeated the GEE analysis in patients with follow-up data only. The results of these sensitivity analyses were almost identical (change in effect size < 10%) to results of the complete patient sample (n = 45), thereby suggesting that the missing data were missing at random. We therefore included all 45 patients in the outcome analyses.

RESULTS

Treatment Commitment. Four patients (8.9%) prematurely dropped out of the program between 11 and 15 months after start of treatment. Three patients (6.6%) were discharged (at 4, 7, and 13 months) because of criminal activities within the MBT unit (i.e., repeatedly using and selling drugs at the day hospital, carrying a gun in group therapy, physical assault of a therapist). All seven patients (four drop-outs; three push-outs) were included in the outcome analyses. The average length of treatment was 15.3 months (SD 3.8;
### Table 1: Treatment Outcome of MBT at Baseline, and 6, 12, and 18 Months after Treatment in the Symptomatic, Social and Interpersonal, and Personality Domains

<table>
<thead>
<tr>
<th>Domain</th>
<th>T0 start</th>
<th>T1 6 months</th>
<th>T2 12 months</th>
<th>T3 18 months</th>
<th>Effect size</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Symptomatic functioning</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Symptom distress (SCL-90)</td>
<td>1.73</td>
<td>1.60</td>
<td>1.37</td>
<td>0.79</td>
<td></td>
</tr>
<tr>
<td>Depression (BDI)</td>
<td>0.68</td>
<td>0.79</td>
<td>0.95</td>
<td>0.60</td>
<td></td>
</tr>
<tr>
<td>Quality of life (EQ-5D)</td>
<td>26.98</td>
<td>25.25</td>
<td>20.49</td>
<td>14.55</td>
<td></td>
</tr>
<tr>
<td><strong>Social and interpersonal</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Interpersonal problems (IIP)</td>
<td>3.05</td>
<td>2.96</td>
<td>2.69</td>
<td>2.42</td>
<td></td>
</tr>
<tr>
<td>Dissatisfaction in interpersonal relations (OQ)</td>
<td>0.46</td>
<td>0.39</td>
<td>0.39</td>
<td>0.59</td>
<td></td>
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<tr>
<td>Dissatisfaction in social role (OQ)</td>
<td>2.41</td>
<td>2.69</td>
<td>2.69</td>
<td>2.42</td>
<td></td>
</tr>
<tr>
<td><strong>Personality functioning</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Borderline symptomatology (BPDSI)</td>
<td>31.31</td>
<td>2.96</td>
<td>4.51</td>
<td>20.51</td>
<td></td>
</tr>
<tr>
<td>Self control (SIPP)</td>
<td>8.13</td>
<td>0.76</td>
<td>1.32</td>
<td>1.62</td>
<td></td>
</tr>
<tr>
<td>Identity integration (SIPP)</td>
<td>3.73</td>
<td>3.96</td>
<td>4.51</td>
<td>5.00</td>
<td></td>
</tr>
<tr>
<td>Responsibility (SIPP)</td>
<td>8.67</td>
<td>2.96</td>
<td>2.96</td>
<td>4.31</td>
<td></td>
</tr>
<tr>
<td>Relational functioning (SIPP)</td>
<td>3.73</td>
<td>3.17</td>
<td>3.75</td>
<td>4.13</td>
<td></td>
</tr>
<tr>
<td>Social concordance (SIPP)</td>
<td>1.23</td>
<td>1.14</td>
<td>1.14</td>
<td>0.97</td>
<td></td>
</tr>
</tbody>
</table>

**Notes.** T0 = start of treatment; T1 = 6 months after start of treatment; T2 = 12 months after start of treatment; T3 = 18 months after start of treatment. M = observed mean; SD = observed standard deviation; β = estimate T1/T2/T3 compared to baseline (T0); SE = standard error; 95% CI = 95% Confidence Interval. β = significance of change between respectively T1-T0; T2-T0; T3-T0; EQ = EuroQol EQ-5D; SCL-90: Symptom CheckList-90; BDI: Beck Depression Inventory; IIP: Inventory of Interpersonal problems; OQ: Outcome Questionnaire; BPDSI: Borderline Personality Disorder Severity Index; SIPP: Severity Indices of Personality Problems. *p < 0.05; **p < 0.01; ***p < 0.001.
range 4–18 months) for the 33 patients who had finished their treatment at the moment of analysis. The average attendance rate was 63.5% (SD 16.6%; range 26.7%–97.6%).

**Symptom Distress.** As shown in Table 1, quality of life, general symptom distress, and depression all improved significantly during 18 months of treatment, with statistically significant improvement starting 12 months after start of treatment. Effect sizes ranged from 0.68 to 1.26, which can be interpreted as moderate to large effects.

**Social and Interpersonal Functioning.** Interpersonal problems, interpersonal relations, and social role functioning all improved within 18 months of treatment (see Table 1), with statistically significant improvement starting 12 months after start of treatment. Effect sizes ranged from 0.81 to 1.36, which can be interpreted as large effects.

**Personality Pathology and Functioning.** Borderline symptomatology improved significantly 18 months after start of treatment. Furthermore, identity integration and social concordance started to improve significantly within the first six months of treatment, whereas self control, responsibility, and relational functioning started to improve after 12 months of treatment (see Table 1). Effect sizes ranged from 1.23 to 1.74, which can be interpreted as large to very large effects.

**Suicide Attempt and Self-Harming Behavior.** No suicides occurred during treatment in the study population. One patient committed suicide four months after dropping out of treatment. As shown in Figure 2, the percentages of patients reporting at least one suicide attempt were 31.7% for T0 (with 1.9 as the average number of attempts, range 1–5), 14.7% for T1 (with 1 as the maximum number of attempts per patient), 0% for T2, and 6% for T3 (with 1 as the maximum number of attempts per patient). In the GEE model, the decline of the number of suicide attempts for the study population was statistically significant for all three follow-ups; i.e., for six months (Beta = -1.40, standard error = 0.52, \( p < 0.01 \)), 12 months (Beta = -9.16, standard error = 1.52, \( p < 0.001 \)), and 18 months (Beta = -2.18, standard error = 0.90, \( p < 0.05 \)).

Figure 2 also shows the percentages of patients reporting at least one act of self-harming behavior; i.e., 51.2% for T0 (average number of self-harm acts 17.9; range 1–90), 32.4% for T1 (average number of self-harm acts 6.5; range 1–25), 15.8% for T2 (average number of self-harm acts 3.0; range 1–7), and 19% for T3 (average number of self-harm acts 3.0; range 1–5). Similar to the GEE model for the number of suicide attempts, the decline of the number of self-harming acts for the study population was statistically significant for all three follow-ups in the GEE model; i.e., for six months (Beta = -1.17, standard error = 0.37, \( p < 0.01 \)), 12 months (Beta = -2.19, standard error = 0.30, \( p < 0.001 \)), and 18 months (Beta = -2.48, standard error = 0.47, \( p < 0.001 \)).
The percentage of patients reporting additional treatments decreased from 64.3% at start of treatment to 13.3% at T1, 16.7% at T2, and 15.8% at T3, respectively. In the GEE model, this decline was statistically significant for all three follow-ups; i.e., after six months (B = -2.78, standard error = 1.07, \( p < 0.01 \)), 12 months (B = 2.35, standard error = 0.67, \( p < 0.001 \)), and 18 months (B = 2.45, standard error = 0.70, \( p < 0.001 \)). The percentage of patients with psychiatric inpatient admissions in the past six months decreased from 35.6% at start of treatment to 9.8% at T1, 7.7% at T2, and 3.0% at T1. In the GEE model, this decline was statistically significant for all three follow-ups; i.e., after six months (Beta = -1.82, standard error = 0.65, \( p < 0.01 \)), 12 months (Beta = -3.21, standard error = 1.26, \( p < 0.05 \)), and 18 months (Beta = -3.07, standard error = 1.20, \( p < 0.05 \)).

**DISCUSSION**

**SUMMARY OF FINDINGS**

This prospective cohort study in a clinical population of Dutch patients with severe BPD is the first to show that manualized day hospital MBT can be effectively implemented by an independent institute in a naturalistic setting outside the UK. The findings are of considerable interest because they prove MBT to be applicable in this target population consisting of patients with severe BPD and psychiatric multi-morbidity, most of whom had a history of unsuccessful treatment(s). No exclusion criteria other than schizophrenia or intellectual impairment were applied.
Positive results are reported with respect to all treatment goals. First, as only 15.5% of the patients prematurely left treatment (8.9% drop-outs, and 6.6% push-outs), it is reasonable to conclude that the vast majority of patients were effectively engaged in treatment. This conclusion is supported by an average treatment attendance of 63.5%. In our clinical experience, such drop/out and attendance figures can be considered favorable for this particular population, as multiple clinical characteristics promote nonattendance (e.g., high severity of BPD, lack of motivation, high prevalence of psychiatric comorbidity especially in terms of substance use disorders). Second, symptom distress, personality pathology and functioning, and social and interpersonal functioning all improved significantly within 18 months, mostly with large to very large effect sizes. Remarkably, the highest effect size was found for identity integration. This variable is relatively closely associated with the treatment’s focus on enhancing the patient’s mentalizing capacity, thereby lending suggestive support for the treatment’s working mechanisms. Third, all patients showed a significant decrease in suicidal and self harm acts. Finally, we observed a significant decrease in patients receiving additional treatments and in complementary psychiatric hospitalizations. Hence, this cohort study as well as the original UK trial (Bateman & Fonagy, 1999) both report significantly positive results on all outcome measures, strengthening the confidence that manualized day hospital MBT is an effective treatment for patients with severe BPD.

STRENGTHS AND LIMITATIONS

A major strength of the present study is its external validity and clinical utility: it was conducted in regular clinical practice, in a naturalistic setting outside the UK, the results were based on intention-to-treat analyses, and the study included severe borderline patients with a high level of psychiatric multi-morbidity. There were no exclusion criteria except for schizophrenia and intellectual impairment. This is in contrast with several other studies (e.g., Clarkin, Levy, Lenzenweger, & Kernberg, 2004; Giesen-Bloo et al., 2006; Linehan, Armstrong, Suarez, Allmon, & Heard, 1991; Ryle & Golynkina, 2000; Verheul, van den Bosch, Koeter et al., 2003) in which outcomes are possibly optimized by excluding many of the most severe borderline patients, such as patients with co-morbid substance use disorders, paranoid or antisocial personality disorders. Reported results of those studies can be generalized to a (possibly better-functioning) selection of the total BPD population, whereas the current study likely has greater generalizability. Post-hoc analyses on BPD patients with co-morbid ASP and/or PPD revealed that these subgroups benefited at least as much as the other BPD patients. Another strength is the size of the effects. Reported effect sizes range from 0.7 to 1.7. It should be noted that these estimates can be considered conservative, since the first time of measurement was at start of treatment, and not at the initial time of the intake procedure. In between, patients may have benefited from the expectation to benefit from treatment as well as some of them from pre-treatment interventions such as an introduction to MBT, an explicit mental-
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izing course, low-frequent individual sessions starting crisis planning, and working on commitment issues.

Our study also has several limitations. First, in contrast to the UK study, our study lacked a control group, limiting the possibilities to draw conclusions about the efficacy of day hospital MBT. Second, the modest sample size and the considerable sample loss over the follow-up period. This concern is somewhat mitigated by the finding that the sensitivity analyses indicate a nonresponse pattern characterized by missings at random, thereby suggesting the results from the GEE analyses to be robust and the generalizability unthreatened. A third limitation is that our assessment battery did not include a direct measurement for mentalization, thereby limiting the possibilities to explain the mechanisms of change in MBT. However, it is interesting to note that our patients did not only show symptomatic improvement, but that the highest effects sizes were reported within the personality functioning domain, especially regarding identity integration and self-control, with effect sizes greater than 1.5. Possibly, the combination of symptomatic and more structural improvement can be viewed as tentative and indirect evidence for a positive change in mentalizing capacity.

FUTURE DIRECTIONS

In previous follow-up studies of MBT a remarkable finding was that the treatment benefits were observed to increase in the follow-up period (Bateman & Fonagy, 2001, 2009) rather than, as typically occurs, remaining at the same level or even decreasing (cf. Levy, 2008). We are currently investigating whether or not this favorable course after the 18-month day hospital treatment episode, as observed in the UK study, will also hold for the Dutch sample. Because of its high intensity and dosage, day hospital MBT is a relatively costly treatment. Recently, Bateman and Fonagy (2009) have shown a less intensive variant of MBT; i.e., intensive outpatient (IOP) MBT, to be effective. However, we have compared the two samples and discovered a large difference in symptom severity at baseline (i.e., approximately one standard deviation on the SCL-90). It will be important to investigate and identify the optimal dosage in BPD or in subgroups of BPD patients. We recently started a RCT comparing the (cost-)effectiveness of day hospital MBT and intensive outpatient MBT. Furthermore, future research should address treatment processes and effective ingredients of treatment. For example, the focus on stimulating attachment to the therapist, while at the same time asking patients to maintain mentalizing capacity, has been pointed to as (one of) the key element(s) in effective treatments of BPD (Choi-Kan & Gunderson, 2008; Fonagy & Bateman, 2007), but as yet there is no direct empirical support in favor of this theoretical claim. Further research is needed to evaluate the improvement of mentalizing capacity as mechanism of change in MBT as well as other possible important elements contributing to the effectiveness of MBT such as the substantial amount of outreaching work, the consistent application of a coherent theoretical framework, the avoidance of iatrogenic effects, and the intensity and duration of treatment (Bateman & Fonagy, 2000; De Groot, Verheul, & Trijsburg, 2008; Fonagy & Bateman,
2007; Verheul & Herbrink, 2007). The search for patient characteristics that influence treatment outcome, mechanisms of change, and key elements of effective treatments (including intensity) may all help to tailor treatments to individual patients and may thereby lead to more cost-effective treatments (cf. Fonagy & Bateman, 2007).

In conclusion, this study shows that manualized day hospital MBT can be effectively disseminated in other settings and countries, and yields support for the clinical effectiveness of MBT in patients with severe BPD and a high degree of psychiatric multi-morbidity. Our findings might stimulate clinicians and researchers to stretch the boundaries of psychotherapy even further, by including borderline patients with relatively high levels of comorbidity of severe mental disorders such as substance use disorders, and paranoid and antisocial personality disorder.

REFERENCES


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